

From: Painter, Cristi L -FS
Sent: 8 Sep 2017 16:26:20 +0000
To: McDonald, Peter M -FS
Subject: RE: population trend for 2017

I appreciate your input. I was just on the phone with Steve starting this conversation and what comes next. I just want to make sure we try and do what we can within the bounds of what we have to work with, and hopefully not impact the plover population further.

The pdog acreage on the chart were estimates based on input we had from TBGPEA. I haven't mapped pdogs since 2015, and I was planning on mapping in 2018. It wasn't cost effective in my opinion to map every year, so TBGPEA and others freaked out and hired a contractor. I had to take out what they did on private, and they didn't map the whole grassland, so it was a bit of a swag based on solid data I had, and some less solid data from them. But the rangers wanted me to include it with our data, so I did the best I could with what I had. I don't feel super confident about the number since I couldn't ground truth any of it, and it didn't include the whole grassland, but..... what can I do.



Cristi Painter
Wildlife Biologist

Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger District

p: 307-358-7132

f: 307-358-7107

cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633

www.fs.fed.us



Caring for the land and serving people

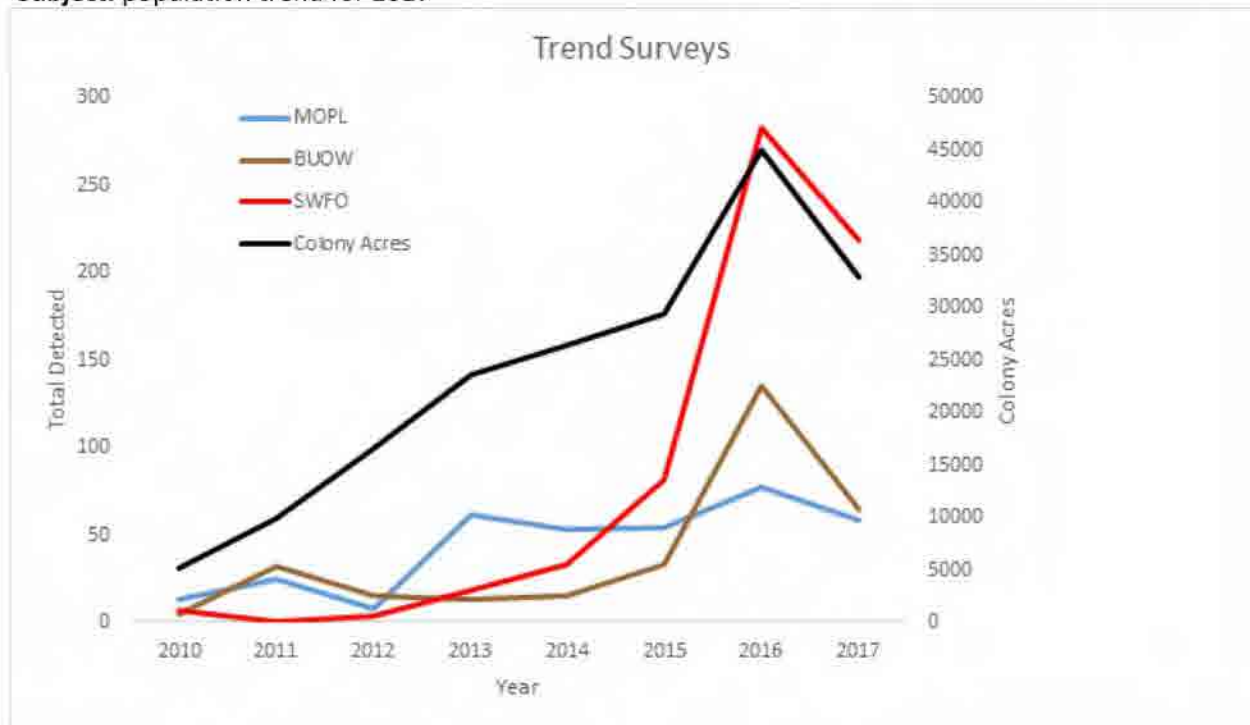
From: McDonald, Peter M -FS
Sent: Friday, September 08, 2017 10:10 AM
To: Painter, Cristi L -FS <cpainter@fs.fed.us>; Kozlowski, Steve -FS <skozlowski@fs.fed.us>
Subject: RE: population trend for 2017

Hi Cristi, sorry I have been distracted with some other issues and a little travel. Yes there does seem to be a striking similarity in the trends of prairie dogs and associated species. There could be several factors at play here but we have seen with Conata Basin a similar sort of "build it and they will come" linear response of the black-footed ferret population and other species as the prairie dog acreage increased or decreased. The other question is at what point are we likely going below some threshold by which viability of these species is compromised should the downturns continue. This would be the next look and trying to put these numbers in some greater context. The reality with management of prairie dog complexes on the national grasslands is that we try to balance providing for the viability responsibilities with being a good neighbor and minimizing encroachment of prairie dogs onto adjacent lands. So we are perpetually trying to find that sweet spot which can be different from one unit to the next.

I was a little surprised at the prairie dog acreage in the chart. The numbers seem considerable higher the last couple years than I thought I was hearing from you but maybe I misunderstood.
Peter

From: Painter, Cristi L -FS
Sent: Tuesday, August 29, 2017 9:22 AM

To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>; Kozlowski, Steve -FS <skozlowski@fs.fed.us>
Subject: population trend for 2017



I am pretty sure you can interpret this without my assistance.



Cristi Painter
Wildlife Biologist

Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger District

p: 307-358-7132

f: 307-358-7107

cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633

www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: 18 Apr 2018 22:13:39 +0000
To: Rice, Richard - FS
Cc: Bierman, Sylvia (Clark)- FS;Truex, Richard -FS
Subject: Re: REPLY DUE - New Deputy Regional Forester Brief
Attachments: image001.png, image002.png, image003.png, image004.png, image005.png, image006.png, image007.png, image008.png

I've found lately that trying to contribute something on prairie dogs and TBNG is not productive time for me these days. I am curious who did the grizzly bear write-up.

Peter

Sent from my iPad

On Apr 18, 2018, at 3:57 PM, Rice, Richard - FS <rrice@fs.fed.us> wrote:

My edits are in blue. Rick and Peter will most definitely want to review, edit and/or omit my comments.

<image001.png> **Dwayne Rice**
> **Range Program Leader**
Forest Service
Rocky Mountain Regional Office
p: 303-275-5100
f: 303-275-5075
rrice@fs.fed.us
1617 Cole Blvd, Building 17
Lakewood, CO 80401
www.fs.fed.us
<image002.png><image003.png><image004.png>
Caring for the land and serving people

From: Bierman, Sylvia (Clark)- FS
Sent: Wednesday, April 18, 2018 7:38 AM
To: Rice, Richard - FS <rrice@fs.fed.us>
Subject: FW: REPLY DUE - New Deputy Regional Forester Brief
Importance: High

Dwayne –

I need you to update this paper with issues as it relates to range. Work with Rick on the Bighorn Sheep section. Also need a section on drought and the prairie dog issue on the TBNG.

Need this by this afternoon – to compile and give to Steve to review before we submit.
Thanks!

<image005.png> **Sylvia Clark Bierman**
Deputy Director of Renewable Resources
Forest Service
Rocky Mountain Region
p: 303-275-5002

c: 303-304-0948
sbierman@fs.fed.us

1617 Cole Blvd. Bldg 17
Lakewood, CO 80401
www.fs.fed.us

<image006.png><image007.png><image008.png>

Caring for the land and serving people

From: Ratzlaff, Jace I -FS

Sent: Thursday, April 12, 2018 2:47 PM

To: Lohr, Steve -FS <slohr@fs.fed.us>; Bierman, Sylvia (Clark)- FS <sbierman@fs.fed.us>

Cc: Sorkin, Jeff A -FS <jasorkin@fs.fed.us>

Subject: REPLY DUE - April 19, 2018 Renewable Resources

Good afternoon,

We are in the process of updating the transition book for the new DRF that will be arriving soon. Will you please take a look at what your program area submitted for the last transition book, and provide updated text. Please return your updated document to **Jeff Sorkin by April 19, 2018**. Thank you in advance for your help and assistance.

<image001.png> **Jace Ratzlaff**
> **Legislative Affairs & SRS Coordinator**

Forest Service
Rocky Mountain Region (R2)

p: 303-275-5357

c: 719-469-1254

f: 303-275-5366

jratzlaff@fs.fed.us

1617 Cole Boulevard (Bldg. 17)
Lakewood, CO 80401

www.fs.fed.us

<image002.png><image003.png><image004.png>

Caring for the land and serving people

USDA – Growing Better Together

<Renewable Resources.docx>



From: McDonald, Peter M -FS
Sent: 30 Jul 2018 23:11:18 +0000
To: Rice, Richard - FS; Lohr, Steve -FS
Subject: RE: Research Proposal

David used to work for us on the Comanche NG and has a strong passion for the grasslands and developing new science to inform the management. Judging from his summary at least (he sent the wrong proposal), this one looks to be ripped from the headlines and could be very timely given a potential revisit of the TBNG prairie dog management plan. I expect the proposal is a solid one though it would have been helpful to see it a little sooner and provide feedback from a manager perspective, particularly in light of Dwayne's comments. Maybe he got some of that from others in R2. But as I say David has relevant background and should have a decent sense of grassland and prairie dog management science needs. I could agree to help them with a letter of support.
Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service

Rocky Mountain Region

www.fs.usda.gov/detailfull/r2/home/?cid=stelprdb5261599&width=full

p: 303-275-5029

c: 303-475-3515

petermcdonald@fs.fed.us

1617 Cole Boulevard, Bldg 17

Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: Rice, Richard - FS
Sent: Monday, July 30, 2018 4:42 PM
To: Lohr, Steve -FS <slahr@fs.fed.us>; McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: RE: Research Proposal

Steve and Peter,

I would be supportive of such a study especially as it is concerned with soil health and biodiversity (flora and fauna?) as well as trying to address stabilize the prairie dog boom/bust issues.

I would be interested in learning how to manage the plant communities (inside and outside of the dog towns) as they can be described in the State and Transition model of the Ecological Site Descriptions and referenced to soil maps.

I am also very interested to understand the positive and negative aspects of how prairie dog towns and their related, maintained plant community affect livestock production.



Dwayne Rice
Range Program Leader

Forest Service

Rocky Mountain Regional Office

p: 303-275-5100

f: 303-275-5075

rrice@fs.fed.us

1617 Cole Blvd, Building 17

Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: Lohr, Steve -FS

Sent: Monday, July 30, 2018 1:59 PM

To: Rice, Richard - FS <rrice@fs.fed.us>; McDonald, Peter M -FS <petermcdonald@fs.fed.us>

Subject: FW: Research Proposal

Dwayne/Peter-

See the email below. This is a ARS researcher looking for a letter of support. The research seems to ask some of the questions that we need answers to. He is wanting us to provide a letter of support.

Do you all have any thoughts?

Thanks-



Steve Lohr
Director of Renewable Resources

Forest Service
Rocky Mountain Region

p: 303-275-5014

c: 303-242-7675

f: 303-275-5075

slohr@fs.fed.us

1617 Cole Boulevard, Building 17

Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: Augustine, David

Sent: Monday, July 30, 2018 1:53 PM

To: Lohr, Steve -FS <slohr@fs.fed.us>

Cc: Davidson, Ana (b) (6)

Subject: RE: Research Proposal

Here is some draft text:

This is a letter of enthusiastic support of the proposed research, "Understanding how to manage prairie dog population dynamics in the context of plague, climate, and livestock production". Over the past decade, the USDA-Forest Service, USDA-ARS, and scientists at Colorado State University have been collaborating on research related to the management of wildlife and livestock on the National Grasslands within Region 2. This project proposed by Davidson et al. addresses one of the most central questions we face in our system: how to manage prairie dog populations to minimize impacts to livestock production and promote grassland biodiversity conservation. The USDA-Forest Service recognizes that boom-bust cycles of prairie dogs are likely to challenge National Grassland managers into the foreseeable future, and that innovative decision support tools are needed to help evaluate and compare the efficacy and associated costs of various management alternatives.

Using a suite of already-collected data and on-going measurements on the Thunder Basin National Grassland, the Central Plains Experimental Range, and the Pawnee

National Grassland, the proposed work will synthetically model interactions among prairie dog populations, plague outbreaks, climate variability, biodiversity, soil health, and livestock production over space and time to inform rangeland management. This work will support more effective management our National Grasslands across the western Great Plains, and will provide a model structure that is specifically parameterized for two National Grasslands where prairie dog management is of particularly significant concern.

If you have any questions about the proposal, my number is below, and a draft version of the proposal is attached here. I also included Ana Davidson, who will be the PI for the proposal, on this email.

Do you think it would be possible to get a letter by tomorrow, so that we can submit on Wednesday?

Thanks,

David Augustine

David Augustine

Research Ecologist

Rangeland Resources and Systems Research Unit

USDA-ARS

1701 Centre Ave.

Fort Collins, CO 80526

970-492-7125

From: Lohr, Steve -FS

Sent: Friday, July 27, 2018 3:23 PM

To: Augustine, David <David.Augustine@ARS.USDA.GOV>

Subject: RE: Research Proposal

I should be able to turn it around. Thanks.



Steve Lohr
Director of Renewable Resources

Forest Service
Rocky Mountain Region

p: 303-275-5014

c: 303-242-7675

f: 303-275-5075

slohr@fs.fed.us

1617 Cole Boulevard, Building 17

Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: Augustine, David

Sent: Friday, July 27, 2018 3:14 PM

To: Lohr, Steve -FS <slohr@fs.fed.us>

Cc: Davidson, Ana (b) (6)

Subject: RE: Research Proposal

Hi Steve-

We will be working on the proposal through the weekend, and early next week. It is due to USDA-NIFA next Wednesday. If we provide a draft letter of support, do you think you would be able to revise and sign it early next week? If you would like to discuss the proposal over the phone first, or see more details, could we do that Monday afternoon?

David

From: Augustine, David

Sent: Tuesday, July 24, 2018 1:50 PM

To: Lohr, Steve -FS <slohr@fs.fed.us>; Bierman, Sylvia (Clark)- FS <sbierman@fs.fed.us>

Subject: RE: Research Proposal

Steve-

Here is a project summary:

We propose to investigate how ecological, social, and climate variables drive prairie dog population dynamics over time and space, and use this information to develop a predictive model and decision support tool that will inform best practices for rangeland management to promote livestock production and grassland conservation. Leveraging extensive existing data sets, we will harness the power of machine-learning and model-based inference to infer functional linkages among multiple key components of our focal rangeland ecosystems. Using this parameterized ecosystem model, we will simulate the cascading effects of alternative management strategies on three critical ecosystem services: biodiversity, soil health, and livestock production. Our approach will provide a powerful opportunity to capitalize on a suite of multi-decadal data on prairie dog populations, climate, plants, and other animals that our team and collaborators have already collected to address critical questions facing western rangelands. These data primarily comprise 1) two intensively-studied, long-term research sites, Thunder Basin National Grassland (TBNG) in Wyoming and Central Plains Experimental Range (CPER) and adjacent Pawnee National Grassland (PNG) in Colorado; and 2) a suite of additional, less-intensively studied sites across the geographic range of black-tailed prairie dogs. TBNG and CPER/PNG are model systems for studying these questions in a working landscape because they occur in the two dominant ecoregions within the BTPD range and provide a rich source of data that we will continue to collect during this study. These data will be complemented with similar range-wide data to provide more powerful and generalizable understanding of this system. Results from our work will have broader implications for the prairie dog-plague-livestock system across the Great Plains, as well as for understanding how management efforts of lethal control, disease control, and population augmentation can influence wildlife population dynamics and their long-term stability in complex ecological and social landscapes.

Let me know if you have questions!

David

From: Lohr, Steve -FS

Sent: Tuesday, July 24, 2018 9:26 AM

To: Augustine, David <David.Augustine@ARS.USDA.GOV>; Bierman, Sylvia (Clark)- FS <sbierman@fs.fed.us>

Subject: RE: Research Proposal

Sure thing David. If you could send a bit more details on the proposal that would be great. Once we have had the chance to review it let's set up a call to discuss.

Thanks-



Steve Lohr
Director of Renewable Resources

Forest Service
Rocky Mountain Region

p: 303-275-5014

c: 303-242-7675

f: 303-275-5075

slohr@fs.fed.us

1617 Cole Boulevard, Building 17
Lakewood, CO 80401



From: Augustine, David

Sent: Tuesday, July 24, 2018 9:04 AM

To: Lohr, Steve -FS <slohr@fs.fed.us>; Bierman, Sylvia (Clark)- FS <sbierman@fs.fed.us>

Subject: RE: Research Proposal

Steve-

Would you potentially be able to provide a letter of support for the proposal outlined below, if I could provide you with more details? Would a short phone call with you and/or Sylvia be possible?

David

David Augustine

Research Ecologist

Rangeland Resources and Systems Research Unit

USDA-ARS

1701 Centre Ave.

Fort Collins, CO 80526

970-492-7125

From: Mountain, Bob -FS

Sent: Tuesday, July 17, 2018 9:54 AM

To: Augustine, David <David.Augustine@ARS.USDA.GOV>; Lohr, Steve -FS <slohr@fs.fed.us>; Bierman, Sylvia (Clark)- FS <sbierman@fs.fed.us>

Cc: Bacon, Russell M -FS <rmbacon@fs.fed.us>; Youngman, Curtis -FS <cyoungman@fs.fed.us>;

Proctor, Geri A -FS <gproctor@fs.fed.us>; Magnuson, Stephanie - FS <smagnuson@fs.fed.us>

Subject: RE: Research Proposal

David – good to hear from you! Hope things are good with you.

Since your proposal involves both grasslands, and both states, I might suggest you contact Steve Lohr in the Denver Regional Office for reviewing the project proposal and providing a letter of support. Steve is the Director of Renewable Resources, and Sylvia is the Deputy Director.

Hope your summer is going well. Please let me know if I can follow up in some way. Thanks! mtn

Bob Mountain

W. O. National Grasslands Coordinator

Grazing Permit Administration

Rangeland Management Specialist

^/^^^ 307-745-2411

From: Augustine, David

Sent: Tuesday, July 17, 2018 8:48 AM

To: Mountain, Bob -FS <bmountain@fs.fed.us>

Cc: Davidson, Ana (b) (6)

Subject: Research Proposal

Bob-

I am working with a team of scientists on a proposal for USDA-NIFA, in which we propose to develop a suite of linked models that will simulate/predict:

- 1) Effects of climate and plague on prairie dogs
- 2) Effects of pdogs on forage production

3) Interactive effects of climate, pdogs, management decisions (poisoning in varying locations and times), and cattle rotation patterns on forage and livestock production

We propose to use data from CPER/Pawnee and Thunder Basin to parameterize these models, in the hopes of making them directly relevant to management of these 2 National Grasslands. I am wondering if the USFS could provide a letter of support for this proposal, but wasn't sure who to contact. I have been working with Curtis Youngman and Stephanie Magnusen on Pawnees, but the Thunder Basin office seems to be exceedingly short-staffed. Would it be possible to get a letter of support from you that would cover the interests of both Grasslands?

David

David Augustine

Research Ecologist

Rangeland Resources and Systems Research Unit

USDA-ARS

1701 Centre Ave.

Fort Collins, CO 80526

970-492-7125

From: Kozlowski, Steve -FS
Sent: 2 May 2019 16:15:02 +0000
To: McDonald, Peter M -FS
Subject: RE: Review Main Elements of Grassland Plan Amendment

If you review the handouts you will be up to speed. Let me know if you have any questions. Thanks,
Steve



Steve Kozlowski
Wildlife Biologist
Resource Team Leader (RTL) for Wildlife, Botany, and Fish
Medicine Bow and Routt National Forests, Thunder Basin National Grassland
p: 307-745-2343
c: 559-972-1934
Steve.Kozlowski@usda.gov

From: McDonald, Peter M -FS
Sent: Thursday, May 2, 2019 9:50 AM
To: Kozlowski, Steve -FS <steve.kozlowski@usda.gov>
Subject: Re: Review Main Elements of Grassland Plan Amendment

Steve not sure where you want to go from here. I gave a couple options for connecting based on my schedule. Let me know how you want to proceed at this point.
Peter

----- Original Message -----

From: "Kozlowski, Steve -FS" <steve.kozlowski@usda.gov>
Date: Thu, May 2, 2019, 8:04 AM
To: "McDonald, Peter M -FS" <petermcdonald@fs.fed.us>
Subject: RE: Review Main Elements of Grassland Plan Amendment

Thanks for responding Peter, our meeting can certainly wait but I will not be available next Monday through Wednesday and am in a meeting Today until about 3. My intent was just to have some discussion and see where it leads. I have attached two documents to this email.

1. 10 main points of grassland plan amendment (best laid out, succinct, latest version).
2. 20 changes to GPA (more thorough, but laid out in the order of the Forest Plan, so not necessarily in order of "important to know") A little bit older version but still accurate and includes additional details.
3. I should clarify that the points in these documents tie directly to specific Standard and Guideline changes, but I simplified the wording for easier reading.

Enjoy, Steve



Steve Kozlowski
Wildlife Biologist
Resource Team Leader (RTL) for Wildlife, Botany, and Fish

Medicine Bow and Routt National Forests, Thunder Basin National Grassland

p: 307-745-2343

c: 559-972-1934

Steve.Kozlowski@usda.gov

-----Original Appointment-----

From: McDonald, Peter M -FS

Sent: Wednesday, May 1, 2019 5:22 PM

To: Kozlowski, Steve -FS

Subject: Tentative: Review Main Elements of Grassland Plan Amendment

When: Wednesday, May 1, 2019 2:00 PM-3:00 PM (UTC-07:00) Mountain Time (US & Canada).

Where: phone call

Steve, I am in meetings all week through Friday morning. Can it wait until I'm back in the office on Monday? If we need to talk sooner, it would need to be over lunchtime tomorrow (Thursday) or Friday afternoon.

Peter

From: Prosser, Chadley W -FS
Sent: 25 Mar 2019 15:41:36 +0000
To: McDonald, Peter M -FS
Subject: RE: Summary of Prairie dog petitions_side112408.doc

I have access to the sharepoint, but not to this pinyon site
(<https://usfs.app.box.com/folder/40809408265>).

From: McDonald, Peter M -FS
Sent: Monday, March 25, 2019 10:33 AM
To: Prosser, Chadley W -FS <cwprosser@fs.fed.us>
Subject: RE: Summary of Prairie dog petitions_side112408.doc

Which Pinyon folder was that? Or was it sharepoint?



Peter McDonald
Program Leader
Threatened, Endangered and Sensitive Species

Forest Service

Rocky Mountain Region (Region 2)

www.fs.usda.gov/detailfull/r2/home/?cid=stelprdb5261599&width=full

p: 303-275-5029

c: 303-475-3515

peter.mcdonald@usda.gov

1617 Cole Boulevard, Bldg 17

Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: Prosser, Chadley W -FS
Sent: Monday, March 25, 2019 9:00 AM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: RE: Summary of Prairie dog petitions_side112408.doc

Thanks Peter.

From: McDonald, Peter M -FS
Sent: Monday, March 25, 2019 9:59 AM
To: Prosser, Chadley W -FS <cwprosser@fs.fed.us>
Subject: RE: Summary of Prairie dog petitions_side112408.doc

Hi Chad, no this was John's product and it hasn't been kept up over time. You can go to the Fish and Wildlife Service's ECOS website to get the history of their actions in the Federal Register related to the BTPD, including findings of petition reviews:

<https://ecos.fws.gov/ecp0/profile/speciesProfile?sId=164>. It looks like they reviewed another one in 2008.

There have also been a couple petitions each in the past on white-tailed and Gunnison's prairie dogs: <https://ecos.fws.gov/ecp0/profile/speciesProfile?sId=7401> and <https://ecos.fws.gov/ecp0/profile/speciesProfile?sId=7256>. WTPDs don't occur on Thunder Basin, but are found nearby in Wyoming. Gunnison's are more toward the southwest. Sharing these too as I think cumulatively adds to the picture of scope of public interest about the prairie dog across its range from a species status concern.



Peter McDonald
Program Leader
Threatened, Endangered and Sensitive Species

Forest Service
Rocky Mountain Region (Region 2)

www.fs.usda.gov/detailfull/r2/home/?cid=stelpdb5261599&width=full

p: 303-275-5029

c: 303-475-3515

peter.mcdonald@usda.gov

1617 Cole Boulevard, Bldg 17

Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: Prosser, Chadley W -FS
Sent: Monday, March 25, 2019 8:28 AM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: Summary of Prairie dog petitions_sidle112408.doc

Good morning Peter –

Do you have an updated version of the attached document? Unfortunately, I don't have access to the pinyon folder that you sent the other week to see if it was in there.

Thank you - Chad

From: Lohr, Steve -FS
Sent: 8 Mar 2017 18:37:47 +0000
To: McDonald, Peter M -FS
Subject: Re: Suspension of Prairie Dog Shooting Restrictions

I had a discussion with Jacque on this and the situation is complicated. I will give you a call later to bring you up to speed.

Thanks.

Sent from my iPhone

On Mar 8, 2017, at 10:29 AM, McDonald, Peter M -FS <petermcdonald@fs.fed.us> wrote:

Thanks Steve, I hope there can be some follow-up with the forest. I'm very disappointed there wasn't better coordination with the RO ahead of time, that I'm aware of anyway. And I struggle to understand how Dennis reconciles this with the land management plan direction and priorities for the management area. It seems there could have been a middle ground, provide some shooting via a partial lifting of the ban on the dogs outside the 3.363 that struck a more sensible middle ground. Something we could have talked through before this decision but did not have that opportunity. The prairie dog management at Thunder Basin has a long history of close coordination between the forest, district, and Region so this is a really unusual and unfortunate departure.

Peter

From: Lohr, Steve -FS
Sent: Wednesday, March 08, 2017 10:05 AM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: Re: Suspension of Prairie Dog Shooting Restrictions

Peter

Thanks for the note. I was totally in the dark on this. I will check in with Jacque and see what the deal is.

Thanks.

Sent from my iPhone

On Mar 8, 2017, at 9:00 AM, McDonald, Peter M -FS <petermcdonald@fs.fed.us> wrote:

Thanks Chelsea, were you or the district consulted on this before the Forest Supervisor made this decision? I'm more than a little disappointed that between the SO and the district I had to find this out by stumbling on it on the web. I don't necessarily disagree with some partial removal of the ban, for example the prairie dogs outside the MA 3.63 which I understood to be about ~8000 acres. That is a decent shooting area in itself. But to just open the shooting up district-wide including in the 3.63 seems on the surface at odds with the MA 3.63 priority for prairie dog ecosystem and black-footed ferret recovery values. Not to mention the message it sends internally and with our external partners that have worked diligently and at great expense to help the district implement the prairie dog management plan. I do understand trying to meet some middle ground also with the

constituents that have different concerns or interest in prairie dogs on TBNG. I'm not convinced this was the best way to strike the balance and do want to follow up with Steve Lohr to express my concerns how this was all handled.
Peter

<image001.png> **Peter McDonald**
Regional Program Leader
Threatened, Endangered and Sensitive Species
Forest Service
Rocky Mountain Region
p: 303-275-5029 (primary)
c: 303-475-3515 (travel & telework)
petermcdonald@fs.fed.us
740 Simms Street
Golden, CO 80401
www.fs.fed.us
<image002.png><image003.png><image004.png>
Caring for the land and serving people

From: Monks, Chelsea -FS
Sent: Wednesday, March 08, 2017 8:34 AM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: FW: Suspension of Prairie Dog Shooting Restrictions

Hi Peter,
This is the sum of my knowledge of the shooting ban lifting.
Chelsea

<image001.png> **Chelsea Monks**
Wildlife, Botany, & Fish Resource Team
Leader (Detail)
Forest Service
Medicine Bow-Routt National Forests &
Thunder Basin National Grassland
p: 307-745-2412
f: 307-745-2398
c: 307-460-8871
chelseamonks@fs.fed.us
2468 Jackson Street
Laramie, WY 82070
www.fs.usda.gov/mbr
<image002.png>
Caring for the land and serving people

From: Reynolds, Kelle A -FS
Sent: Monday, March 06, 2017 7:35 AM
To: Monks, Chelsea -FS <chelseamonks@fs.fed.us>
Subject: Fwd: Suspension of Prairie Dog Shooting Restrictions

Keeping you in the loop.

Sent from my iPad

Begin forwarded message:

From: "Jaeger, Dennis -FS" <djaeger01@fs.fed.us>
Date: March 3, 2017 at 2:26:07 PM MST
To: FS-pdl r2 mbr douglas district
<pdl_r2_mbr_douglas_district@ms.fs.fed.us>
Cc: FS-pdl r2 mbr flt <pdl_r2_mbr_flt@ms.fs.fed.us>, "Voos, Aaron T -FS" <atvoos@fs.fed.us>, "Martin, Melissa M -FS" <mmmartin@fs.fed.us>
Subject: Suspension of Prairie Dog Shooting Restrictions

I have decided to rescind the order which prohibited shooting of Prairie Dogs within designated areas on the Thunder Basin National Grassland effective March 3, 2017 for a period of 12 months. This decision was made after review of the TBNG Prairie Dog Management Strategy and LRMP Amendment #3, as well as current conditions on the TBNG. The situation will be reevaluated in 2018.

The current prohibition has been in place since March 22, 2002 to protect the unique ecosystem associated with black-tailed prairie dogs and associated species. Plague had hit the area in 2000-01 and viable prairie dog populations needed to be re-established. A major factor in the establishment of the protected area was to maintain prairie dog population numbers, and the subsequent habitat they create, at a level that would enable possible reintroduction of the black-footed ferret. Today, our prairie dog population estimates are at historically high levels on the TBNG and across NE Wyoming. In late 2016 we were informed that the TBNG is not currently being considered for reintroduction of black-footed ferrets. The decision on where BFFs are released is with the USFWS and State of Wyoming.

We should be proud that our conservation efforts have been successful and we must remain adaptable as conditions change. Sincere thanks for all you do, and if you have any questions or concerns, please do not hesitate to contact Shane, Misty, or me.

<image001.png
>

Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National Grassland

p: 307-745-2400
c: 307-399-1404
djaeger01@fs.fed.us

2468 Jackson Street

Laramie, WY 82070

www.fs.fed.us

[<image002.png><image003.png><image004.png>](#)

Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: 8 Mar 2017 20:12:35 +0000
To: Lohr, Steve -FS
Subject: RE: Suspension of Prairie Dog Shooting Restrictions

Steve, please read some of these excerpts from the 2009 amendment to the Thunder Basin LRMP for prairie dog management. This is my concern that the Forest Supervisor decision to lift the shooting ban unconstrained across the entire district may be in conflict with the LRMP for the grasslands. Or at least I'm not sure but given some of the direction below from their plan am sufficiently worried for them and the Region. At the least, we should have some understanding from the forest how they see this latest decision consistent with their plan. Otherwise, they may be hanging out there and in a vulnerable position that shouldn't go unnoticed.

- A single Category 1 Prairie Dog Habitat will be maintained within the planning landscape and will include a large portion of the Black-footed Ferret Reintroduction Habitat (MA 3.63). The Category 1 Prairie Dog Habitat is designed to be an adequate size and spatial configuration to sustain a viable population of black-footed ferrets. The Category 1 Prairie Dog Habitat has a **management objective of at least 18,000 acres** of active prairie dog colonies. It is anticipated that 18,000 acres will provide sufficient habitat to allow ferrets the opportunity to persist through future plague epizootics and rebuild naturally along with the prairie dog populations. The acreage in Category 1 is not capped at 18,000 acres, but would be allowed to grow within the boundary of the MA 3.63. The 18,000 acre objective only serves as a potential trigger point beyond which the use of rodenticides becomes available for control of prairie dog colonies that are expanding onto adjacent private lands.
- Category 1 Prairie Dog Habitat will be considered core habitat. **Recreational shooting** of prairie dogs will be **prohibited year round** within Category 1 Prairie Dog Habitat. *(This also applies to Cat 2 habitat)*
- A broad spatial distribution of prairie dog colonies within Category 1 is desired, and we want to **ensure connectivity** between colonies. *(Peter note: We know that smaller prairie dog towns can be shot out entirely under high shooting pressure which would make it harder to achieve this objective under constrained shooting let alone unconstrained in the 3.63)*
- Lethal control of prairie dog population density is not planned within Category 1 Habitat due to recent declines in prairie dog populations.
- **Capture and translocation** of prairie dogs to suitable areas will be a **preferred method** for managing unwanted colonization on private lands. Prairie dogs captured and removed to control unwanted movement onto private lands will be used to augment prairie dog populations in Categories 1 & 2, with Category 1 being the priority for translocations. *(Peter note: I'm not a big fan of this one given the lack of flexibility to more aggressively manage the prairie dog encroachment onto private land outside the MA 3.63 while maintaining the integrity of the management area. Still this is in the LRMP for Thunder Basin)*
- If and when control becomes necessary along TBNG boundaries within the Category 1 Prairie Dog Habitat, selection of colonies to be controlled will be based on habitat values to black-footed ferrets as well as the ages of the colonies. *(Hard to know how this is being adhered to under unrestrained shooting across the district)*

Also in ch. 1 of the prairie dog management plan (p. 1-16, #29), it says "to help reduce disturbances and risks to nesting mountain plover, do not authorize the following activities in plover nesting areas or

within 0.25 miles of plover nests from March 15 to July 31: Prairie dog shooting". This applies district-wide where shooting is currently allowed under the 2009 decision (Cat 3 and 4 habitats). While I'm concerned of course about the resource impacts in the MA 3.63, there is the larger concern about whether an unconstrained lifting of the prairie dog shooting ban across the entire district may be in conflict with the LRMP for the grasslands and the forest, district and Region in a vulnerable position. This could be a far greater complication than the usual ones that are inherent to our prairie dog management in R2 and have been for many years. At the least I think we need to hear from the Forest Supervisor how he reconciles this latest action with the plan direction for Thunder Basin. He may be able to do that but given some of this I think it's the important this discussion happens.

Peter

From: Lohr, Steve -FS

Sent: Wednesday, March 08, 2017 11:38 AM

To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>

Subject: Re: Suspension of Prairie Dog Shooting Restrictions

I had a discussion with Jacque on this and the situation is complicated. I will give you a call later to bring you up to speed.

Thanks.

Sent from my iPhone

On Mar 8, 2017, at 10:29 AM, McDonald, Peter M -FS <petermcdonald@fs.fed.us> wrote:

Thanks Steve, I hope there can be some follow-up with the forest. I'm very disappointed there wasn't better coordination with the RO ahead of time, that I'm aware of anyway. And I struggle to understand how Dennis reconciles this with the land management plan direction and priorities for the management area. It seems there could have been a middle ground, provide some shooting via a partial lifting of the ban on the dogs outside the 3.363 that struck a more sensible middle ground. Something we could have talked through before this decision but did not have that opportunity. The prairie dog management at Thunder Basin has a long history of close coordination between the forest, district, and Region so this is a really unusual and unfortunate departure.

Peter

From: Lohr, Steve -FS

Sent: Wednesday, March 08, 2017 10:05 AM

To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>

Subject: Re: Suspension of Prairie Dog Shooting Restrictions

Peter

Thanks for the note. I was totally in the dark on this. I will check in with Jacque and see what the deal is.

Thanks.

Sent from my iPhone

On Mar 8, 2017, at 9:00 AM, McDonald, Peter M -FS <petermcdonald@fs.fed.us> wrote:

Thanks Chelsea, were you or the district consulted on this before the Forest Supervisor made this decision? I'm more than a little disappointed that between the SO and the district I had to find this out by stumbling on it on the web. I don't necessarily disagree with some partial removal of the

ban, for example the prairie dogs outside the MA 3.63 which I understood to be about ~8000 acres. That is a decent shooting area in itself. But to just open the shooting up district-wide including in the 3.63 seems on the surface at odds with the MA 3.63 priority for prairie dog ecosystem and black-footed ferret recovery values. Not to mention the message it sends internally and with our external partners that have worked diligently and at great expense to help the district implement the prairie dog management plan. I do understand trying to meet some middle ground also with the constituents that have different concerns or interest in prairie dogs on TBNG. I'm not convinced this was the best way to strike the balance and do want to follow up with Steve Lohr to express my concerns how this was all handled.

Peter

<image001.png> **Peter McDonald**
Regional Program Leader
Threatened, Endangered and Sensitive Species
Forest Service
Rocky Mountain Region
p: 303-275-5029 (primary)
c: 303-475-3515 (travel & telework)
petermcdonald@fs.fed.us
740 Simms Street
Golden, CO 80401
www.fs.fed.us
<image002.png><image003.png><image004.png>
Caring for the land and serving people

From: Monks, Chelsea -FS
Sent: Wednesday, March 08, 2017 8:34 AM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: FW: Suspension of Prairie Dog Shooting Restrictions

Hi Peter,

This is the sum of my knowledge of the shooting ban lifting.
Chelsea

<image001.png> **Chelsea Monks**
Wildlife, Botany, & Fish Resource Team
Leader (Detail)
Forest Service
Medicine Bow-Routt National Forests &
Thunder Basin National Grassland
p: 307-745-2412
f: 307-745-2398
c: 307-460-8871
chelseamonks@fs.fed.us
2468 Jackson Street
Laramie, WY 82070
www.fs.usda.gov/mbr
<image002.png>

Caring for the land and serving people

From: Reynolds, Kelle A -FS
Sent: Monday, March 06, 2017 7:35 AM
To: Monks, Chelsea -FS <chelseamonks@fs.fed.us>
Subject: Fwd: Suspension of Prairie Dog Shooting Restrictions
Keeping you in the loop.

Sent from my iPad

Begin forwarded message:

From: "Jaeger, Dennis -FS" <djaeger01@fs.fed.us>
Date: March 3, 2017 at 2:26:07 PM MST
To: FS-pdl r2 mbr douglas district
<pdl_r2_mbr_douglas_district@ms.fs.fed.us>
Cc: FS-pdl r2 mbr flt <pdl_r2_mbr_flt@ms.fs.fed.us>, "Voos, Aaron T -FS" <atvoos@fs.fed.us>, "Martin, Melissa M -FS" <mmmartin@fs.fed.us>
Subject: Suspension of Prairie Dog Shooting Restrictions

I have decided to rescind the order which prohibited shooting of Prairie Dogs within designated areas on the Thunder Basin National Grassland effective March 3, 2017 for a period of 12 months. This decision was made after review of the TBNG Prairie Dog Management Strategy and LRMP Amendment #3, as well as current conditions on the TBNG. The situation will be reevaluated in 2018.

The current prohibition has been in place since March 22, 2002 to protect the unique ecosystem associated with black-tailed prairie dogs and associated species. Plague had hit the area in 2000-01 and viable prairie dog populations needed to be re-established. A major factor in the establishment of the protected area was to maintain prairie dog population numbers, and the subsequent habitat they create, at a level that would enable possible reintroduction of the black-footed ferret. Today, our prairie dog population estimates are at historically high levels on the TBNG and across NE Wyoming. In late 2016 we were informed that the TBNG is not currently being considered for reintroduction of black-footed ferrets. The decision on where BFFs are released is with the USFWS and State of Wyoming.

We should be proud that our conservation efforts have been successful and we must remain adaptable as conditions change. Sincere thanks for all you do, and if you have any questions or concerns, please do not hesitate to contact Shane, Misty, or me.

<image001.png> **Dennis L. Jaeger**
> **Forest Supervisor**

Forest Service

**Medicine Bow-Routt National Forests, Thunder Basin National
Grassland**

p: 307-745-2400

c: 307-399-1404

djaeger01@fs.fed.us

2468 Jackson Street

Laramie, WY 82070

www.fs.fed.us

[!\[\]\(17413706fd4997a1a4bdf85c6864eee1_img.jpg\) !\[\]\(f419710cbe076aa30a9c6c031b5cbe84_img.jpg\) !\[\]\(2726020a4107bdc9042b257034f90eb3_img.jpg\)](#)

Caring for the land and serving people

From: Jaeger, Dennis -FS
Sent: 7 Apr 2017 23:09:43 +0000
To: Lindsey Sterling Krank
Cc: Walker, Michael S -FS; Ferebee, Brian -FS; McDonald, Peter M -FS; zzzSteve Forrest; zzzJonathan Proctor; zzzKristy Bly; Walker, Michael S -FS
Subject: RE: Suspension of shooting restrictions

Hi Lindsey,

I will be traveling up from Colorado on Wednesday, so noon in Newcastle would work best. There is a Forest Service Office in Newcastle that I could get some space, or would you like to meet at the Senior Center or do you have another place in mind?

Just let me know what works best for you.

Look forward to seeing you, travel safe! dj



Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National Grassland

p: 307-745-2400
c: 307-399-1404
djaeger01@fs.fed.us

2468 Jackson Street
Laramie, WY 82070
www.fs.fed.us



Caring for the land and serving people

From: Lindsey Sterling Krank (b) (6)
Sent: Friday, April 07, 2017 11:48 AM
To: Jaeger, Dennis -FS <djaeger01@fs.fed.us>
Cc: Walker, Michael S -FS <mwalker@fs.fed.us>; Ferebee, Brian -FS <bferebee@fs.fed.us>; McDonald, Peter M -FS <petermcdonald@fs.fed.us>; zzzSteve Forrest (b) (6); zzzJonathan Proctor (b) (6); zzzKristy Bly (b) (6)
Subject: FW: Suspension of shooting restrictions
Importance: High

Dear Mr. Jaeger,

We will be in town next week for the Learning Series and Public Meeting. We would like to get together with you to discuss our letter reattached here. Could you meet us either early Wednesday morning in Cheyenne or around 12:00 noon in Newcastle?

Please advise.

Thank you,

Lindsey

Lindsey Sterling Krank

Environmental Scientist & Director, the Prairie Dog Coalition
The Humane Society of the United States- Wildlife

(b) (6)
t 720.938.0788 (b) (6)
2525 Arapahoe #E4-527 Boulder, CO 80302

The Prairie Dog Coalition- We are the Big Picture for prairie dogs.

From: Bly, Kristy (b) (6)
Sent: Wednesday, March 29, 2017 5:09 PM
To: Jaeger, Dennis -FS
Cc: Walker, Michael S -FS; bferebee@fs.fed.us; petermcdonald@fs.fed.us; Lindsey Sterling Krank; zzzSteve Forrest; zzzJonathan Proctor
Subject: RE: Suspension of shooting restrictions
Importance: High

Dear Mr. Jaeger,

We have amended our letter after additional review of the relevant documents, including the 2009 Record of Decision: Thunder Basin National Grassland Prairie Dog Management Strategy and Land and Resource Plan Amendment #3 and the 2015 update to the Black-tailed Prairie Dog Conservation Assessment and Management Strategy for the Thunder Basin National Grassland. Our additions in the attached letter are highlighted in red.

We regard this matter as urgent and look forward to hearing from you soon.

Sincerely,

Kristy Bly, World Wildlife Fund
Steve Forrest, Defenders of Wildlife
Lindsey Sterling Krank, Prairie Dog Coalition of the Humane Society of the United States

From: Bly, Kristy
Sent: Monday, March 27, 2017 11:45 AM
To: 'Jaeger, Dennis -FS' <djaeger01@fs.fed.us>
Cc: 'Walker, Michael S -FS' <mwalker@fs.fed.us>; 'bferebee@fs.fed.us' <bferebee@fs.fed.us>; 'petermcdonald@fs.fed.us' <petermcdonald@fs.fed.us>; 'Lindsey Sterling Krank'
(b) (6); Steve Forrest (b) (6); 'Jonathan Proctor'
(b) (6); Nelson, Jeff (b) (6)
Subject: RE: Suspension of shooting restrictions
Importance: High

Dear Mr. Jaeger,

Please see the attached letter outlining our response to your decision and request for action. We look forward to speaking with you soon.

Respectfully,

Kristy Bly, World Wildlife Fund

Steve Forrest, Defenders of Wildlife

Lindsey Sterling Krank, Prairie Dog Coalition of the Humane Society of the United States

From: Jaeger, Dennis -FS [<mailto:djaeger01@fs.fed.us>]

Sent: Friday, March 03, 2017 2:43 PM

To: (b) (6); Bly, Kristy

(b) (6) Dave Pellatz (b) (6)

Subject: Suspension of shooting restrictions

I have decided to rescind the order which prohibited shooting of Prairie Dogs within designated areas on the Thunder Basin National Grassland effective March 3, 2017 for a period of 12 months. This decision was made after review of the TBNG Prairie Dog Management Strategy and LRMP Amendment #3, as well as current conditions on the TBNG. The situation will be reevaluated in 2018.

The current prohibition has been in place since March 22, 2002 to protect the unique ecosystem associated with black-tailed prairie dogs and associated species. Plague had hit the area in 2000-01 and viable prairie dog populations needed to be re-established. A major factor in the establishment of the protected area was to maintain prairie dog population numbers, and the subsequent habitat they create, at a level that would enable possible reintroduction of the black-footed ferret.

Today, our prairie dog population estimates are at historically high levels on the TBNG and across NE Wyoming. In late 2016 we were informed that the TBNG is not currently being considered for reintroduction of black-footed ferrets. The decision on where BFFs are released is with the USFWS and State of Wyoming.

We are proud that our conservation efforts have been successful. In 2002 our prairie dog population was less than 4000 acres, today we are approaching 30,000 acres. As you are well aware, this increase has created additional stress with our grazing community, and we are actively working to balance all needs.

On another note, I am pleased to announce the Candidate Conservation Agreement has been signed by the USFWS, BLM, Forest Service, and Thunder Basin Grassland Prairie Ecosystem. Huge thanks to Dave Pellatz for his vision and persistence. This will be a great tool to promote voluntary conservation measures of both Shortgrass and Sagebrush ecosystems on public and private lands.



Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National
Grassland

p: 307-745-2400

c: 307-399-1404
djaeger01@fs.fed.us

2468 Jackson Street
Laramie, WY 82070

www.fs.fed.us



Caring for the land and serving people

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

From: Jaeger, Dennis -FS
Sent: 9 May 2017 03:53:51 +0000
To: Bly, Kristy
Cc: Walker, Michael S -FS; Ferebee, Brian -FS; McDonald, Peter M -FS; Lindsey Sterling Krank; Hays, Misty A -FS; Steve Forrest; Jonathan Proctor (b) (6); Chamois L. Andersen
Subject: Re: Suspension of shooting restrictions
Attachments: image001.png, image002.png, image003.png, image004.png

Hi Kristy,

I am on the Thunder Basin today and tomorrow. I was able to meet with Lindsey and Steve on April 11. Can I give you a call when I get back to Laramie?

Sent from my iPad

On May 8, 2017, at 11:33 AM, Bly, Kristy (b) (6) wrote:

Dear Mr. Jaeger,

We are still awaiting your response to our letter (attached). Please get back to us at your earliest convenience.

Kristy Bly, World Wildlife Fund
Steve Forrest, Defenders of Wildlife
Lindsey Sterling Krank, Prairie Dog Coalition of the Humane Society of the United States

From: Bly, Kristy
Sent: Wednesday, March 29, 2017 5:09 PM
To: 'Jaeger, Dennis -FS' <djaeger01@fs.fed.us>
Cc: 'Walker, Michael S -FS' <mswalker@fs.fed.us>; 'bferebee@fs.fed.us' <bferebee@fs.fed.us>; 'petermcdonald@fs.fed.us' <petermcdonald@fs.fed.us>; 'Lindsey Sterling Krank' (b) (6); Steve Forrest (b) (6); 'Jonathan Proctor' (b) (6)
Subject: RE: Suspension of shooting restrictions
Importance: High

Dear Mr. Jaeger,

We have amended our letter after additional review of the relevant documents, including the 2009 Record of Decision: Thunder Basin National Grassland Prairie Dog Management Strategy and Land and Resource Plan Amendment #3 and the 2015 update to the Black-tailed Prairie Dog Conservation Assessment and Management Strategy for the Thunder Basin National Grassland. Our additions in the attached letter are highlighted in red.

We regard this matter as urgent and look forward to hearing from you soon.

Sincerely,

Kristy Bly, World Wildlife Fund
Steve Forrest, Defenders of Wildlife
Lindsey Sterling Krank, Prairie Dog Coalition of the Humane Society of the United States

From: Bly, Kristy
Sent: Monday, March 27, 2017 11:45 AM
To: 'Jaeger, Dennis -FS' <djaeger01@fs.fed.us>
Cc: 'Walker, Michael S -FS' <mswalker@fs.fed.us>; 'bferebee@fs.fed.us' <bferebee@fs.fed.us>; 'petermcdonald@fs.fed.us' <petermcdonald@fs.fed.us>; 'Lindsey Sterling Krank' (b) (6) Steve Forrest (b) (6) 'Jonathan Proctor' (b) (6) (b) (6); Nelson, Jeff (b) (6)
Subject: RE: Suspension of shooting restrictions
Importance: High

Dear Mr. Jaeger,

Please see the attached letter outlining our response to your decision and request for action. We look forward to speaking with you soon.

Respectfully,

Kristy Bly, World Wildlife Fund
Steve Forrest, Defenders of Wildlife
Lindsey Sterling Krank, Prairie Dog Coalition of the Humane Society of the United States

From: Jaeger, Dennis -FS [<mailto:djaeger01@fs.fed.us>]
Sent: Friday, March 03, 2017 2:43 PM
To: (b) (6) Bly, Kristy (b) (6); Dave Pellatz (b) (6)
Subject: Suspension of shooting restrictions

I have decided to rescind the order which prohibited shooting of Prairie Dogs within designated areas on the Thunder Basin National Grassland effective March 3, 2017 for a period of 12 months. This decision was made after review of the TBNG Prairie Dog Management Strategy and LRMP Amendment #3, as well as current conditions on the TBNG. The situation will be reevaluated in 2018.

The current prohibition has been in place since March 22, 2002 to protect the unique ecosystem associated with black-tailed prairie dogs and associated species. Plague had hit the area in 2000-01 and viable prairie dog populations needed to be re-established. A major factor in the establishment of the protected area was to maintain prairie dog population numbers, and the subsequent habitat they create, at a level that would enable possible reintroduction of the black-footed ferret.

Today, our prairie dog population estimates are at historically high levels on the TBNG and across NE Wyoming. In late 2016 we were informed that the TBNG is not currently being considered for reintroduction of black-footed ferrets. The decision on where BFFs are released is with the USFWS and State of Wyoming.

We are proud that our conservation efforts have been successful. In 2002 our prairie dog population was less than 4000 acres, today we are approaching 30,000 acres. As you are well aware, this increase has created additional stress with our grazing community, and we are actively working to balance all needs.

On another note, I am pleased to announce the Candidate Conservation Agreement has been signed by the USFWS, BLM, Forest Service, and Thunder Basin Grassland Prairie Ecosystem. Huge thanks to Dave Pellatz for his vision and persistence. This will be a great tool to promote voluntary conservation measures of both Shortgrass and Sagebrush ecosystems on public and private lands.

<image001.png
>
Dennis L. Jaeger
Forest Supervisor
Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National Grassland
p: 307-745-2400
c: 307-399-1404
djaeger01@fs.fed.us
2468 Jackson Street
Laramie, WY 82070
www.fs.fed.us
<image002.png><image003.png><image004.png>
Caring for the land and serving people

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

<Response to prairie dog shooting order 3-29-17 amended.pdf>

From: McDonald, Peter M -FS
Sent: 8 Sep 2017 22:29:54 +0000
To: Lohr, Steve -FS
Subject: RE: TBNG Plan Direction

- There will be no dusting of prairie dog colonies against the plague.

The primary objectives of dusting prairie dog colonies with a pesticide at Thunder Basin is to reduce or eliminate flea populations that transmit the disease to prairie dogs and other mammals, as well as avert significant declines of other native prairie species of viability concern. Plague and plague management are central to successful implementation of the current Thunder Basin prairie dog strategy. Allowing plague to spread unchecked through the prairie dog management areas could conflict with the current prairie dog strategy to provide adequate amounts and distributions of occupied prairie dog colonies to support species associated with prairie dog colonies, including associated species of conservation concern such as Mountain Plover, Burrowing Owls, Ferruginous Hawks, and Swift Fox.

- The black footed ferret will not be introduced at Thunder Basin National Grassland and the USFS will coordinate with USFWS to release a statement indicating this decision.

The U.S. Forest Service as a federal agency has affirmative responsibilities under the Endangered Species Act to promote the conservation and recovery of listed species, like the highly endangered black-footed ferret that is entirely dependent on prairie dog communities. Under the Northern Great Plains Land Management Plan revisions, the Forest Service in consultation with the U.S. Fish and Wildlife Service under the Endangered Species Act, designated potential ferret reintroduction sites including at Thunder Basin. This request would likely put us at odds with the current land management plan and prairie dog strategy for Thunder Basin and trigger new National Environmental Policy Act processes and interagency consultation with the U.S. Fish and Wildlife Service under the Endangered Species Act in response.

- USFS will provide a status update on requests and timeline for rangeland restoration and the use of poison to control prairie dog populations.

Under the current management plans, non-lethal management of prairie dogs (grazing and prescribed fire vegetation management, translocation) is the first priority. Lethal management can be used to address human health and safety, protection of facilities, and addressing boundary encroachment issues. Decision screens are used to make site-specific decisions about which individual prairie dog towns will be controlled. Over 1,600 acres of prairie dogs were controlled at Thunder Basin in 2016 consistent with implementation of the Plan. We will continue to assess conditions on the ground and utilize the various management options available under the prairie dog management strategy to address the multiple objectives of the plan.

- The USFS will continue to allow the shooting of prairie dogs and remove the 'no-shooting' signs.

Under the current management plans, management of long-term recreational shooting varies by management category area. Shooting is prohibited in Category 1 areas that contain the bulk of the MA 3.63 black-footed ferret reintroduction habitat. More flexibility to allow shooting exists in the rest of the habitat subject to certain conditions as identified in the prairie dog strategy. Permanently removing the ban would not be consistent with the current management plans for Thunder Basin and would trigger new National Environmental Policy Act processes and consultation under the Endangered Species Act with the U.S. Fish and Wildlife Service.

Peter

From: Lohr, Steve -FS
Sent: Friday, September 08, 2017 2:05 PM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: TBNG Plan Direction

Peter-

See below and provide one or two sentences each on how the current plan speaks to our management of each of these bullets. Please be concise. Thanks-

- There will be no dusting of prairie dog colonies against the plague.
- The black footed ferret will not be introduced at Thunder Basin National Grassland and the USFS will coordinate with USFWS to release a statement indicating this decision.
- USFS will provide a status update on requests and timeline for rangeland restoration and the use of poison to control prairie dog populations.
- The USFS will continue to allow the shooting of prairie dogs and remove the 'no-shooting' signs.



Steve Lohr
Director of Renewable Resources

Forest Service
Rocky Mountain Region

p: 303-275-5014

c: 303-242-7675

f: 303-275-5075

slohr@fs.fed.us

1617 Cole Boulevard, Building 17
Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: Kozlowski, Steve -FS
Sent: 27 Mar 2019 15:05:52 +0000
To: McDonald, Peter M -FS
Subject: RE: TBNG

Thanks Peter, that is helpful. Steve



Steve Kozlowski
Wildlife Biologist
Resource Team Leader (RTL) for Wildlife, Botany, and Fish
Medicine Bow and Routt National Forests, Thunder Basin National Grassland
p: 307-745-2343
c: 559-972-1934
Steve.Kozlowski@usda.gov

From: McDonald, Peter M -FS
Sent: Wednesday, March 27, 2019 8:44 AM
To: Kozlowski, Steve -FS <skozlowski@fs.fed.us>
Subject: TBNG

Steve, after going to a couple usual spots, I didn't find the table you were asking about with priority BFF sites. I expect it's in the NGP docs somewhere. Jeff Abegglen may be able to help you too. The Nebraska has an extensive and well-organized admin record for the NGP, prairie dog management, and BFF reintroduction.

Here is the RF letter I shared with Chad recently that I mentioned on the phone:
http://fsweb.r2.fs.fed.us/rr/R2_TES_Site_2007/esa/RF_letter_BFF_8may2007.doc

Peter



Peter McDonald
Program Leader
Threatened, Endangered and Sensitive Species
Forest Service
Rocky Mountain Region (Region 2)
www.fs.usda.gov/detailfull/r2/home/?cid=stelprdb5261599&width=full
p: 303-275-5029
c: 303-475-3515
peter.mcdonald@usda.gov
1617 Cole Boulevard, Bldg 17
Lakewood, CO 80401
www.fs.fed.us
  
Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: 19 Dec 2017 15:55:45 +0000
To: Kozlowski, Steve -FS; Reynolds, Kelle A -FS
Cc: Byer, Tim -FS; Lohr, Steve -FS; Bierman, Sylvia (Clark)- FS
Subject: RE: Thunder Basin, please use this version

Most of these are very one-sided against prairie dogs and we'll need to weigh each carefully against our policies and objectives for prairie dogs on the national grasslands.
Peter



Peter McDonald
Regional Program Group Leader
Threatened, Endangered and Sensitive Species

Forest Service
Rocky Mountain Region

p: 303-275-5029

c: 303-475-3515

petermcdonald@fs.fed.us

1617 Cole Boulevard, Bldg 17
Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: Kozlowski, Steve -FS
Sent: Monday, December 18, 2017 9:53 AM
To: Reynolds, Kelle A -FS <kareynolds@fs.fed.us>
Cc: Byer, Tim -FS <tbyer@fs.fed.us>; McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: FW: Thunder Basin, please use this version

FYI,

Attached is the 2017 summary report prepared by Ruckelshaus Institute regarding collaborative meetings related to prairie dogs. Of particular interest are the **12 recommendations** to all agencies from the Cooperative Working group (a group of governmental entities who have federal, state or county authority in relation to prairie dog management and range restoration in the Thunder Basin). Below is a summary of the recommendations, the details start on page 22 of the attachment.

1. Consider Revising the Current Black-tailed Prairie Dog Strategy
2. Determine whether the current category designations are appropriate.
3. Use innovative approaches to restoration and vegetation management, including:
 - Continued prairie dog control;
 - Invasive species control, including for cheatgrass;
 - Use the plague situation to control prairie dog colonization and spread (buffer zones);
 - Reduce erosion through prairie dog management;
 - Remove cactus, three-awn, cheatgrass, and mound;
 - Reseeding.
 - Monitor and inventory range conditions, ground cover
4. Maintain healthy sagebrush, riparian, and mesic communities. Do not allow prairie dogs to transition into these communities.
5. Improve and develop consistent communication and information distribution between meetings.

6. Create data-sharing clearinghouse regarding associated species and prairie dogs. Include TBGPEA, private landowner, University of Wyoming, USFS, and other relevant data sources.
7. Consider options for long-term and consistent project funding such as: creating a full-time position for a "Prairie Dog Manager"
8. The USFS will follow through on management commitments and regulatory obligations and will collaborate on an improved Strategy that includes definitive triggers and associated actions.
9. Recognize in a revised strategy the conflicting classifications of prairie dogs. Acknowledge that prairie dogs are considered a pest by some people.
10. Continue monitoring prairie dog towns and plague.
11. Greater emphasis on Prairie Dog Boundary Management
12. As long as black-footed ferrets are not being reintroduced on the TBNG, drop the shooting ban in Category 3.63.

Next learning series and cooperative meetings are scheduled in February.
Steve

Steve Kozlowski, USFS

Wildlife, Botany, and Fish Resource Team Leader for the MBRTB

Forest Wildlife Biologist

Sage-grouse Coordinator

559 972-1934 cell, 307 745-2343 office, skozlowski@fs.fed.us

From: Voos, Aaron T -FS

Sent: Friday, December 15, 2017 10:21 AM

To: Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Alpe, Mike J -FS <malpe@fs.fed.us>; Kozlowski, Steve -FS <skozlowski@fs.fed.us>

Subject: FW: Thunder Basin, please use this version

FYI...this is the report from the Ruckelshaus Institute as a result of 2017 collaborative meetings, both public and government.



Aaron Voos
Public Affairs Specialist

Forest Service
Medicine Bow-Routt National Forests & Thunder Basin National Grassland

p: 307-745-2323

c: 970-819-2898

atvoos@fs.fed.us

2468 Jackson St.

Laramie, WY 82070

www.fs.usda.gov/mbr

[Twitter.com/FS_MBRTB](https://twitter.com/FS_MBRTB)



Caring for the land and serving people

From: [REDACTED] **On Behalf Of** Jessica Western

Sent: Thursday, December 14, 2017 11:34 AM

To: [REDACTED] (b) (6)
[REDACTED] (b) (6); jaimie.jakes@wyo.gov; Hogan, Jake - NRCS, Douglas, WY
<Jake.Hogan@wy.usda.gov>; jproffer@blm.gov; Geiger, Melanie - NRCS, Douglas, WY

[REDACTED] (b) (6)
[REDACTED] (b) (6); Travis_McNiven@barrasso.senate.gov;
[REDACTED] (b) (6); Amanda Withroder <Amanda.withroder@wyo.gov>;

(b) (6); Benjamin Bump
<benjamin.bump@wyo.gov>; Beverly Reed (b) (6); Bill Lambert
(b) (6); Sell, Raesha - NRCS-CD, Sundance, WY
<Raesha.Sell@wy.usda.gov>; Chamois Andersen (b) (6); Cheryl Jacobson
(b) (6); Cheryl Schwartzkopf (b) (6); chris.wichmann@wyo.gov;
Christi Haswell (b) (6); Schmitz, Clayton - NRCS, Casper, WY
<Clayton.Schmitz@wy.usda.gov>; Dave Pellatz (b) (6)
Denise L (b) (6); Donley & Nancy Darnell (b) (6); Erika
Peckham <Erika.Peckham@wyo.gov>; Frank Eathorne (b) (6); Holly Kennedy
(b) (6); Hooper, Tammy <Tammy.hooper@mail.house.gov>; (b) (6)
jessica.crowder@wyo.gov; (b) (6); joe.budd@wyo.gov; Hartung, John - NRCS,
Casper, WY <John.Hartung@wy.usda.gov>; Justin Rogers <justin_rogers@enzi.senate.gov>; Kay, DeAnna
(Enzi) <Deanna_Kay@enzi.senate.gov>; Kristy Bly (b) (6); Sloan, Lacey - NRCS,
Newcastle, WY <Lacey.Sloan@wy.usda.gov>; Lindsey Sterling Krank
(b) (6); Matt Avery
(b) (6) matthew.fry@wyo.gov; (b) (6); Foster, Michael D - APHIS
<Michael.D.Foster@aphis.usda.gov>; Huntington, Michelle - NRCS-CD, Douglas, WY
(b) (6)
mvalle@blm.gov; (b) (6); Nichole Bjornlie <nichole.bjornlie@wyo.gov>;
(b) (6); Kokes, Paul T - APHIS <Paul.T.Kokes@aphis.usda.gov>;
(b) (6); Robert Harshbarger (b) (6); Robert Maul
(b) (6); Rogers, Brad <brad_rogers@fws.gov>; Rusty Bell (b) (6)
Underhill, Sandra - FS <sandraunderhill@fs.fed.us>; Slade Franklin <slade.franklin@wyo.gov>;
(b) (6); Todd Caltrider <todd.caltrider@wyo.gov>; (b) (6)
(b) (6); tyler_abbott@fws.gov; Upton, Carolyn -FS <cupton@fs.fed.us>; Virginia Moore
(b) (6); Voos, Aaron T -FS <atvoos@fs.fed.us>; Walker, Michael S -FS
<mwalker@fs.fed.us>; Wanda Burget (b) (6); William Rose
<william.rose@wyo.gov>; Willow Steen <Willow.steen@wyo.gov>; Zack Walker
<zack.walker@wyo.gov>; Bacon, Russell M -FS <rmbacon@fs.fed.us>

Subject: Thunder Basin, please use this version

Good morning,

After I sent you the report yesterday, I of course found some more notes buried in my car, which I have added. They include the next steps you want to take. This version will be posted online, and has also been sent to the USFS.

Best,

Jessica

--

Jessica M. Western, Ph.D. (formerly Clement)
Senior Research Scientist, Human Dimensions in Natural Resources
Director, Collaboration Program in Natural Resources
Ruckelshaus Institute, Haub School of Environment and Natural Resources
University of Wyoming
307 - 766 5048 (o)

From: Magwire, Wendy R -FS
Sent: 12 Dec 2016 15:48:58 +0000
To: McDonald, Peter M -FS
Subject: RE: USFS annual report

Good for you Peter. Time to put this into perspective. It really is frustrating, especially now since we have a Wyoming-wide 10J rule and the state openly celebrated the return of ferrets to Meeteetse this year. And although Dennis is concerned about DRD employee safety as of course we should be, there is no one who would be more thrilled to see ferrets on TBNG than Cristi and Misty. I am sure that Shane also would support it.

Wendy



Wendy R. Magwire
Wildlife, Fish, & Botany Resource Team Leader
Forest Service
Medicine Bow & Routt National Forests and Thunder Basin National Grassland
p: 307-745-2412
c: 307-460-8871
wmagwire@fs.fed.us
2468 Jackson Street
Laramie, WY 82070
www.fs.fed.us
The icons for the United States Department of Agriculture (USDA), Twitter, and Facebook.
Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: Saturday, December 10, 2016 9:26 AM
To: Jaeger, Dennis -FS <djaeger01@fs.fed.us>; Magwire, Wendy R -FS <wmagwire@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Walker, Michael S -FS <mswalker@fs.fed.us>; Hays, Misty A -FS <mahays@fs.fed.us>; Martin, Melissa M -FS <mmmartin@fs.fed.us>
Cc: Voos, Aaron T -FS <atvoos@fs.fed.us>; Painter, Cristi L -FS <cpainter@fs.fed.us>; Lohr, Steve -FS <slohr@fs.fed.us>
Subject: RE: USFS annual report

Dennis if that is the case, it obviously has nothing to do with the biological and recovery potential of the site which is very high right now. It's also extremely hard to rationalize and justify within the needs of the national recovery program for the black-footed ferret, a critter that has been federally endangered for far too long, literally since 1966. It has also driven our ESA compliance activities regionally for a similar number of years, so a considerable taxpayer and agency investment that continues for the ferret while it remains on the ESA list. As you are undoubtedly well aware, there has also been considerable investment and commitment by the agency, region, forest and district to the planning and preparing for ferrets in the 3.63 management area at Thunder Basin for a couple decades. Past Regional Foresters have also stressed the importance of the R2 units contributing more to national recovery of the black-footed ferret. It is very important that the conversation continue. While the latest positions in Wyoming are admittedly challenging, the conversation needs to continue about Thunder Basin's role in "national" recovery of the ferret and how to work cooperatively with the principals and public to achieve it.

Peter

From: Jaeger, Dennis -FS

Sent: Friday, December 09, 2016 2:20 PM

To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>; Magwire, Wendy R -FS <wmagwire@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Walker, Michael S -FS <mswalker@fs.fed.us>; Hays, Misty A -FS <mahays@fs.fed.us>; Martin, Melissa M -FS <mmmartin@fs.fed.us>

Cc: Voos, Aaron T -FS <atvoos@fs.fed.us>; Painter, Cristi L -FS <cpainter@fs.fed.us>; Lohr, Steve -FS <slohr@fs.fed.us>

Subject: RE: USFS annual report

I completely agree Peter. I just want to make sure you are aware that I now have in writing from Wyoming Game and Fish, that they do not support BFF reintroduction on the TBNG. USFWS also has an agreement in Wyoming that BFF will only be released with concurrence from the Governor.



Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National Grassland

p: 307-745-2400
c: 307-399-1404
djaeger01@fs.fed.us

2468 Jackson Street
Laramie, WY 82070
www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS

Sent: Friday, December 09, 2016 2:03 PM

To: Magwire, Wendy R -FS <wmagwire@fs.fed.us>; Jaeger, Dennis -FS <djaeger01@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Walker, Michael S -FS <mswalker@fs.fed.us>; Hays, Misty A -FS <mahays@fs.fed.us>; Martin, Melissa M -FS <mmmartin@fs.fed.us>

Cc: Voos, Aaron T -FS <atvoos@fs.fed.us>; Painter, Cristi L -FS <cpainter@fs.fed.us>; Lohr, Steve -FS <slohr@fs.fed.us>

Subject: RE: USFS annual report

We would not typically call out the state on lack of support. They're also on the Executive Team and there are also some interests that argue federal agencies and lands don't need state support. The SD reintroduction went forward many years ago in the face of strong opposition at the state level. It went forward because of the federal nexus and significance attached to the site in the national recovery program. At one time, the Rosecrans area on Thunder Basin was 3rd in priority for reintroduction in the national recovery program. There are several factors that have come in to play to change that over the years. But the grasslands still has great potential to contribute importantly to the national recovery of the black-footed ferret. It is important not to lose sight over that and continue

to work with the state, FWS, and Executive Committee on better framing and garnering the support for a long overdue reintroduction at Thunder Basin.

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service
Rocky Mountain Region

p: 303-275-5029 (primary)
c: 303-475-3515 (travel & telework)
petermcdonald@fs.fed.us

740 Simms Street
Golden, CO 80401
www.fs.fed.us



Caring for the land and serving people

Program website: www.fs.usda.gov/detail/r2/landmanagement/?cid=stelprdb5188017
Intranet (FS only): http://fswweb.r2.fs.fed.us/rr/R2_TES_Site_2007
Interagency ESA site: www.fs.usda.gov/detail/r2/landmanagement/?cid=stelprdb5341949

From: Magwire, Wendy R -FS

Sent: Friday, December 09, 2016 9:57 AM

To: Jaeger, Dennis -FS <djaeger01@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Walker, Michael S -FS <mswalker@fs.fed.us>; Hays, Misty A -FS <mahays@fs.fed.us>; Martin, Melissa M -FS <mmmartin@fs.fed.us>

Cc: Voos, Aaron T -FS <atvoos@fs.fed.us>; Painter, Cristi L -FS <cpainter@fs.fed.us>; McDonald, Peter M -FS <petermcdonald@fs.fed.us>

Subject: RE: USFS annual report

Dennis, the report does not say that the State supports reintroduction efforts, but if your point is that we should include a statement saying that they do not support it, I can include that. This is an annual report to the USFWS who clearly understands the State's position, but I assume it is shared with the BFF Implementation Team Executive Committee which consists of federal, state and NGO partners (see Peter's message below).

As far as our role with the Delta dust research project, Cristi and her seasonals help the researchers trap prairie dogs, and they do handle them to collect fleas. The researchers are on site and supervise the operations, including making sure the handling and anesthesia protocols are followed. FY16 was the last year of the field research. The analysis is now underway and a publication will produced.

Let me know if you have any more questions.
Wendy

From: McDonald, Peter M -FS

Sent: Wednesday, November 09, 2016 1:26 PM

To: Barrera, Bobbi L -FS <bbarrera@fs.fed.us>; Sartorius, Shawn S -FS <shawnsartorius@fs.fed.us>; Griebel, Randall L -FS <rgriebel@fs.fed.us>; Magwire, Wendy R -FS <wmagwire@fs.fed.us>; Welker, Michael -FS <mtwelker@fs.fed.us>; Allen, Lydia R -FS <lrallen@fs.fed.us>

Cc: Burns, Joseph A -FS <jaburns@fs.fed.us>; Pivorunas, David -FS <dpivorunas@fs.fed.us>; Jackson, Scott -FS <sjackson03@fs.fed.us>; McDonald, Peter M -FS <petermcdonald@fs.fed.us>

Subject: REQUEST: BFF annual report

All-

It's that time of year to pull together the USFS annual report to the USFWS summarizing recovery activities for the black-footed ferret for the year, including related prairie dog management activities. We try to finalize this report each year and send to the Service's recovery coordinator in time for the BFF Implementation Team Executive Committee winter meeting, which this year is December 13-14 at the Rocky Mountain Arsenal National Wildlife Refuge here in the Denver area. If you're not familiar with the Executive Committee, it's the leadership group of federal, state and NGO partners that oversee the implementation of the national recovery program for the black-footed ferret.

As in the past, I'll offer to pull together the agency report but will again need your help with updates for your area. Attached is last year's report to get you started. Please review and make any necessary edits, or tell me if your applicable section still looks good from your standpoint.

I'd appreciate your updates by Tuesday 12/6. Let me know of further questions. Thanks everyone.

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service
Rocky Mountain Region

p: 303-275-5029 (primary)
c: 303-475-3515 (travel & telework)
petermcdonald@fs.fed.us

740 Simms Street
Golden, CO 80401
www.fs.fed.us



Caring for the land and serving people

Program website: www.fs.usda.gov/detail/r2/landmanagement/?cid=stelprdb5188017
Intranet (FS only): http://fsweb.r2.fs.fed.us/rr/R2_TES_Site_2007
Interagency ESA site: www.fs.usda.gov/detail/r2/landmanagement/?cid=stelprdb5341949

From: Jaeger, Dennis -FS

Sent: Friday, December 09, 2016 6:59 AM

To: Magwire, Wendy R -FS <wmagwire@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Walker, Michael S -FS <mswalker@fs.fed.us>; Hays, Misty A -FS <mahays@fs.fed.us>; Martin, Melissa M -FS <mmmartin@fs.fed.us>

Cc: Voos, Aaron T -FS <atvoos@fs.fed.us>

Subject: RE: USFS annual report

Thanks Wendy,

Couple of comments, the State of Wyoming does not support BFF reintroduction on the TBNG. Also, can you give me a quick update on our role with the delta dust research? Thanks



Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National Grassland

p: 307-745-2400
c: 307-399-1404
djaeger01@fs.fed.us

2468 Jackson Street
Laramie, WY 82070

www.fs.fed.us



Caring for the land and serving people

From: Magwire, Wendy R -FS

Sent: Thursday, December 08, 2016 3:21 PM

To: Jaeger, Dennis -FS <djaeger01@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Walker, Michael S -FS <mwalker@fs.fed.us>; Hays, Misty A -FS <mahays@fs.fed.us>; Martin, Melissa M -FS <mmmartin@fs.fed.us>

Cc: Voos, Aaron T -FS <atvoos@fs.fed.us>

Subject: FW: USFS annual report

Please see the attached annual report for black-footed ferret/prairie dog management on NFS lands. I pieced together information from several sources to provide the TBNG entry.

Wendy



Wendy R. Magwire
Wildlife, Fish, & Botany Resource Team Leader

Forest Service
Medicine Bow & Routt National Forests and Thunder Basin National Grassland

p: 307-745-2412
c: 307-460-8871
wmagwire@fs.fed.us

2468 Jackson Street
Laramie, WY 82070

www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: Thursday, December 08, 2016 2:33 PM
To: Abegglen, Jeffrey S -FS <jsabegglen@fs.fed.us>; Dobesh, Phillip A -FS <pdobesh@fs.fed.us>; Magwire, Wendy R -FS <wmagwire@fs.fed.us>; Painter, Cristi L -FS <cpainter@fs.fed.us>; Welker, Michael -FS <mtwelker@fs.fed.us>; Chappell, Andrew T -FS <atchappell@fs.fed.us>
Subject: FW: USFS annual report

Thanks for everyone's contributions to this year's report.

Peter

From: McDonald, Peter M -FS
Sent: Thursday, December 08, 2016 2:28 PM
To: [Pete Gober@fws.gov](mailto:Pete_Gober@fws.gov); john_hughes@fws.gov
Cc: Harper, Robert -FS <rharper@fs.fed.us>; Worth, Chris C -FS <cworth@fs.fed.us>; Burns, Joseph A -FS <jaburns@fs.fed.us>; Dawe, Christine -FS <cdawe@fs.fed.us>; Lohr, Steve -FS <slohr@fs.fed.us>; Mask, Roy -FS <rmask@fs.fed.us>; Barrera, Bobbi L -FS <blbarrera@fs.fed.us>; seth_willey@fws.gov; Jackson, Scott -FS <sjackson03@fs.fed.us>; Allen, Lydia R -FS <lrallen@fs.fed.us>; McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: USFS annual report

Pete and John,

On behalf of the Forest Service, attached is our agency's annual report of black-footed ferret recovery and related prairie dog monitoring activities for 2016. We look forward to seeing everyone at the Executive Committee meeting next week in the Denver area.

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service
Rocky Mountain Region

p: 303-275-5029 (primary)
c: 303-475-3515 (travel & telework)
petermcdonald@fs.fed.us

740 Simms Street
Golden, CO 80401
www.fs.fed.us



Caring for the land and serving people

Program website: www.fs.usda.gov/detail/r2/landmanagement/?cid=stelprdb5188017
Intranet (FS only): http://fsweb.r2.fs.fed.us/rr/R2_TES_Site_2007
Interagency ESA site: www.fs.usda.gov/detail/r2/landmanagement/?cid=stelprdb5341949

From: Jaeger, Dennis -FS
Sent: 12 Dec 2016 15:36:41 +0000
To: McDonald, Peter M -FS; Magwire, Wendy R -FS; Reynolds, Kelle A -FS; Walker, Michael S -FS; Hays, Misty A -FS; Martin, Melissa M -FS; Upton, Carolyn -FS
Cc: Voos, Aaron T -FS; Painter, Cristi L -FS; Lohr, Steve -FS
Subject: RE: USFS annual report

Yes, we will continue to work with the State of Wyoming. BFF will not be reintroduced on the TBNG without State support. Any attempt to reintroduce BFF on the TBNG without State support will be counterproductive, and yield increased hostility towards our field personnel on the Douglas District. The safety of our staff is our highest value.



Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National Grassland

p: 307-745-2400
c: 307-399-1404
djaeger01@fs.fed.us

2468 Jackson Street
Laramie, WY 82070
www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: Saturday, December 10, 2016 9:26 AM
To: Jaeger, Dennis -FS <djaeger01@fs.fed.us>; Magwire, Wendy R -FS <wmagwire@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Walker, Michael S -FS <mwalker@fs.fed.us>; Hays, Misty A -FS <mahays@fs.fed.us>; Martin, Melissa M -FS <mmmartin@fs.fed.us>
Cc: Voos, Aaron T -FS <atvoos@fs.fed.us>; Painter, Cristi L -FS <cpainter@fs.fed.us>; Lohr, Steve -FS <slahr@fs.fed.us>
Subject: RE: USFS annual report

Dennis if that is the case, it obviously has nothing to do with the biological and recovery potential of the site which is very high right now. It's also extremely hard to rationalize and justify within the needs of the national recovery program for the black-footed ferret, a critter that has been federally endangered for far too long, literally since 1966. It has also driven our ESA compliance activities regionally for a similar number of years, so a considerable taxpayer and agency investment that continues for the ferret while it remains on the ESA list. As you are undoubtedly well aware, there has also been considerable investment and commitment by the agency, region, forest and district to the planning and preparing for ferrets in the 3.63 management area at Thunder Basin for a couple decades. Past Regional Foresters have also stressed the importance of the R2 units contributing more to national recovery of the black-footed ferret. It is very important that the conversation continue. While the latest positions in Wyoming are admittedly challenging, the conversation needs to continue about Thunder Basin's role in "national" recovery of the ferret and how to work cooperatively with the principals and public to achieve it.

Peter

From: Jaeger, Dennis -FS
Sent: Friday, December 09, 2016 2:20 PM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>; Magwire, Wendy R -FS <wmagwire@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Walker, Michael S -FS <mswalker@fs.fed.us>; Hays, Misty A -FS <mahays@fs.fed.us>; Martin, Melissa M -FS <mmmartin@fs.fed.us>
Cc: Voos, Aaron T -FS <atvoos@fs.fed.us>; Painter, Cristi L -FS <cpainter@fs.fed.us>; Lohr, Steve -FS <slohr@fs.fed.us>
Subject: RE: USFS annual report

I completely agree Peter. I just want to make sure you are aware that I now have in writing from Wyoming Game and Fish, that they do not support BFF reintroduction on the TBNG. USFWS also has an agreement in Wyoming that BFF will only be released with concurrence from the Governor.



Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National Grassland

p: 307-745-2400
c: 307-399-1404
djaeger01@fs.fed.us

2468 Jackson Street
Laramie, WY 82070
www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: Friday, December 09, 2016 2:03 PM
To: Magwire, Wendy R -FS <wmagwire@fs.fed.us>; Jaeger, Dennis -FS <djaeger01@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Walker, Michael S -FS <mswalker@fs.fed.us>; Hays, Misty A -FS <mahays@fs.fed.us>; Martin, Melissa M -FS <mmmartin@fs.fed.us>
Cc: Voos, Aaron T -FS <atvoos@fs.fed.us>; Painter, Cristi L -FS <cpainter@fs.fed.us>; Lohr, Steve -FS <slohr@fs.fed.us>
Subject: RE: USFS annual report

We would not typically call out the state on lack of support. They're also on the Executive Team and there are also some interests that argue federal agencies and lands don't need state support. The SD reintroduction went forward many years ago in the face of strong opposition at the state level. It went forward because of the federal nexus and significance attached to the site in the national recovery program. At one time, the Rosecrans area on Thunder Basin was 3rd in priority for reintroduction in the national recovery program. There are several factors that have come in to play to change that over the years. But the grasslands still has great potential to contribute importantly to

the national recovery of the black-footed ferret. It is important not to lose sight over that and continue to work with the state, FWS, and Executive Committee on better framing and garnering the support for a long overdue reintroduction at Thunder Basin.

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service
Rocky Mountain Region

p: 303-275-5029 (primary)
c: 303-475-3515 (travel & telework)
petermcdonald@fs.fed.us

740 Simms Street
Golden, CO 80401

www.fs.fed.us



Caring for the land and serving people

Program website: www.fs.usda.gov/detail/r2/landmanagement/?cid=stelprdb5188017

Intranet (FS only): http://fsweb.r2.fs.fed.us/rr/R2_TES_Site_2007

Interagency ESA site: www.fs.usda.gov/detail/r2/landmanagement/?cid=stelprdb5341949

From: Magwire, Wendy R -FS

Sent: Friday, December 09, 2016 9:57 AM

To: Jaeger, Dennis -FS <djaeger01@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Walker, Michael S -FS <mswalker@fs.fed.us>; Hays, Misty A -FS <mahays@fs.fed.us>; Martin, Melissa M -FS <mmmartin@fs.fed.us>

Cc: Voos, Aaron T -FS <atvoos@fs.fed.us>; Painter, Cristi L -FS <cpainter@fs.fed.us>; McDonald, Peter M -FS <petermcdonald@fs.fed.us>

Subject: RE: USFS annual report

Dennis, the report does not say that the State supports reintroduction efforts, but if your point is that we should include a statement saying that they do not support it, I can include that. This is an annual report to the USFWS who clearly understands the State's position, but I assume it is shared with the BFF Implementation Team Executive Committee which consists of federal, state and NGO partners (see Peter's message below).

As far as our role with the Delta dust research project, Cristi and her seasonals help the researchers trap prairie dogs, and they do handle them to collect fleas. The researchers are on site and supervise the operations, including making sure the handling and anesthesia protocols are followed. FY16 was the last year of the field research. The analysis is now underway and a publication will produced.

Let me know if you have any more questions.

Wendy

From: McDonald, Peter M -FS

Sent: Wednesday, November 09, 2016 1:26 PM

To: Barrera, Bobbi L -FS <bbarrera@fs.fed.us>; Sartorius, Shawn S -FS <shawnsartorius@fs.fed.us>; Griebel, Randall L -FS <rgriebel@fs.fed.us>; Magwire, Wendy R -FS <wmagwire@fs.fed.us>; Welker, Michael -FS <mtwelker@fs.fed.us>; Allen, Lydia R -FS <lrallen@fs.fed.us>

Cc: Burns, Joseph A -FS <jaburns@fs.fed.us>; Pivorunas, David -FS <dpivorunas@fs.fed.us>; Jackson, Scott -FS <sjackson03@fs.fed.us>; McDonald, Peter M -FS <petermcdonald@fs.fed.us>

Subject: REQUEST: BFF annual report

All-

It's that time of year to pull together the USFS annual report to the USFWS summarizing recovery activities for the black-footed ferret for the year, including related prairie dog management activities. We try to finalize this report each year and send to the Service's recovery coordinator in time for the BFF Implementation Team Executive Committee winter meeting, which this year is December 13-14 at the Rocky Mountain Arsenal National Wildlife Refuge here in the Denver area. If you're not familiar with the Executive Committee, it's the leadership group of federal, state and NGO partners that oversee the implementation of the national recovery program for the black-footed ferret.

As in the past, I'll offer to pull together the agency report but will again need your help with updates for your area. Attached is last year's report to get you started. Please review and make any necessary edits, or tell me if your applicable section still looks good from your standpoint.

I'd appreciate your updates by Tuesday 12/6. Let me know of further questions. Thanks everyone.

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service
Rocky Mountain Region

p: 303-275-5029 (primary)
c: 303-475-3515 (travel & telework)
petermcdonald@fs.fed.us

740 Simms Street
Golden, CO 80401
www.fs.fed.us



Caring for the land and serving people

Program website: www.fs.usda.gov/detail/r2/landmanagement/?cid=stelprdb5188017
Intranet (FS only): http://fsweb.r2.fs.fed.us/rr/R2_TES_Site_2007
Interagency ESA site: www.fs.usda.gov/detail/r2/landmanagement/?cid=stelprdb5341949

From: Jaeger, Dennis -FS

Sent: Friday, December 09, 2016 6:59 AM

To: Magwire, Wendy R -FS <wmagwire@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Walker, Michael S -FS <mswalker@fs.fed.us>; Hays, Misty A -FS <mahays@fs.fed.us>; Martin, Melissa M -FS <mmmartin@fs.fed.us>

Cc: Voos, Aaron T -FS <atvoos@fs.fed.us>

Subject: RE: USFS annual report

Thanks Wendy,

Couple of comments, the State of Wyoming does not support BFF reintroduction on the TBNG. Also, can you give me a quick update on our role with the delta dust research? Thanks



Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National Grassland

p: 307-745-2400
c: 307-399-1404
djaeger01@fs.fed.us

2468 Jackson Street
Laramie, WY 82070

www.fs.fed.us



Caring for the land and serving people

From: Magwire, Wendy R -FS

Sent: Thursday, December 08, 2016 3:21 PM

To: Jaeger, Dennis -FS <djaeger01@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Walker, Michael S -FS <mwalker@fs.fed.us>; Hays, Misty A -FS <mahays@fs.fed.us>; Martin, Melissa M -FS <mmmartin@fs.fed.us>

Cc: Voos, Aaron T -FS <atvoos@fs.fed.us>

Subject: FW: USFS annual report

Please see the attached annual report for black-footed ferret/prairie dog management on NFS lands. I pieced together information from several sources to provide the TBNG entry.

Wendy



Wendy R. Magwire
Wildlife, Fish, & Botany Resource Team Leader

Forest Service
Medicine Bow & Routt National Forests and Thunder Basin National Grassland

p: 307-745-2412
c: 307-460-8871
wmagwire@fs.fed.us

2468 Jackson Street
Laramie, WY 82070

www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: Thursday, December 08, 2016 2:33 PM
To: Abegglen, Jeffrey S -FS <jsabegglen@fs.fed.us>; Dobesh, Phillip A -FS <pdobesh@fs.fed.us>; Magwire, Wendy R -FS <wmagwire@fs.fed.us>; Painter, Cristi L -FS <cpainter@fs.fed.us>; Welker, Michael -FS <mtwelker@fs.fed.us>; Chappell, Andrew T -FS <atchappell@fs.fed.us>
Subject: FW: USFS annual report

Thanks for everyone's contributions to this year's report.

Peter

From: McDonald, Peter M -FS
Sent: Thursday, December 08, 2016 2:28 PM
To: [Pete Gober@fws.gov](mailto:Pete_Gober@fws.gov); john_hughes@fws.gov
Cc: Harper, Robert -FS <rharper@fs.fed.us>; Worth, Chris C -FS <cworth@fs.fed.us>; Burns, Joseph A -FS <jaburns@fs.fed.us>; Dawe, Christine -FS <cdawe@fs.fed.us>; Lohr, Steve -FS <slohr@fs.fed.us>; Mask, Roy -FS <rmask@fs.fed.us>; Barrera, Bobbi L -FS <blbarrera@fs.fed.us>; seth_willey@fws.gov; Jackson, Scott -FS <sjackson03@fs.fed.us>; Allen, Lydia R -FS <lrallen@fs.fed.us>; McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: USFS annual report

Pete and John,

On behalf of the Forest Service, attached is our agency's annual report of black-footed ferret recovery and related prairie dog monitoring activities for 2016. We look forward to seeing everyone at the Executive Committee meeting next week in the Denver area.

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service
Rocky Mountain Region

p: 303-275-5029 (primary)
c: 303-475-3515 (travel & telework)
petermcdonald@fs.fed.us

740 Simms Street
Golden, CO 80401
www.fs.fed.us



Caring for the land and serving people

Program website: www.fs.usda.gov/detail/r2/landmanagement/?cid=stelprdb5188017
Intranet (FS only): http://fsweb.r2.fs.fed.us/rr/R2_TES_Site_2007
Interagency ESA site: www.fs.usda.gov/detail/r2/landmanagement/?cid=stelprdb5341949

From: Prosser, Chadley W -FS
Sent: 25 Mar 2019 14:27:48 +0000
To: McDonald, Peter M -FS
Subject: Summary of Prairie dog petitions_side112408.doc
Attachments: Summary of Prairie dog petitions_side112408.doc

Good morning Peter –

Do you have an updated version of the attached document? Unfortunately, I don't have access to the pinyon folder that you sent the other week to see if it was in there.

Thank you - Chad

Summary of Prairie Dog Petitions Submitted to the U.S. Fish & Wildlife Service

(November 17, 2008)

Summary of Black-tailed Prairie Dog Petitions

PETITION DATE	BLACK-TAILED PRAIRIE DOG OCTOBER 21, 1994	BLACK-TAILED PRAIRIE DOG JULY 30, 1998	BLACK-TAILED PRAIRIE DOG AUGUST 26, 1998	BLACK-TAILED PRAIRIE DOG AUGUST 1, 2007
Petition Request	Classify btpd (<i>Cynomys ludovicianus</i>) as a Category 2 candidate species	List btpd (<i>Cynomys ludovicianus</i>) as a threatened species	List btpd (<i>Cynomys ludovicianus</i>) as threatened in the contiguous U.S.	List btpd (<i>Cynomys ludovicianus</i>) as endangered or threatened
Petitioners	Biodiversity Legal Foundation and Jon C. Sharps	National Wildlife Federation	Biodiversity Legal Foundation, Jon C. Sharps, and Predator Project	Forest Guardians, Biodiversity Conservation Alliance, Center for Native Ecosystems, and Rocky Mountain Animal Defense
USFWS Determination	On May 5, 1995, USFWS concluded that the present numbers, distribution, and reproductive capability of the btpd were such that it did not warrant candidate status.	On February 4, 2000 USFWS published a 12-month finding in the <u>Federal Register</u> that issuing a proposed rule to list the btpd was warranted but precluded by other higher priority actions, and the btpd was included in the list of candidate species. Two candidate assessments were completed on October 30, 2001 and June 13, 2002. On August 18, 2004 USFWS completed a resubmitted petition finding that concluded listing was not warranted, and the btpd was removed from the candidate list.	This petition was treated as supplemental to the July 30, 1998 petition from National Wildlife Federation. Refer to USFWS Determination for the July 30, 1998 petition.	A 90-day finding will be published in the <u>Federal Register</u> by November 30, 2008
Legal		1a. 60-day NOI to Sue concerning	Refer to Legal Actions for	1a. Complaint filed

Actions		delay in 90-day finding dated 12-01-98 from Biodiversity Legal Foundation, Predator Project, & Jon Sharps 1b. Letter of response dated 01-27-99 and 90-day finding published 03-17-99 2a. 60-day NOI to Sue concerning delay in 12-month finding dated 08-02-99 from Biodiversity Legal Foundation 2b. Letter of response dated 09-22-99 and 12-month finding dated 02-01-00 3a. 60-day NOI to Sue concerning delay in 2003 CNOR dated 10-15-03 from Forest Guardians et al. 3b. Species Removal from Candidate List dated 08-12-04 4a. Complaint filed concerning removal from Candidate List dated 02-07-07 from Forest Guardians et al. 4b. This led to several motions and the 08-01-07 petition to list the btpd. On 10-09-07 the plaintiffs withdrew their 02-07-07 complaint	the July 30, 1998 petition.	concerning failure to take action on 08-01-07 petition dated 03-13-08 by WildEarth Guardians (formerly Forest Guardians) 1b. A stipulated settlement dated 07-01-08 agreed to publish 90-day finding by 11-30-08
Lead USFWS Office	Kansas Field Office Manhattan, KS	South Dakota Field Office Pierre, SD	South Dakota Field Office Pierre, SD	South Dakota Field Office Pierre, SD
USFWS Contact	William Gill Field Supervisor	Pete Gober Field Supervisor	Pete Gober Field Supervisor	Pete Gober Field Supervisor

Summary of Gunnison, White-tailed, and Utah Prairie Dog Petition and other listing actions

PETITION DATE	GUNNISON PRAIRIE DOG FEBRUARY 23, 2004	WHITE-TAILED PRAIRIE DOG JULY 15, 2002	UTAH PRAIRIE DOG NOVEMBER 5, 1979	UTAH PRAIRIE DOG FEBRUARY 3, 2003
Petition Request	List gpd (<i>Cynomys gunnisoni</i>) as a threatened or endangered species	List wtpd (<i>Cynomys leucurus</i>) as a threatened or endangered species	Remove utpd (<i>Cynomys parvidens</i>) from threatened and endangered list	Reclassify utpd (<i>Cynomys parvidens</i>) from threatened to endangered
Petitioners	Forest Guardians and 73 other organization and individuals	Center for Native Ecosystems, Forest Guardians, Biodiversity Conservation Alliance, Terry Tempest Williams	Utah Division of Wildlife Resources	Forest Guardians, Center for Native Ecosystems, Escalante Wilderness Project, Boulder Regional Group, Southern Utah Wilderness Alliance, and Terry Tempest Williams
USFWS Determination	As a result of a settlement agreement, on February 7, 2006 published 90-day finding in the Federal Register that the petition did not present substantial information indicating that listing may be warranted. On February 5, 2008 published warranted but precluded finding for montane portion of species range with a listing priority number of 2.	90-day finding published in Federal Register on November 9, 2004 that the petition did not present substantial information indicating that listing may be warranted In a Director's memorandum announced on July 12, 2007 we would review the November 9, 2004 finding Notice of initiation of 12-month review published in Federal Register on May 6, 2008	Petition contained substantial information. Species reclassified from endangered to threatened on May 29, 1984. As part of this finding promulgated 4(d) rule to allow take of up to 5,000 animals annually. On June 14, 1991 published a final rule to allow regulated take of 6,000 animals annually.	90-day finding published in Federal Register on February 21, 2007 that the petition did not present substantial information indicating that reclassification was warranted; Federal Register also initiated 5-year review of species status

Legal Actions	1a. 60-day NOI for failure to complete a finding dated July 29, 2004. 1b. Amended complaint for failure to complete a finding for this and other species on December 7, 2004. 2a. 60-day NOI dated August 17, 2006 regarding 90-day finding of Feb 2006 from Forest Guardians and eight other organizations and individuals. 2b. Complaint filed on December 13, 2006 challenging the 90-day finding. 2c. Settlement agreement with plaintiffs reached on June 29, 2007 3a. 60-day NOI dated September 25, 2008 challenging the FWS decision to not list the entire species.	1a. On November 27, 2007 received lawsuit from Center for Native Ecosystems and 3 other entities regarding November 9, 2004 90-day finding. 1b. FWS agreed to settlement agreement on February 22, 2008 to submit notice initiating 12-month review on or before May 1, 2008; and to submit 12-month finding to Federal Register on or before June 1, 2010. The lawsuit was dismissed on February 26, 2008.		1a. On February 2, 2004 received NOI for failure to issue 90-day finding. 1b. On February 2, 2006 received complaint for injunctive and declaratory relief. 1c. On June 2, 2006 reached settlement agreement requiring FWS to make 90-day finding on or before February 17, 2007. 2a. On September 16, 2008 WildEarth Guardians filed a complaint for declaratory and injunctive relief on February 21, 2007 90-day decision to "uplist" the species.
Lead USFWS Office	Western Colorado Field Office Grand Junction, CO	Utah Field Office Salt Lake City, UT	Utah Field Office Salt Lake City, UT	Utah Field Office Salt Lake City, UT
USFWS Contact	Al Pfister Western CO Supervisor	Larry Crist Utah Field Supervisor	Larry Crist Utah Field Supervisor	Larry Crist Utah Field Supervisor

From: McDonald, Peter M -FS
Sent: 8 Sep 2017 17:14:38 +0000
To: Lohr, Steve -FS
Subject: TBNG prairie dog mapping

Steve putting a bug in your ear as you're in and out of conversations about the future of prairie dog management on TBNG and allocation of resources. It has become abundantly clear over the past few months that there are few reliable numbers of actual (live) acres of prairie dogs across the grasslands there. Some updated prairie dog mapping in the coming year would be very useful to further planning.

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service
Rocky Mountain Region

p: 303-275-5029

c: 303-475-3515

petermcdonald@fs.fed.us

1617 Cole Boulevard, Bldg 17

Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: 13 Mar 2017 22:57:11 +0000
To: Lohr, Steve -FS
Subject: TBNG prairie dog shooting

Steve any more word on your end about the removal of the ban on shooting? I spoke with Chelsea Monks, the acting forest biologist, and it sounds like it was news to her though she has only been there a few weeks. I'm still worried they are hanging out there on several fronts with this action.
Peter

10 Key Items important to understand regarding the Grassland Plan Amendment Proposed Action Steve Kozlowski – 5/1/19	
1.	3.63 Management Area would be changed to 3.67 Management Area, Including Some Boundary Changes. •Change is from BFF emphasis in 3.63, to short stature veg emphasis for associated WL species in 3.67
2.	The PD management Strategy will no longer be used, including goal acres, habitat categories 1 through 3, and decision flow charts. Instead, the USFS will seek and consider recommendations made by the 3rd Party Stakeholder Collaborative for items such as PD mapping (including lands adjacent to TBNG), best available science, integrated management principles (include multiple/diverse stakeholders and cross boundary considerations), prioritization of colonies for control and protection, population trends, etc.
3.	Boundary Management Zones •Grassland-wide Boundary Management Zones will be established within one mile of private residences. •¼-mile boundary management zones will be established where 3.67 shares a border with private or state property. •control of prairie dogs using rodenticides will be a top priority in these boundary management zones. Thus, active colonies within boundary management zones would not be calculated to contribute towards the goal acres for short stature vegetation. •Control on NFS is contingent on concurrent control efforts by the adjacent landowner. •In special circumstances, landowners may request a temporary ¾-mile boundary management zone in 3.67 to prevent encroachment. Decision is at the Ranger's discretion.
4.	Goal in 3.67 of 10,000 acres active prairie dog colonies (short stature vegetation) to provide adequate habitat for associated species (breeding and nesting). These acres would be located outside of the 1 mile and ¼ mile boundary management zones.
5.	Arrangement of short stature vegetation in 3.67 •In 3.67, prairie dog colony sizes range from 100 to 400 acres, up to 1,000 acres. These sizes are preferred for associated species according to recent literature. •One area in 3.67 would be managed for 1,500 acres of active prairie dog colonies so as not to preclude potential reintroduction of black-footed ferrets. This aligns with minimum requirements in the WGFD BFF Management Plan.
6.	Minimum Acres of Short Stature Vegetation in 3.67 •All management tools (in particular, lethal control of prairie dogs) are available when 3.67 has greater than 7,500 acres of active PD, given sufficient consideration of current prairie dog population trends and potential to reach the 10,000 acre target in the future. •When 3.67 has 7,500 acres or less, lethal control is not allowed there, but density control may be used to limit expansion. See exception below that provides for flexibility.

7. Satellite Colonies
If lethal control is needed in 3.67, and 3.67 has less than 7,500 acres of active PD, temporary satellite colonies outside of 3.67 must be identified before proceeding. In those identified satellite colonies, prohibit lethal control of prairie dogs. A corresponding amount of lethal control could then occur within 3.67. Satellite designation is intended to be temporary, but would remain in place until a satellite colony is no longer needed to contribute to the sum of 7,500 acres of active colonies.
8. Rodenticide use is allowed, and is the primary method for lethal control of Prairie Dogs. Anti-coagulant and fumigant rodenticides are not allowed because of the likelihood of negative effects to other wildlife, and in consideration of recommendations made by the USFWS.
9. Recreational prairie dog shooting is allowed Grassland-wide. Shooting may be temporarily prohibited on specific colonies in 3.67 when necessary to encourage expansion toward target goals.
10. Implementation decisions that carry out this amendment will not preclude the potential reintroduction of the black-footed ferret in 3.67.

Key Items of the Grassland Plan Amendment - Summary

Forest Wide Standards and Guidelines

1. BFF Habitat would not specifically be replaced if lost to development of a new facility. Standard has been removed. Instead see target language in management area 3.67.
2. Prescribed fire is not specifically used to create Plover Habitat. Standard has been removed. Instead see target language in management area 3.67.
3. When poisoning to control prairie dogs or new facilities are developed, loss of Plover habitat is not specifically replaced. Standard has been removed. Instead see target language in management area 3.67.
4. The PD management Strategy will no longer be used. Instead, consider recommendations made by the 3rd Party Stakeholder Collaborative.
5. When **satellite colonies** are temporarily identified (outside of management area 3.67) to meet target acres, prohibit lethal control in satellite colonies until target is achieved inside of 3.67 and the satellite designation removed.
6. Rodenticide use is allowed as necessary for Prairie Dog control, but anti-coagulants and fumigants are not allowed.
7. Only apply rodenticides no more than 3 consecutive years in an area.
8. Consider effects to associated species when using lethal control outside of management area 3.67.
9. Grassland wide Boundary Management Zones will be established within one mile of private residences.
 - Control of prairie dogs using rodenticides will be prioritized in these boundary management zones.
 - Control on NFS is contingent upon concurrent control efforts by the adjacent landowner.
10. **Broken Hills and Cellars Geographic Areas**
 - Objectives no longer towards BFF habitat Goals.
 - Objectives no longer towards 24,000 acres to 31,000 acres of low structure veg.
 - Objective is now towards 10,000 acre active prairie dogs in 3.67, which provide short structure veg.
11. **Cheyenne River Special Interest Area**
 - Riparian corridor will serve as an aid to prevent the encroachment of prairie dogs off of NFS and onto private lands.
 - While prairie dog colonies may occur in the SIA, do not manage for the expansion or persistence of colonies there.
12. **3.63 Management Area would be changed to 3.67 Management Area, Including Some Boundary Changes.**
 - Change is from BFF emphasis in 3.63, to short stature veg emphasis for associated WL species in 3.67

13. Goal of 10,000 acres active prairie dogs (short stature vegetation) in 3.67 to provide adequate habitat for associated species.
14. Colony Targets •Prairie dog colony sizes range from 100 to 400 acres, up to 1,000 acres. These sizes are preferred for associated species. •One area in 3.67 would be managed for 1,500 acres of active prairie dog colonies so as not to preclude potential reintroduction of black-footed ferrets. This aligns with minimum requirements in the WGFD BFF Management Plan.
15. Management Tools during Colony Minimums •All mgmt. tools are available when 3.67 has greater than 7,500 acres of active PD. •When 3.67 has 7,500 acres or less, only density control would be used to control expansion, see exception below that provides for flexibility.
16. Exception for Flexibility at Colony Minimum. If lethal control is needed in 3.67, and 3.67 is less than 7,500 acres of active PD, temporary satellite colonies outside of 3.67 must be identified, and control restricted there, before lethal control can occur within 3.67.
17. Tools for Expanding or Controlling Prairie Dogs •Tools to expand or maintain prairie dog colonies include translocation, dusting, specific colony shooting restrictions. •Tools to control or maintain prairie dog colonies include rodenticides, veg barriers, translocation, and density control.
18. Boundary Management Zones inside of 3.67 •¼-mile boundary management zones will be established where 3.67 shares a border with private or state property. •control of prairie dogs using rodenticides will be prioritized in these boundary management zones. •Control on NFS is contingent on concurrent control efforts by the adjacent landowner. •Landowners may request a temporary ¾-mile boundary management zone to prevent encroachment. Decision is at the Ranger's discretion.
19. Recreational prairie dog shooting is allowed in the 3.67 Management Area; however, shooting may be temporarily prohibited on specific colonies when necessary to encourage expansion toward target goals. Standard
20. Implementation decisions that carry out this amendment will not preclude the potential reintroduction of the black-footed ferret in 3.67

From: Painter, Cristi L -FS
Sent: 5 Sep 2017 19:58:10 +0000
To: McDonald, Peter M -FS;Kozlowski, Steve -FS
Subject: 2670 direction for SS
Attachments: sensitive species viability 2670.PNG

Could you please tell me what this is saying? It seems straight forward, but it often never is, and there are loopholes I am never aware of. I need your help.



Cristi Painter
Wildlife Biologist

Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger District

p: 307-358-7132

f: 307-358-7107

cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633

www.fs.fed.us



Caring for the land and serving people

2670.32 - Sensitive Species

1. Assist states in achieving their goals for conservation of endemic species.
2. Review programs and activities as part of the National Environmental Policy Act of 1969 process through a biological evaluation, to determine their potential effect on sensitive species.
3. Avoid or minimize impacts to species whose viability has been identified as a concern.
4. Analyze, if impacts cannot be avoided, the significance of potential adverse effects on the population or its habitat within the area of concern and on the species as a whole. (The line officer, with project approval authority, makes the decision to allow or disallow impact, but the decision must not result in loss of species viability or create significant trends toward federal listing.)

From: [Painter, Cristi L -FS](#)
To: [McDonald, Peter M -FS](#)
Subject: RE: TBNG prairie dogs
Date: Friday, January 13, 2017 11:27:10 AM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)

Yes. Based on the 2015 data. We are trying to sort through mapping data collected by someone contracted by TBGPEA but are having some issues. So we are sticking with that number for now because that is solid.



Cristi Painter
Wildlife Biologist
Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger
District

p: 307-358-7132
f: 307-358-7107
cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633
www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: Friday, January 13, 2017 9:01 AM
To: Painter, Cristi L -FS <cpainter@fs.fed.us>
Subject: RE: TBNG prairie dogs

Hi Cristi, do you mean there are 8,000 ac of dogs outside the 3.63?

Peter

From: Painter, Cristi L -FS
Sent: Monday, January 09, 2017 3:30 PM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: RE: TBNG prairie dogs

18,000 was in the 3.63 area

Cristi Painter
Wildlife Biologist
Forest Service



Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger
District

p: 307-358-7132

f: 307-358-7107

cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633

www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS

Sent: Tuesday, December 13, 2016 10:01 AM

To: Magwire, Wendy R -FS <wmagwire@fs.fed.us>; Painter, Cristi L -FS <cpainter@fs.fed.us>

Subject: TBNG prairie dogs

Importance: High

Wendy or Cristi, maybe I missed it or it just wasn't included in the recent update for TBNG for the BFF Exec. Committee. Can you give me the latest active prairie dog colony acres for TBNG? Your 2015 report said something north of 26,000 acres. For some reason I had closer to about 18,000 in my head and 26k is a pretty good sized complex. Is the latter a reasonable number to take into the meeting this afternoon? Ok if you don't see this in time.

Peter

From: Bly, Kristy
To: [Jaeger, Dennis -FS](#); [Walker, Michael S -FS](#); [Ferebee, Brian -FS](#); [McDonald, Peter M -FS](#); [Lindsey Sterling Krank](#); [Hays, Misty A -FS](#); [Steve Forrest](#); [Jonathan Proctor](#) (b) (6); [Chamois L. Andersen](#)
Subject: FW: Suspension of shooting restrictions
Date: Monday, May 08, 2017 11:33:37 AM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[Response to prairie dog shooting order 3-29-17 amended.pdf](#)
Importance: High

Dear Mr. Jaeger,

We are still awaiting your response to our letter (attached). Please get back to us at your earliest convenience.

Kristy Bly, World Wildlife Fund

Steve Forrest, Defenders of Wildlife

Lindsey Sterling Krank, Prairie Dog Coalition of the Humane Society of the United States

From: Bly, Kristy
Sent: Wednesday, March 29, 2017 5:09 PM
To: 'Jaeger, Dennis -FS' <djaeger01@fs.fed.us>
Cc: 'Walker, Michael S -FS' <mswalker@fs.fed.us>; 'bferebee@fs.fed.us' <bferebee@fs.fed.us>; 'petermcdonald@fs.fed.us' <petermcdonald@fs.fed.us>; 'Lindsey Sterling Krank' (b) (6); Steve Forrest (b) (6); 'Jonathan Proctor' (b) (6)
Subject: RE: Suspension of shooting restrictions
Importance: High

Dear Mr. Jaeger,

We have amended our letter after additional review of the relevant documents, including the 2009 Record of Decision: Thunder Basin National Grassland Prairie Dog Management Strategy and Land and Resource Plan Amendment #3 and the 2015 update to the Black-tailed Prairie Dog Conservation Assessment and Management Strategy for the Thunder Basin National Grassland. Our additions in the attached letter are highlighted in red.

We regard this matter as urgent and look forward to hearing from you soon.

Sincerely,

Kristy Bly, World Wildlife Fund

Steve Forrest, Defenders of Wildlife

Lindsey Sterling Krank, Prairie Dog Coalition of the Humane Society of the United States



March 29, 2017

Dennis L. Jaeger, Forest Supervisor
U.S. Forest Service
Medicine Bow-Routt National Forests
Thunder Basin National Grassland
2468 Jackson Street
Laramie, WY 82070

Dear Forest Supervisor Jaeger:

We write you to express our profound disappointment regarding your March 3, 2017 email regarding your rescission of the black-tailed prairie dog (*Cynomys ludovicianus*) shooting prohibition on the Thunder Basin National Grassland (Grassland). Although we recognize your need to manage the Grassland for myriad interests, resources and activities, we believe this action goes beyond what would reasonably be required to meet the concerns of the grazing community or increase forage for livestock given ongoing drought conditions, while at the same time meeting your obligations under the National Forest Management Act and the Endangered Species Act to provide habitat for species that the Forest Service has identified for special management consideration. This decision concerns us for three main reasons: (1) it directly threatens population sustainability of mountain plovers (*Charadrius montanus*); (2) it was made prior to modifying livestock grazing practices in the face of drought; and (3) it fails to follow black-footed ferret reintroduction (*Mustela nigripes*) habitat standards in violation of the 2009 Record of Decision (ROD): Thunder Basin National Grassland Prairie Dog Management Strategy and Land and Resource Plan Amendment #3 (2009 ROD) and the 2015 update to the Black-tailed Prairie Dog Conservation Assessment and Management Strategy for the Thunder Basin National Grassland (2015 Strategy).

The decision to rescind the prairie dog shooting prohibition within designated areas directly threatens population viability of the Grassland's prairie dog and mountain plover populations (particularly as the breeding and nesting season is just beginning), which is counter to numerous Forest Service Manual and Thunder Basin National Grassland Land and Resources Management Plan (Grassland Plan) standards and guidelines. In addition, we believe that prior to this decision, insufficient measures were taken to follow the Grassland Plan and the Forest Service Handbook standards surrounding the modification of livestock grazing practices and adjustment of grazing capacity to adequately address rangeland resource conditions during this period of drought. Finally, this decision is a violation of the two standards for maintaining black-footed ferret reintroduction habitat. **Respectfully, we are requesting that you immediately reinstate the prairie dog shooting closure in the Grassland's entire Category 1 Area, including the Management Area 3.63 – Black-footed Ferret Reintroduction Area, for the following reasons:**

- The decision to rescind the prairie dog shooting prohibition on the Grassland directly violates the Grassland Plan, Chapter 1, Biological Resources Section F (Fish, Wildlife, and Rare Plants) guideline for mountain plovers (#29): To help reduce disturbances and risks to nesting mountain plover, do not

authorize the following activities in plover nesting areas or within 0.25 miles of plover nests from March 15 through July 31:

Prairie dog shooting (in consultation with state wildlife agencies and U.S. Fish and Wildlife Service).

It does not appear that any guidance has been given the public regarding this concern, nor is there any way other than a shooting closure that violation of this provision is not inevitable, given that mountain plover nests are extremely difficult to locate. As we have already passed the March 15 deadline, a closure is immediately required to meet this guideline.

We are providing you with a map representing the most recent (2016) records of nesting mountain plover within Categories 1 and 2 on the Grassland, buffered by the 0.25 mile limits proscribed in the plan (Figure 1, attached). These areas should be closed to shooting immediately to remain in compliance with the plan.

- This decision was made prior to employing other standards of rangeland management first: Modify livestock grazing practices, as needed, to reduce adverse impacts of drought to threatened, endangered, and sensitive species and species at risk. Grassland Plan, Chapter 1, Biological Resources Section F (Fish, Wildlife, and Rare Plants) (#2).

It does not appear that any attempt was made to modify grazing to address deteriorating range conditions prior to recession of the shooting closure order.

- This decision was made prior to following Goal 2, Objectives 1 and 2 of the Grassland Plan first:
"1. Annual grazing levels will be adjusted, as needed, during periods of drought or for other conditions.
2. As needed, revise allotment management plans (AMP) to meet desired vegetative conditions described in Geographic Areas and to implement all appropriate management plan direction."
- This decision was made prior to appropriately modifying grazing permits in the face of drought. It is within your decision-making authority to "modify a term grazing permit by reducing the permitted numbers, seasons of use, or allotments to be grazed as necessary to protect, restore, or improve rangeland resource conditions. Decisions to modify term grazing permits by reducing livestock numbers or seasons of use will be made in writing by the authorized officer exercising professional judgment and utilizing the best information available at the time of the decision." (FSH 2209.13 Grazing Permit Administration Handbook, Chapter 10, Section 16.13).
- This decision violates the two Grassland Plan (Chapter 3) black-footed ferret reintroduction habitat standards: "1. Authorize only those uses and activities that do not reduce the suitability of the area as black-footed ferret reintroduction habitat. 2. Manage all prairie dog colonies within this Management Area as though they were occupied by black-footed ferrets, and apply all Standards and Guidelines as though black-footed ferrets occupy all colonies."
- This decision directly violates the year round recreational shooting of prairie dog closure in Category 1 as outlined on page 4 of the 2009 ROD: "Category 1 Prairie Dog Habitat will be considered core habitat. Recreational shooting of prairie dogs will be prohibited year round within Category 1 Prairie Dog Habitat."
- This decision directly violates the prohibition of recreational shooting of prairie dogs within the Grassland's Management Area (MA) 3.63, the Category 1 Area, and within the five Category 2 Areas as outlined on pages 9 and 13 of the 2015 Strategy: "A. General Strategy Components: Recreational

shooting of prairie dogs is prohibited on all NFS lands within TBNG LRMP Management Area 3.63 – Black-footed Ferret Reintroduction Area and the Category 1 Area; shooting is also prohibited in the five Category 2 Areas, unless objective acres of occupied prairie dogs have been met (then see Appendix A – Decision Screens for specifics)."

There is a distinct and clear separation between what is allowable under the existing 2009 ROD/2015 Strategy update within the context of Category 1 and 2 prairie dog colonies in relation to meeting the management objectives. There is no authority absent a revision of the 2009 ROD/2015 Strategy update that would permit you to authorize shooting within the Category 1 area. Furthermore, we have yet to see documentation that Category 2 acres are above objective.

"Recreational shooting of prairie dogs is prohibited within MA 3.63 and the Category 1 Area. Shooting has been found to leave prairie dog carcasses that contain high levels of lead fragments. These fragments could lead to secondary poisoning of other wildlife if consumed (Pauli 2005). Prairie dogs are susceptible to hunting related disturbances and shooting has a cascading effect on population level processes (Pauli et al, 2007)."

The effects of shooting as a management tool are nearly impossible to gauge. Shooting can result in removal of pregnant prairie dog females and young of the year, promote increased emigration, and affect behavior. The impacts are largely based on shooting intensity, which in an unregulated setting cannot be controlled. We do not see how opening shooting within the 3.63 management area will either result in increased forage over the short or long term, result in the desired distribution of prairie dogs, or benefit the sensitive species that are present. Shooting invariably results in non-target species (like burrowing owls, *Athene cunicularia*) being shot, either intentionally or accidentally.

We did not contest the opening of areas outside the 3.63 area to shooting when you made that decision in 2015, **absent findings that the Category 2 colonies were, in fact, over objective**. Apparently opening most the Grassland to shooting was ineffective in accomplishing a reduction in numbers. We do not believe that opening the MA 3.63 and Category 1 Area in its entirety will result in anything but disrupted prairie dog behavior, destruction of the prairie dog social system, increased lead deposition on the Grassland, and fragmentation of prairie dog colonies.

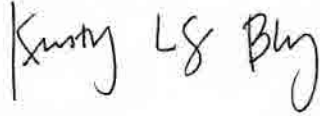
The arrival of spring also brings the return of nesting mountain plovers and burrowing owls. Recreational shooting of prairie dogs not only threatens the birds' ability to establish and maintain nest sites, but also their survival as they are susceptible to being shot. A much more narrowly tailored action is required to comply with the Grassland Plan.

- This decision likely violates the National Environmental Policy Act (NEPA). NEPA demands agency transparency in its decision-making through public involvement. *Baltimore Gas & Electric v. NRDC*, 462 U.S. 87, 97 (1983); *Kern v. BLM*, 284 F.3d 1062, 1073 (9th Cir. 2002). *"By focusing both agency and public attention on the environmental effects of proposed actions, NEPA facilitates informed decision-making by agencies and allows the political process to check those decisions."* *New Mexico v. BLM*, 565 F.3d 683, 703 (10th Cir. 2009). Arguably, the shooting closure was incorporated by reference and became part of the existing Grassland Plan (see Appendix B, Decision Screen 2, shooting can be opened only "outside restriction.") Rescinding a long-standing shooting closure order was not merely a return to the status quo, but due to the longevity of the order and its inclusion by reference into the Forest Plan, a significant change to the environmental regulatory regime on the Grassland.

We would like to have a discussion with you and your team at your earliest convenience to discuss these issues and to hear your opinion why your decision is not a violation of the **2009 ROD, 2015 Strategy**, Forest Plan, the

Forest Planning regulations, and NEPA. In the interim, we ask that you immediately close to prairie dog shooting the Grassland's entire Category 1 Area, including the Management Area 3.63 – Black-footed Ferret Reintroduction Area, and inform the local community and the public that shooting is prohibited, as required by the plan. Thank you for your considering of our request.

Sincerely,



Kristy Bly

Senior Wildlife Conservation Biologist – World Wildlife Fund's Northern Great Plains Program



Steve Forrest

Rockies and Plains Representative – Defenders of Wildlife



Lindsey Sterling Krank

Director – Prairie Dog Coalition of the Humane Society of the United States

cc: Michael Shane Walker (District Ranger, Thunder Basin National Grassland)

Peter McDonald (Threatened, Endangered and Sensitive Species Program Leader, Rocky Mountain Region)

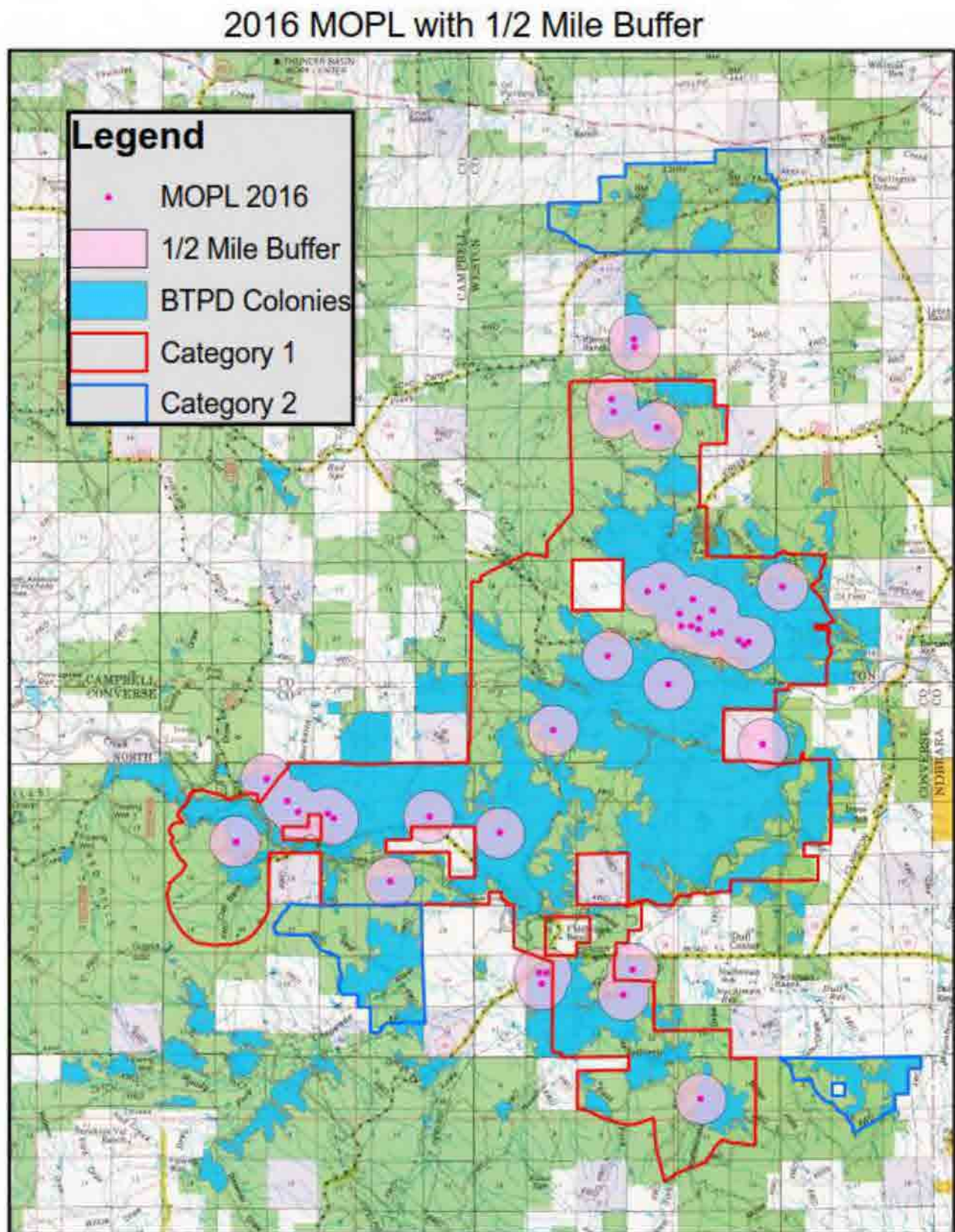
Brian Ferebee (Regional Forester, Rocky Mountain Region)

Literature Cited

Pauli, Jonathan N. and Buskirk, Steven W. 2007a. Recreational Shooting of Prairie Dogs: A Portal for Lead Entering Wildlife Food Chains. *Journal of Wildlife Management* 71(1): 103-108.

Pauli, Jonathan N. and Buskirk, Steven W. 2007b. Risk-disturbance overrides density dependence in a hunted colonial rodent, the black-tailed prairie dog (*Cynomys ludovicianus*). *Journal of Applied Ecology* 2007 44, 1219-1230.

Figure 1. 2016 Mountain plover nest locations buffered by 0.25 miles.



From: Bly, Kristy

Sent: Monday, March 27, 2017 11:45 AM

To: 'Jaeger, Dennis -FS' <djaeger01@fs.fed.us>

Cc: 'Walker, Michael S -FS' <mswalker@fs.fed.us>; 'bferebee@fs.fed.us' <bferebee@fs.fed.us>; 'petermcdonald@fs.fed.us' <petermcdonald@fs.fed.us>; 'Lindsey Sterling Krank'

(b) (6); Steve Forrest (b) (6); Jonathan Proctor

(b) (6) Nelson, Jeff (b) (6)

Subject: RE: Suspension of shooting restrictions

Importance: High

Dear Mr. Jaeger,

Please see the attached letter outlining our response to your decision and request for action. We look forward to speaking with you soon.

Respectfully,

Kristy Bly, World Wildlife Fund

Steve Forrest, Defenders of Wildlife

Lindsey Sterling Krank, Prairie Dog Coalition of the Humane Society of the United States

From: Jaeger, Dennis -FS [<mailto:djaeger01@fs.fed.us>]

Sent: Friday, March 03, 2017 2:43 PM

To: (b) (6); Bly, Kristy

(b) (6) Dave Pellatz (b) (6)

Subject: Suspension of shooting restrictions

I have decided to rescind the order which prohibited shooting of Prairie Dogs within designated areas on the Thunder Basin National Grassland effective March 3, 2017 for a period of 12 months. This decision was made after review of the TBNG Prairie Dog Management Strategy and LRMP Amendment #3, as well as current conditions on the TBNG. The situation will be reevaluated in 2018.

The current prohibition has been in place since March 22, 2002 to protect the unique ecosystem associated with black-tailed prairie dogs and associated species. Plague had hit the area in 2000-01 and viable prairie dog populations needed to be re-established. A major factor in the establishment of the protected area was to maintain prairie dog population numbers, and the subsequent habitat they create, at a level that would enable possible reintroduction of the black-footed ferret.

Today, our prairie dog population estimates are at historically high levels on the TBNG and across NE Wyoming. In late 2016 we were informed that the TBNG is not currently being considered for reintroduction of black-footed ferrets. The decision on where BFFs are released is with the USFWS and State of Wyoming.

We are proud that our conservation efforts have been successful. In 2002 our prairie dog population was less than 4000 acres, today we are approaching 30,000 acres. As you are well aware, this increase has created additional stress with our grazing community, and we are actively working to balance all needs.

On another note, I am pleased to announce the Candidate Conservation Agreement has been signed by the USFWS, BLM, Forest Service, and Thunder Basin Grassland Prairie Ecosystem. Huge thanks to Dave Pellatz for his vision and persistence. This will be a great tool to promote voluntary conservation measures of both Shortgrass and Sagebrush ecosystems on public and private lands.



Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National
Grassland

p: 307-745-2400

c: 307-399-1404

djaeger01@fs.fed.us

2468 Jackson Street

Laramie, WY 82070

www.fs.fed.us



Caring for the land and serving people

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

From: Lohr, Steve -FS
Sent: 23 Mar 2017 20:02:10 +0000
To: McDonald, Peter M -FS
Subject: BP
Attachments: TBNG Prairie Dog BP_032317.docx

Peter-

Here is the BP that will be shared with Brian. Please do not share. Thanks for your help on this!



Steve Lohr
Director of Renewable Resources

Forest Service
Rocky Mountain Region

p: 303-275-5014

c: 303-242-7675

f: 303-275-5075

slohr@fs.fed.us

740 Simms Street
Golden, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: J Sidle
Sent: 18 May 2019 13:31:53 -0600
To: McDonald, Peter M -FS (b) (6)
Subject: Comments on TBNG Proposed 3.63 action
Attachments: Revised Comments on the TBNG Proposed Plan Amendment Sidle 051819.pdf

Hi Peter and Nancy - Attached are the comments I sent to USFS regarding the TBNG 3.63. The Interdisciplinary Team Leader, Monique, at Laramie said during the webinar that comments submitted in response to the Scoping Document would not be shared with the public. So, here they are.

John

May 18, 2019

Mr. Russell Bacon
Forest Supervisor
Medicine Bow-Routt National Forests and Thunder Basin National Grassland
2648 Jackson ST
Laramie, WY 82070

Dear Mr. Bacon,

Thank you for the opportunity to comment on the proposed action to change prairie dog management on Thunder Basin National Grassland (TBNG). I formerly worked for the USDA Forest Service as the Endangered Species Coordinator for Great Plains National Grasslands. My office was in Chadron, Nebraska. So, I have some familiarity with prairie dog and black-footed ferret matters. I worked on black-footed ferret recovery and prairie dog conservation at multiple levels, from field work to administrative responsibilities.

Please accept my comments as stated below on the 2020 Thunder Basin National Grassland Plan Amendment Scoping Document and Proposed Action: Changes to Grassland Plan Direction (Scoping Document).

First, the Scoping Document states: *The Forest Service will prepare an environmental impact statement to inform the responsible official's decision. If the responsible official decides to amend the grassland plan, it will be amended under provisions of the 2012 Planning Rule.* So, according to the above statement in the Scoping Document, it is possible that the USDA Forest Service responsible official will decide not to amend the plan and the 3.63 prescription will remain as is. However, it seems as if the decision to remove the 3.63 black-footed ferret (BFF) area has already been made. On August 14, 2018, the Wyoming Game and Fish Department produced the Thunder Basin and Black-footed Ferrets Talking Points (copy attached) which reads in part:

- *In November 2017 the USFWS, USFS and the Department signed an Interagency Statement that the reintroduction of ferrets was not appropriate at that time and that the agencies should continue to focus prairie dog management actions on boundary control and disease control. Copy of statement is attached.*
- *November 2016, the Governor of Wyoming and the Directors of the Wyoming Game and Fish Department, Wyoming Office of State Lands and Investments and the Wyoming Department of Agriculture sent letters informing the USFS that agencies did not support reintroduction and current prairie dog management implementation.*
- *The Department, the Wyoming Department of Agriculture, the Service, and USFS publically [sic] stated that they do not support ferret reintroduction until ongoing public issues are resolved.*

Add to the above the following quote from a Casper Star Tribune article, Forest Service Urged to Drop Ferret Hopes, dated September 3, 2018: *Tyler Abbott, USFWS supervisor for the Wyoming office, said Wednesday there is no possibility of ferrets being reintroduced until there is greater*

community support and improvement of the habitat. (https://trib.com/news/state-and-regional/forest-service-urged-to-drop-ferret-hopes/article_92450ad4-8423-59f5-b6f9-e4ea7904d44f.html).

Is it reasonable that the USDA Forest Service responsible official is going to go against the Governor of Wyoming, the Wyoming Game and Fish Department, Wyoming Office of State Lands and Investments, the Wyoming Department of Agriculture and the above-mentioned signed statement?

Scoping Document and Cover Letter

The Scoping Document and accompanying April 11, 2019 Cover Letter state: *Comments on this project are requested for a period of 30 days to help identify issues related to the proposed action and develop alternatives. Comments that address specific aspects of the proposed action, identify alternative ways of meeting the purpose and need for the project, or provide suggested language for grassland plan direction will be most useful.*

I believe that there are major issues related to the premises (public health, safety and economic damages) of the proposed action. The premises are stated in the Cover Letter and Scoping Document but there is nothing in the Scoping Document and supporting information on the USDA Forest Service web site to substantiate “significant health, safety and economic impacts on neighboring landowners”, the very reasons given in the Scoping Document for the proposed action.

The first paragraph of the Cover Letter states:

The Forest Service proposes to amend prairie dog management direction in the Thunder Basin National Grassland land and resource management plan to place greater emphasis on control and active management of prairie dog colonies to address significant concerns related to health, safety, and economic impacts on neighboring landowners. The proposed action includes changes to management area boundaries and changes to grassland-wide, geographic area, and management area plan direction that pertains to prairie dogs, short-stature prairie habitat, and associated species management (e.g., mountain plover, burrowing owl, and swift fox).

The first paragraph of page 1 of the Scoping Document states:

The Forest Service proposes to amend prairie dog management direction in the Thunder Basin National Grassland land and resource management plan¹ (“grassland plan”) to place greater emphasis on control and active management of prairie dog colonies to address significant concerns related to health, safety, and economic impacts on neighboring landowners. This scoping document describes the project location, the purpose and need for the project, and a preliminary proposal so that you can provide comments and help to improve the project.

So, significant public health and safety issues and economic impacts are occurring on and in the vicinity of TBNG and these matters will be resolved by a proposed action that includes *changes to management area boundaries and changes to grassland-wide, geographic area, and*

management area plan direction that pertains to prairie dogs, short-stature prairie habitat, and associated species management (e.g., mountain plover, burrowing owl, and swift fox).

Public Health

What is Public Health?

Although the Scoping Document does not define public health (I assume public health refers to plague), any forthcoming environmental impact statement should define Public Health.

According to the Centers for Disease Control and Prevention (CDC)

(<https://www.cdcfoundation.org/what-public-health>), public health is “*the science of protecting and improving the health of people and their communities. This work is achieved by promoting healthy lifestyles, researching disease and injury prevention, and detecting, preventing and responding to infectious diseases.*”

The CDC is “the nation’s leading public health agency, dedicated to saving lives and protecting the health of Americans. CDC keeps America secure by controlling disease outbreaks; making sure food and water are safe; helping people avoid leading causes of death such as heart disease, cancer, stroke and diabetes; and working globally to reduce threats to the nation’s health. When a national health security threat appears, CDC may not know right away why or how many people are affected, but the agency has world-class expertise to find out what is making people sick and what to do about it.

CDC is ready 24/7 to respond to any natural or manmade event. By connecting state and local health departments across the nation, CDC can discover patterns of disease and respond when needed. CDC monitors health, informs decision-makers, and provides people with information so they can take responsibility for their own health. CDC also trains and guides state and local public health laboratory partners to ensure that labs can safely detect and respond to dangerous health threats.”

Public Health as a Widespread and Significant Concern on the TBNG

The Scoping Document specifically mentions public health as a “widespread and significant concern” (page 2) and a prime reason for pursuing the TBNG amendment. Again, health is featured prominently by being mentioned in the second sentence of page 1 of the Scoping Document as well as in the second sentence of the Cover Letter. Public health is mentioned again on pages 2, 6, and 7 of the Scoping Document. This suggests that something serious regarding the public health of neighboring landowners and users of the TBNG has changed since the 2002 record of decision and that an amendment is now necessary. Is this true? Typically, land management agencies amend management plans because something substantial has changed, and a proposed amendment is required.

- Page 1 - *The Forest Service proposes to amend prairie dog management direction in the Thunder Basin National Grassland land and resource management plan¹ (“grassland plan”) to place greater emphasis on control and active management of prairie dog*

colonies to address significant concerns related to health, safety, and economic impacts on neighboring landowners.”

- *Page 2 - Despite the ecological significance of prairie dogs, the animals cause widespread and significant concern related to public health, safety of humans and livestock, agricultural production, land values, and facilities.*
- *Page 6 - The 2001 Thunder Basin National Grassland revised land and resource management plan (“grassland plan”) and the 2002 record of decision limit use of prairie dog rodenticides to situations involving public health and safety risks and damage to facilities.*
- *Page 7 - More effectively manage prairie dog colony encroachment from the Thunder Basin National Grassland onto private and state land. Encroachment concerns include public health, agricultural production, land values, facilities, and serving as a good neighbor as described in the record of decision for the grassland plan.*

The second sentence on Page 1 of the Scoping Document is inconsistent with the “Purpose and Need” section (page 7) of the Scoping Document which briefly mentions public health. It is simply difficult for the reader to reconcile the elevated importance of “public health” in the opening statement of the Scoping Document with the Purpose and Need section of the Scoping Document. I make the same comment in other sections of this letter regarding “public safety and economic damages”, items not even mentioned in the Purpose and Need section.

Nevertheless, let’s explore the “widespread and significant” public health issue. Although many pages in the Scoping Document are devoted to various chronologies about black-tailed prairie dogs, virtually no information is provided about any declining public health or increasing public health risks and threats on the TBNG, specifically on and in the vicinity of the 3.63 area and the proposed 3.67 area. For example, as the extent of prairie dog colonies increased on and in the vicinity of TBNG what changed in the arena of public health? Is there a linear relationship between prairie dog colony acreage expansion and public health?

Considerable resources were likely spent to map tens of thousands of acres of prairie dog colonies. Were resources dedicated to understanding public health changes?

The Scoping Document states:

In 2018, the Wyoming Department of Agriculture convened a collaborative stakeholder group that included private landowners, non-governmental organizations, and government representatives to find a lasting solution to balance multiple uses on the grassland. The group worked together over a 6-month period on some of the most controversial issues related to prairie dog management, and in December 2018 they provided a recommendation that has served as the basis for this proposed action.

If public health (plague) is a “widespread and significant concern” as stated in the Scoping Document, were the Centers for Disease Control and Prevention (CDC) and/or the Wyoming Department of Health’s Public Health Division contacted for their input during the 6 months of work by the group convened by the Wyoming Department of Agriculture? Assuming that public health in the Scoping Document means plague (the Document is not explicit on this matter), did

the USDA Forest Service consult with public health officials and epidemiologists prior to making the claim in the Scoping Document that plague is a “widespread and significant concern”? Did the CDC or Wyoming Department of Health conclude that plague is a widespread and significant concern on the Thunder Basin National Grassland? I called the Wyoming Department of Health on May 8, 2019, and was referred to the Department’s Clay Van Houten who indicated that plague was not a widespread and significant concern. The TBNG Working Group Summary Letter of December 28, 2018 (89 pages) was copied to numerous Wyoming organizations and agencies but not to the Wyoming Department of Health:

Wyoming Association of Conservation Districts
Wyoming County Commissioner's Association
Wyoming Farm Bureau Federation
Wyoming Game and Fish Department
Wyoming Mining Association
Wyoming State Grazing Board
Wyoming Stock Grower's Association
Wyoming Weed & Pest Council
Wyoming Wool Grower's Association

If public health (plague) is a valid premise for the proposed action, why didn’t the Wyoming Department of Health receive the summary letter?

Referring to prairie dogs, the Thunder Basin National Grassland Situation Assessment and Process Recommendations states:

- *Their association with the plague is also considered a hazard to human health by the State and others*
- *Another concern was that prairie dog plague will affect humans*
- *Two prairie dog plague-related issues that were raised include plague mortality in prairie dog populations and the worry that prairie dogs constitute a health hazard due to possibly carrying this disease*
- *Specific issues raised included prairie dog encroachment on private and state lands, boundary control, plague as a human health concern...*

None of the above mere statements is substantial enough to warrant a plan amendment. What is meant by the above *by the State*?

People have many concerns about a lot of things but whether those concerns should be acted upon by an agency requires a close examination. The USDA must look to public health authorities. I would like to see information from public health officials confirming that there is an existing or potential widespread and significant public health problem on and in the vicinity of TBNG that warrants the USDA Forest Service’s proposed “greater emphasis on control and active management of prairie dog colonies.” The environmental impact statement that will be prepared for this plan amendment needs to thoroughly analyze the public health problem by contacting the CDC and the Wyoming Department of Health. By statute and regulation, those

agencies are charged with determining whether or not there is a human infectious disease problem, not the USDA Forest Service.

Regarding public health, specifically human infectious diseases, CDC typically uses the word, widespread, to describe an ongoing infectious human disease. A search for “widespread” on the CDC web site (<https://search.cdc.gov/search/?query=widespread>) reveals some examples:

- [Notes from the Field: **Widespread** Transmission of Circulating Vaccine-Derived Poliovirus Identified](#)
This report discusses increased poliovirus surveillance in the Horn of Africa.
- [Investigating Liver Disease in Ethiopia | Sharing Our Stories | NCEH](#)
This story explains an epidemiological investigation into the cause of **widespread** deadly liver disease in Ethiopia, featuring a team of epidemiologists from CDC/NCEH, Ethiopia health...
- [Update: Influenza Activity --- United States, September 30, 2007--February 9, 2008](#)
was 3.5%, ¶¶ which was above the national baseline of 3.2% (Figure 2). State-Specific Activity Levels Until the week ending January 5, **widespread***** influenza activity had not been reported in any state
- [Progress Toward Poliomyelitis Eradication -- Pakistan, 1994-1998](#)
In 1997, Pakistan reported 1147 polio cases, representing **widespread** poliovirus circulation nationally and constituting 22% of cases reported worldwide.
- [Pertussis | Outbreaks | PEP Postexposure Antimicrobial Prophylaxis | CDC](#)
Pertussis Outbreaks. With increasing incidence and **widespread** community transmission of pertussis, extensive contact tracing and broad scale use of PEP among contacts may not be an effective use...
- [Strategies to Reduce Person-to-Person Transmission during **Widespread** Escherichia coli O157:H7 Outbre](#)

What is the History of Public Health on and in the Vicinity of the 3.63 Area and Proposed 3.67 Area on TBNG?

- Page 6 - *The 2001 Thunder Basin National Grassland revised land and resource management plan (“grassland plan”) and the 2002 record of decision limit use of prairie dog rodenticides to situations involving public health and safety risks and damage to facilities.*
- Some questions:
 - What has changed during 2002-2019 such that there are now widespread and significant concerns for public health, concerns that were not addressed in 2002?
 - Are more human residences in the vicinity of the 3.63 area and proposed 3.67 area closer to prairie dog colonies today in 2019 than in 2002?
 - During 2002-2019, how many interventions were made by the USDA Forest Service to control prairie dogs because of the potential spread of plague to humans?
 - During 2002-2019, how many cases of plague in humans have occurred in the vicinity of the 3.63 area and proposed 3.67 area? How many Thunder Basin staff, livestock permittees, hunters, hikers, birders, etc. have contracted plague?

- While epizootic plague reduced prairie dog colony acreage from 48,000 acres on TBNG and 27,000 acres on private land to 600 and 500 acres, respectively, how many humans contracted plague?

Likelihood of a Public Health Issue on TBNG

The last time a human in Wyoming contracted the plague was in 2008, one of six cases since 1978 (<https://health.wyo.gov/publichealth/infectious-disease-epidemiology-unit/disease/plague/>). The six cases occurred in Fremont, Goshen and Laramie counties, a long distance from the Thunder Basin National Grassland (Figure 1). Nationwide, there were 105 cases (12 fatalities) of plague in humans during 2000-2017.

I understand the need to eliminate prairie dog colonies or control fleas in the “immediate” vicinity of a human residence. However, any largescale elimination, including one-mile buffer zones from residences, of prairie dog colonies ostensibly to reduce the risk of plague in humans cannot be substantiated.

Plague prevention should be consistent with CDC recommendations for plague prevention in humans (<https://www.cdc.gov/plague/prevention/index.html>):

1. Reduce rodent habitat around your home, workplace, and recreational areas. Remove brush, rock piles, junk, cluttered firewood, and possible rodent food supplies, such as pet and wild animal food. Make your home and outbuildings rodent-proof.
2. Wear gloves if you are handling or skinning potentially infected animals to prevent contact between your skin and the plague bacteria. Contact your local health department if you have questions about disposal of dead animals.
3. Use repellent if you think you could be exposed to rodent fleas during activities such as camping, hiking, or working outdoors. Products containing DEET can be applied to the skin as well as clothing and products containing permethrin can be applied to clothing (always follow instructions on the label)
4. Keep fleas off of your pets by applying flea control products. Animals that roam freely are more likely to come in contact with plague infected animals or fleas and could bring them into homes. If your pet becomes sick, seek care from a veterinarian as soon as possible.
5. Do not allow dogs or cats that roam free in endemic areas to sleep on your bed.

To further explain my point about plague, let me briefly discuss the mosquito-borne West Nile virus. In stark contrast to the very small number of plague cases in the United States (2000-2017), during a similar period, 1999-2017, there were 48,183 cases (2,163 fatalities) of West Nile in the United States. Wyoming, especially northeast Wyoming, the location of TBNG, has one of the nation’s highest average annual incidences of West Nile virus neuroinvasive disease (Figure 2).

One is far more likely to contract West Nile virus, a potentially debilitating or fatal disease, than plague on and in the vicinity of the TBNG. There are no vaccines to prevent or medications to treat West Nile virus in humans (<https://www.cdc.gov/westnile/>) but plague in humans is easily

treated. Are there widespread and significant public health concerns about the impacts of West Nile virus on and in the vicinity of TBNG? Is the USDA Forest Service contemplating the elimination or vast curtailment of stock tanks, stock ponds and other standing water sources harboring breeding mosquitos on TBNG? Is the widespread application of larvicides being contemplated? Will there be a plan amendment to address West Nile virus? Probably not; rather, the USDA Forest Service would likely advise its staff and the public to follow various prevention measures recommended by public health agencies (example below from the Wyoming Department of Health). Similarly, any plague prevention should follow the above modest CDC recommendations.

Another illustration of this issue is lightning. Citizens of Wyoming are much more likely to be killed by lightning than by plague. According to the National Weather Service: “From 1996 to 2013, lightning has been attributed to 8 fatalities and 70 injuries across Wyoming. Wyoming is 1st in number of lightning deaths & injuries per capita (1959 to 2012).”

(https://www.weather.gov/cys/severe_weather_awareness_week_thurs)

4 D's of West Nile Virus prevention (<https://health.wyo.gov/publichealth/infectious-disease-epidemiology-unit/disease/west-nile-virus/>):

1. DAWN & DUSK – When possible, avoid spending time outside at dawn and dusk
2. DRESS– Wear shoes, socks, long pants, and a long-sleeved shirt when outdoors for long periods of time or when mosquitoes are most active. Clothing should be light colored and made of tightly woven materials to keep mosquitoes away from the skin.
3. DRAIN – Reduce the amount of standing water in or near your property by draining and/or removing it. Mosquitoes may lay eggs in areas with standing water.
4. DEET – For additional protection from mosquitoes, use an insect repellent containing DEET (N,N-diethyl-m-toluamide) or picaridin (KBR 3023). Other insect repellents such as oil of lemon eucalyptus and IR3535 are also registered by the EPA but may be less effective than products containing DEET. It is important to follow the product guidelines when using insect repellent.

What is Really Meant by Widespread and Significant Concern for Public Health?

In addition to the comments in the Thunder Basin National Grassland Situation Assessment and Process, the TBNG Working Group Summary Letter of December 28, 2018 (89 pages) cites only two references to plague:

- 1) Page 25 - *protecting residences where health and safety Issues are a concern with a one-mile prairie dog free and prescribed fire free buffer zone*
- 2) Page 54 - *Prairie dogs are a medical hazard because they carry the plague, which is zoonotic.*

Again, is the above enough for the USDA Forest Service to use public health as a premise for the proposed action and ignore actual public health information? Although the USDA Forest Service is obligated to listen to people's concerns, perception and unwarranted fear about plague should not be a premise for proposed actions by agencies.

Twenty years after a controversial and later retracted paper in the medical journal, Lancet, hypothesized a link between the measles, mumps, rubella (MMR) vaccine and autism, there is still public concern about MMR even though observational studies have not been able to identify an increased risk for autism after MMR vaccination. However, public health agencies have continued the important task of vaccinating children because they know how deadly several vaccine-preventable childhood diseases can be if vaccination coverage is insufficient. Worldwide, vaccinations have eliminated or drastically reduced contagious diseases and each year they prevent more than 3 million childhood deaths from diphtheria, tetanus, pertussis, to name a few.

Still, public perceptions, myths and fear of vaccination and other health treatments persist in some areas. Mistrust in the current fight against Ebola in the eastern Democratic Republic of Congo today has led to the murder of some public health care responders and the destruction of some health care facilities. A lack of institutional trust and widespread misinformation are factors that undermine control efforts. Today's social media can easily magnify perception and fear, making the separation of fact and fiction more difficult today than in the past in any part of the world.

Has the USDA Forest Service failed in some measure here? There are not many people who live in the vicinity of the TBNG 3.63 area. The USDA Forest Service could easily partner with staff of the CDC and Wyoming Department of Health to explain key points about plague. Meetings could be held to lay out the facts about plague. There is no justification to premise a plan amendment based on public health.

I make the above comments about public health because I believe that the Scoping Document's premise about public health (plague in humans) is not substantively based and cannot be used to justify wholly or in part the proposed plan amendment. The USDA Forest Service should hear directly from public health agencies and their epidemiologists (CDC and Wyoming Department of Health) before stating that public health (plague) is a widespread and significant concern on TBNG as stated in the Scoping Document. By statute and regulation, determinations related to infectious diseases in humans are the responsibility of the above state and federal agencies and not the USDA Forest Service.

Figure 1. Since the mid-20th century, plague in the United States has typically occurred in the rural West. The case shown in Illinois was lab-associated (<https://www.cdc.gov/plague/maps/>).

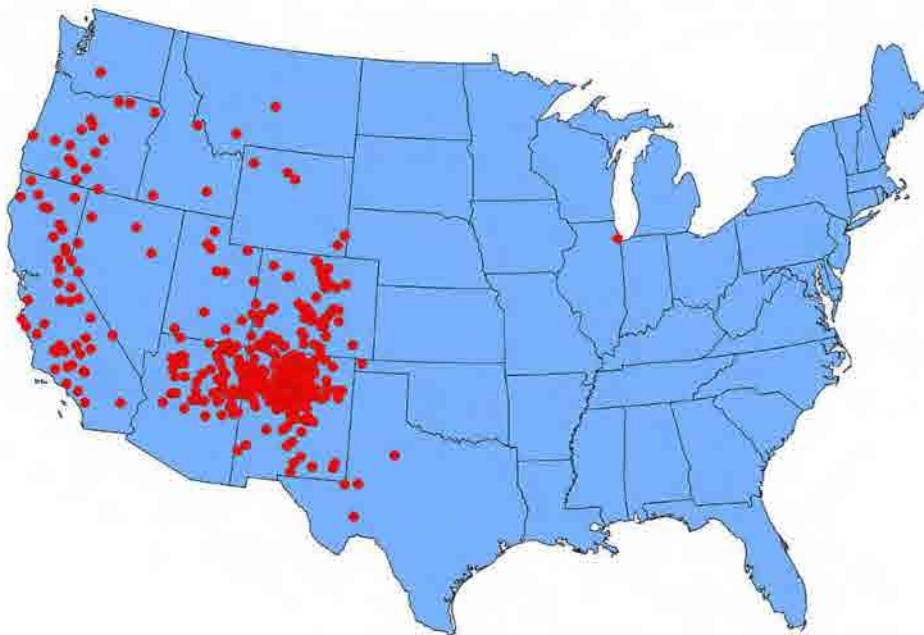
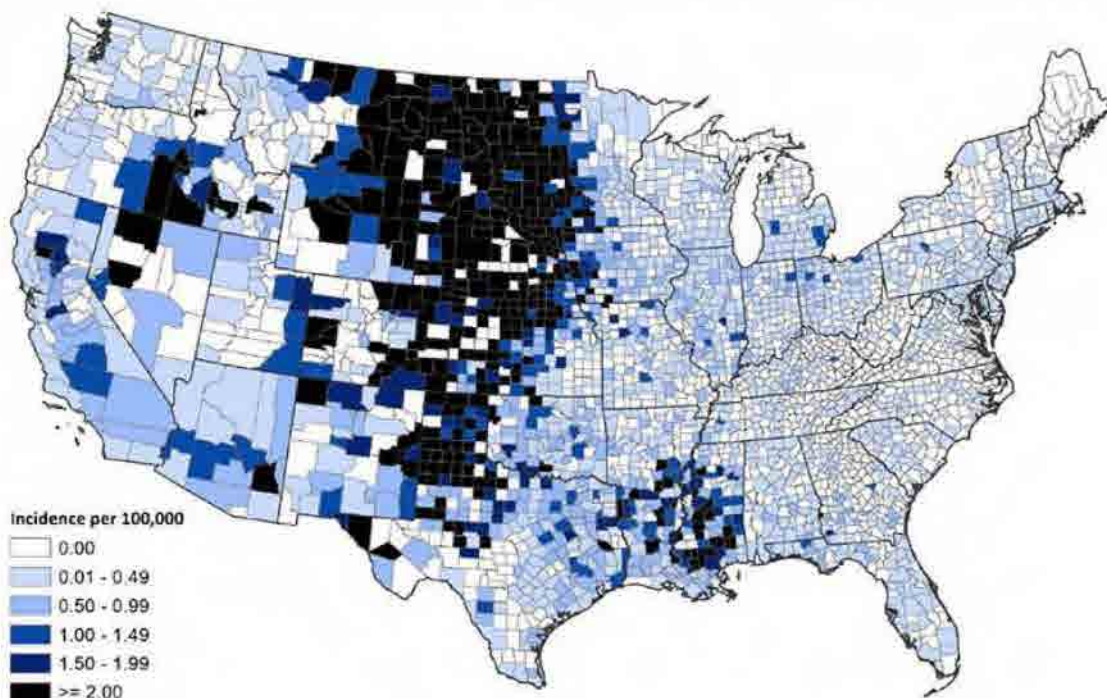


Figure 2. Average annual incidence of West Nile virus neuroinvasive disease reported to CDC by county, 1999-2017 (<https://www.cdc.gov/westnile/statsmaps/cumMapsData.html#five>)



Public Safety Issue

The Cover Letter and Scoping Document indicate that one of the premises for the proposed action is widespread and significant concern for public safety of humans and livestock:

The Forest Service proposes to amend prairie dog management direction in the Thunder Basin National Grassland land and resource management plan1 (“grassland plan”) to place greater emphasis on control and active management of prairie dog colonies to address significant concerns related to health, safety, and economic impacts on neighboring landowners.

Despite the ecological significance of prairie dogs, the animals cause widespread and significant concern related to public health, safety of humans and livestock, agricultural production, land values, and facilities.

I do not see any information in the Scoping Document about changes in public safety that have occurred since the 2001 TBNG plan. As the extent of prairie dog colonies expanded and contracted what changes to public safety occurred? How many roads, bridges, dams, cemeteries, and other facilities were undermined by prairie dogs? The USDA Forest Service and private landowners must have some record of damages to expensive facilities. What safety issues identified in the 2001 plan rose to such new heights during 2001 -2019 that a plan amendment is required? Did new safety issues arise during this period to warrant the proposed amendment?

What is meant by safety of livestock? Although public safety appears in the 2001 TBNG management plan, livestock safety does not appear. The Scoping Document is likely referring to livestock breaking their legs by stepping into prairie dog burrows? How often has this occurred and was it so widespread and significant during 2001-2019, even when the extent of prairie dog colonies reached 75,000 acres, as to warrant the Scoping Document’s proposed action? The Thunder Basin National Grassland Situation Assessment stated that *Some also mentioned holes prairie dogs make which are considered hazardous to livestock and wildlife.* However, I was struck by the comment of Ty Checketts in the report of the Collaborative Working Group:

- *Prairie dogs are a physical danger to my family. I have witnessed two of my children and their horses trip in a prairie dog hole and fall. One daughter was smashed by the horse, but my son was thrown clear. Words do not express the feeling of a dad watching this happen. I have also had two other neighbors helping me that had the same experience.*

In almost 20 years on the national grasslands from Texas to North Dakota, I asked countless stockmen whether their livestock were injured by prairie dog burrows. No one ever said yes. Finally, Mr. Checketts provides a yes. However, I do not believe that safety of livestock is a widespread and significant concern to serve as a premise for the proposed action. I can envision a galloping horse tripping in a burrow but slow lumbering cattle are not likely to stumble into burrows.

Have broken legs on bison been a problem at Wind Cave National Park where bison have grazed since 1914? As an aside, I have often wondered if broken legs were a major mortality factor

among bison when bison numbered in the tens of million and prairie dog colonies covered 100 million acres.

Economic Impacts

Again, the Scoping Document does not provide any quantitative or qualitative information on “widespread and significant” economic impacts (“agricultural production, land values, and facilities”) that occurred during prairie dog colony expansion and contraction (2001 – 2019). One should be able to ascertain what facilities were damaged and whether agricultural production increased or decreased. It is, however, important to separate the effects of drought and the effects of prairie dog colonies.

Just as there are photographs of prairie dogs and denuded grassland in the Scoping Document, there should also be photographs of injured or dead livestock, damaged or destroyed facilities, testimonials of economic losses, changed realty appraisals, and so forth in order to adequately substantiate the premises of the Scoping Document.

The Collaborative Working Group presents a few qualitative statements about economic impacts:

- Campbell County Board of Commissioners
 - *Portions of the TBNG are located in all three counties, with the majority located in Converse and Weston Counties, and this area has a significant impact on our economies. Prairie dog densities have historically been cyclical with times of moderate populations to extremely high densities to virtually decimated populations once the plague has occurred. It is in times of high density that is the most concerning as the prairie dog eliminates any existing usable forage leaving the landscape void of value for Animal Unit Month's (AUM's) available for grazing operations, minimal habitat for wildlife use and high potential for erosion. This ultimately negatively affects the socio economics of the counties and our residents.*
- Thunder Basin Grassland Ecosystem Association
 - *We encourage the Forest Service to consider livestock forage needs as well, since economic viability of ranching enterprises is a critical component in maintaining healthy and productive rangelands.*

A Casper Star Tribune article, Forest Service Urged to Drop Ferret Hopes, dated September 3, 2018, stated: *The prairie dog infestation means a loss of forage and Budd-Falen said landowners have drastically reduced their livestock herd as result. In 2016 and 2017, Budd-Falen estimates the Thunder Basin prairie dogs cost ranchers \$1.4 million* (https://trib.com/news/state-and-regional/forest-service-urged-to-drop-ferret-hopes/article_92450ad4-8423-59f5-b6f9-e4ea7904d44f.html).

Perhaps Budd-Falen is correct at \$1.4 million, and \$1.4 million just might be the amount the USDA Forest Service will have spent on this entire plan amendment process. I recommend that the USDA Forest Service pull together the economic impacts, check its veracity, and present that to the public.

In summary, I view the premises for the proposed action as very weak to non-existent based upon what is presented in the Scoping Document and other information on the Medicine Bow Routt web site. The Scoping Document should have at the very least presented a level of detail on public health, safety and economic impacts similar to the detail presented for prairie dogs. There are tables and chronologies of prairie dog petitions for listing, history of prairie dog management, maps and so forth. Where is the detail for public health, safety and economic impacts?

If the premises of widespread and significant concerns for public health, public safety and economic impacts are fundamentally flawed, how can this proposed action proceed?

Black-footed Ferret

- 1) For a Scoping Document whose major purpose is to eliminate a BFF recovery site (item 1 under the Proposed Action), there is almost no information presented on the BFF, not even an acknowledgment that the species once occurred on TBNG (see Anderson et al. 1986). Instead of a table on prairie dog petitions which is of no value to the Scoping Document, the Scoping Document should put into perspective how few BFFs remain in the wild and how few reintroduction sites exist and how difficult it is to establish a reintroduction site. It's not as if there is an abundance of such sites and eliminating one site is of no consequence.
- 2) Page 4: *These and any future ferret populations are managed by the Wyoming Game and Fish Department under the Wyoming Black-footed Ferret Management Plan.*
 - a. The Wyoming Game and Fish Department (WGFD) already manages two BFF sites in Wyoming. BFF recovery efforts are more than grateful for that. If the WGFD does not want to manage a BFF population on TBNG that does not negate the USDA Forest Service's mandate to recover endangered species. Other organizations and agencies could contribute to the cost. A BFF recovery site on the Buffalo Gap National Grassland, South Dakota operates without the involvement of South Dakota Game, Fish and Parks. In any case federal agencies do have responsibilities under Section 7(a)(1) of the Endangered Species Act to do their utmost for the recovery of listed species.
- 3) The issue of BFF reintroduction onto TBNG should be discussed. The Scoping Document does not disclose why a ferret reintroduction in the 3.63 area has not already been formally evaluated, proposed or initiated. This information is basic and relevant to understanding the proposed amendment and needs to be disclosed and discussed in any forthcoming DEIS, FEIS and Record of Decision. It's been 18 years since the 2001 TBNG plan.

- 4) The Scoping Document states: *Active prairie dog colonies within management area 3.67 will be managed toward a target of 10,000 acres to support associated species such as mountain plover (figure 6), burrowing owl, and swift fox.*
- a. At the time of the 2001 TBNG plan, there were 12,000 acres of prairie dog colonies and that was viewed as adequate for a BFF recovery site. Indeed, Appendix H of the plan states: *Groves and Clark (1986), using data from the Meeteetse ferret population, suggested that a MVP of 214 breeding adult ferrets would be needed to maintain an effective population of 50 adults. Using the area requirements of ferrets in the Conata Basin/Badlands reintroduction area, a minimum complex size of 7,490 to 12,840 acres would be needed to support 214 adult ferrets. Harris et al. (1989) used demographic data from both South Dakota and Wyoming ferret populations in a computer simulation model and suggested that 90 to 100 ferrets would have a 95% probability of surviving 50 to 100 years.*
 - b. So, given that the amendment will allow 10,000 acres of prairie dog colonies, I recommend maintaining the 3.63 designation and keeping the door open for BFFs. At the same time, TBNG should pursue a vigorous boundary control protocol for prairie dogs.
 - c. Yes, the Purpose and Need states: *Ensure management direction identifies habitat requirements needed to support viable populations of prairie dogs and associated species, such as mountain plover, burrowing owl, and swift fox, and that management would not preclude future reintroduction of black-footed ferret.* However, eliminating the 3.63 designation sends the opposite message. The “don’t worry we may still have BFFs” tone of the above quote is not at all encouraging.
 - d. I recommend citing USDA Agricultural Research Service research to substantiate the 10,000 acres for associated species.
- 5) Comment: The EIS process should use the best available scientific information (36 CFR 219.3) to evaluate the impacts of plague and the proposed amendment on the ability of the prairie dog ecosystem in the existing 3.63 area to support future BFF reintroductions. The results of this evaluation should be compared to the BFF family/breeding adult ratings documented in the Biological Assessment and Evaluation supporting the 2002 FEIS. These results should also be compared to any BFF family/breeding adult rating assessments conducted during the preparation of the 2015 and earlier LRMP amendments to prairie dog management direction on TBNG.
- 6) Comment: I suggest an alternative that modifies the proposed amendment to leave the 3.63 management area prescription for BFFs in place but allows greater facilitation of prairie dog management to more effectively reduce unwanted colony expansion onto adjoining private and state lands. Currently, there are less than 1,000 acres of prairie dog colonies in the 3.63 area leading anyone to question the urgency for a proposed action in the Scoping Document. The apparent urgency needs to be fully disclosed so the broader public can better understand all the relevant issues.
- 7) An important issue is the obvious disconnect between the purpose and need(s) identified in the Federal Register notice and the proposed amendment. Specifically, the notice identified the need to refocus management of the 3.63 management area and to delineate more logical boundaries for Management Area 3.63. Yet, the proposed action is to eliminate the 3.63 designation. The notice also identifies the need to align with the 2018

Wyoming Black-footed Ferret Management Plan. Again, the proposed amendment takes TBNG and USFS in the opposite direction. The Wyoming BFF plan has an objective of at least one reintroduction site in black-tailed prairie dog colonies, and it also identifies the need to identify and evaluate potential future reintroduction sites, following a protocol described in Wyoming BFF plan. In fact, the state BFF plan specifically states that the new ESA 10j statewide designation paves the way for establishing additional reintroduction sites within the state. USDA Departmental Regulation 9500-004 specifically states that the Department will conduct its activities and programs in a manner that assists in the identification and recovery of threatened and endangered species. By leaving the 3.63 designation in place, TBNG and USFS are compliant with this Departmental regulation by formally identifying the 3.63 area as a potential BFF reintroduction site for further evaluation. At a minimum, USDA Forest Service should not eliminate the 3.63 designation before further evaluations can be completed by the Wyoming Game and Fish Department and other cooperating agency personnel with BFF expertise.

- 8) Notwithstanding the importance of the Wyoming BFF Plan, would the USDA Forest Service, a federal agency, please acknowledge any importance or relevance of the federal BFF recovery plan and the draft revision of that plan?
- 9) Issue: The Scoping Document did not mention the new tools being developed to better manage plague in the future both in prairie dogs and BFFs. This new information is relevant to the proposed amendment and should be included, evaluated and documented during the EIS process as it relates to future management of prairie dogs and, potentially, BFFs in TBNG. The best available scientific information (36 CFR 219.3) related to the potential significance of these new tools should also be disclosed and used in the forthcoming EIS and supporting Biological Assessment and Evaluation.
- 10) Page 8: *The Forest Service proposes the following: 1. Change the existing Thunder Basin National Grassland management area 3.63, "black-footed ferret reintroduction habitat," to a new management area 3.67, "rangelands with short-stature vegetation emphasis." Adopt management area themes, desired conditions, standards, and guidelines to de-emphasize reintroduction of black-footed ferret and emphasize short-stature vegetation as a key component of a mosaic of vegetation communities across the management area to provide habitat for a variety of associated species. Update grassland-wide and geographic area direction for consistency with management area 3.67 (see "Proposed Action: Changes to Grassland Plan Direction," available on the project website: http://www.fs.fed.us/nepa/nepa_project_exp.php?project=55479).*
 - a. I oppose the elimination of the 3.63 BFF management area because it removes emphasis for endangered BFFs. Fifteen FS units contain some level of prairie dog occupancy (Sidle et al. 2006) but only 3 units have large enough prairie dog complexes to contribute towards BFF recovery (Buffalo Gap, Little Missouri, and Thunder Basin National Grasslands), and thus a portion of those units were designated in 2001 for 3.63 BFF management to contribute towards recovery of the species as mandated by the Endangered Species Act. There are no other Forest Service units that have enough prairie dog colonies to contribute a viable BFF population to recovery. The above three Forest Service lands represent a fraction of their units and all FS lands in total. Of the 30 BFF reintroduction sites in North

America, only 15 are occupied and one (Conata Basin on the Buffalo Gap National Grassland) currently has a BFF population that meets U.S. Fish and Wildlife Service (USFWS) recovery goals. Recovery of BFFs will require a viable population on TBNG.

- b. The USFWS has always ranked TBNG as a priority BFF recovery site.
 - i. In the 1990s, the BFF Interstate Coordinating Committee (precursor to the BFFRIT) identified TBNG as one of the highest priority recovery sites in the nation.
 - ii. In an August 2, 2000 letter from the USFWS BFF Recovery Coordinator, J. Michael Lockhart, to Forest Supervisor, Jerry Schmidt, USFWS stated: *The Cheyenne River area of TBNG is one of the top two, if not the best potential ferret reintroduction site in North America today.*
 - iii. In 2002, the USFWS ranked TBNG 7th overall in a list that included active BFF recovery sites.
 - iv. In a March 16, 2007 letter from USFWS to USDA Forest Service, the need for National Grasslands to contribute to BFF recovery was reinforced.
 - v. In 2008, the USFWS ranked TBNG as 6th in North America for potential reintroduction sites, despite a recent plague epizootic that drastically reduced habitat.
 - vi. A BFF Species Status Assessment for Wyoming (Esch et al. 2005) suggested the black-tailed prairie dog complex at TBNG represented a significant site for potential BFF recovery.
 - vii. Luce (2006), a former BFF biologist for WGFD, identified TBNG as an immediate potential BFF reintroduction site and WGFD had assessed BFF habitat at TBNG in 2003 (WGFD 2003).
 - viii. The Multi-State Conservation Plan for the Black-Tailed Prairie Dog (Luce 2003, Luce et al. 2006) specified a target objective of a prairie dog complex >5,000 acres for conservation of prairie dogs.
 - ix. Others have identified TBNG as a priority site for prairie dog ecosystem conservation (Wuerthner 1997, Buseck et al. 2005, Johnsgard 2005, Proctor et al. 2006, Sidle et al. 2006).
- c. In Wyoming, BFFs are considered a species of Greatest Conservation Need by WGFD State Wildlife Action Plan (2017) and the Wyoming BFF Management Plan (2018) calls for at least one BFF recovery site in the black-tailed prairie dog range. The most obvious black-tailed prairie dog site in Wyoming for a viable reintroduced BFF population is on TBNG. BFFs are native to Wyoming and occupied TBNG likely into the 1970s, with a BFF skull found in 1979 suggesting the recent occupation (Anderson et al. 1986).

11) Page 8: 2. Draw the boundaries for management area 3.67 to use natural barriers to minimize prairie dog movement, such as the Cheyenne River and Rochelle Hills. Ease conflicts in management by reducing overlap with sage-grouse priority habitat management areas, redrawing the Cheyenne River Special Interest Area to focus on riparian biotic communities, excluding any areas within 1 mile of residences, and reducing boundaries with state and private properties (figure 4 and figure 5). Reassign areas that are removed from the existing management area 3.63 using adjacent

management area prescriptions (see “Proposed Action: Changes to Grassland Plan Direction,” available on the project website:

http://www.fs.fed.us/nepa/nepa_project_exp.php?project=55479).

- a. I support using natural barriers and obstacles to delineate boundaries between management areas.
 - b. One-mile buffer from residences is excessive and arbitrary. It cannot be substantiated.
- 12) Page 8: 3. *Eliminate use of the Black-tailed Prairie Dog Conservation Assessment and Management Strategy for the Thunder Basin National Grassland (2015 update, available on the project website: http://www.fs.fed.us/nepa/nepa_project_exp.php?project=55479), including categories 1, 2, and 3 prairie dog management areas and decision screens.*
 - a. Comments: I oppose eliminating use of the 2015 Prairie Dog Assessment and Management Strategy. It appears that this strategy was not implemented in any meaningful way and the efficacy of the strategy has yet to be assessed. I would like to see the Forest Service fully fund implementation of the current strategies and management as intended. The need for a new prairie dog management strategy is unwarranted when the previous strategy, barely a few years old, was never implemented.
- 13) Page 8: 4. *Establish a minimum quarter-mile boundary management zone where management area 3.67 shares a border with private or state property. Within the boundary management zone, control of prairie dogs using rodenticides will be prioritized to reduce impacts to surrounding landowners (figure 5). Treatment within a boundary management zone will be in collaboration with adjacent landowners for private lands or the lessee for state lands. For control on National Forest System lands to proceed within a boundary management zone, the landowner or lessee will need to engage in concurrent control on the adjacent private or state lands. If the Forest Service finds that certain colonies cause chronic encroachment problems, the Forest Service will work with partners through a third-party collaborative stakeholder group (see number 7 below) to determine appropriate actions. Landowners experiencing persistent or imminent encroachment after treatment may request consideration of a temporary three-quarter-mile boundary management zone. All tools not otherwise restricted by the grassland plan will be available for use in the boundary management zone at any time.*
 - a. Comments: I support aggressive prairie dog control on private land borders when undesired encroachment is occurring or imminent. I also support the notion of concurrent control on private lands. I do not support the use of a third-party collaborative stakeholder group to determine the appropriate actions. The Forest Service should not cede management authority or decisions to any third party.
- 14) Page 9: 5. *Where possible, adopt use of the Natural Resources Conservation Service’s Ecological Site Descriptions in management area 3.67 as the basis to describe plant communities, evaluate current and desired conditions, and maintain or improve native vegetation and wildlife habitat.*
 - a. Comments: I oppose the designation of management area 3.67 and the use of NRCS Ecological Site Descriptions to guide management, particularly in areas with prairie dogs. The NRCS guides are designed for livestock forage production and do not accurately account for wildlife such as prairie dogs. The use of NRCS

guides is an overt prioritization of plants and forage, not functioning wildlife communities.

- 15) Page 9: 6. *Establish the following parameters for prairie dog colony management: a. Active prairie dog colonies within management area 3.67 will be managed toward a target of 10,000 acres to support associated species such as mountain plover (figure 6), burrowing owl, and swift fox.*

a. Comments: Please provide the analysis and citations that justify a 10,000-acre target for the above associated species. The work of USDA Agricultural Research Service is relevant. I also strongly suggest a Population Viability Analysis that uses the best science available for each species to determine the appropriate amount of prairie dog acreage for the long-persistence of these species on TBNG, incorporating the effects of plague, drought, livestock grazing, shooting and other factors that may influence these populations.

- 16) Page 9: b. *Active prairie dog colonies should be distributed across the landscape and vary in size, up to approximately 1,000 acres, with an emphasis on colonies of 100 to 400 acres. At least one complex in management area 3.67 will be managed for at least 1,500 acres of active prairie dog colonies.*

a. Comments: I oppose limits of prairie dog colony size and emphasis for a particular size class. These numbers seem to have no basis in science regarding viability of prairie dogs, mountain plover, burrowing owl, swift fox, and BFFs. The 1,500 acre-complex appears to be a minimal attempt to provide BFF habitat that will not result in a viable population of BFFs that contributes towards recovery goals. The USFWS in the 2015 decision regarding the Wyoming 10j non-essential experimental statewide designation mistakenly stated: *The main requirements for BFF reintroduction are: (1) An area of occupied prairie dog habitat that is purposefully managed and of sufficient size to support a viable population of ferrets (a minimum of 1,500 ac (608 ha) of black-tailed prairie dog occupied habitat.*

b. No black-footed ferret recovery site to date has supported a viable population of BFFs on 1,500 acres of black-tailed prairie dogs and best available science does not support this number. I suggest a larger complex.

c. If this proposed 1,500-acre complex is intended to potentially support BFFs, then it is vastly different than the area suggested by the 2015 TBNG Black-Tailed Prairie Dog Conservation Assessment and Management Strategy where the Forest Service wrote (page 12): *It is anticipated that 18,000 acres will be sufficient habitat to allow ferrets to persist through a plague epizootic and recover naturally along with the prairie dog populations.* The proposed fifteen hundred acres would be 92% less habitat than the Forest Service asserted only 4 years ago. The only BFF population that is currently viable occurs on the Buffalo Gap NG (Conata Basin/Badlands NP), South Dakota. There, a prairie dog colony complex, made up of large, closely spaced colonies, and varying in size from 10,000-40,000 acres due to plague, has maintained a BFF population whose minimum of 30 breeding adults meets the USFWS recovery criteria.

d. The WGFD State Wildlife Action Plan (2017) affirms: *Consequently, the size of prairie dog colonies and density of burrows are the most important factors in the success of reintroduction sites” and “Perhaps the greatest threat to the*

persistence of Black-footed Ferret is the availability of large prairie dog colonies for food and shelter.

- e. When the Black-Tailed Prairie Dog Multi-State Working Group was developing guidelines for prairie dog management, group Chair, Bob Luce, solicited input from the USFWS regarding desired prairie dog colony size for BFF reintroduction. USFWS BFF Recovery Coordinator, J. Michael Lockhart, responded to Luce in a March 16, 2001 letter that was copied to the BFF Recovery Implementation Team and outlined the best knowledge regarding colony size and reintroduction success. Lockhart summarized the 6-page letter by writing: *Put into simplest terms - the only true measure of ferret reintroduction success to date suggests that high density, plague-free, black-tailed prairie dog complexes in excess of 10,000 acres, with large core colonies, and which are not subject to artificial perturbations (e.g. shooting/poisoning) are needed to reestablish wild ferret populations. Conversely, ferret reintroductions into smaller, more isolated, prairie dog complexes, have not successfully established stable ferret populations, even in complexes with relatively high prairie dog densities.*
- f. More recently, an analysis of BFF reintroduction sites by Jachowski et al. (2011), including a co-author from WGFD, concluded: *The most important factor related to ferret reintroduction success was a cumulative metric incorporating both size of the area occupied by prairie dogs and density of prairie dog burrows within that area. Each of the four successful sites had prairie dog populations that occupied an area of at least 4300 ha. No sites with <4300 ha of prairie dogs were successful in maintaining P30 adult individual ferrets over multiple years without augmentation even if they had a high prairie dog burrow density. The overarching importance of the availability of high-quality habitat suggests managers should prioritize actions that maintain and enhance the availability of large areas with high prairie dog burrow density, which are becoming increasingly rare due to anthropogenic impacts and disease outbreaks.*

Black-tailed Prairie Dog

- 1) Issue: The Scoping Document did not adequately identify or discuss why the 2015 and earlier LRMP amendments for prairie dog management were not effective in controlling prairie dog expansion onto adjoining private and state lands. These reasons need to be thoroughly and clearly disclosed so the broader public can better understand all the relevant issues.
- 2) Page 5: *Mapping efforts during these years showed that active prairie dog colonies expanded to over 75,000 acres, more than doubling the previous record for mapped acres.*
 - a) The issue of prairie dog colony expansion should come as no surprise. The maximum future acreage of prairie dog colonies on TBNG (federal land only) predicted in the 2002 FEIS and supporting Biological Assessment and Evaluation was 48,000 acres, an estimate derived from habitat modeling. The maximum acreage mapped on TBNG since the 2002 FEIS was 48,000 acres as indicated in the Scoping Document. As a result, the more current 48,000 acre maximum does not constitute unexpected growth or new

information from that originally predicted in the 2002 FEIS and supporting Biological Assessment and Evaluation.

- 3) Page 5: *Comprehensive mapping efforts were constrained by time and funding; however, it was estimated that actual acreage impacted by prairie dog expansion significantly exceeded the 75,000 acres recorded.*
 - a) I am concerned that rigorous efforts to assess the status of prairie dogs was not made and likely overestimated by third party stakeholders. While I do not argue that significant colony growth may have occurred, I suspect there may be large exaggerations or inaccuracies of estimated prairie dog colony acreage. Mapping prairie dog colonies and estimating occupied acres is of considerable importance. Many trained wildlife biologists have studied and developed techniques for estimating prairie dog colonies (Biggins et al. 2006), including several FS biologists (Schenbeck and Myhre 1986, Sidle et al. 2001, 2002, 2012), and while these techniques can be applied by technicians and other practitioners, they are rooted in scientific rigor and require proper funding and timing.
 - b) The above issue is not a trivial point because the essence of this contentious issue is “how many prairie dogs are there?” It is even more important in the context of BFF recovery because we tend to assume that every acre of a prairie dog colony is equivalent to BFF habitat. That likely is not the case as multiple studies demonstrated that BFFs select for high densities of prairie dogs/burrows within a prairie dog colony (Biggins et al. 2006b; Livieri 2007, 2012; Jachowski et al. 2010, 2011; Eads et al. 2011).
 - c) The use of the phrase, “Active Colonies” – Although I have used this phrase in the past, it is inaccurate. A colony of animals (birds, mammals and others) is only a colony if the animals are present. There really is no such thing as an active or inactive colony, just colony.
- 4) Page 5: Figure 3 implies that the “denuded” area depicted was a result of drought and prairie dog colony expansion. Was this area closed to livestock grazing at that time? Such photographic documentation should be labeled to include livestock grazing when appropriate. If cattle concurrently grazed this area depicted in the photograph, was livestock grazing reduced during the drought? Direction and guidance in the current LRMP for TBNG calls for reducing livestock grazing during drought. If there were no adjustments in livestock grazing during the drought, perhaps it would be appropriate to reiterate the drought direction in the LRMP in the forthcoming LRMP amendment.
- 5) The Scoping Document states that *In the State of Wyoming, prairie dogs are classified as an agricultural pest [W.S. 11-5-102 (a)(xii)]*. In the interest of fair play, the Scoping Document should have mentioned that the Wyoming State Wildlife Action Plan lists the black-tailed prairie dog as one of the state’s Species of Greatest Conservation Need (WGFD: NSS4 (Cb), Tier II).
- 6) Some speculate that there can not be a BFF reintroduction at TBNG because of the wild swings in prairie dog populations due to plague. However, prairie dog management is evolving, and a new sylvatic plague vaccine is proving effective (Abbott et al. 2012, Rocke et al. 2017). The planned DEIS associated with the proposed action should thoroughly discuss prairie dog management tools and not foreclose on BFF reintroduction.

Short-Stature Grassland Vegetation

The Scoping Document does not define “short-stature vegetation” and I cannot find that term in any range management or ecology text. I assume that the Scoping Document is referring to short statured shortgrass prairie species.

The proposed action is to *emphasize short-stature vegetation as a key component of a mosaic of vegetation communities across the management area to provide habitat for a variety of associated species*. However, such an emphasis already exists under the current plan. Extensive prairie dog habitat provides for the variety of associated species that the proposed action mentions. Because the proposed action will manage for only 10,000 acres of prairie dog colonies to support associated species such as mountain plover, burrowing owl, and swift fox, then the proposed action will be supporting associated species to a far lesser extent than the current plan. Indeed, one associated species

Many scientists have noted the link between prairie dog colony short stature vegetation and associated species. Indeed, you already know that the matter has been the subject of research by USDA Agricultural Research Service.

- Bird communities on prairie dog colonies have significantly greater densities of burrowing owls, mountain plovers, killdeer, horned larks, McCown's Longspurs than bird communities off colony sites. The strength of prairie dog effects is consistent across the northern Great Plains. Vegetation modification by prairie dogs sustains a diverse suite of bird species in these grasslands. Areas in the North American Great Plains with prairie dog colonies support higher densities of at least 9 vertebrate species than sites without colonies. Prairie dogs affect habitat for these species through multiple pathways, including creation of belowground refugia, supply of prey for specialized predators, modification of vegetation structure within colonies, and increased landscape heterogeneity.
- The mountain plover is a good example of a grassland species adapted to living in very sparse and prostrate vegetation (see the mountain plover research at Pawnee National Grassland by Dan Uresk of the USDA Forest Service). Like the piping plover nesting on almost barren sandbars and alkali wetland shorelines, and the snowy plover on barren lake shorelines in the Great Plains, the mountain plover is another bare ground plover. What the Scoping Document illustrates as *Denuded grassland following drought conditions and the prairie dog population expansion of 2016-2017* is mountain plover habitat.

Other

- Issue: FSH 1909.21.3 and the 2017 amendment to the 2012 planning rule directs LRMP amendments prepared after 5/9/15 to conform to the 2012 planning regulations. Given this direction, how can this proposed amendment and EIS process proceed and be completed without having the TBNG Species of Conservation Concern (36 CFR 219.9) identified, approved, and available at the onset of this amendment process?

- During the May 8, 2019 webinar, I asked if the comments in response to this Scoping Document could be made public. I was told no by Monique Nelson. The Wyoming Department of Agriculture Collaborative Working Group made its findings and comment letters public. The USDA Forest Service should also make public the comments it receives in response to the Scoping Document.

References

- Abbott, R. C., J. E. Osorio, C. M. Bunck, and T. E. Rocke. 2012. Sylvatic plague vaccine: a new tool for conservation of threatened and endangered species? *EcoHealth* 9: 243-250.
- Anderson, E., S.C. Forrest, T.W. Clark, and L. Richardson. 1986. Paleobiology, biogeography, and systematics of the black-footed ferret, *Mustela nigripes* (Audubon and Bachman), 1851. *Great Basin Naturalist Memoirs* 8: 11-62.
- Biggins, D., J. G. Sidle, D. Seery, A. Ernst, and L. DeLay. 2006a. Estimating the abundance of prairie dogs. Pages 94-107 in J.L. Hoogland, editor, *Conservation of the black-tailed prairie dog: saving North America's western grasslands*. Island Press, Washington, DC.
- Biggins, D. E., J. L. Godbey, M. R. Matchett and T. M. Livieri. 2006b. Habitat preferences and intraspecific competition in black-footed ferrets. Pages 129-140 in J. E. Roelle, B. J. Miller, J. L. Godbey, and D. E. Biggins, editors. *Recovery of the black-footed ferret – progress and continuing challenges*. U.S. Geological Survey Scientific Investigations Report 2005-5293.
- Buseck, R. S., D.A. Keinath, and E. Everett. 2005. Species assessment for black-tailed prairie dog (*Cynomys ludovicianus*) in Wyoming. Prepared for United States Department of the Interior, Bureau of Land Management, Wyoming State Office, Cheyenne, Wyoming. 64pp.
- Eads, D. A., J. J. Millspaugh, D. E. Biggins, T. M. Livieri and D. S. Jachowski. 2011. Post-breeding resource selection by adult black-footed ferrets in the Conata Basin, South Dakota. *Journal of Mammalogy* 92:760-770.
- Esch, K. L., G. P. Beauvais, and D. A. Keinath. 2005. Species conservation assessment for black-footed ferret (*Mustela nigripes*) in Wyoming. Prepared for United States Department of the Interior, Bureau of Land Management, Wyoming State Office, Cheyenne, Wyoming. 52pp.
- Jachowski, D. S., J. J. Millspaugh, D. E. Biggins, T. M. Livieri, and M. R. Matchett. 2010. Home-range size and spatial organization of black-footed ferrets *Mustela nigripes* in South Dakota, USA. *Wildlife Biology* 16:66-76.
- Jachowski, D. S., J. J. Millspaugh, D. E. Biggins, T. M. Livieri, M. R. Matchett and C.D. Rittenhouse. 2011. Resource selection by black-footed ferrets in South Dakota and Montana. *Natural Areas Journal* 31:218-225.
- Johnsgaard, P. A. 2005. *Prairie dog empire: a saga of the short grass prairie*. University of Nebraska Press, Lincoln, Nebraska.

Livieri, T. M. 2007. Black-footed ferret spatial use of prairie dog colonies in South Dakota. M. S. Thesis, University of Wisconsin – Stevens Point. 72pp.

Livieri, T. M. and E. M. Anderson. 2012. Black-footed ferret home ranges in Conata Basin, South Dakota. *Western North American Naturalist* 72:196-205.

Proctor, J., B. Haskins, and S.C. Forrest. 2006. Focal areas for conservation of prairie dogs and the grassland ecosystem. Pages 232-247 in J.L. Hoogland, editor, *Conservation of the black-tailed prairie dog: saving North America's western grasslands*. Island Press, Washington, DC.

Rocke, T. E., D. W. Tripp, R. E. Russell, R. C. Abbott, K. L. D. Richgels, M. R. Matchett, D. E. Biggins, R. Griebel, G. Schroeder, S. M. Grassel, D. R. Pipkin, J. Cordova, A. Kavalunas, B. Maxfield, J. Boulerville, and M. W. Miller. 2017. Sylvatic plague vaccine partially protects prairie dogs (*Cynomys* spp.) in field trials. *EcoHealth* 14: 438–450.

Schenbeck, G.L. and R. Myhre. 1986. Aerial Photography for assessment of black-tailed prairie dog management on the Buffalo Gap National Grassland, South Dakota. USDA, Forest Service, Forest Pest Management, Methods of Application Group, Report No. 86-7, Fort Collins, Colorado.

Sidle, J.G., D.H. Johnson, and B.R. Euliss. 2001. Estimated areal extent of black-tailed prairie dog colonies in the northern Great Plains. *Journal of Mammalogy* 82:928-936.

Sidle, J.G., D.H. Johnson, B.R. Euliss, and M. Tooze. 2002. Monitoring black-tailed prairie dog colonies with high resolution satellite imagery. *Wildlife Society Bulletin* 30(2):405-411.

Sidle, J. G., G. L. Schenbeck, D. S. Licht, and E. Olson. 2006. Role of federal lands in the conservation of prairie dogs. Pages 218-231 in J.L. Hoogland, editor, *Conservation of the black-tailed prairie dog: saving North America's western grasslands*. Island Press, Washington, DC.

Sidle, J.G., D.J. Augustine, D.H. Johnson, S. D. Miller, J.F. Cully, and R.P. Reading. 2012. Aerial surveys adjusted by ground surveys to estimate area occupied by black-tailed prairie dog colonies. *Wildlife Society Bulletin* 36(2):248–256.

Wuerthner, G. 1997. The black-tailed prairie dog-headed for extinction? *Journal of Range Management* 50:459-66.

Yours truly

John G Sidle

(b) (6)

Chadron NE 69337

Livieri, T. M. 2007. Black-footed ferret spatial use of prairie dog colonies in South Dakota. M. S. Thesis, University of Wisconsin – Stevens Point. 72pp.

Livieri, T. M. and E. M. Anderson. 2012. Black-footed ferret home ranges in Conata Basin, South Dakota. *Western North American Naturalist* 72:196-205.

Proctor, J., B. Haskins, and S.C. Forrest. 2006. Focal areas for conservation of prairie dogs and the grassland ecosystem. Pages 232-247 in J.L. Hoogland, editor, *Conservation of the black-tailed prairie dog: saving North America's western grasslands*. Island Press, Washington, DC.

Rocke, T. E., D. W. Tripp, R. E. Russell, R. C. Abbott, K. L. D. Richgels, M. R. Matchett, D. E. Biggins, R. Griebel, G. Schroeder, S. M. Grassel, D. R. Pipkin, J. Cordova, A. Kavalunas, B. Maxfield, J. Boulerville, and M. W. Miller. 2017. Sylvatic plague vaccine partially protects prairie dogs (*Cynomys* spp.) in field trials. *EcoHealth* 14: 438–450.

Schenbeck, G.L. and R. Myhre. 1986. Aerial Photography for assessment of black-tailed prairie dog management on the Buffalo Gap National Grassland, South Dakota. USDA, Forest Service, Forest Pest Management, Methods of Application Group, Report No. 86-7, Fort Collins, Colorado.

Sidle, J.G., D.H. Johnson, and B.R. Euliss. 2001. Estimated areal extent of black-tailed prairie dog colonies in the northern Great Plains. *Journal of Mammalogy* 82:928-936.

Sidle, J.G., D.H. Johnson, B.R. Euliss, and M. Tooze. 2002. Monitoring black-tailed prairie dog colonies with high resolution satellite imagery. *Wildlife Society Bulletin* 30(2):405-411.

Sidle, J. G., G. L. Schenbeck, D. S. Licht, and E. Olson. 2006. Role of federal lands in the conservation of prairie dogs. Pages 218-231 in J.L. Hoogland, editor, *Conservation of the black-tailed prairie dog: saving North America's western grasslands*. Island Press, Washington, DC.

Sidle, J.G., D.J. Augustine, D.H. Johnson, S. D. Miller, J.F. Cully, and R.P. Reading. 2012. Aerial surveys adjusted by ground surveys to estimate area occupied by black-tailed prairie dog colonies. *Wildlife Society Bulletin* 36(2):248–256.

Wuerthner, G. 1997. The black-tailed prairie dog-headed for extinction? *Journal of Range Management* 50:459-66.

Yours truly



John G Sidle

(b) (6)

Chadron NE 69337

Interagency Statement
U.S. Forest Service, U.S. Fish and Wildlife Service,
and Wyoming Game and Fish Department
December 4, 2017

Over the past several years, the Thunder Basin Working Group and the Thunder Basin Learning Series has provided county representatives, non-governmental organizations, permittees, and the public with opportunities to discuss ecological conditions and related management issues on the Thunder Basin National Grassland (Grassland). Several themes emerged from these discussions, including grassland restoration, prairie dog management, and the reintroduction of black-footed ferrets.

The U.S. Forest Service, U.S. Fish and Wildlife Service, and Wyoming Game and Fish Department recognize the value of further collaboration and public engagement on grassland restoration and wildlife management strategies. A joint examination of the guiding documents that influence and direct management of the Grasslands will identify any potential adjustments necessary based on science, social and economic issues, and altered conditions. The primary documents for review include: 1) Thunder Basin Land and Resource Management Plan (2001); and 2) Prairie Dog Conservation Assessment and Management Strategy (2015). Ecological conditions, including occupied prairie dog habitat and grassland conditions, have changed over time necessitating this review.

We cooperatively agree that the reintroduction of black-footed ferrets on the Grassland is not appropriate at this time. Instead, the current focus surrounds prairie dog management actions, including boundary control and disease control. The U.S. Forest Service will monitor ecological progress and grassland restoration activities on the Grassland. Interaction with stakeholders will continue on these important issues.

We appreciate the time and dedication of those involved in the collaborative efforts to improve our shared asset in the Thunder Basin National Grassland.



Russ Bacon
Forest Supervisor
Medicine Bow-Routt National
Forests and Thunder Basin
National Grassland
USDA Forest Service



Tyler Abbott
Field Supervisor
Mountain-Prairie Region
U.S. Fish and Wildlife Service



Scott Talbott
Director
Wyoming Game and Fish
Department





WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006

Phone: (307) 777-4600 Fax: (307) 777-4699

wgfd.wyo.gov

GOVERNOR
MATTHEW H. MEAD

DIRECTOR
SCOTT TALBOTT

COMMISSIONERS
MARK ANSELM – President
DAVID RAE – Vice President
GAY LYNN BYRD
PATRICK CRANK
KEITH CULVER
PETER J. DUBE
MIKE SCHMID

Thunder Basin and Black-footed Ferrets Talking Points August 14, 2018

- In 1994, the black-footed ferret captive breeding program was turned over to the USFWS (Service). The Service proposed that ferret reintroductions be suspended in white-tailed prairie dog colonies and that future reintroductions focus on black-tailed prairie dog colonies. This put the Shirley Basin reintroductions on hold and made releases on the Thunder Basin National Grasslands (TBNG) a priority.
- The Wyoming Game and Fish Department (Department) disagreed with this approach but coordinated with TBNG to ensure adequate ground work was conducted for potential ferret reintroduction. At that time, the Department terminated development of additional black-footed ferret release sites in Wyoming due to differences in opinion.
- Since 2001, when the Land and Resource Management Plan for Thunder Basin National Grasslands (TBNG) was finalized, there have been numerous conflicts regarding implementation of the plan with regard to black-tailed prairie dog management and black-footed ferret reintroduction.
- As detailed in the Land and Resource Plan, areas of the grasslands were managed specifically for black-tailed prairie dogs
 - This action resulted in landowner dissatisfaction due to a lack boundary control and the degradation of leased grazing allotments.
 - Thunder Basin instituted a shooting ban on key areas in March 2002 to maintain prairie dog populations
- In 2016 the USFS hired the Ruckelshaus Institute to moderate workshops to discuss prairie dog management issues.
 - These workshops had little public or landowner support.
 - A summary of these meetings can be found at:
<http://www.uwyo.edu/haub/ruckelshaus-institute/collaborative-solutions/thunder-basin/index.html>
- November 2016, the Governor of Wyoming and the Directors of the Wyoming Game and Fish Department, Wyoming Office of State Lands and Investments and the Wyoming Department of Agriculture sent letters informing the USFS that agencies did not support reintroduction and current prairie dog management implementation.
- In 2017 Plague reduced prairie dog numbers. Before the Plague outbreak, prairie dog densities were very high and considered to be at socially unacceptable levels.

- In November 2017 the USFWS, USFS and the Department signed an Interagency Statement that the reintroduction of ferrets was not appropriate at that time and that the agencies should continue to focus prairie dog management actions on boundary control and disease control.
- Currently the USFS is working with the Wyoming Department of Agriculture to take further steps on this issue by holding monthly meetings to discuss a forest plan revision before the end of 2018.
 - NGOs support ferret reintroduced on the TBNG.
 - While ferrets have been associated with “unacceptable” prairie dog management, there is still some landowner support for ferret reintroduction.
- The Department, the Wyoming Department of Agriculture, the Service, and USFS publically stated that they do not support ferret reintroduction until ongoing public issues are resolved.
 - Currently there are no plans to reintroduce ferrets to Thunder Basin Grasslands. The draft ferret management plan developed by the WGFD calls for a population of ferrets in black-tailed prairie dog habitat. The location of this population is not predetermined.
 - While the TBNG contains high quality ferret habitat, reintroductions will not occur until social concerns are resolved.
 - Should ferret populations be released, dedicated funding is essential for boundary and plague control.
 - Any releases should be conducted with community support.

From: Prosser, Chadley W -FS
Sent: 15 Mar 2019 16:52:04 +0000
To: Prosser, Chadley W -FS; McDonald, Peter M -FS
Subject: Conversation with Prosser, Chadley W -FS

Prosser, Chadley W -FS 9:42 AM:

Good morning Peter - have time for a call?

McDonald, Peter M -FS 9:43 AM:

Can we do it in 15?

Prosser, Chadley W -FS 9:43 AM:

yep, just want to call me when your ready? (b) (6)

McDonald, Peter M -FS 9:43 AM:

ok

McDonald, Peter M -FS 10:15 AM:

Just sent you sharepoint link to Nebraska legacy prairie dog files. If you want to start looking in there, I'll look in my pinyon folders for the Manning letter.

Prosser, Chadley W -FS 10:16 AM:

ok great - thank you!

Prosser, Chadley W -FS 10:21 AM:

email didn't come through. can you attach the link to skype.

McDonald, Peter M -FS 10:22 AM:

https://usdagcc.sharepoint.com/:f/s/fs-r02-rr/TES/EsBScO-hbTJNhZtE6bQhdM5ABGYCv_1IQ2WWN0P0fc0wl4g?e=pKUOdR

Prosser, Chadley W -FS 10:23 AM:

thank you.

10:25 AM You asked to send "20000614_BTPD_added_to_rfss.pdf" to Prosser, Chadley W -FS.

10:25 AM You asked to send "20000614_BTPD_added_to_rfss.pdf" to Prosser, Chadley W -FS.

10:25 AM "20000614_BTPD_added_to_rfss.pdf" was transferred.

10:25 AM You canceled the file transfer.

McDonald, Peter M -FS 10:25 AM:

Here is the letter making BTPD a R2 RFSS if you don't have it

McDonald, Peter M -FS 10:29 AM:

Haven't found the Manning letter but this reference tells you what you were asking about: G. Manning, Acting Deputy Director of the National Forest System, letter 1999

Prosser, Chadley W -FS 10:30 AM:

perfect, I'll add in the title. I haven't found the letter yet either.

McDonald, Peter M -FS 10:30 AM:

That should be Chief but let me see if I can find a second reference to confirm

Prosser, Chadley W -FS 10:30 AM:

ok

Prosser, Chadley W -FS 10:32 AM:

I do have reference of the Chief rescinding 1998 guidance

McDonald, Peter M -FS 10:32 AM:

Deputy Chief, not Deputy Director

McDonald, Peter M -FS 10:32 AM:

Still checking

Prosser, Chadley W -FS 10:32 AM:

k

Prosser, Chadley W -FS 10:34 AM:

so the reference to Gloria should be: "Acting Deputy Chief of the National Forest System"?

McDonald, Peter M -FS 10:34 AM:

I think so but that's what I'm trying to confirm

Prosser, Chadley W -FS 10:34 AM:

k

McDonald, Peter M -FS 10:38 AM:

Haven't found the letter but another letter from her in 1999 identifies her as Associate Deputy Chief, NFS. I think you'll be fine going with that.

Prosser, Chadley W -FS 10:39 AM:

Ok, I'll go with that. Thank you for looking this up. Have a good weekend.

10:43 AM You asked to send "Summary of Prairie dog petitions_sidle112408.doc" to Prosser, Chadley W -FS.

McDonald, Peter M -FS 10:43 AM:

Finding other stuff during my search that may be helpful to you

10:43 AM "Summary of Prairie dog petitions_sidle112408.doc" was transferred.

10:44 AM You asked to send "20000517_btpd_cooperation_bosch.doc" to Prosser, Chadley W -FS.

10:44 AM You asked to send "20000517_btpd_cooperation_bosch.doc" to Prosser, Chadley W -FS.

McDonald, Peter M -FS 10:44 AM:

One more

10:44 AM You canceled the file transfer.

10:45 AM You asked to send "20000726_NFS_limits_on_btpd_poisoning.rtf" to Prosser, Chadley W -FS.

McDonald, Peter M -FS 10:45 AM:

An important one from 2000

10:46 AM "20000517_btpd_cooperation_bosch.doc" was transferred.

10:47 AM "20000726_NFS_limits_on_btpd_poisoning.rtf" was transferred.

McDonald, Peter M -FS 10:47 AM:

Last one if you haven't seen it, one to be aware of

http://fsweb.r2.fs.fed.us/rr/R2_TES_Site_2007/esa/RF_letter_BFF_8may2007.doc

Prosser, Chadley W -FS 10:50 AM:

This is great information - thank you again.

McDonald, Peter M -FS 10:51 AM:

All from here. Feel free to browse and let me know if you have further questions.

<https://usfs.app.box.com/folder/40809408265>

Prosser, Chadley W -FS 10:51 AM:

will do.

From: Truex, Richard -FS
Sent: 19 Mar 2018 16:51:45 +0000
To: Truex, Richard -FS; McDonald, Peter M -FS
Subject: Conversation with Truex, Richard -FS

Truex, Richard -FS 10:48 AM:

Did you know Chad Prosser is on as acting DR in Douglas? Not sure if that is good or bad.

McDonald, Peter M -FS 10:49 AM:

No I didn't and can't say I know him very well. Name is familiar but where did he come from?

Truex, Richard -FS 10:49 AM:

He was here acting behind Tom for a while. Normally on DPG as range prog lead.

McDonald, Peter M -FS 10:49 AM:

That's why the name is familiar! Ugh. Not sure what to think about it.

Truex, Richard -FS 10:50 AM:

I'm sort of in 'ugh' response too for the moment...

McDonald, Peter M -FS 10:51 AM:

I was more referring to my inability to recall him, which in itself maybe says something about him (or me)!

From: McDonald, Peter M -FS
Sent: 6 Mar 2018 15:12:29 +0000
To: Kozlowski, Steve -FS
Subject: Follow up to our call yesterday
Attachments: USFS_Selected_Species_Laws_Policies.pptx

Steve,

If helpful I pulled from slides from a presentation Nancy Warren and I gave a few years ago at the ESA for Line Officers continuing education class. They provide some of the "citations" for our responsibilities to species like the black-tailed prairie dog as a regional sensitive species and other species associated with prairie dog communities, most prominently the endangered black-footed ferret but many others including other R2 sensitive species, e.g. swift fox, mountain plover, western burrowing owl. The BTPD was put on the list because it was very close to being listed under the ESA due to over 95% reduction across the range.

The full presentation is on the regional TES fsweb site. It's a good one to get up to speed on laws and policies associated with giving special management attention to native, declining species on the NFS lands and how we got to where we have with managing for species like the BTPD and BFF.

http://fsweb.r2.fs.fed.us/rr/R2_TES_Site_2007/esa/NW-

[PMM Role of Line Officer & Biologists 5May2011 final.pptx](#)

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service

Rocky Mountain Region

www.fs.usda.gov/detailfull/r2/home/?cid=stelprdb5261599&width=full

p: 303-275-5029

c: 303-475-3515

petermcdonald@fs.fed.us

1617 Cole Boulevard, Bldg 17

Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

Endangered Species Act

- Provide a means to conserve ecosystems upon which T&E species depend
Provide a program to conserve T&E species
Take steps to achieve purposes of treaties
Migratory bird treaties
CITES
Fisheries – Northwest Atlantic and North Pacific
Other international agreements
In section 5 of ESA, the Secretary of Agriculture is directed to: “establish and implement a program to conserve fish, wildlife, and plants, including Federally listed species” (16 U.S.C. 1534 et seq. and FSM 2670.11)

ESA Section 7(a)(1)

- All other federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered and threatened species. Conservation = “all methods and procedures which are necessary to bring endangered and threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary (e.g. recovery and delisting).”

ESA Section 7(a)(2)

- Each federal agency shall, in consultation with the Secretary, insure that any action authorized, funded, or carried out by such agency, is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat.

National Forest Management Act

Forest plans must: "Provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple use objectives of a land management plan ..."
NFMA, 16 USC 1604 (g)(3)(b)

NFMA Regulations

"Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired nonnative vertebrate species in the planning area."

36 CFR 219.19 "In order to insure that viable populations will be maintained, habitat must be provided to support, at least, a minimum number of reproductive individuals, and that habitat must be well distributed so that those individuals can interact with others in the planning area."

USDA Regulation 9500-4

1. Assist in the identification and recovery of threatened and endangered plant and animal species
Avoid actions which may cause a species to become threatened or endangered
Evaluate and conserve habitats necessary for the conservation of threatened and endangered species
Consult as necessary with the Departments of the Interior and/or Commerce on activities that may affect threatened and endangered species
Do not approve, fund or take any action that is likely to jeopardize the continued existence of threatened and endangered species or destroy any habitat necessary for their conservation unless exemption is granted under subsection 7(h)

Forest Service Manual - 2620

- To preclude trends toward endangerment that would result in the need for Federal listing, units must develop conservation strategies for those sensitive species whose continued existence may be negatively affected by the forest plan or a proposed project. To devise conservation strategies, first conduct biological assessments of identified sensitive species.

FSM 2621.2

Forest Service Manual - 2670

- Maintain viable populations of all native and desired nonnative wildlife, fish and plant species in habitats distributed throughout their geographic range on NFS lands.

FSM 2670.22,2 Develop
and implement management objectives for
populations and/or habitat of sensitive species.

FSM 2670.22,3

Forest Service Manual – 2670 (*cont.*)

- Sensitive species must receive special management emphasis to ensure their viability and preclude trends toward endangerment...
FSM 2672.1 - TES Planning (similar to FSM 2670.22, 1. – TES Objectives)

From: McDonald, Peter M -FS
Sent: 14 Feb 2019 23:25:57 +0000
To: pete_gober@fws.gov
Cc: john_hughes@fws.gov;kimberly_fraser@fws.gov;Harper, Robert -FS;Swiader, Jennifer E -FS;Lohr, Steve -FS;Bierman, Sylvia (Clark)- FS;Harper, Robert -FS;Barrera, Bobbi L -FS;Allen, Lydia R -FS;Maes, Ronnie -FS;Abegglen, Jeffrey S -FS;Dobesh, Phillip A -FS;Kozlowski, Steve -FS;Shively, Stephanie -FS;Krueger, Patricia A -FS;McDonald, Peter M -FS
Subject: Forest Service annual report - Black-footed ferret recovery and Prairie dog habitat management
Attachments: 20190114-USFS-BFF-Report-2018-FINAL.pdf

Attached is our annual report for 2018. We were delayed getting this together for the winter executive committee meeting and then the government further delayed finalizing the report. As always, a great thanks to our regional and field personnel in helping pull together this information again for 2018.

Let me know of any questions.

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service

Rocky Mountain Region

www.fs.usda.gov/detailfull/r2/home/?cid=stelprdb5261599&width=full

p: 303-275-5029

c: 303-475-3515

peter.mcdonald@usda.gov

1617 Cole Boulevard, Bldg 17

Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people



TO: Pete Gober, Black-footed Ferret Recovery Coordinator, U.S. Fish and Wildlife Service

CC: Robert Harper (WO), Erin Swiader (R1), Steve Lohr/Sylvia Bierman (R2), Robert Trujillo (R3)

SUBJECT: U.S. Forest Service 2016 Report on Black-footed Ferret Recovery/Prairie Dog Habitat Management Activities

DATE: February 14, 2019

National Grasslands continue to represent some of the best opportunities for black-footed ferret recovery in the wild. One of the most successful black-footed ferret reintroduction sites to-date in the national recovery program is at Conata Basin/Badlands, South Dakota, which includes habitat on the Buffalo Gap National Grassland and adjoining Badlands National Park. The annual monitoring recently completed at Conata Basin/Badlands continues to provide encouraging news about the post-plague rebound of the ferret population in the recovery area there. Plague management continues to be a central management issue in the national recovery program for the black-footed ferret. Several plague research studies are in progress and a summary for 2018 is attached to this report.

NORTHERN REGION (R1)

Dakota Prairie Grasslands (DPG): General Information

Prairie dog populations on DPG are managed in terms of complexes (a complex is a group of at least 10 prairie dog colonies with nearest neighbor intercolony distances not exceeding 6 miles and with a total colony complex acreage of at least 1,000 acres), while also complying with the "good neighbor" policy. As resources allow, black-tailed prairie dog colonies are surveyed about every 3 years to detect trends for Land Resource Management Plan-level monitoring on Dakota Prairie Grasslands (DPG). Generally, 2018 mapped prairie dog acreages increased from 2015; it has been hypothesized that some of this increase was caused by dry conditions experienced throughout the DPG prairie dog range (only 6.83 inches of precipitation was measured in the center of DPG prairie dog range in 2017, which is less than half of the annual average precipitation amount).

Dakota Prairie Grasslands: *Cedar River National Grassland, ND*

(No change from 2018) This small (6,800 acre) unit does not contain any active colonies of black-tailed prairie dogs.

Dakota Prairie Grasslands: *Grand River National Grassland (GRNG), SD*

Prairie dog populations on the GRNG are managed to establish two or more complexes. About 2,678 acres of black-tailed prairie dog colonies were surveyed in 2018 (27-31 August); cumulating into a 24% increase from 2015. Prairie dog expansion is emphasized in three focal areas (respective acreages at 2018 mapping time in parenthesis) while complying with the "good neighbor" policy: Corson County Focal Area (717 acres), Pasture 7-8-9 Focal Area (799 acres), and Pasture 6 Focal Area (1160 acres). Corson County Focal Area had less acreage at 2018 mapping time than 2015 (11% decrease); the cause for most of decrease is unknown and cannot be completely attributed to control efforts on GRNG since 2015. About 287 acres of lethal prairie dog control was done in areas adjacent to non-National Forest System (NFS) lands the autumn after 2018 mapping.

Dakota Prairie Grasslands: *Little Missouri National Grassland (LMNG), ND*

Both the Medora and McKenzie Ranger Districts that together comprise the LMNG contain black-tailed prairie dogs. Prairie dog populations on the LMNG are managed to establish two or more complexes in both the badlands geographic area and in the rolling prairie geographic area, while also complying with the "good neighbor" policy. There are six prairie dog focal areas on LMNG. Four of these have greater than 1,000 acres of area on NFS lands (acreages listed below are at mapping time 2018: July-September 27):

- South Unit Theodore Roosevelt National Park Focal Area (1,519 acres). This focal area on DPG land is adjacent to Theodore Roosevelt National Park land;
- SW Slope Focal Area (also known as Boyce Creek/Indian Creek, 1,948 acres);
- SW McKenzie Focal Area (1,380 acres); and
- NW McKenzie Focal Area (1,689 acres).

Part of the NW McKenzie Focal Area is designated as Management Area 3.63 (black-footed ferret reintroduction habitat); there were approximately 786 acres of active prairie dog acreage on MA 3.63 in 2018 at mapping time, compared to 567 acres in 2015. In summary, on LMNG, 4,814 acres were mapped on the Medora District and 3,544 acres were mapped in the McKenzie District, this is about a 44% and 57% increase for the two districts, respectively, from 2015.

The DPG completed the Little Missouri National Grassland Prairie Dog Management Project Environmental Assessment (EA) in 2018. The selected alternative authorized in the 2018 Decision Notice (DN) allows for the control of prairie dogs on NFS lands bordering non-NFS lands with zinc phosphide along a ¼ mile zone paralleling non-NFS property. As authorized in the DN, after control procedures are assessed and determined to have been effective, a vegetation barrier may be established at approximately 300 feet from the non-NFS land boundary when feasible to discourage future encroachment. For the first time on LMNG since 2014, lethal control of prairie dogs was conducted on lands bordering non-NFS lands during autumn of 2018. Medora District had about 2,054 acres of lethal prairie dog control. McKenzie District had about 1,774 acres of lethal prairie dog control; no prairie dog control was done in Management Area 3.63 (black-footed ferret reintroduction habitat). Control procedures have been initially assessed and appear to be effective thus far.

ROCKY MOUNTAIN REGION (R2)

Nebraska National Forest: Buffalo Gap National Grassland, SD

Conata Basin (BGNG East ½). Black-footed ferret population monitoring was conducted in the Agate, Sage Creek and Heck Table areas of the Conata Basin. Additionally, the Steer Pasture black-footed ferret management area north of Badlands National Park was also surveyed. As of November 2018, a minimum of 111 individual black-footed ferrets (i.e., 36 adults and 52 kits on Forest Service lands and 11 adults and 12 kits on National Park Service lands) have been trapped and processed. Twenty-four of the 33 total kits on the Roberts, Agate and Sage Creek Pasture colonies, were vaccinated against plague as part of an SPV/Fipronil/Dust evaluation. All ferrets in Heck Table, Steer Pasture and Prairie Wind were vaccinated. These numbers are not a final population estimate, because additional surveys are needed and some of the animals observed during surveys were not successfully trapped and processed. The fall population decreased from the prior year's estimate of 147 total animals. A more detailed analysis and population estimate will be provided in the Conata Basin/Badlands NP site report in late January. In 2016 prairie dog colony expansion was noticed across the Wall District. In 2017 prairie dog colony expansion continued largely aided by few plague or other disease outbreaks and drought conditions throughout much of the year. Active prairie dog colonies were mapped in 2017 with a total of 9,910 acres in the Conata Basin; a reduction of 68% when compared to 2007 (pre-plague) active acres (Table 1).

Table 1. Wall Ranger District - acres of active prairie dog colonies by Geographic Area and 3.63 Management Area (Black-footed ferret management area) for 2007 (pre-plague) through 2017. Colonies were verified as being active, GPS'd and mapped.

Year	Wall North	Wall SE*	Wall SW**	MA 3.63: Conata Basin	MA 3.63: Steer Pasture	TOTAL
2007	508	1,677	1,060	31,372	733	35,350
2009	550	1,891	1,371	15,926	725	20,463
2011	368	562	552	9,114	607	11,203
2013	384	1,016	376	7,545	720	10,041
2015	322	1,339	411	6,783	819	9,674
2017	649	2,214	708	9,910	875	14,356

*=Does not include Steer Pasture MA 3.63 **=Does not include Conata Basin MA 3.63

Ferret Family Rating

The 2018 FFR was determined using burrow counts from the from fipronil and dusting application data, then utilizing 93% as the measure to figure active burrow densities from this total. These data resulted in a territory adjusted FFR of 128.1 across the Conata Basin black-footed ferret management area (does not include Steer Pasture); which is up from 125.4 in 2017 (Table 2). Plague continues to be a concern for ferrets and their prey. The 2017 total active prairie dog acres in the Basin are at their highest level since 2011. The FFR increased for a fourth consecutive year which is partly due to increased prairie dog acreages as densities tended to decrease slightly in many parts of Conata Basin. Many colonies that nearly plagued-

out in 2008-2010 are starting to recover and if that trend continues, in combination with normal or below normal precipitation, then active prairie dog acreage could grow quickly.

Table 2. Territory-adjusted FFR for the Conata Basin 2006-2018. Does not include Steer Pasture 3.63 MA.

	2006	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
FFR	400.8	286.5	214.3	207.9	125.2	159.9	136.6	106.2	113.6	122.4	125.4	128.1
% Change from Prior Year		-28%	-25%	-3%	-40%	+28%	-15%	-22%	+7%	+8%	+2.5%	+1%

Dusting

The 2018 dusting effort consisted of a private contractor that dusted 456,913 burrows in 8,406 acres of prairie dog habitat located on the Wall Ranger District. Dusting was initiated on April 3, 2018 and completed on November 14, 2018. Methods were identical to what has been used in the past by the interagency dusting crew. The contractor was provided the dust and all equipment except the ATV's, fuel and personnel to do the work. A FS representative was responsible for inspection of work and coordinating duster maintenance and repair as well as validating GPS coverage and payment.

Fipronil

In 2018 the NEPA used for plague management on the Wall Ranger District was reviewed and modified to allow for the use of multiple dust insecticides as well as Sylvatic Plague Vaccine (SPV), and a newly labeled fipronil grain bait. Previous research on the fipronil insecticide has provide promising results for flea control and is being used at a larger experimental scale (Colony Level) in order to determine if there are any unexpected effects from the chemical to the ecosystem or other non-target species. In 2018 the fipronil baiting effort consisted of a private contractor who applied fipronil grain bait to 37,018 burrows in 780 acres of prairie dog habitat located on the Wall Ranger District. The baiting was initiated on September 25, 2018 and completed on October 24, 2018. One half cup of was bait was applied near the entrance of each active burrow either by hand or baiting machine. In a side by side comparison, it took roughly half as long to bait the colony by hand as it did to bait with the machines. The contractor was provided the fipronil grain and baiting machines, but used their own ATV's, fuel and personnel to do the work. A FS representative was responsible for inspection of the work and validating GPS coverage. Based on the initial results, it appears that this application will not require any specialized equipment, and may be more cost effective than dusting.

Evaluation of New Insecticides for Flea Control

Some colonies of prairie dogs in Conata/Badlands have been dusted with deltamethrin (Delta Dust) for over 10 consecutive years. As fleas are repeatedly exposed to deltamethrin, they may develop resistance to the insecticide, resulting in decreased efficacy of dusting for flea control and plague management. Recent USGS and PWR data (Eads et al., unpublished data) suggest that on 2 Conata colonies dusted with deltamethrin for 10 to 11 years, fleas developed resistance to deltamethrin. With that said, dusting on those 2 colonies was discontinued from 2015 through 2017, and as of 2017, many fleas on those colonies exhibited molecular signatures (enzyme assays) identical to susceptible fleas; i.e., resistance was at least partly

purged from the flea populations. If deltamethrin is used in a rotating fashion with other tools for plague management, fleas might not evolve resistance to deltamethrin. USGS and PWR have conducted research to assess the relative efficacy of new insecticides that might be used in rotating fashion with deltamethrin. Encouragingly, an edible insecticide grain with systemic fipronil has provided promising results. Following treatment of prairie dogs with fipronil grain in 2016, 2017 and 2018, fleas nearly disappeared for 3 consecutive months. From 2016 into 2017, and 2017 into 2018 fleas on the fipronil plots remained suppressed for 11 to 12 months (Eads et al., unpublished data). Thus, in the future, fipronil grain and deltamethrin might be used under an integrative approach to plague management at Conata/Badlands. Additional work with fipronil looked at efficacy based on bait application methods, and evaluated the efficacy of a fipronil-laced pellet bait. The initial data appears to show that the fipronil treatments are highly effective, and could be conducted relatively quickly and potentially cheaper than dusting treatments.

Smithwick (BGNG West ½). Prairie dog acreages at Smithwick (a second Management Area 3.63 - Black-footed Ferret Reintroduction Habitat on the Buffalo Gap National Grassland) were surveyed by U.S. Forest Service personnel in 2016 who found two hundred ninety-five (295) acres of active colonies. This is significantly higher than the 108 acres surveyed in 2012, but still short of the 490 acres that prairie dog colonies occupied in 2010. A drive-through of the area in 2014 discovered that suspected plague continues to be present in the area. The next full inventory for this area is expected to occur in 2019.

Medicine Bow-Routt National Forests: Thunder Basin National Grassland, WY

The Forest Service has embarked on an amendment to the land management plan/prairie dog management strategy for the Thunder Basin National Grassland based on new information. An interdisciplinary team of federal, state, and private stakeholders is advising the agency on issues and options related to prairie dog management on the National Grassland into the future. The Forest Service will publicly issue a Notice of Intent to prepare an Environmental Impact Statement (EIS) at the end of March 2019. Tentatively, a Draft EIS is scheduled for public release in June 2019, with a final Record of Decision on the amendment expected around September 2020.

Pike-San Isabel National Forests: Comanche / Cimarron National Grasslands, CO/KS

No change from 2016-17: The Comanche and Cimarron National Grasslands are identified as potential reintroduction sites. Due to the continuing impact of plague and other issues on these grasslands, it is expected that it will be some time before suitable conditions to support black-footed ferret reintroduction will be achieved. However, there were significant recovery actions adjacent to the Comanche National Grasslands in 2015.

Two landowners adjacent to the National Grasslands expressed support for black-footed ferret reintroduction under the NRCS EQUIP program. These landowners had the minimum number of acres to qualify for the program; however, additional acres were needed to ensure success of

the reintroduction. The Comanche National Grassland and USFWS discussed the likelihood of black-footed ferrets moving on to the grasslands. While the Comanche was supportive of the reintroduction effort there were some concerns about impacts to ongoing Grasslands management. The Grasslands and USFWS were able to work out an agreement that allowed for the continuance of ongoing management actions on allotments.

The Grasslands Biologist supported release efforts at two sites adjacent to the grasslands. A total of 20-25 ferrets, all inoculated against the plague, were released in one day. Subsequent surveys found relatively good survival of initially released ferrets and also reproduction—they found two kits. The Comanche National Grassland will continue to work with the NRCS and USFWS to ensure the highest probability of success. There are some concerns that recent outbreaks of plague on the Comanche will impact the success of the reintroduction effort.

SOUTHWESTERN REGION (R3)

Kiowa/Rita Blanca National Grasslands, NM/OK

Lack of funding prevented personnel from conducting BTPD monitoring in 2018. No ferret reintroduction has occurred at the Kiowa or Rita Blanca National Grassland, and we did not comprehensively monitor Black-tailed Prairie Dog colony acres in 2018. Observations of small, disjunct pockets of prairie dogs on the Rita Blanca National Grassland show that no large scale rebound has yet occurred since the recent plague events. On the Kiowa National Grassland in New Mexico, observations of major colony size decline between April and June of the past year may indicate that plague has affected these colonies.

ATTACHMENT 1

Research Update: Identifying New Tools for Conserving Black-footed Ferrets

David A. Eads¹, Dean E. Biggins², and Travis Livieri³

¹Colorado State University (daeads@colostate.edu)

²U. S. Geological Survey, Fort Collins Science Center (bigginsd@usgs.gov)

³Prairie Wildlife Research (tlivieri@prairiewildlife.org)

Sylvatic plague seriously impedes progress toward recovery of black-footed ferrets. Dusting of burrows with DeltaDust® 0.05% deltamethrin (a pulicide) has proven effective in suppressing the fleas that transmit plague and has become one of the most effective tools for conserving black-footed ferrets. However, if DeltaDust® is used repeatedly over time, fleas can develop resistance to the active ingredient, resulting in ineffective flea control, as found on 2 colonies of black-tailed prairie dogs in Conata/Badlands (Eads et al. in press).

Using an effective pulicide has large economic consequences and ramifications to achieving recovery of the black-footed ferret. Conservation of the ferret will rely on an integrative approach to plague management, for instance involving rotating applications of insecticidal pulicides with different active ingredients.

Fipronil, a broad spectrum pulicide, has been identified as a tool for managing plague. Fipronil can be applied at low concentrations to host-fed bait as a “feed-through” systemic pulicide (Borchert and Poché 2011). Step-wise research is needed to appropriately and effectively incorporate fipronil into plague mitigation programs.

Over the past 3 years, 2016-2018, we have evaluated the efficacy of systemic fipronil on colonies of black-tailed prairie dogs in Conata/Badlands. To start, we tested 0.005% fipronil grain, an EPA registered product. On 2 colonies in 2016, fipronil grain suppressed fleas on prairie dogs by 97–100% for 3 consecutive months. Later in June and July 2017, fleas were 65–74% less prevalent on the old fipronil plots, relative to control plots. Thus, fipronil grain effectively suppressed fleas 12 months.

In 2017, we created new fipronil plots on 3 colonies to further evaluate the short-term efficacy of fipronil grain as a pulicide. Fipronil grain suppressed fleas by 95–100% for 3 months (Fig. 1). Later in June 2018, fleas were 73-98% less prevalent on the 2017 fipronil plots, relative to controls. Thus, fipronil grain effectively suppressed fleas for 11 months.

In 2018, we continued to evaluate fipronil grain, this time on 7 sites. Throughout the field season, we processed prairie dogs >3,750 times and detected >6,000 fleas (and >6,400 mites and >1,200 lice). We compared two methods of fipronil grain application; at burrows and along 10-m grid transects. Flea control

over 3 months was similar on sites where fipronil grain was placed at burrows and on sites where the grain was distributed along transects; the latter form of application was faster and cheaper. Fipronil suppressed fleas by 99-100% for 3 months.

In 2018, we also evaluated fipronil-laced pellets (0.80 mg fipronil per pellet; M. R. Matchett personal communication) that might be distributed to prairie dog complexes using automated dispensers attached to ATVs and unmanned aerial vehicles (drones; Krieger et al. 2018). We tested the pellets on 3 experimental sites. About 3 months after the treatments, fipronil pellets had suppressed fleas by 67-100%. These results are encouraging. Nonetheless, field observations suggest continued research is needed to increase the palatability of these pellets to prairie dogs.

Fipronil is appealing as a management tool because it is easily distributed, sufficient numbers of prairie dogs consume the fipronil-laced grain and pellets for effective flea control, and the ingredient suppresses fleas for at least 11 to 12 months. In addition, the product is targeted toward rodent hosts, and would presumably have little effect on non-target species, except for other ectoparasites on hosts that consume fipronil in host blood (a topic of ongoing study, thanks to WWF support).

We thank World Wildlife Fund for supporting this research. In 2018, the funding helped to support our field crew (2 crew leaders and 20 volunteers) and housing. Field work will continue in 2019. We will further evaluate the long-term efficacy of fipronil, in grain and pellet format, as a pulicide. Moreover, we will continue to evaluate other pulicides that might be added to the toolbox for plague management. We look forward to continued research with WWF.

From: Kozlowski, Steve -FS
Sent: 7 Dec 2017 17:27:18 +0000
To: McDonald, Peter M -FS
Subject: FW: BFF statement
Attachments: Signed Joint Statement 12 04 2017.pdf

BFF statement in Wyoming.

Steve Kozlowski, USFS

Wildlife, Botany, and Fish Resource Team Leader for the MBRTB

Forest Wildlife Biologist

Sage-grouse Coordinator

559 972-1934 cell, 307 745-2343 office, skozlowski@fs.fed.us

From: Voos, Aaron T -FS

Sent: Monday, December 04, 2017 3:16 PM

To: Kozlowski, Steve -FS <skozlowski@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>

Cc: Underhill, Sandra - FS <sandraunderhill@fs.fed.us>

Subject: BFF statement

Kelle/Koz,

This interagency statement will be shared publicly by Russ on Thursday in Gillette. Just making sure you are aware. See attached...

Aaron



Aaron Voos
Public Affairs Specialist

Forest Service
Medicine Bow-Routt National Forests & Thunder Basin National Grassland

p: 307-745-2323

c: 970-819-2898

atvoos@fs.fed.us

2468 Jackson St.

Laramie, WY 82070

www.fs.usda.gov/mbr

[Twitter.com/FS_MBRTB](https://twitter.com/FS_MBRTB)



Caring for the land and serving people

Interagency Statement
U.S. Forest Service, U.S. Fish and Wildlife Service,
and Wyoming Game and Fish Department
December 4, 2017

Over the past several years, the Thunder Basin Working Group and the Thunder Basin Learning Series has provided county representatives, non-governmental organizations, permittees, and the public with opportunities to discuss ecological conditions and related management issues on the Thunder Basin National Grassland (Grassland). Several themes emerged from these discussions, including grassland restoration, prairie dog management, and the reintroduction of black-footed ferrets.

The U.S. Forest Service, U.S. Fish and Wildlife Service, and Wyoming Game and Fish Department recognize the value of further collaboration and public engagement on grassland restoration and wildlife management strategies. A joint examination of the guiding documents that influence and direct management of the Grasslands will identify any potential adjustments necessary based on science, social and economic issues, and altered conditions. The primary documents for review include: 1) Thunder Basin Land and Resource Management Plan (2001); and 2) Prairie Dog Conservation Assessment and Management Strategy (2015). Ecological conditions, including occupied prairie dog habitat and grassland conditions, have changed over time necessitating this review.

We cooperatively agree that the reintroduction of black-footed ferrets on the Grassland is not appropriate at this time. Instead, the current focus surrounds prairie dog management actions, including boundary control and disease control. The U.S. Forest Service will monitor ecological progress and grassland restoration activities on the Grassland. Interaction with stakeholders will continue on these important issues.

We appreciate the time and dedication of those involved in the collaborative efforts to improve our shared asset in the Thunder Basin National Grassland.



Russ Bacon
Forest Supervisor
Medicine Bow-Routt National
Forests and Thunder Basin
National Grassland
USDA Forest Service



Tyler Abbott
Field Supervisor
Mountain-Prairie Region
U.S. Fish and Wildlife Service



Scott Talbott
Director
Wyoming Game and Fish
Department



From: McDonald, Peter M -FS
Sent: 14 Dec 2017 16:27:33 +0000
To: martin.s.lowney@usda.gov
Cc: pete_gober@fws.gov; Abegglen, Jeffrey S -FS; Jonathan Proctor
(b) (6)
Subject: FW: CB/B acres dusted in 2017

Martin,

After the BFF Exec Committee in Phoenix, I checked with Phil Dobesh at the Conata Basin site about the numbers in this handout (table) from the meeting. I thought they didn't look quite right and I understood you and Pete were interested in the latest figures. Below are the acreages Phil says are the most current for bt prairie dog acres and acres dusted in 2017 for Conata Basin/Badlands.

Also I didn't bring it up in the meeting, but I recalled you saying something about doing what we say when it comes to boundary management of prairie dogs. I can tell you from years of experience with prairie dog management at various levels, that different people have different ideas about what boundary "management" means, i.e. prairie dog-free zones vs. something less aggressive but still managed. For the federal lands that the FS manages including in Conata Basin, if we were to try and remove all prairie dogs in a buffer next to adjacent private lands, first of all I don't believe that is even possible on large btpd complexes without one heck of a massive and expensive control campaign year in and year out. Prairie dogs simply find a way in larger complexes of several thousand acres like at Conata Basin or Thunder Basin. Secondly, depending on how interwoven the federal and private lands are, establishing a buffer intended to be free of prairie dogs up against private lands including inholdings could represent again an immense amount of prairie dog control and make it very difficult to manage for larger complexes of interconnected colonies in any strategic and biologically meaningful way. We also do have some publics some of which were also at the exec committee meeting that don't particularly like large-scale lethal control of prairie dogs and we also have to listen to as managers of federal public lands. It may logistically be more possible to manage prairie dog-free zones on smaller complexes, but even that can leave little remaining in the interior. As we deal with larger federal complexes like Conata Basin and Thunder Basin, boundary management becomes increasingly more complex by an order of magnitude logistically, financially, politically, and socially.

So it's more complicated than just saying that we should all live up to commitments to managing boundary encroachment and I believe we have to be careful with our external messages from within the national recovery program. I completely agree that we need to increasingly find ways to more effectively manage the boundary encroachment issue and by necessity it has to be multi-faceted. In addition to using the variety of lethal and non-lethal options already available in our prairie dog management plans, as I tried to point out at the Phoenix meeting this week, the national recovery program and the executive committee overseeing it should also look at targeting some of the private land incentive programs in and around the federal lands to promote more acceptance of prairie dogs at that federal-private interface. Given the primary focus on the private lands in the national BFF recovery program these days, that could be one potentially very important way to connect it back to the federal lands that seem to have diminished in attention within the national program in recent years but I believe still have a potentially very important role to play in national recovery of the BFF. Hard to get there without concerted efforts and support to solve the prairie dog management dilemma that still plagues the national BFF recovery program and the large btpd complexes on federal lands.

I'm looking forward to hearing more about the plague management NEPA as things proceed. Please keep me in the loop. Thanks.

Peter

Peter McDonald
Regional Program Group Leader

Threatened, Endangered and Sensitive Species
Forest Service
Rocky Mountain Region
p: 303-275-5029
c: 303-475-3515
petermcdonald@fs.fed.us
1617 Cole Boulevard, Bldg 17
Lakewood, CO 80401
www.fs.fed.us

Caring for the land and serving people

Peter

-----Original Message-----

From: Dobesh, Phillip A -FS
Sent: Wednesday, December 13, 2017 10:28 AM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: RE: CB/B acres dusted in 2017

Total prairie dog acreage on the Wall District is 14,356 and of that 9,910 acres are located in Conata Basin 3.63 and 875 acres are in Steer Pasture. The total prairie dog acreage for Badlands National Park in 2017 is 2,799 acres.

Phillip A. Dobesh
Wildlife Biologist
Forest Service
Wall Ranger District
p: 605-279-2126 ext. 217
f: 605-279-2725
pdobesh@fs.fed.us
710 Main Street
P.O. Box 425
Wall, SD 57790-0425
www.fs.fed.us

Caring for the land and serving people

-----Original Message-----

From: McDonald, Peter M -FS
Sent: Wednesday, December 13, 2017 10:21 AM
To: Dobesh, Phillip A -FS <pdobesh@fs.fed.us>
Subject: RE: CB/B acres dusted in 2017

Thanks Phil. Is there an estimate for prairie dog acres at CB/B grasslands and park?

Sent from my phone

On Dec 12, 2017 6:52:09 PM, "Dobesh, Phillip A -FS" <pdobesh@fs.fed.us> wrote:

Everything that we dusted this year was in Conata Basin, no acres were dusted in the Park. The total acres that I have are 5,323 acres dusted. Let me know if you need any other information.

Thanks,

Phil

Phillip A. Dobesh
Wildlife Biologist
Forest Service
Wall Ranger District
p: 605-279-2126 ext. 217
f: 605-279-2725
pdobesh@fs.fed.us
710 Main Street
P.O. Box 425
Wall, SD 57790-0425
www.fs.fed.us

Caring for the land and serving people

-----Original Message-----

From: McDonald, Peter M -FS

Sent: Tuesday, December 12, 2017 3:00 PM

To: Travis Livieri <tlivieri@prairiewildlife.org>; Dobesh, Phillip A -FS <pdobesh@fs.fed.us>

Subject: CB/B acres dusted in 2017

In exec committee and looking at btpd and dusted acres for CB/B that don't jibe with Phil's report just for Wall RD. Did you have actual acres for dogs and dusted acres for the whole recovery area this year?

Peter

Sent from my phone

From: Prosser, Chadley W -FS
Sent: 11 Feb 2019 17:00:25 +0000
To: Rice, Richard - FS
Subject: FW: Discussion on Thunder Basin Plan Amendment

-----Original Appointment-----

From: Prosser, Chadley W -FS
Sent: Tuesday, February 05, 2019 11:33 AM
To: Prosser, Chadley W -FS; McDonald, Peter M -FS; Nelson, Monique L -FS; Kozlowski, Steve -FS; Rutherford, Tait - FS
Subject: Discussion on Thunder Basin Plan Amendment
When: Tuesday, February 12, 2019 3:00 PM-4:00 PM (UTC-06:00) Central Time (US & Canada).
Where: Call 888-844-9904 passcode (b) (6)

Call-in: 888-844-9904
Password: (b) (6)

From: McDonald, Peter M -FS
Sent: 23 Mar 2017 13:57:12 +0000
To: Lohr, Steve -FS
Subject: FW: draft BP
Attachments: 20170322-TBNG-BTPD-shooting.docx

You may have already noticed but it appears I missed a word "opinions" at the end of the first sentence of the background section.

Peter

From: McDonald, Peter M -FS
Sent: Wednesday, March 22, 2017 2:57 PM
To: Lohr, Steve -FS <slohr@fs.fed.us>
Subject: draft BP

I couldn't keep this one to 1 pager. I didn't go into great detail about forage availability and opportunities. The present issue is really not about that though I agree it is connected. We just have to be careful with that topic, there is a lot of history to it. The agency and region moved away many years ago from lethal management of prairie dogs for more livestock foraging opportunities due to tension with federal statutes (MUSY, NFMA, ESA) and science that didn't support claims of intense competition between prairie dogs and livestock despite traditional beliefs. The RMRS station in Rapid City under the former director Dan Uresk did a number of seminal prairie dog studies right in Conata Basin in the 70s and 80s. That said, we need to continue to refine our effectiveness in boundary encroachment. We have also had some discussions off and on about how we might explore strategies to offset impacts to permittees that bear the brunt of the prairie dog acreage in their allotments, i.e. make other allotments available, changing on and off dates, etc. That is something that perhaps we could discuss more with the new range program manager.

Peter

From: McDonald, Peter M -FS
Sent: 20 Jul 2017 15:28:22 +0000
To: Buchanan, Jacqueline A -FS; Lohr, Steve -FS; Clark, Sylvia G -FS; Upton, Carolyn -FS
Subject: FW: FS Updated Plague Map/files as of 7/18/2017
Attachments: UpdatedPlagueMap7_18.pdf

Jacque and everyone,

Attached is an updated plague map for Thunder Basin. The areas affected by plague so far are in blue and I'm told equals ~8000+ acres and growing, including affecting the MA 3.63. Given the rapid and extensive impact of the plague so far together with a continued high risk of more spread across the grasslands, I believe there is a genuine need for some active management of the situation including revisiting the shooting ban, dusting plans, and rodenticide control and overall more active, strategic management of the situation. I realize there still may be a need for some targeted boundary control of prairie dogs yet this year. However, I am concerned there is a genuine risk under the current situation that without more active management of it, we could see some pretty dramatic loss of prairie dogs district-wide. Worst case scenario is the prairie dogs falling below viability thresholds and out of alignment with the LMP. I don't consider this to be an overly dire forecast but a very likely scenario without more active management of the situation given what has happened so far and still possible.

I also called Steve Kozlowski, acting MBR forest biologist, this morning to relay some of these concerns.

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service
Rocky Mountain Region

p: 303-275-5029

c: 303-475-3515

petermcdonald@fs.fed.us

1617 Cole Boulevard, Bldg 17
Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: Painter, Cristi L -FS
Sent: Wednesday, July 19, 2017 4:57 PM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: FW: FS Updated Plague Map/files as of 7/18/2017



Cristi Painter
Wildlife Biologist

Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger District

p: 307-358-7132

f: 307-358-7107

cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633
www.fs.fed.us



Caring for the land and serving people

From: Parker, Ryan - FS

Sent: Tuesday, July 18, 2017 1:26 PM

To: (b) (6) Painter, Cristi L -FS <cpainter@fs.fed.us>

Cc: Lauren Cathleen Connel (b) (6)

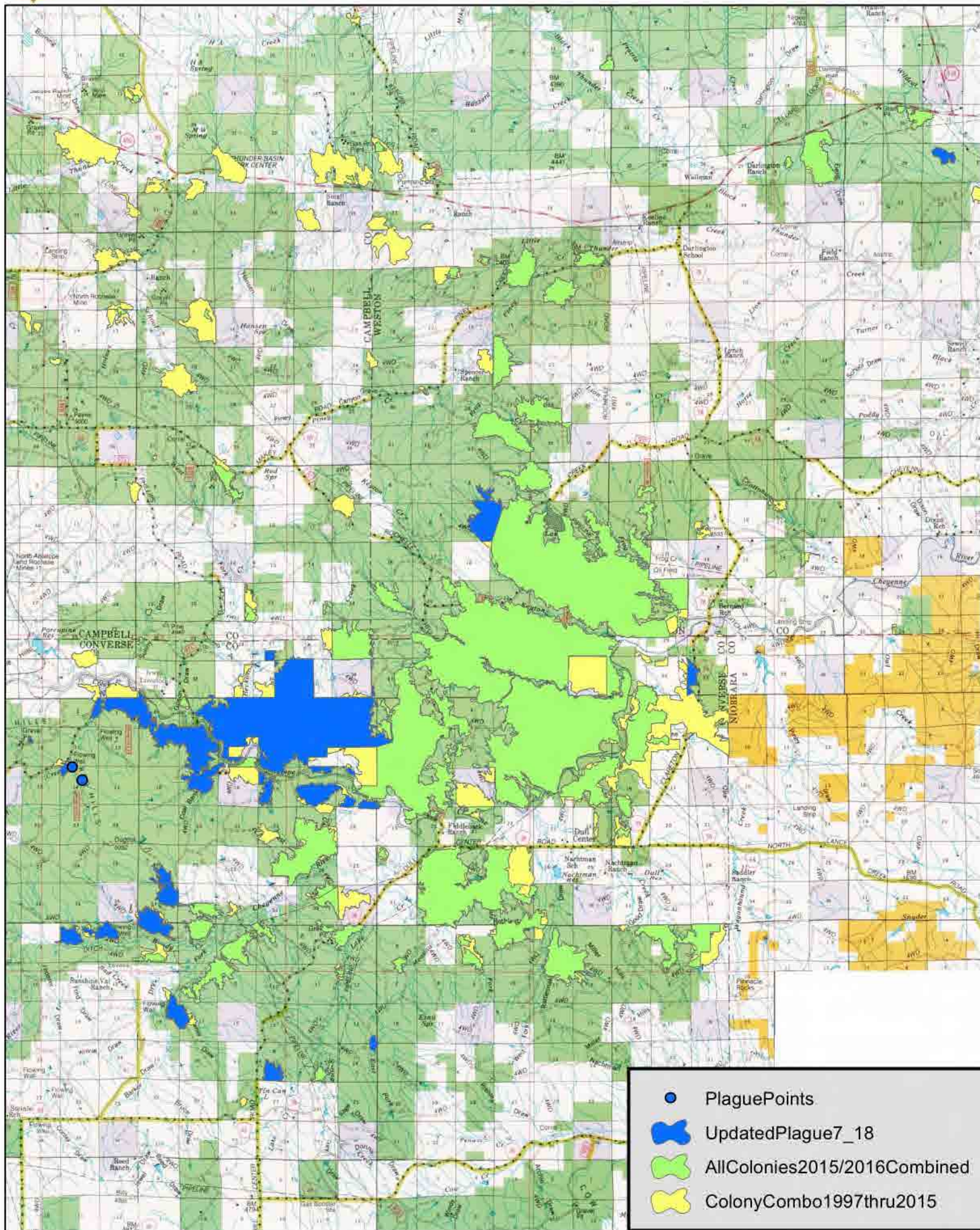
Subject: FS Updated Plague Map/files as of 7/18/2017

Ignore previous email. This has attached files.

Ryan



TBNG 2017 Colonies With Plague



From: McDonald, Peter M -FS
Sent: 22 Apr 2019 14:19:11 +0000
To: Shorrock, Donna - FS
Subject: FW: Grassland Plan Amendment Info
Attachments: Desktop outline for Grassland Plan Amendment - kozlowski 4-16-19.docx

From: Kozlowski, Steve -FS
Sent: Thursday, April 18, 2019 1:51 PM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>; Truex, Richard -FS <rtruex@fs.fed.us>
Subject: Grassland Plan Amendment Info

In case you are interested.

Scoping Document – 20 pages or so. Very well written and accurate. -

https://www.fs.usda.gov/nfs/11558/www/nepa/110862_FSPLT3_4638367.pdf

Kozlowski's Thorough Cliff Notes of Scoping Document – 1 page, accurate, but incomplete sentences.
(see attachment)

Grassland Plan Amendment Public Website. <https://www.fs.usda.gov/project/?project=55479>

Enjoy, Steve



Steve Kozlowski
Wildlife Biologist
Resource Team Leader (RTL) for Wildlife, Botany, and Fish

Medicine Bow and Routt National Forests, Thunder Basin National Grassland

p: 307-745-2343

c: 559-972-1934

Steve.Kozlowski@usda.gov

2468 Jackson St
Laramie, WY 82070

www.fs.fed.us



Caring for the land and serving people

Desktop Guide (Cliff Notes) for the Preliminary Proposed Action - Also - Outline Idea for Public Presentation

1) Overview of Grassland Plan Amendment Process.

- Scope is 3.63 (although desire for grassland wide alternative is an issue)
- BTPD History – Native, not-warranted for listing, Active colonies since 2001 generally between 20K and 5K acres, but Rocketed to 77,000 in 2017, 1,000 in 2019.
- Important Documentation
 - 2002 Amendment, 2009 Amendment, 2015 Mgmt Strategy, 2018 WGFD BFF Mgmt. Plan
- Prelim proposal generated from the 6 mos. Collaborative Process
- 2012 Planning Rule (SCC versus, R2 Sensitive Spp)
- Purpose of Proposal
 - Align with 2018 WGFD BFF Plan
 - Reduce Encroachment onto Pvt.
 - Maintain appropriate amounts of short stature veg for associated spp.
 - Maintain forage for livestock and accommodate other uses.
- Timeline (scope April, DEIS Oct., FEIS May 20, Decision Sept. 20)

2) Main Elements of the Proposed Action

- 3.67 Short Stature Veg. Emphasis
- Boundary Changes based on topography, protect private from encroachment, reduce conflicts, Cheyenne R SIA.
- Eliminate 2015 Strategy (problems with keys, problems with acres)
- Boundary Mgmt Zones, 1/4mi, ¾ mile, 1 mile residences
- Establish target goals for short stature veg in 3.67, as well as minimum allowances
 - For viability of assoc. species
 - So as not to preclude reintro of BFF
 - Maintain adequacy for other uses including livestock forage.
- Collaborative plays an active/expert role in evolving science, mapping, integrated mgmt. strategies, and communicates them to USFS
- ESD used to evaluate site veg capabilities.

3) Colony Parameters

- Targets
 - 10,000 acres in 3.67
 - 100, 400, up to 1,000 acre colony sizes.
 - 1,500 acres of active colonies, in a connected area, to align with BFF mgmt. plan
- Minimums
 - 7,500 acres total for associated species viability.
 - **Flexibility** rather than rigid minimums. **Satellite colonies** can be identified outside of 3.67 to provide control options inside 3.67 when at minimum acreages. .i.e.
 - Colony expansion tools – Shooting restrictions, Dusting, Translocation
 - Colony Control Tools – Rodenticides, Veg. Barriers, Translocation
 - No to Anti-coagulants!
- Other Colonies (expected to exist across TBNG)
 - Non-target
 - Non-satellite
 - Important for Resiliency
 - Control would continue on a normal basis, no special requirements.

From: McDonald, Peter M -FS
Sent: 28 Aug 2018 18:05:04 +0000
To: Lohr, Steve -FS; Rice, Richard - FS; Shorrock, Donna - FS
Subject: FW: PD Management EA Decision Release
Attachments: PD Management EA Decision Release.docx

Note that there is no suggestion in here about prairie dogs damaging the rangeland ecosystem or are anything other than a native component of the prairie. The focus here is on minimizing unwanted encroachment onto adjacent non-federal lands. This has also been the focus and ongoing challenge in prairie dog management in R2 for many years. Land exchanges to block up the national grasslands and position BTPD towns away from boundaries has been one of the key strategies for implementing prairie dog management plans in the region, with multiple other land management benefits on the grasslands. This included Conata Basin and Thunder Basin, and the late John Prochaska stationed in the NNF&G SO was a regional center of excellence largely responsible for implementing the land adjustment strategy.

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service

Rocky Mountain Region

www.fs.usda.gov/detailfull/r2/home/?cid=stelprdb5261599&width=full

p: 303-275-5029

c: 303-475-3515

petermcdonald@fs.fed.us

1617 Cole Boulevard, Bldg 17

Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: Tu, Kenneth K -FS
Sent: Tuesday, August 28, 2018 10:18 AM
To: Sloan, Jenna - FS <jennasloan@fs.fed.us>
Cc: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: FW: PD Management EA Decision Release

fyi



Ken Tu
Regional Environmental Coordinator

Forest Service

Rocky Mountain Region

p: 303-275-5156

f: 303-275-5134

kktu@fs.fed.us

1617 Cole Boulevard, Building 17

Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: Prosser, Chadley W -FS

Sent: Tuesday, August 28, 2018 10:06 AM

To: Tu, Kenneth K -FS <kktu@fs.fed.us>

Subject: PD Management EA Decision Release

FYI -



**U.S. Forest Service
Dakota Prairie Grasslands
2000 Miriam Circle
Bismarck, ND 58501**

NEWS RELEASE



**Date: August 28, 2018
For More Information Contact:
Treva Slaughter (701) 989-7280**

U.S. Forest Service Releases Environmental Assessment and Decision Notice for Little Missouri National Grassland Prairie Dog Management Project

Bismarck, ND, Date August 28, 2018— The Dakota Prairie Grasslands prepared an environmental assessment (EA), decision notice (DN) and finding of no significant impact (FONSI) for the Little Missouri National Grassland Prairie Dog Management Project. Alternative 4 is the selected alternative and provides a variety of management tools including rodenticide to respond to prairie dog encroachment onto neighboring non-National Forest System (NFS) lands.

"Recognizing the importance of prairie dog management, we have conducted a full EA in order to develop an effective management strategy. We acknowledge that it has taken quite a bit of time to get to this point in the process and thank all of our partners for their patience." Said Shannon Boehm, District Ranger for the Medora Ranger District.

The United States Department of Agriculture and the US Forest Service are committed to working collaboratively with state and county officials, and landowners to implement the good neighbor policy. Prairie dog management is vital to the health of the grasslands and we recognize the importance of a balanced conservation strategy that addresses the concerns of adjacent landowners, partners, and other interested parties. The LMNG Prairie Dog Management Project allows for fulfillment of our good neighbor responsibilities in responding to unwanted encroachment onto, and also diverting colonies away from, non-NFS land.

The prairie dog management project incorporates adaptive management practices that will allow for future actions to meet goals of the DPG LRMP. When implemented as proposed, the LMNG Prairie Dog Management Project has the potential to reduce the chance for prairie dog colonies to expand onto adjacent non-NFS lands. This project allows the DPG to consistently implement management activities that support the LRMP while being a good neighbor in the community by minimizing impacts to adjacent lands owned by others. The DPG appreciates the longstanding cooperation between state, county, and federal agencies, as well as the public in developing and implementing the DPG LRMP.

"The ability to consistently apply adaptive management strategies to control the expansion of prairie dogs onto private and state lands is key in helping us fulfill our good neighbor responsibilities," said Nancy Veres, District Ranger for the McKenzie Ranger District.

The current Land and Resource Management Plan (LRMP) identifies prairie dogs as a management indicator species, which means viability of prairie dogs as a part of the grassland prairie ecosystem is an indicator of the overall health of the grasslands. Prairie dogs are also listed by the Regional Forester as a sensitive species. Forest Service Manual 2670 directs that, for sensitive species, the agency must maintain viable populations of all native and desired nonnative wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System (NFS) lands (FSM 2670.22). At the same time prairie dog activity can have impacts to agricultural production, land values, and sometimes aspects of public health. With these effects in mind, many land owners are concerned with unwanted encroachment of prairie dog colonies onto non-NFS lands.

The EA, FONSI, and DN for the LMNG Prairie Dog Management Project can be found at:
<https://www.fs.usda.gov/project/?project=47604>.

For more information concerning the Forest Service's decision or to request an electronic copy of the EA, DN, and FONSI, contact Shannon Boehm, District Ranger, Medora Ranger District, Dakota Prairie Grasslands, 99 2nd Avenue West, Suite B, Dickinson, ND 58601 (701) 227-7803.

"USDA is an equal opportunity provider and employer."

From: McDonald, Peter M -FS
Sent: 25 Jul 2018 22:10:55 +0000
To: McDonald, Peter M -FS
Subject: FW: prairie dog amendment to the farm bill

Note to me: I overlooked the last part of the second question. Of course we have established landscape acreage targets for prairie dogs in R2 on several of our units. The Buffalo Gap NG on the Wall RD is an exception. That used to have acreage limits established but the Nebraska moved away from those in the black-footed ferret recovery area. The ferret population exploded with the growth of the prairie dog complex until plague entered the site a few years ago and substantially reduced active prairie dog acreage and the ferret population declined substantially along with it. A minimal acreage was maintained primarily due to a large annual dusting program in a core part of the ferret recovery area that was effective in maintaining about 11 - 13,000 acres and small ferret population. Both are continuing to rebound from the plague.
Peter

From: McDonald, Peter M -FS
Sent: Tuesday, July 24, 2018 1:39 PM
To: Lohr, Steve -FS <slahr@fs.fed.us>
Subject: RE: prairie dog amendment to the farm bill

Briefly, I also agree with the WO observations. In reality, a number of factors can go into local prairie dog management decisions in addition to acres to address the myriad issues, e.g. adjacent landowner and/or land user requests, b) weather, topography, and soil type, over-grazing or other causes of disturbed sites, relative population density in different areas, likelihood of repopulation of treated areas, colony locations, inter-colony distances, and distance to boundaries. So it's complicated beyond just acres and reducing the management issue to just acres could and likely would constrain local manager flexibility from using "sound ecological and livestock management principles" to address the myriad issues. I do agree that a subset of permittees often bear the brunt of prairie dog acreage in their allotments and we need to keep working on strategies to offset that, in addition to more effective boundary management.

Specific to the questions from Senator Hoeven in the other email:

Is there any examples where the Forest Service has actively managed an overrun prairie dog town that was ruining the ecosystem by helping reduce their numbers?

Of course we do active control of prairie dogs as part of the overall management strategy. It is primarily to address concerns for boundary encroachment onto adjacent non-federal lands. Prairie dogs are a native wildlife species that would go extinct if it truly ruined its own ecosystem. Prairie dogs can change the characteristics of their ecosystem over time which is the concern of some, but doesn't ruin it.

Have any grassland, in any state, ever constrained prairie dog numbers by a percentage in the grazing allotment? And if not in the allotment, in the landscape scale?

Not that I am aware of and I have been associated with the prairie dog management topic for almost 30 years.

Also, if there any findings that enforce the assumption that reducing prairie dog numbers would conflict with ferret recovery and the ESA?

Yes, the ferret went under the protections of the Endangered Species Conservation Act of 1969 (the precursor to the modern day ESA) primarily because of extensive loss of habitat from the government's early prairie dog control campaigns. An estimated 98% of the prairie dog's historically-occupied range in North America went vacant and the ferret declined dramatically as a result. For a time in the 1970s, the black-footed ferret was widely thought extinct and remains protected under the ESA to this day despite extensive ongoing efforts for many years to attempt to recover it.

The point we and the grazers are making is that if prairie dogs are overrunning a grazing allotment, there numbers should be reduced before they cause harm to the health of the land.

See my response to #1.
Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service
Rocky Mountain Region
www.fs.usda.gov/detailfull/r2/home/?cid=stelprdb5261599&width=full

p: 303-275-5029
c: 303-475-3515
petermcdonald@fs.fed.us

1617 Cole Boulevard, Bldg 17
Lakewood, CO 80401
www.fs.fed.us



Caring for the land and serving people

From: Lohr, Steve -FS
Sent: Tuesday, July 24, 2018 11:49 AM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: FW: prairie dog amendment to the farm bill



Steve Lohr
Director of Renewable Resources

Forest Service
Rocky Mountain Region

p: 303-275-5014
c: 303-242-7675
f: 303-275-5075
slohr@fs.fed.us

1617 Cole Boulevard, Building 17
Lakewood, CO 80401
www.fs.fed.us



Caring for the land and serving people

From: Truex, Richard -FS
Sent: Tuesday, July 24, 2018 11:31 AM
To: Lohr, Steve -FS <slohr@fs.fed.us>
Subject: FW: prairie dog amendment to the farm bill

Rather than providing specific answers to the questions in the previous email, I like some of the default responses shared between WO folks.

From: Logan, Brian -FS
Sent: Tuesday, July 24, 2018 11:26 AM
To: Truex, Richard -FS <rtruex@fs.fed.us>
Subject: FW: prairie dog amendment to the farm bill
background

From: Logan, Brian -FS
Sent: Monday, June 11, 2018 4:21 PM
To: Edwards, Anthony -FS <aedwards@fs.fed.us>
Subject: RE: prairie dog amendment to the farm bill

Yes that is our standard response when presented with legislatively mandated "thresholds"

From: Edwards, Anthony -FS

Sent: Monday, June 11, 2018 4:20 PM

To: Logan, Brian -FS <blogan@fs.fed.us>

Subject: RE: prairie dog amendment to the farm bill

Ha! How funny, that is almost identical to what I said to the Hill as our response. Thanks for your help.

From: Logan, Brian -FS

Sent: Monday, June 11, 2018 4:18 PM

To: Edwards, Anthony -FS <aedwards@fs.fed.us>

Subject: RE: prairie dog amendment to the farm bill

Hey Tony, Did anyone else provide input? Or have issues with what I sent?

One could also say that the number is arbitrary and the FS uses the best available science and local information to manage prairie dogs and grazing alike. The proposed language places unnecessary constraints on our ability to manage for local needs and conditions.

From: Edwards, Anthony -FS

Sent: Monday, June 11, 2018 8:42 AM

To: Harper, Robert -FS <rharper@fs.fed.us>; Madrid, Colleen -FS <cmadrid@fs.fed.us>; Logan, Brian -FS <blogan@fs.fed.us>

Cc: Rowley, Allen -FS <arowley@fs.fed.us>; Chambers, Lawrence F -FS <lfchambers@fs.fed.us>; Neely, David -FS <dneely@fs.fed.us>

Subject: prairie dog amendment to the farm bill

Importance: High

Hi guys! Please review and let me know if we have issues with this language. Basically allows dogs to live on grazing allotments – but not more than 2.5 percent of acreage and only where dogs were historically...see below

Need your concerns, comments today. Thanks!

Purpose: To provide for policies of the Forest Service relating to prairie dogs.

S. _____

To provide for the reform and continuation of agricultural and other programs of the Department of Agriculture through fiscal year 2023, and for other purposes.

Referred to the Committee on _____ and ordered to be printed

Ordered to lie on the table and to be printed

AMENDMENT INTENDED TO BE PROPOSED BY MR. HOEVEN

Viz:

At the end of part II of subtitle F of title VIII, add the following:

SEC. 86 __. PRAIRIE DOGS.

(a) In General.—With respect to the grasslands plan guidance of the Forest Service relating to prairie dogs, the Chief of the Forest Service shall base policies of the Forest Service on sound ecological and livestock management principles.

(b) Grazing Allotments.—

(1) IN GENERAL.—Subject to paragraph (2), not later than 120 days after the date of enactment of this Act, the Chief of the Forest Service shall permit prairie dogs to occupy not more than 2.5 percent of each total grazing allotment acreage.

(2) REQUIREMENT.—Paragraph (1) shall apply only to grazing allotments where prairie dogs are or have previously been present as of the date of enactment of this Act.



Anthony Edwards
Legislative Affairs Specialist

Forest Service
Washington Office, Office of the Chief

p: 202-205-1030

c: 202-253-1531

aedwards@fs.fed.us

201 14th Street SW
Washington DC, DC 20250

www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: 13 Mar 2017 17:07:17 +0000
To: Tu, Kenneth K -FS
Subject: FW: Suspension of Prairie Dog Shooting Restrictions

Ken fyi only, please don't forward further at this point.

Peter

From: McDonald, Peter M -FS
Sent: Wednesday, March 08, 2017 1:13 PM
To: Lohr, Steve -FS <slahr@fs.fed.us>
Subject: RE: Suspension of Prairie Dog Shooting Restrictions

Steve, please read some of these excerpts from the 2009 amendment to the Thunder Basin LRMP for prairie dog management. This is my concern that the Forest Supervisor decision to lift the shooting ban unconstrained across the entire district may be in conflict with the LRMP for the grasslands. Or at least I'm not sure but given some of the direction below from their plan am sufficiently worried for them and the Region. At the least, we should have some understanding from the forest how they see this latest decision consistent with their plan. Otherwise, they may be hanging out there and in a vulnerable position that shouldn't go unnoticed.

- A single Category 1 Prairie Dog Habitat will be maintained within the planning landscape and will include a large portion of the Black-footed Ferret Reintroduction Habitat (MA 3.63). The Category 1 Prairie Dog Habitat is designed to be an adequate size and spatial configuration to sustain a viable population of black-footed ferrets. The Category 1 Prairie Dog Habitat has a management objective of at least 18,000 acres of active prairie dog colonies. It is anticipated that 18,000 acres will provide sufficient habitat to allow ferrets the opportunity to persist through future plague epizootics and rebuild naturally along with the prairie dog populations. The acreage in Category 1 is not capped at 18,000 acres, but would be allowed to grow within the boundary of the MA 3.63. The 18,000 acre objective only serves as a potential trigger point beyond which the use of rodenticides becomes available for control of prairie dog colonies that are expanding onto adjacent private lands.
- Category 1 Prairie Dog Habitat will be considered core habitat. Recreational shooting of prairie dogs will be prohibited year round within Category 1 Prairie Dog Habitat. *(This also applies to Cat 2 habitat)*
- A broad spatial distribution of prairie dog colonies within Category 1 is desired, and we want to ensure connectivity between colonies. *(Peter note: We know that smaller prairie dog towns can be shot out entirely under high shooting pressure which would make it harder to achieve this objective under constrained shooting let alone unconstrained in the 3.63)*
- Lethal control of prairie dog population density is not planned within Category 1 Habitat due to recent declines in prairie dog populations.
- Capture and translocation of prairie dogs to suitable areas will be a preferred method for managing unwanted colonization on private lands. Prairie dogs captured and removed to control unwanted movement onto private lands will be used to augment prairie dog populations in Categories 1 & 2, with Category 1 being the priority for translocations. *(Peter note: I'm not a big fan of this one given the lack of flexibility to more aggressively manage the prairie dog encroachment onto private land outside the MA 3.63 while maintaining the integrity of the management area. Still this is in the LRMP for Thunder Basin)*

- If and when control becomes necessary along TBNG boundaries within the Category 1 Prairie Dog Habitat, selection of colonies to be controlled will be based on habitat values to black-footed ferrets as well as the ages of the colonies. *(Hard to know how this is being adhered to under unrestrained shooting across the district)*

Also in ch. 1 of the prairie dog management plan (p. 1-16, #29), it says "to help reduce disturbances and risks to nesting mountain plover, do not authorize the following activities in plover nesting areas or within 0.25 miles of plover nests from March 15 to July 31: Prairie dog shooting". This applies district-wide where shooting is currently allowed under the 2009 decision (Cat 3 and 4 habitats).

While I'm concerned of course about the resource impacts in the MA 3.63, there is the larger concern about whether an unconstrained lifting of the prairie dog shooting ban across the entire district may be in conflict with the LRMP for the grasslands and the forest, district and Region in a vulnerable position. This could be a far greater complication than the usual ones that are inherent to our prairie dog management in R2 and have been for many years. At the least I think we need to hear from the Forest Supervisor how he reconciles this latest action with the plan direction for Thunder Basin. He may be able to do that but given some of this I think it's the important this discussion happens.

Peter

From: Lohr, Steve -FS

Sent: Wednesday, March 08, 2017 11:38 AM

To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>

Subject: Re: Suspension of Prairie Dog Shooting Restrictions

I had a discussion with Jacque on this and the situation is complicated. I will give you a call later to bring you up to speed.

Thanks.

Sent from my iPhone

On Mar 8, 2017, at 10:29 AM, McDonald, Peter M -FS <petermcdonald@fs.fed.us> wrote:

Thanks Steve, I hope there can be some follow-up with the forest. I'm very disappointed there wasn't better coordination with the RO ahead of time, that I'm aware of anyway. And I struggle to understand how Dennis reconciles this with the land management plan direction and priorities for the management area. It seems there could have been a middle ground, provide some shooting via a partial lifting of the ban on the dogs outside the 3.363 that struck a more sensible middle ground. Something we could have talked through before this decision but did not have that opportunity. The prairie dog management at Thunder Basin has a long history of close coordination between the forest, district, and Region so this is a really unusual and unfortunate departure.

Peter

From: Lohr, Steve -FS

Sent: Wednesday, March 08, 2017 10:05 AM

To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>

Subject: Re: Suspension of Prairie Dog Shooting Restrictions

Peter

Thanks for the note. I was totally in the dark on this. I will check in with Jacque and see what the deal is.

Thanks.

Sent from my iPhone

On Mar 8, 2017, at 9:00 AM, McDonald, Peter M -FS <petermcdonald@fs.fed.us> wrote:

Thanks Chelsea, were you or the district consulted on this before the Forest Supervisor made this decision? I'm more than a little disappointed that between the SO and the district I had to find this out by stumbling on it on the web. I don't necessarily disagree with some partial removal of the ban, for example the prairie dogs outside the MA 3.63 which I understood to be about ~8000 acres. That is a decent shooting area in itself. But to just open the shooting up district-wide including in the 3.63 seems on the surface at odds with the MA 3.63 priority for prairie dog ecosystem and black-footed ferret recovery values. Not to mention the message it sends internally and with our external partners that have worked diligently and at great expense to help the district implement the prairie dog management plan. I do understand trying to meet some middle ground also with the constituents that have different concerns or interest in prairie dogs on TBNG. I'm not convinced this was the best way to strike the balance and do want to follow up with Steve Lohr to express my concerns how this was all handled.

Peter

<image001.png> **Peter McDonald**
Regional Program Leader
Threatened, Endangered and Sensitive Species
Forest Service
Rocky Mountain Region
p: 303-275-5029 (primary)
c: 303-475-3515 (travel & telework)
petermcdonald@fs.fed.us
740 Simms Street
Golden, CO 80401
www.fs.fed.us
<image002.png><image003.png><image004.png>
Caring for the land and serving people

From: Monks, Chelsea -FS
Sent: Wednesday, March 08, 2017 8:34 AM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: FW: Suspension of Prairie Dog Shooting Restrictions

Hi Peter,
This is the sum of my knowledge of the shooting ban lifting.
Chelsea

<image001.png> **Chelsea Monks**
Wildlife, Botany, & Fish Resource Team
Leader (Detail)
Forest Service
Medicine Bow-Routt National Forests &
Thunder Basin National Grassland
p: 307-745-2412

f: 307-745-2398
c: 307-460-8871
chelseamonks@fs.fed.us

2468 Jackson Street
Laramie, WY 82070
www.fs.usda.gov/mbr
<image002.png>

Caring for the land and serving people

From: Reynolds, Kelle A -FS
Sent: Monday, March 06, 2017 7:35 AM
To: Monks, Chelsea -FS <chelseamonks@fs.fed.us>
Subject: Fwd: Suspension of Prairie Dog Shooting Restrictions
Keeping you in the loop.

Sent from my iPad

Begin forwarded message:

From: "Jaeger, Dennis -FS" <djaeger01@fs.fed.us>
Date: March 3, 2017 at 2:26:07 PM MST
To: FS-pdl r2 mbr douglas district
<pdl_r2_mbr_douglas_district@ms.fs.fed.us>
Cc: FS-pdl r2 mbr flt <pdl_r2_mbr_flt@ms.fs.fed.us>, "Voos, Aaron T -FS" <atvoos@fs.fed.us>, "Martin, Melissa M -FS" <mmmartin@fs.fed.us>
Subject: Suspension of Prairie Dog Shooting Restrictions

I have decided to rescind the order which prohibited shooting of Prairie Dogs within designated areas on the Thunder Basin National Grassland effective March 3, 2017 for a period of 12 months. This decision was made after review of the TBNG Prairie Dog Management Strategy and LRMP Amendment #3, as well as current conditions on the TBNG. The situation will be reevaluated in 2018.

The current prohibition has been in place since March 22, 2002 to protect the unique ecosystem associated with black-tailed prairie dogs and associated species. Plague had hit the area in 2000-01 and viable prairie dog populations needed to be re-established. A major factor in the establishment of the protected area was to maintain prairie dog population numbers, and the subsequent habitat they create, at a level that would enable possible reintroduction of the black-footed ferret. Today, our prairie dog population estimates are at historically high levels on the TBNG and across NE Wyoming. In late 2016 we were informed that the TBNG is not currently being considered for reintroduction of black-footed ferrets. The decision on where BFFs are released is with the USFWS and State of Wyoming.

We should be proud that our conservation efforts have been successful and we must remain adaptable as conditions change. Sincere thanks for all you do, and if you have any questions or concerns, please do not hesitate to contact Shane, Misty, or me.

<image001.png
>

Dennis L. Jaeger
Forest Supervisor

Forest Service

**Medicine Bow-Routt National Forests, Thunder Basin National
Grassland**

p: 307-745-2400

c: 307-399-1404

djaeger01@fs.fed.us

2468 Jackson Street

Laramie, WY 82070

www.fs.fed.us

<image002.png><image003.png><image004.png>

Caring for the land and serving people

From: Martin, Melissa M -FS
Sent: 27 Mar 2017 21:30:15 +0000
To: Tu, Kenneth K -FS; McDonald, Peter M -FS
Subject: FW: Suspension of shooting restrictions - TBNG
Attachments: Response to prairie dog shooting order 3-27-17.pdf
Importance: High

FYI...

From: Jaeger, Dennis -FS
Sent: Monday, March 27, 2017 2:52 PM
To: Martin, Melissa M -FS <mmmartin@fs.fed.us>; Voos, Aaron T -FS <atvoos@fs.fed.us>; Upton, Carolyn -FS <cupton@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>
Subject: FW: Suspension of shooting restrictions
Importance: High

FYI



Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National
Grassland

p: 307-745-2400
c: 307-399-1404
djaeger01@fs.fed.us

2468 Jackson Street
Laramie, WY 82070
www.fs.fed.us



Caring for the land and serving people

From: Bly, Kristy (b) (6)
Sent: Monday, March 27, 2017 11:45 AM
To: Jaeger, Dennis -FS <djaeger01@fs.fed.us>
Cc: Walker, Michael S -FS <mwalker@fs.fed.us>; Ferebee, Brian -FS <bferebee@fs.fed.us>; McDonald, Peter M -FS <petermcdonald@fs.fed.us>; Lindsey Sterling Krank (b) (6); Steve Forrest (b) (6); Jonathan Proctor (b) (6); Nelson, Jeff (b) (6)
Subject: RE: Suspension of shooting restrictions
Importance: High

Dear Mr. Jaeger,

Please see the attached letter outlining our response to your decision and request for action. We look forward to speaking with you soon.

Respectfully,

Kristy Bly, World Wildlife Fund
Steve Forrest, Defenders of Wildlife
Lindsey Sterling Krank, Prairie Dog Coalition of the Humane Society of the United States

From: Jaeger, Dennis -FS [<mailto:djaeger01@fs.fed.us>]
Sent: Friday, March 03, 2017 2:43 PM
To: (b) (6); Bly, Kristy
(b) (6); Dave Pellatz (b) (6)
Subject: Suspension of shooting restrictions

I have decided to rescind the order which prohibited shooting of Prairie Dogs within designated areas on the Thunder Basin National Grassland effective March 3, 2017 for a period of 12 months. This decision was made after review of the TBNG Prairie Dog Management Strategy and LRMP Amendment #3, as well as current conditions on the TBNG. The situation will be reevaluated in 2018.

The current prohibition has been in place since March 22, 2002 to protect the unique ecosystem associated with black-tailed prairie dogs and associated species. Plague had hit the area in 2000-01 and viable prairie dog populations needed to be re-established. A major factor in the establishment of the protected area was to maintain prairie dog population numbers, and the subsequent habitat they create, at a level that would enable possible reintroduction of the black-footed ferret.

Today, our prairie dog population estimates are at historically high levels on the TBNG and across NE Wyoming. In late 2016 we were informed that the TBNG is not currently being considered for reintroduction of black-footed ferrets. The decision on where BFFs are released is with the USFWS and State of Wyoming.

We are proud that our conservation efforts have been successful. In 2002 our prairie dog population was less than 4000 acres, today we are approaching 30,000 acres. As you are well aware, this increase has created additional stress with our grazing community, and we are actively working to balance all needs.

On another note, I am pleased to announce the Candidate Conservation Agreement has been signed by the USFWS, BLM, Forest Service, and Thunder Basin Grassland Prairie Ecosystem. Huge thanks to Dave Pellatz for his vision and persistence. This will be a great tool to promote voluntary conservation measures of both Shortgrass and Sagebrush ecosystems on public and private lands.



Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National
Grassland

p: 307-745-2400
c: 307-399-1404
djaeger01@fs.fed.us

2468 Jackson Street
Laramie, WY 82070

www.fs.fed.us



Caring for the land and serving people

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.



March 27, 2017

Dennis L. Jaeger, Forest Supervisor
U.S. Forest Service
Medicine Bow-Routt National Forests
Thunder Basin National Grassland
2468 Jackson Street
Laramie, WY 82070

Dear Forest Supervisor Jaeger:

We write you to express our profound disappointment regarding your March 3, 2017 email regarding your rescission of the black-tailed prairie dog (*Cynomys ludovicianus*) shooting prohibition on the Thunder Basin National Grassland (Grassland). Although we recognize your need to manage the Grassland for myriad interests, resources and activities, we believe this action goes beyond what would reasonably be required to meet the concerns of the grazing community or increase forage for livestock given ongoing drought conditions, while at the same time meeting your obligations under the National Forest Management Act and the Endangered Species Act to provide habitat for species that the Forest Service has identified for special management consideration. This decision concerns us for three main reasons: (1) it directly threatens population sustainability of mountain plovers (*Charadrius montanus*); (2) it was made prior to modifying livestock grazing practices in the face of drought; and (3) it fails to follow black-footed ferret reintroduction (*Mustela nigripes*) habitat standards.

The decision to rescind the prairie dog shooting prohibition within designated areas directly threatens population viability of the Grassland's prairie dog and mountain plover populations (particularly as the breeding and nesting season is just beginning), which is counter to numerous Forest Service Manual and Thunder Basin National Grassland Land and Resources Management Plan (Grassland Plan) standards and guidelines. In addition, we believe that prior to this decision, insufficient measures were taken to follow the Grassland Plan and the Forest Service Handbook standards surrounding the modification of livestock grazing practices and adjustment of grazing capacity to adequately address rangeland resource conditions during this period of drought. Finally, this decision is a violation of the two standards for maintaining black-footed ferret reintroduction habitat. **Respectfully, we are requesting that you immediately reinstate the prairie dog shooting closure in the Grassland's entire Category 1, 3.63 area for the following reasons.**

- The decision to rescind the prairie dog shooting prohibition on the Grassland directly violates the Grassland Plan, Chapter 1, Biological Resources Section F (Fish, Wildlife, and Rare Plants) guideline for mountain plovers (#29): To help reduce disturbances and risks to nesting mountain plover, do not authorize the following activities in plover nesting areas or within 0.25 miles of plover nests from March 15 through July 31:
Prairie dog shooting (in consultation with state wildlife agencies and U.S. Fish and Wildlife Service).

It does not appear that any guidance has been given the public regarding this concern, nor is there any way other than a shooting closure that violation of this provision is not inevitable, given that mountain plover nests are extremely difficult to locate. As we have already passed the March 15 deadline, a closure is immediately required to meet this guideline.

We are providing you with a map representing the most recent (2016) records of nesting mountain plover within Categories 1 and 2 on the Grassland, buffered by the 0.25 mile limits proscribed in the plan (Figure 1, attached). These areas should be closed to shooting immediately to remain in compliance with the plan.

- This decision was made prior to employing other standards of rangeland management first: Modify livestock grazing practices, as needed, to reduce adverse impacts of drought to threatened, endangered, and sensitive species and species at risk. Grassland Plan, Chapter 1, Biological Resources Section F (Fish, Wildlife, and Rare Plants) (#2).

It does not appear that any attempt was made to modify grazing to address deteriorating range conditions prior to recession of the shooting closure order.

- This decision was made prior to following Goal 2, Objectives 1 and 2 of the Grassland Plan first:
“1. Annual grazing levels will be adjusted, as needed, during periods of drought or for other conditions.
2. As needed, revise allotment management plans (AMP) to meet desired vegetative conditions described in Geographic Areas and to implement all appropriate management plan direction.”
- This decision was made prior to appropriately modifying grazing permits in the face of drought. It is within your decision-making authority to “modify a term grazing permit by reducing the permitted numbers, seasons of use, or allotments to be grazed as necessary to protect, restore, or improve rangeland resource conditions. Decisions to modify term grazing permits by reducing livestock numbers or seasons of use will be made in writing by the authorized officer exercising professional judgment and utilizing the best information available at the time of the decision.” (FSH 2209.13 Grazing Permit Administration Handbook, Chapter 10, Section 16.13).
- This decision violates the two Grassland Plan (Chapter 3) black-footed ferret reintroduction habitat standards: 1. Authorize only those uses and activities that do not reduce the suitability of the area as black-footed ferret reintroduction habitat. 2. Manage all prairie dog colonies within this Management Area as though they were occupied by black-footed ferrets, and apply all Standards and Guidelines as though black-footed ferrets occupy all colonies.

The effects of shooting as a management tool are nearly impossible to gauge. Shooting can result in removal of pregnant prairie dog females and young of the year, promote increased emigration, and affect behavior. The impacts are largely based on shooting intensity, which in an unregulated setting cannot be controlled. We do not see how opening shooting within the 3.63 management area will either result in increased forage over the short or long term, result in the desired distribution of prairie dogs, or benefit the sensitive species that are present. Shooting invariably results in non-target species (like burrowing owls, *Athene cunicularia*) being shot, either intentionally or accidentally.

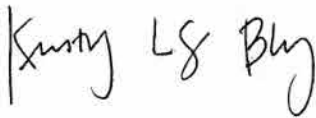
We did not contest the opening of areas outside the 3.63 area to shooting when you made that decision in 2015. Apparently opening most the Grassland to shooting was ineffective in accomplishing a reduction in numbers. We do not believe that opening the 3.63 area in its entirety will result in anything but disrupted prairie dog behavior, destruction of the prairie dog social system, increased lead deposition on the grasslands, and fragmentation of prairie dog colonies.

The arrival of spring also brings the return of nesting mountain plovers and burrowing owls. Recreational shooting of prairie dogs not only threatens the birds' ability to establish and maintain nest sites, but also their survival as they are susceptible to being shot. A much more narrowly tailored action is required to comply with the Grassland Plan.

- This decision likely violates the National Environmental Policy Act (NEPA). NEPA demands agency transparency in its decision-making through public involvement. *Baltimore Gas & Electric v. NRDC*, 462 U.S. 87, 97 (1983); *Kern v. BLM*, 284 F.3d 1062, 1073 (9th Cir. 2002). *"By focusing both agency and public attention on the environmental effects of proposed actions, NEPA facilitates informed decision-making by agencies and allows the political process to check those decisions."* *New Mexico v. BLM*, 565 F.3d 683, 703 (10th Cir. 2009). Arguably, the shooting closure was incorporated by reference and became part of the existing Grassland Plan (see Appendix B, Decision Screen 2, shooting can be opened only "outside restriction.") Rescinding a long-standing shooting closure order was not merely a return to the status quo, but due to the longevity of the order and its inclusion by reference into the Forest Plan, a significant change to the environmental regulatory regime on the Grassland.

We would like to have a discussion with you and your team at your earliest convenience to discuss these issues and to hear your opinion why your decision is not a violation of the Forest Plan, the Forest Planning regulations, and NEPA. In the interim, we ask that you immediately close to prairie dog shooting the areas described in the map provided here and inform the local community and the public that shooting is prohibited, as required by the plan. Thank you for your considering of our request.

Sincerely,



Kristy Bly

Senior Wildlife Conservation Biologist – World Wildlife Fund's Northern Great Plains Program



Steve Forrest

Rockies and Plains Representative – Defenders of Wildlife



Lindsey Sterling Krank

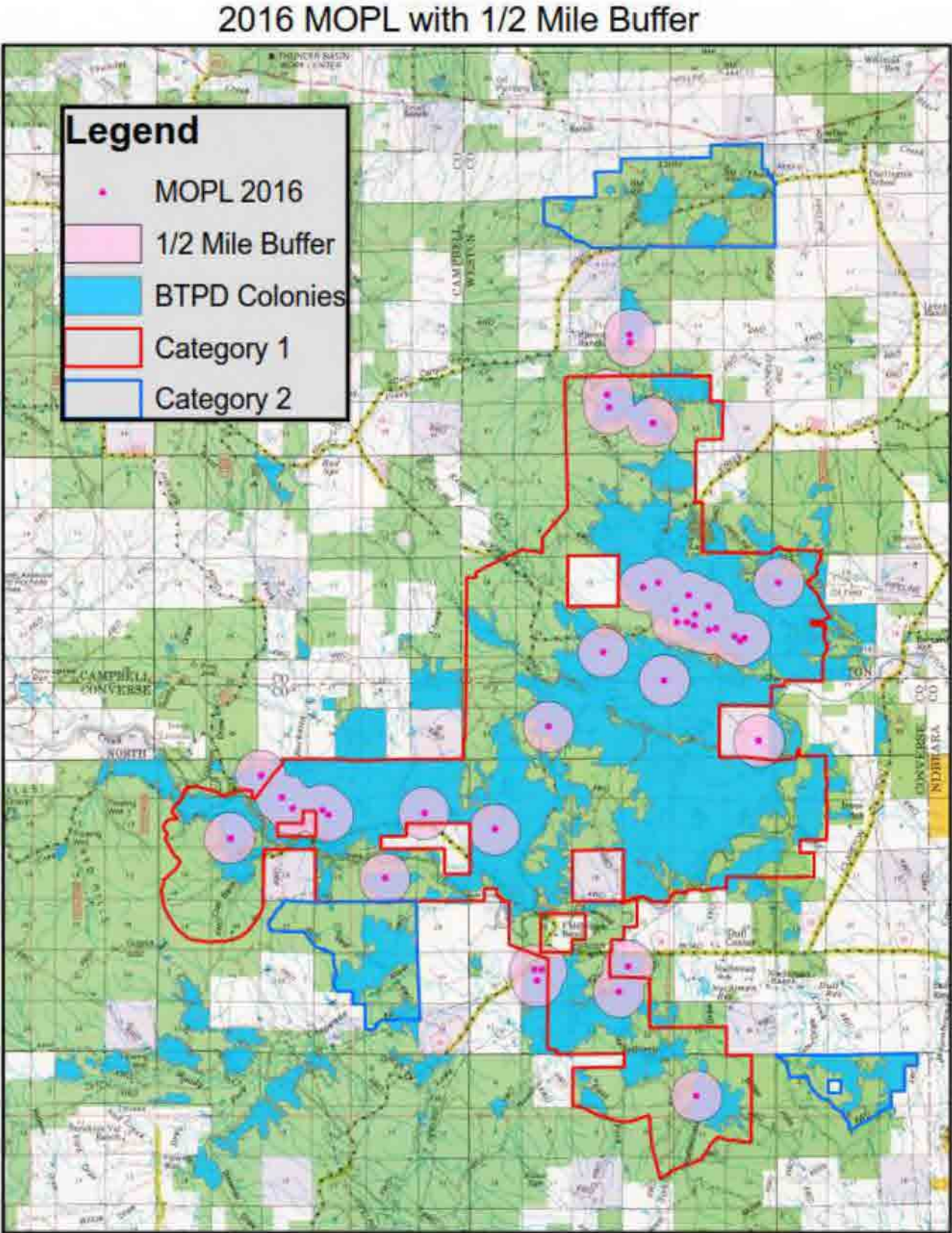
Director – Prairie Dog Coalition of the Humane Society of the United States

cc: Michael Shane Walker (District Ranger, Thunder Basin National Grassland)

Peter McDonald (Threatened, Endangered and Sensitive Species Program Leader, Rocky Mountain Region)

Brian Ferebee (Regional Forester, Rocky Mountain Region)

Figure 1. 2016 Mountain plover nest locations buffered by 0.25 miles.



From: Monks, Chelsea -FS
Sent: 3 Apr 2017 22:29:18 +0000
To: McDonald, Peter M -FS
Subject: FW: Suspension of shooting restrictions
Attachments: Response to prairie dog shooting order 3-29-17 amended.pdf
Importance: High

In case you had not seen this newer version.



Chelsea Monks
Wildlife, Botany, & Fish Resource Team
Leader (Detail)

Forest Service
Medicine Bow-Routt National Forests &
Thunder Basin National Grassland

p: 307-745-2412
f: 307-745-2398
c: 307-460-8871
chelseamonks@fs.fed.us

2468 Jackson Street
Laramie, WY 82070
www.fs.usda.gov/mbr



Caring for the land and serving people

From: Reynolds, Kelle A -FS
Sent: Thursday, March 30, 2017 2:52 PM
To: Alpe, Mike J -FS <malpe@fs.fed.us>; Monks, Chelsea -FS <chelseamonks@fs.fed.us>
Subject: FW: Suspension of shooting restrictions
Importance: High

FYI. An amended letter from Kristi Bly on the suspension of the shooting restrictions.

From: Jaeger, Dennis -FS
Sent: Thursday, March 30, 2017 12:45 PM
To: Buchanan, Jacqueline A -FS <jabuchanan@fs.fed.us>; Lohr, Steve -FS <slohr@fs.fed.us>
Cc: Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Upton, Carolyn -FS <cupton@fs.fed.us>; Voos, Aaron T -FS <atvoos@fs.fed.us>; Martin, Melissa M -FS <mmmartin@fs.fed.us>
Subject: FW: Suspension of shooting restrictions
Importance: High

Jacque, Steve,

Just received this "amended" email, we will prepare a response for RO review.

Key points to include:

I carefully reviewed the TBNG LRMP and 2009 decision.

This is a **temporary**, one year, suspension of the shooting ban due to changed conditions from 2009—specifically, historically high numbers of P-dogs on the TBNG and NE Wyoming. On the TBNG in 2009, we had 4000 acres, today we are close to 30,000 acres. We will reevaluate in 2018. We do not anticipate an increase in the number of recreational shooters, (this has always been allowed on the TBNG), but more dispersal of the shooters. We have consulted with WGF—they do not support a shooting restriction. (Possibly statement on the role of State Wildlife Agencies vs land management agencies.) We are proud of our conservation efforts in both the Shortgrass and Sagebrush ecosystems.

Please give me a call if you have additional thoughts, again, we will ask for your review prior to sending the response.



Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National
Grassland

p: 307-745-2400
c: 307-399-1404
djaeger01@fs.fed.us

2468 Jackson Street
Laramie, WY 82070

www.fs.fed.us
  

Caring for the land and serving people

From: Bly, Kristy (b) (6)
Sent: Wednesday, March 29, 2017 5:09 PM
To: Jaeger, Dennis -FS <djaeger01@fs.fed.us>
Cc: Walker, Michael S -FS <mswalker@fs.fed.us>; Ferebee, Brian -FS <bferebee@fs.fed.us>; McDonald, Peter M -FS <petermcdonald@fs.fed.us>; Lindsey Sterling Krank (b) (6)
Steve Forrest (b) (6); Jonathan Proctor (b) (6)
(b) (6)

Subject: RE: Suspension of shooting restrictions

Importance: High

Dear Mr. Jaeger,

We have amended our letter after additional review of the relevant documents, including the 2009 Record of Decision: Thunder Basin National Grassland Prairie Dog Management Strategy and Land and Resource Plan Amendment #3 and the 2015 update to the Black-tailed Prairie Dog Conservation Assessment and Management Strategy for the Thunder Basin National Grassland. Our additions in the attached letter are highlighted in red.

We regard this matter as urgent and look forward to hearing from you soon.

Sincerely,

Kristy Bly, World Wildlife Fund
Steve Forrest, Defenders of Wildlife
Lindsey Sterling Krank, Prairie Dog Coalition of the Humane Society of the United States

From: Bly, Kristy
Sent: Monday, March 27, 2017 11:45 AM
To: 'Jaeger, Dennis -FS' <djaeger01@fs.fed.us>
Cc: 'Walker, Michael S -FS' <mwalker@fs.fed.us>; 'bferebee@fs.fed.us' <bferebee@fs.fed.us>; 'petermcdonald@fs.fed.us' <petermcdonald@fs.fed.us>; 'Lindsey Sterling Krank' <(b) (6)>; Steve Forrest <(b) (6)>; 'Jonathan Proctor' <(b) (6)>; Nelson, Jeff <(b) (6)>
Subject: RE: Suspension of shooting restrictions
Importance: High

Dear Mr. Jaeger,

Please see the attached letter outlining our response to your decision and request for action. We look forward to speaking with you soon.

Respectfully,

Kristy Bly, World Wildlife Fund
Steve Forrest, Defenders of Wildlife
Lindsey Sterling Krank, Prairie Dog Coalition of the Humane Society of the United States

From: Jaeger, Dennis -FS [<mailto:djaeger01@fs.fed.us>]
Sent: Friday, March 03, 2017 2:43 PM
To: <(b) (6)> Bly, Kristy
<(b) (6)> Dave Pellatz <(b) (6)>
Subject: Suspension of shooting restrictions

I have decided to rescind the order which prohibited shooting of Prairie Dogs within designated areas on the Thunder Basin National Grassland effective March 3, 2017 for a period of 12 months. This decision was made after review of the TBNG Prairie Dog Management Strategy and LRMP Amendment #3, as well as current conditions on the TBNG. The situation will be reevaluated in 2018.

The current prohibition has been in place since March 22, 2002 to protect the unique ecosystem associated with black-tailed prairie dogs and associated species. Plague had hit the area in 2000-01 and viable prairie dog populations needed to be re-established. A major factor in the establishment of the protected area was to maintain prairie dog population numbers, and the subsequent habitat they create, at a level that would enable possible reintroduction of the black-footed ferret.

Today, our prairie dog population estimates are at historically high levels on the TBNG and across NE Wyoming. In late 2016 we were informed that the TBNG is not currently being considered for

reintroduction of black-footed ferrets. The decision on where BFFs are released is with the USFWS and State of Wyoming.

We are proud that our conservation efforts have been successful. In 2002 our prairie dog population was less than 4000 acres, today we are approaching 30,000 acres. As you are well aware, this increase has created additional stress with our grazing community, and we are actively working to balance all needs.

On another note, I am pleased to announce the Candidate Conservation Agreement has been signed by the USFWS, BLM, Forest Service, and Thunder Basin Grassland Prairie Ecosystem. Huge thanks to Dave Pellatz for his vision and persistence. This will be a great tool to promote voluntary conservation measures of both Shortgrass and Sagebrush ecosystems on public and private lands.



Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National
Grassland

p: 307-745-2400
c: 307-399-1404
djaeger01@fs.fed.us

2468 Jackson Street
Laramie, WY 82070
www.fs.fed.us



Caring for the land and serving people

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.



March 29, 2017

Dennis L. Jaeger, Forest Supervisor
U.S. Forest Service
Medicine Bow-Routt National Forests
Thunder Basin National Grassland
2468 Jackson Street
Laramie, WY 82070

Dear Forest Supervisor Jaeger:

We write you to express our profound disappointment regarding your March 3, 2017 email regarding your rescission of the black-tailed prairie dog (*Cynomys ludovicianus*) shooting prohibition on the Thunder Basin National Grassland (Grassland). Although we recognize your need to manage the Grassland for myriad interests, resources and activities, we believe this action goes beyond what would reasonably be required to meet the concerns of the grazing community or increase forage for livestock given ongoing drought conditions, while at the same time meeting your obligations under the National Forest Management Act and the Endangered Species Act to provide habitat for species that the Forest Service has identified for special management consideration. This decision concerns us for three main reasons: (1) it directly threatens population sustainability of mountain plovers (*Charadrius montanus*); (2) it was made prior to modifying livestock grazing practices in the face of drought; and (3) it fails to follow black-footed ferret reintroduction (*Mustela nigripes*) habitat standards in violation of the 2009 Record of Decision (ROD): Thunder Basin National Grassland Prairie Dog Management Strategy and Land and Resource Plan Amendment #3 (2009 ROD) and the 2015 update to the Black-tailed Prairie Dog Conservation Assessment and Management Strategy for the Thunder Basin National Grassland (2015 Strategy).

The decision to rescind the prairie dog shooting prohibition within designated areas directly threatens population viability of the Grassland's prairie dog and mountain plover populations (particularly as the breeding and nesting season is just beginning), which is counter to numerous Forest Service Manual and Thunder Basin National Grassland Land and Resources Management Plan (Grassland Plan) standards and guidelines. In addition, we believe that prior to this decision, insufficient measures were taken to follow the Grassland Plan and the Forest Service Handbook standards surrounding the modification of livestock grazing practices and adjustment of grazing capacity to adequately address rangeland resource conditions during this period of drought. Finally, this decision is a violation of the two standards for maintaining black-footed ferret reintroduction habitat. **Respectfully, we are requesting that you immediately reinstate the prairie dog shooting closure in the Grassland's entire Category 1 Area, including the Management Area 3.63 – Black-footed Ferret Reintroduction Area, for the following reasons:**

- The decision to rescind the prairie dog shooting prohibition on the Grassland directly violates the Grassland Plan, Chapter 1, Biological Resources Section F (Fish, Wildlife, and Rare Plants) guideline for mountain plovers (#29): To help reduce disturbances and risks to nesting mountain plover, do not

authorize the following activities in plover nesting areas or within 0.25 miles of plover nests from March 15 through July 31:

Prairie dog shooting (in consultation with state wildlife agencies and U.S. Fish and Wildlife Service).

It does not appear that any guidance has been given the public regarding this concern, nor is there any way other than a shooting closure that violation of this provision is not inevitable, given that mountain plover nests are extremely difficult to locate. As we have already passed the March 15 deadline, a closure is immediately required to meet this guideline.

We are providing you with a map representing the most recent (2016) records of nesting mountain plover within Categories 1 and 2 on the Grassland, buffered by the 0.25 mile limits proscribed in the plan (Figure 1, attached). These areas should be closed to shooting immediately to remain in compliance with the plan.

- This decision was made prior to employing other standards of rangeland management first: Modify livestock grazing practices, as needed, to reduce adverse impacts of drought to threatened, endangered, and sensitive species and species at risk. Grassland Plan, Chapter 1, Biological Resources Section F (Fish, Wildlife, and Rare Plants) (#2).

It does not appear that any attempt was made to modify grazing to address deteriorating range conditions prior to recession of the shooting closure order.

- This decision was made prior to following Goal 2, Objectives 1 and 2 of the Grassland Plan first:
"1. Annual grazing levels will be adjusted, as needed, during periods of drought or for other conditions.
2. As needed, revise allotment management plans (AMP) to meet desired vegetative conditions described in Geographic Areas and to implement all appropriate management plan direction."
- This decision was made prior to appropriately modifying grazing permits in the face of drought. It is within your decision-making authority to "modify a term grazing permit by reducing the permitted numbers, seasons of use, or allotments to be grazed as necessary to protect, restore, or improve rangeland resource conditions. Decisions to modify term grazing permits by reducing livestock numbers or seasons of use will be made in writing by the authorized officer exercising professional judgment and utilizing the best information available at the time of the decision." (FSH 2209.13 Grazing Permit Administration Handbook, Chapter 10, Section 16.13).
- This decision violates the two Grassland Plan (Chapter 3) black-footed ferret reintroduction habitat standards: "1. Authorize only those uses and activities that do not reduce the suitability of the area as black-footed ferret reintroduction habitat. 2. Manage all prairie dog colonies within this Management Area as though they were occupied by black-footed ferrets, and apply all Standards and Guidelines as though black-footed ferrets occupy all colonies."
- This decision directly violates the year round recreational shooting of prairie dog closure in Category 1 as outlined on page 4 of the 2009 ROD: "Category 1 Prairie Dog Habitat will be considered core habitat. Recreational shooting of prairie dogs will be prohibited year round within Category 1 Prairie Dog Habitat."
- This decision directly violates the prohibition of recreational shooting of prairie dogs within the Grassland's Management Area (MA) 3.63, the Category 1 Area, and within the five Category 2 Areas as outlined on pages 9 and 13 of the 2015 Strategy: "A. General Strategy Components: Recreational

shooting of prairie dogs is prohibited on all NFS lands within TBNG LRMP Management Area 3.63 – Black-footed Ferret Reintroduction Area and the Category 1 Area; shooting is also prohibited in the five Category 2 Areas, unless objective acres of occupied prairie dogs have been met (then see Appendix A – Decision Screens for specifics)."

There is a distinct and clear separation between what is allowable under the existing 2009 ROD/2015 Strategy update within the context of Category 1 and 2 prairie dog colonies in relation to meeting the management objectives. There is no authority absent a revision of the 2009 ROD/2015 Strategy update that would permit you to authorize shooting within the Category 1 area. Furthermore, we have yet to see documentation that Category 2 acres are above objective.

"Recreational shooting of prairie dogs is prohibited within MA 3.63 and the Category 1 Area. Shooting has been found to leave prairie dog carcasses that contain high levels of lead fragments. These fragments could lead to secondary poisoning of other wildlife if consumed (Pauli 2005). Prairie dogs are susceptible to hunting related disturbances and shooting has a cascading effect on population level processes (Pauli et al, 2007)."

The effects of shooting as a management tool are nearly impossible to gauge. Shooting can result in removal of pregnant prairie dog females and young of the year, promote increased emigration, and affect behavior. The impacts are largely based on shooting intensity, which in an unregulated setting cannot be controlled. We do not see how opening shooting within the 3.63 management area will either result in increased forage over the short or long term, result in the desired distribution of prairie dogs, or benefit the sensitive species that are present. Shooting invariably results in non-target species (like burrowing owls, *Athene cunicularia*) being shot, either intentionally or accidentally.

We did not contest the opening of areas outside the 3.63 area to shooting when you made that decision in 2015, **absent findings that the Category 2 colonies were, in fact, over objective**. Apparently opening most the Grassland to shooting was ineffective in accomplishing a reduction in numbers. We do not believe that opening the MA 3.63 and Category 1 Area in its entirety will result in anything but disrupted prairie dog behavior, destruction of the prairie dog social system, increased lead deposition on the Grassland, and fragmentation of prairie dog colonies.

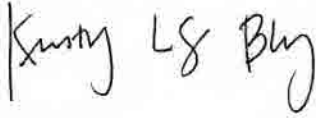
The arrival of spring also brings the return of nesting mountain plovers and burrowing owls. Recreational shooting of prairie dogs not only threatens the birds' ability to establish and maintain nest sites, but also their survival as they are susceptible to being shot. A much more narrowly tailored action is required to comply with the Grassland Plan.

- This decision likely violates the National Environmental Policy Act (NEPA). NEPA demands agency transparency in its decision-making through public involvement. *Baltimore Gas & Electric v. NRDC*, 462 U.S. 87, 97 (1983); *Kern v. BLM*, 284 F.3d 1062, 1073 (9th Cir. 2002). *"By focusing both agency and public attention on the environmental effects of proposed actions, NEPA facilitates informed decision-making by agencies and allows the political process to check those decisions."* *New Mexico v. BLM*, 565 F.3d 683, 703 (10th Cir. 2009). Arguably, the shooting closure was incorporated by reference and became part of the existing Grassland Plan (see Appendix B, Decision Screen 2, shooting can be opened only "outside restriction.") Rescinding a long-standing shooting closure order was not merely a return to the status quo, but due to the longevity of the order and its inclusion by reference into the Forest Plan, a significant change to the environmental regulatory regime on the Grassland.

We would like to have a discussion with you and your team at your earliest convenience to discuss these issues and to hear your opinion why your decision is not a violation of the **2009 ROD, 2015 Strategy**, Forest Plan, the

Forest Planning regulations, and NEPA. In the interim, we ask that you immediately close to prairie dog shooting the Grassland's entire Category 1 Area, including the Management Area 3.63 – Black-footed Ferret Reintroduction Area, and inform the local community and the public that shooting is prohibited, as required by the plan. Thank you for your considering of our request.

Sincerely,



Kristy Bly

Senior Wildlife Conservation Biologist – World Wildlife Fund's Northern Great Plains Program



Steve Forrest

Rockies and Plains Representative – Defenders of Wildlife



Lindsey Sterling Krank

Director – Prairie Dog Coalition of the Humane Society of the United States

cc: Michael Shane Walker (District Ranger, Thunder Basin National Grassland)

Peter McDonald (Threatened, Endangered and Sensitive Species Program Leader, Rocky Mountain Region)

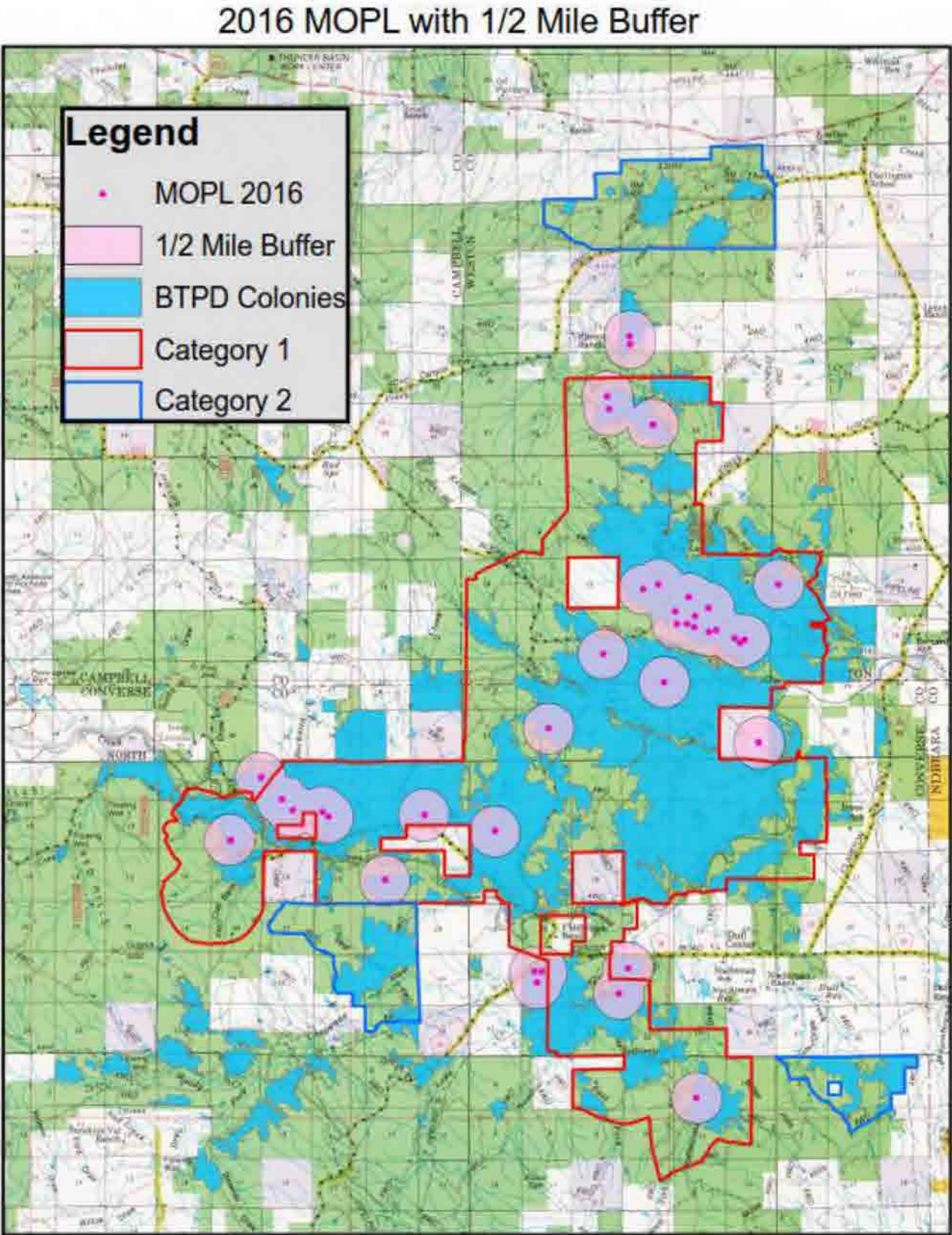
Brian Ferebee (Regional Forester, Rocky Mountain Region)

Literature Cited

Pauli, Jonathan N. and Buskirk, Steven W. 2007a. Recreational Shooting of Prairie Dogs: A Portal for Lead Entering Wildlife Food Chains. *Journal of Wildlife Management* 71(1): 103-108.

Pauli, Jonathan N. and Buskirk, Steven W. 2007b. Risk-disturbance overrides density dependence in a hunted colonial rodent, the black-tailed prairie dog (*Cynomys ludovicianus*). *Journal of Applied Ecology* 2007 44, 1219-1230.

Figure 1. 2016 Mountain plover nest locations buffered by 0.25 miles.



From: Kozlowski, Steve -FS
Sent: 18 Dec 2017 16:53:19 +0000
To: Reynolds, Kelle A -FS
Cc: Byer, Tim -FS; McDonald, Peter M -FS
Subject: FW: Thunder Basin, please use this version
Attachments: 2017-12-7-Ruckelshaus Report toTBNG summarizing 12 recommendations.pdf

FYI,

Attached is the 2017 summary report prepared by Ruckelshaus Institute regarding collaborative meetings related to prairie dogs. Of particular interest are the **12 recommendations** to all agencies from the Cooperative Working group (a group of governmental entities who have federal, state or county authority in relation to prairie dog management and range restoration in the Thunder Basin). Below is a summary of the recommendations, the details start on page 22 of the attachment.

1. Consider Revising the Current Black-tailed Prairie Dog Strategy
2. Determine whether the current category designations are appropriate.
3. Use innovative approaches to restoration and vegetation management, including:
 - Continued prairie dog control;
 - Invasive species control, including for cheatgrass;
 - Use the plague situation to control prairie dog colonization and spread (buffer zones);
 - Reduce erosion through prairie dog management;
 - Remove cactus, three-awn, cheatgrass, and mound;
 - Reseeding.
 - Monitor and inventory range conditions, ground cover
4. Maintain healthy sagebrush, riparian, and mesic communities. Do not allow prairie dogs to transition into these communities.
5. Improve and develop consistent communication and information distribution between meetings.
6. Create data-sharing clearinghouse regarding associated species and prairie dogs. Include TBGPEA, private landowner, University of Wyoming, USFS, and other relevant data sources.
7. Consider options for long-term and consistent project funding such as: creating a full-time position for a "Prairie Dog Manager"
8. The USFS will follow through on management commitments and regulatory obligations and will collaborate on an improved Strategy that includes definitive triggers and associated actions.
9. Recognize in a revised strategy the conflicting classifications of prairie dogs. Acknowledge that prairie dogs are considered a pest by some people.
10. Continue monitoring prairie dog towns and plague.
11. Greater emphasis on Prairie Dog Boundary Management
12. As long as black-footed ferrets are not being reintroduced on the TBNG, drop the shooting ban in Category 3.63.

Next learning series and cooperative meetings are scheduled in February.

Steve

Steve Kozlowski, USFS

Wildlife, Botany, and Fish Resource Team Leader for the MBRTB

Forest Wildlife Biologist

Sage-grouse Coordinator

559 972-1934 cell, 307 745-2343 office, skozlowski@fs.fed.us

From: Voos, Aaron T -FS
Sent: Friday, December 15, 2017 10:21 AM
To: Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Alpe, Mike J -FS <malpe@fs.fed.us>; Kozlowski, Steve -FS <skozlowski@fs.fed.us>
Subject: FW: Thunder Basin, please use this version
FYI...this is the report from the Ruckelshaus Institute as a result of 2017 collaborative meetings, both public and government.



Aaron Voos
Public Affairs Specialist

Forest Service
Medicine Bow-Routt National Forests & Thunder Basin National Grassland

p: 307-745-2323
c: 970-819-2898

atvoos@fs.fed.us

2468 Jackson St
Laramie, WY 82070
www.fs.usda.gov/mbrf
[Twitter.com/FS_MBRTB](https://twitter.com/FS_MBRTB)
  

Caring for the land and serving people

From: (b) (6) **On Behalf Of** Jessica Western
Sent: Thursday, December 14, 2017 11:34 AM
To: (b) (6);
(b) (6); jaimie.jakes@wyo.gov; Hogan, Jake - NRCS, Douglas, WY
<Jake.Hogan@wy.usda.gov>; jproffer@blm.gov; Geiger, Melanie - NRCS, Douglas, WY
(b) (6)
(b) (6); Travis_McNiven@barrasso.senate.gov;
(b) (6); Amanda Withroder <Amanda.withroder@wyo.gov>;
(b) (6); Benjamin Bump
<benjamin.bump@wyo.gov>; Beverly Reed <(b) (6)>; Bill Lambert
(b) (6); Sell, Raesha - NRCS-CD, Sundance, WY
<Raesha.Sell@wy.usda.gov>; Chamois Andersen <(b) (6)>; Cheryl Jacobson
(b) (6); Cheryl Schwartzkopf <(b) (6)> chris.wichmann@wyo.gov;
Christi Haswell <(b) (6)>; Schmitz, Clayton - NRCS, Casper, WY
<Clayton.Schmitz@wy.usda.gov>; Dave Pellatz <(b) (6)>
Denise L <(b) (6)>; Donley & Nancy Darnell <(b) (6)> Erika
Peckham <Erika.Peckham@wyo.gov>; Frank Eathorne <(b) (6)> Holly Kennedy
(b) (6); Hooper, Tammy <Tammy.hooper@mail.house.gov>; (b) (6)
jessica.crowder@wyo.gov; (b) (6); joe.budd@wyo.gov; Hartung, John - NRCS,
Casper, WY <John.Hartung@wy.usda.gov>; Justin Rogers <justin_rogers@enzi.senate.gov>; Kay, DeAnna
(Enzi) <Deanna_Kay@enzi.senate.gov>; Kristy Bly <(b) (6)> Sloan, Lacey - NRCS,
Newcastle, WY <Lacey.Sloan@wy.usda.gov>; Lindsey Sterling Krank
(b) (6); Matt Avery
(b) (6); matthew.fry@wyo.gov; (b) (6); Foster, Michael D - APHIS
<Michael.D.Foster@aphis.usda.gov>; Huntington, Michelle - NRCS-CD, Douglas, WY
(b) (6)
mvalle@blm.gov; (b) (6); Nichole Bjornlie <nichole.bjornlie@wyo.gov>;
(b) (6); Kokes, Paul T - APHIS <Paul.T.Kokes@aphis.usda.gov>;

(b) (6); Robert Harshbarger (b) (6) Robert Maul
(b) (6); Rogers, Brad <brad_rogers@fws.gov>; Rusty Bell (b) (6)
Underhill, Sandra - FS <sandraunderhill@fs.fed.us>; Slade Franklin <slade.franklin@wyo.gov>;
(b) (6) Todd Caltrider <todd.caltrider@wyo.gov>; (b) (6)
(b) (6) tyler_abbott@fws.gov; Upton, Carolyn -FS <cupton@fs.fed.us>; Virginia Moore
(b) (6); Voos, Aaron T -FS <atvoos@fs.fed.us>; Walker, Michael S -FS
<mwalker@fs.fed.us>; Wanda Burget (b) (6) @ (b) (6) William Rose
<william.rose@wyo.gov>; Willow Steen <Willow.steen@wyo.gov>; Zack Walker
<zack.walker@wyo.gov>; Bacon, Russell M -FS <rmbacon@fs.fed.us>

Subject: Thunder Basin, please use this version

Good morning,

After I sent you the report yesterday, I of course found some more notes buried in my car, which I have added. They include the next steps you want to take. This version will be posted online, and has also been sent to the USFS.

Best,

Jessica

--

Jessica M. Western, Ph.D. (formerly Clement)
Senior Research Scientist, Human Dimensions in Natural Resources
Director, Collaboration Program in Natural Resources
Ruckelshaus Institute, Haub School of Environment and Natural Resources
University of Wyoming
307 - 766 5048 (o)



Ruckelshaus
INSTITUTE

A DIVISION OF THE
HAUB SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES

THUNDER BASIN NATIONAL GRASSLAND COLLABORATION REPORT 2017

Process and Recommendations
Regarding Near-term Prairie Dog Management
and Range Restoration Measures.



Table of Contents

	Page
Introduction	4
Participants	6
Process and Results	8
Final Recommendations.....	22
Conclusion.....	26
Appendix A: Cooperative Working Group Interests.....	28
Appendix B: Cooperative Working Group Issues	32
Appendix C: Collaborative Learning Options	37
Appendix D: Cooperative Working Group Options	39
Appendix E: Collaborative Learning Group Suggestions for Option Modifications.....	41

Cover: Thunder Basin National Grassland: Photo courtesy of USFS.

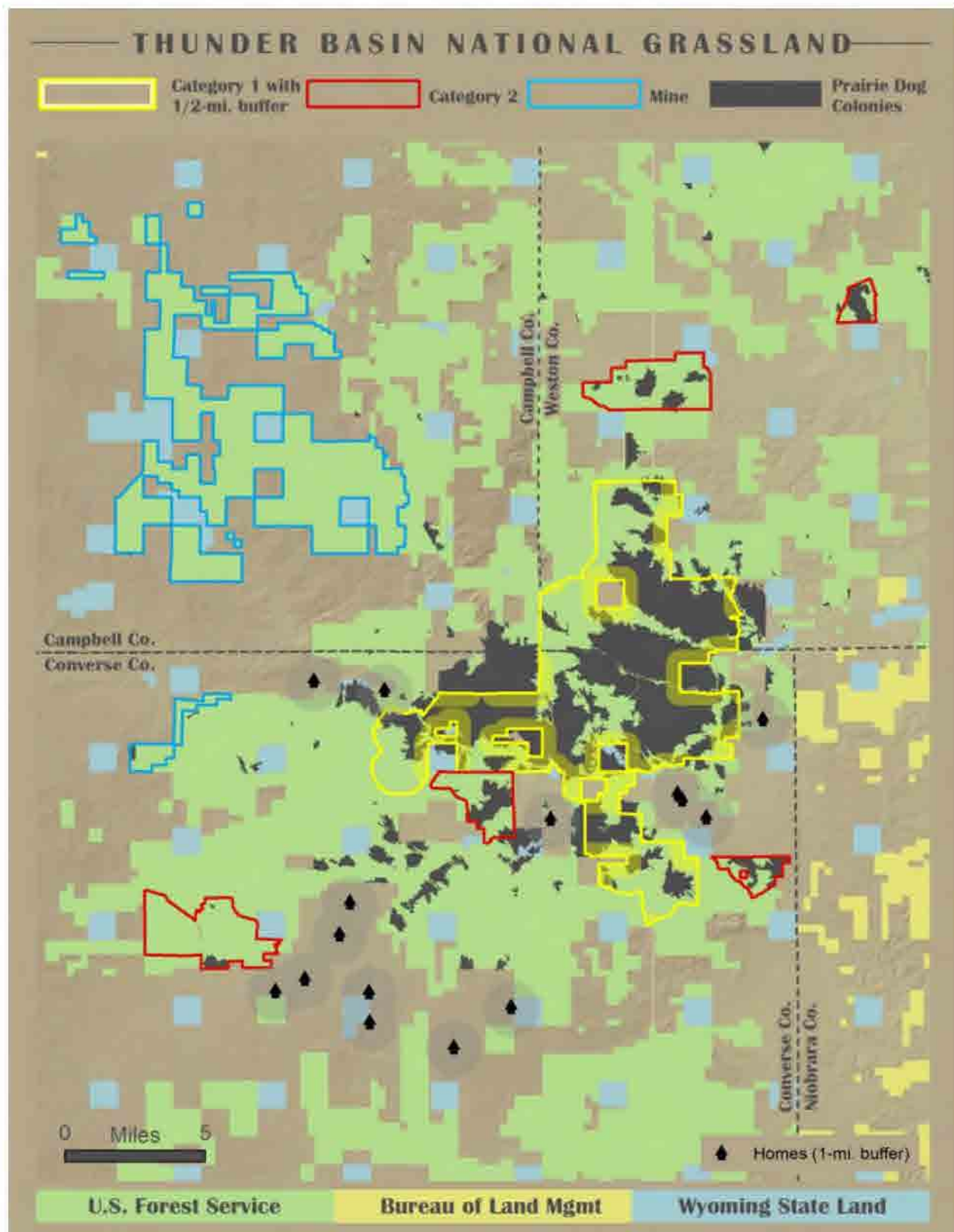


Figure 1: Land Ownership on Thunder Basin National Grassland and Prairie Dog Management designations.

Introduction

In 2015 the Ruckelshaus Institute completed a situation assessment for the United States Forest Service (USFS) to explore the issues surrounding black-tailed prairie dog colony management on the Thunder Basin National Grassland (TBNG), and to find whether there was enough capacity for a collaborative process. The results showed the issues were very diverse and contentious, and the level of trust among stakeholders was low. Prairie dog management is important to landowners since the vegetative health of the grasslands is important to their economic livelihoods, and therefore important socially to local communities. Prairie dogs were and are an important issue to conservation interests who see them as a key-stone species critical to grassland biodiversity. Thus, if some type of collaborative problem-solving process were not undertaken, diverse stakeholders felt the risk of the issues getting mired in legal proceedings was high. Most stakeholders were willing to engage in a collaborative process and provided information regarding what process could lead to positive results and the stakeholder types who would need to participate.

Based on this information, in 2016 the USFS asked the Ruckelshaus Institute to convene a collaborative process. The Ruckelshaus Institute used a collaborative-learning approach based on the suggestion provided by interviewees in the situation assessment. In cases where conflict is high and the issues are integrated and complex, asking stakeholders to immediately go into a decision-making process may demand too much. The characteristics surrounding prairie dog colony management and related issues fit that description perfectly. The Ruckelshaus Institute therefore designed a learning process wherein participants were able to (re)establish communication lines with complete transparency, share learning and knowledge, and gain insights into each other's interests and values. The process consisted of three workshops in three different locations. The first workshop concentrated on the history of and values participants have in relation to the TBNG. The second workshop concentrated on the present. Presentations focused on research exploring current conditions on the TBNG, and participants focused on gaps in knowledge that need to be addressed. The last workshop focused on the future, asking participants to think ahead and help the USFS understand what desired conditions they envision.

The report on the 2016 Collaborative efforts was published and can be found here: www.uwyo.edu/haub/_files/_docs/ruckelshaus/collaboration/2015-tbng/2016-thunder-basin-collaborative-learning-workshops-report.pdf.

The Ruckelshaus Institute recommended in that report to continue the collaborative learning workshops and also add a second type of meeting. This became the Cooperative Working Group, a group of governmental entities who have federal, state or county authority in relation to prairie dog management and range restoration in the Thunder Basin area. The USFS extended their agreement with the Ruckelshaus Institute to July 2018 to start the Cooperative

Working Group. The Collaborative Learning Workshops took place in April, September, October and December 2017 for half day meetings. The Cooperative Working Group met in February 2017 and in adjoining days to the Collaborative Learning Workshops.

In the course of this process during 2017, the exponential expansion of prairie dog numbers, and the ensuing sylvatic plague that then dramatically decreased them was initially the main topic for both groups. However, the boom and bust cycle that the prairie dog population experienced took a significant toll on range conditions, which in turn affected livestock and wildlife forage when large areas were denuded of vegetation and/or species such as cheat grass and cactus invaded. Hence, the group decided to take on as their main focus for 2017 measures that would address prairie dog management and range restoration in the near future.

This report focuses on the input provided by the Collaborative Learning Workshops to the Cooperative Working Group, and the steps the Cooperative Working Group took to identify consensus recommendations. This report outlines:

1. The participants involved in both sets of meetings.
2. The process and how the Collaborative Learning Workshops provided meaningful information to the Cooperative Working Group.
3. The results of the Working Group's efforts, culminating in 12 full consensus recommendations to the USFS and other land managers.
4. Recommendations for next steps from the Ruckelshaus Institute.
5. Appendices demonstrating the results from the meetings leading to the creation of 12 recommendations.

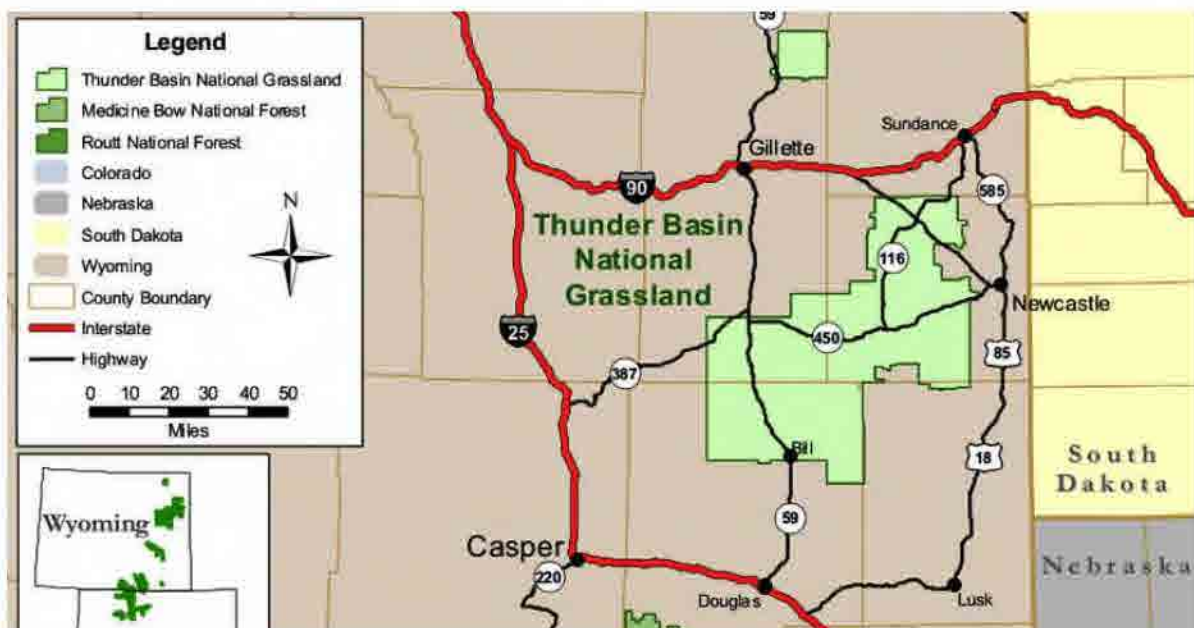


Figure 2: Location of Thunder Basin National Grassland in Wyoming

The Participants

Table 1: Participants in the Collaborative Learning Workshops

Participants in the Thunder Basin National Grassland Collaborative Learning Workshops	
Aaron Voos	Lindsey Sterling Krank
Amanda Withroder	Marline Geier
Barbara Crow	Marty Ertman
Bill Lambert	Matt Avery
Brad Rogers	Megan Taylor
Carolyn & Vern Johnson	Melanie Gerger
Carolyn Upton	Michelle Huntington
Chamois Anderson	Mike Foster
Cheryl Jacobsen	Nancy McFarland
Cheryl Schwartzkopf	Oaklee Anderson
Christi Haswell	Quade Schmelzle
Dave Pellatz	Randy Oleson
DeAnna Kay	Riata Little
Debra Hepp	Robert Harshbarger
Denise Langley	Robert Maul
Donley Darnell	Rusty Bell
Dru Bower	Scott Sewell
Erika Peckham	Shane Walker
Frank Eathorne	Tammy Hooper
George Ewins	Todd Bennington
Greg Stark	Todd Caltrider
Hale Redding	Tom Reed
Hans Hunt	Tom Wright
Heather Herr	Tracy Pinter
Holly Kennedy	Travis McNiven
Jackie Ott	Ty Checklitt
Jaime Jakes	Virginia Moore
Jake Hogan	Wanda Burget
Jay Francis	Will Schilt
Jean Harshbarger	Willow Steen
Jennifer Hinkhouse	Marty Ertman
Jewell Reed	Matt Avery
Jim Darlington	Megan Taylor
Justin Proffer	Melanie Gerger
Justin Rogers	Michelle Huntington
Kristy Bly	Mike Foster
Lauren Porensky	Nancy McFarland

Table 2: Primary and Alternate Members of the Cooperative Working Group

Thunder Basin National Grassland			
Cooperative Working Group			
Level	Organization	Primary	Alternate
County	Campbell County Commission	Matt Avery	Rusty Bell
County	Campbell County Conservation District	Jennifer Hinkhouse	Jay Quintanilla
County	Campbell County Weed and Pest	Quade Schmelzle	
County	Converse County Commission	Tony Lehner	Rick Grant
County	Converse County Conservation District	Michelle Huntingdon	Stan Mitchem
County	Converse County Weed and Pest	Cheryl Schwartzkopf	Jesse Butler
County	Crook County Natural Resource District	Raesha Sell	Sarah Anderson
County	Crook County Weed and Pest	Andrew Litzel	
County	Niobrara County Commission	Patrick Wade	
County	Niobrara County Conservation District	Matt Dockery	Lisa Shaw
County	Niobrara County Weed and Pest	Gail Mahnke	
County	Weston County Commission	Marty Ertman	Tony Barton
County	Weston County Commission	Bill Lambert	
County	Weston County Natural Resource District	Lacey Sloan	David Tysdal
County	Weston County Weed and Pest	Hale Redding	
Federal	Bureau of Land Management	Michael Valle	Rick Miller
Federal	Natural Resources Conservation Service	Clayton Schmitz	John Hartung
Federal	Animal & Plant Health Inspection Service	Mike Foster	Paul Kokes
Federal	US Fish and Wildlife Service	Brad Rogers	Tyler Abbott
Federal	US Forest Service	Russ Bacon	TBD
State	Governor's Office	Jessica Crowder	Matthew Fry
State	Office of State Lands	Ben Bump	William Rose
State	State Department of Agriculture	Joe Budd	Chris Wichmann
State	State Weed and Pest	Slade Franklin	
State	Wyoming Game and Fish: Habitat	Amanda Withroder	
State	Wyoming Game and Fish: Non-game	Zack Walker	Nichole Bjornlie
Staff	USFS	Aaron Voos	
Staff	USFS	Sandy Underhill	
Staff	Ruckelshaus Institute	Jessica Western	

THE PROCESS



Figure 3: Process for the Collaborative Learning Workshops

The Collaborative Working Groups (CLW's) are a form of unbounded process where anyone can attend and participate. The Cooperative Working Group is a bounded process where the stakeholder groups have been identified by the convener, in this case all government agencies for reasons outlined below. The government agencies themselves identified who would be their primary and alternate representatives. Normally there is a charter that describes how a bounded process will function, what its ground rules are, who the members will be, and what the decision making method will be. However, due to USFS reservations about the charter, changing membership and lack of time, the group was not able to finalize this step. Instead both groups used ground rules and had decided on a decision making method.

The first Collaborative Learning Workshop of 2017 took place on April 12. The first Cooperative Working Group (CWG) took place on February 27, 2017, which was a day long. The next CWG meetings took place the day after each CLW meeting. In September the Working Group decided they would prefer if the CLW met as often as the Working Group, and that they wanted the Collaborative Learning efforts to take place on the morning, to inform the Working Group deliberations in the afternoon.

This process consists of two types of meetings to allow the collaborative process and its outcomes to be in line with the Federal Advisory Committee Act (FACA) when a federal agency is the convener. There are four ways a collaborative process can stay in line with FACA: (1) create a Federal Advisory Committee in accordance with the FACA and other applicable regulations; (2) convene open meetings where no collective advice or recommendations are offered by a group (individuals advice or recommendations are possible); (3) limit participation of a group to government entities only; or (4) have a non-federal organization convene and administer the consensus seeking group, with the federal agency participating as a fellow stakeholder in a technical resource capacity while retaining their federal decision-making capacity. In regards to the Thunder Basin collaborative process, the USFS uses options 2 and 3 to enable governmental and non-governmental entities to work together in the Collaborative Learning workshops, informing any recommendations made by the governmental entities in the Working Group. Figure 3 shows the learning process of the first, and Figure 4 illustrates the consensus-building process in the Working Group.



Figure 4: Cooperative Working Group process

Procedural Tools:

1. Using the Problems, Interests, Options and Trade-offs Process to explore issues, interests, possible options and create recommendations that meet as many interests as possible in the Working Group based on the work of Fisher, Ury and Patton in “Getting to Yes” (2011).
2. Ensuring immediate input of Collaborative Learning Workshop to the Working Group.
3. A consensus-based decision protocol that uses ‘gradations of consensus’.
4. Ground rules and decision-making methods were identified and agreed on by all.

Step 1. Problem/Issue identification

Members identified the issues they wished to address regarding prairie dog management and range restoration in the Thunder Basin.

There were 122 issue statements that members of the Cooperative Working Group generated in breakout groups (see the 2016 report for Collaborative Learning issues). The Ruckelshaus Institute found seven categories of issues:

1. Ecosystem Functioning
2. Ferrets
3. Full and Transparent Communications
4. Governance
5. Prairie Dog Management
6. Process
7. Socio-economic Factors.

Step 2. Interest identification of the stakeholders in the collaborative

Members deliberated the reasons why the Thunder Basin was important to them and agreed on the following interest statements:

- 1. Management is important to learn what works and what does not through clear communication of information and actions.**

2. Management is important if done in a collaborative manner to implement solutions.
3. Management is important to protect environmental integrity of the Grasslands and its wildlife populations.
4. Management is important to balance all interests and to ensure efficient and effective governing.
5. Management is important to maintain multiple use on the TBNG.
6. Management is important to ensure no listing of prairie dogs or associated species as a threatened or endangered species.
7. Management is important to control prairie dogs where so desired.
8. Management is important to protect private property rights and property values.
9. Management is important to ensure the long term sustainability of ranching livelihoods and culture.

Step 3. Option generation

Collaborative Learning participants and CWG members identified possible options for recommendations to address the above problems and to meet the above interests. The full lists can be found in the Appendices. The Ruckelshaus Institute analyzed all the options for duplicate suggestions which resulted in the following list:

CWG Issue	Options for Solutions
	* = consensus option
Ferrets	Regardless of where Plan is amended, update Strategy that is tied to State plans • Bring all federal agencies together to coordinate ferret reintroduction Statewide • Explore whether private landowners are interested in black-footed ferret (re)introduction on their land
Ferrets	Need a definitive answer on ferret reintroduction (would like WGFD to say no) • Eliminate 3.63

Full and Transparent Communications	Create data-sharing clearinghouse regarding associated species and prairie dogs • Include TBGPEA and USFS data • Include range conditions, ground cover • Include private landowner data
Full and Transparent Communications	Monitoring and inventory of erosion
Governance	Long-term funding
Governance	Money manager to coordinate projects
Governance	Maintenance (“MOU with counties” or who?) of plan
Governance	USFS Plan amendment?
Governance	Dedicated resources
Governance	*Create clear management goals and implementations of the current plan (consistency of management for the long-term, administration to administration)
Governance	Goal: Prairie dog management to a level that supports landowners during drought, while supporting associated species
Governance	Commitment to follow through on management decisions • Follow USFS (your) plans • Any new plans must be fiscally responsible 2012 FS planning regulations
Governance	LRMP revision is long overdue
Governance	Are there missing pieces? • Infrastructure for grazing management (water, fencing, rotations) • Incentives • Long-term: grazing associations have been beneficial Consistent funding (access to some funding is increasing, like NFWF)
Governance	The long-term goals need to be examined. What path are we on? Is it correct? What can we do under current FS plan?
Governance	Clarification of prairie dog as pest or sensitive species

Prairie Dogs	Density management: do strips throughout towns to keep numbers down, break up large complexes, continue to allow shooting (multiple benefits: active control, economy stimulator, allows multiple avenues for control, and recreation), add more rodenticide options
--------------	--

Step 4. Criteria

Stakeholder interests were used as criteria against which to measure the strength of the options for recommendations.

Step 5. Trade-Offs

Collaborative Learning participants and Working Group members deliberated the final options in order to resolve problems and meet as many interests as possible. These discussions lead to the crafting of final recommendations, and exploration of levels of agreement in the Working Group for each recommendation (see below). During the October and December meetings the options were discussed and modifications were suggested by the Collaborative Learning Group. The Cooperative Working Group took those suggestions (below in the second column) and created the final recommendations.

In December the Collaborative Learning Group looked at the original language and their level of comfort with the language was polled using clickers. Participants clicked on numbers 1 – 5 indicating:

1. Participant likes it.
2. Minor Point of Contention – Basically, participant likes it.
3. Reservations – But participant can live with it.
4. Major reservations – Disagreement, but will not block the proposal/provision.
5. Disagreement – Participant will not support the proposal.

After which the Cooperative Working Group used the Collaborative Learning Group's suggestions to modify the final recommendation language and this time clickers were used to identify the member's level of agreement based on the above.

1. Original Language	Collaborative Learning Group Comments	Final Recommendation Modified and Supported by the Cooperative Working Group
Regardless of whether the Forest Plan is amended, update Black-tailed Prairie Dog Strategy in 2018 so it is tied to State plans to not reintroduce Black-footed Ferrets in the short run. Create clear management goals and implementations of the current plan. Include issues raised in Option 2 and 3 to the extent possible without a Plan Amendment.	• There's nothing to tie statewide plan to at this point in time • Would like to take out language regarding short-term reintroduction • Strategy doesn't differentiate between short and long-term ferret plans • Would support change in strategy but not plan amendment • Change language to introduction (not reintroduction) • Rewrite to state that strategy should follow state plans • Remove second part of first sentence about ferrets (after "plans") • Like leaving ferret language in to make sure folks understand there will be no reintroduction in the short-term • It's not clear what folks are voting on. Bullets appear contradictory. • What does "short-term" mean? Would be good to define this.	Revise the Current Black-tailed Prairie Dog Strategy 1) Create clear management goals and implementation strategies within the current Plan and Strategy. 2) Determine whether there needs to be an update to the Black-tailed Prairie Dog Strategy in 2018. 3) Determine whether the Plan needs to be amended. 4) Recognize that there are no plans to reintroduce black-footed ferrets in the short run. 5) Include the issues raised in Options 2 and 3 to the extent possible without a Plan Amendment.
2. Address Density Management in Strategy in 2018: Do strips throughout towns to keep numbers down, break up large complexes, continue to allow shooting, add more rodenticide options, make a decision of acceptable density/acres, create a set of	• Wildlife and associated spp need a spot without density control, okay to have density control in some areas, density is hard to measure • There is a lot in here: need to talk about specific bullets and come up with agreed upon protocol	Address density management in 2018. Ideas for density monitoring include: Make a recommendation of acceptable level of density; Use the same definition of "density" across all lands;

protocols – use same standards across all lands, need definitions for complexes vs. colonies, use the same definition of “density/acre” across all lands, associated species counts – measure the same inside and outside categories”.

- Other species are managed for density, prairie dogs should be too
- Possible to measure density but resource intensive, hard to do at full scale
- ~4-5 days on 4,400 acres to measure density on CCAA (1% of each colony for UFWFS standards, transects on ATV, count active and inactive mounds, active burrow density used to infer prairie dogs per acre)
- Would like to see density studies in other areas as well
- Manage for rangeland health as an indicator (rather than focusing just on density)

Create a standard set of protocols to be used across all lands;
Conduct associated species counts consistently inside and outside categories.

Ideas for density control include:

“Do strips” throughout towns to keep numbers down;
Break up large complexes;
Continue to allow shooting;
Add more rodenticide options.

3. Location of Prairie Dog

Towns: Under 2018 Strategy revision, new prairie dog core areas based on impacted land. If categories are being revisited, look at bottom-up approach.

Where we want prairie dogs: areas that are already impacted because we can’t afford restoring them.

Where we don’t want prairie dogs: preserve healthy lands and not accept prairie dogs.

- What is the option actually saying? (Core areas vs categories)
- Prairie dogs recolonize naturally without our help
- Change to “reestablish/ determine category areas”, take out the word “new”
- Add language regarding buffer zones. Look at lethal and non-lethal tools for establishing buffers.
- Are these new areas within or outside the category?
- Change language to “complex”, no need to redetermine category designations
- Determine complexes within categories
- What is the definition of a complex versus a colony?
- USFWS has definitions the group can use

Under a 2018 Strategy review, determine whether the current category designations are appropriate. If not, adjust prairie dog category areas based on a combination of scientific evidence and social support. If categories are being revisited, use a collaborative approach.

4 **Balanced forage management for livestock and wildlife**

- Balance forage management and competition of livestock and wildlife through Leniency and flexibility for innovative approaches to vegetation treatments and
- *Continued prairie dog control
- *Invasive species control incl. cheat grass
- *Use the plague situation to control prairie dog colonization and spread (buffer zones)
- Reduce erosion through prairie dog management
- Remove cactus, three-awn, cheat-grass, and mounds
- Reseed

- Every colony is different, so methods can't be applied uniformly across all areas
- Cactus takes several years to disappear after being sprayed
- Specific projects will be determined on smaller scales. Option is a general statement about what the group conceptually agrees or does not agree upon.
- Sagebrush restoration is a lengthy process

Balance forage management and competition of livestock and wildlife through cooperation and flexibility.

Use innovative approaches to restoration and vegetation management, including:

- Continued prairie dog control;
- Invasive species control, including for cheatgrass;
- Use the plague situation to control prairie dog colonization and spread (buffer zones);
- Reduce erosion through prairie dog management;
- Remove cactus, three-awn, cheatgrass, and mounds
- Reseeding.
- Monitor and inventory range conditions, ground cover

5 **Sagebrush Ecosystems**

- Keep the sagebrush we have and not allow them to transition to riparian or mesic communities. Do this by doing the following:
- Identify species usage to determine areas that will use annual plant community
- Identify areas of erosion concern
- Control cheat grass
- Remove all prairie dogs within sage grouse core area

- Remove "remove all prairie dogs from sage grouse core area"
- There's no science to show that there shouldn't be prairie dogs in sage grouse core areas
- Conflicting management in core sage grouse areas. The standard for sage grouse is 7 inches of stubble height. Prairie dogs can decrease stubble height.
- Sage grouse take precedence over prairie dogs because of listing potential
- Some think all prairie dogs should be eliminated in core areas, others don't
- Prairie dogs and sage grouse can coexist outside of core areas
- Perhaps both species can

Healthy Ecosystems

Maintain healthy sagebrush, riparian, and mesic communities. Do not allow prairie dogs to transition into these communities.

Do this by doing the following:

- Identify species usage to determine areas that will use annual plant community;
- Identify areas of erosion concern;
 - Control cheatgrass;
 - Remove prairie dogs within sage grouse core areas.

	coexist if prairie dogs are maintained at low densities	
	• Three ongoing research projects regarding this topic	
6	Improve and develop more consistent communication and distribution between meetings. • Will this effort continue in 2018? • This is up to the group • Jess is contracted for one more year • USFS is looking for input on next steps • USFS committed to a collaborative process • Should the CWG continue? • Process has been slow, but starting to see results • Made a mistake switching to 1-day meetings • Not adequate conservation representation on CWG (can format/structure be changed to address this?) • Need better representation of constituents on CWG • Need to understand that USFS has final decision-making ability • Permittees and landowners should have a voice at the table • Suggestion: have an open meeting, but members of CWG are allowed to “vote” at those open meetings while public is not • Another (non-federal agency) group can convene so that they can have an open group • USFS can create MOUs that speak to their ability to commit to recommendations, etc. • USFS can’t funnel money to other organizations to convene (but USFS can check on this) • Could several organizations	Improve and develop consistent communication and information distribution between meetings. Explore other convening options to enhance participation from all interested stakeholders.

		contribute money to convene these meetings? • Would like to see county commissioners convene	
7	Create data-sharing clearinghouse regarding associated species and prairie dogs. • Include TBGPEA, private landowner and USFS data • Monitor and inventory range conditions, ground cover	• Include UW. • It's important to share data, and it should be provided at each meeting • Take into consideration legalities of sharing private landowner data	Create data-sharing clearinghouse regarding associated species and prairie dogs. Include TBGPEA, private landowner, University of Wyoming, USFS, and other relevant data.
8	Work with partners to find and manage a point person to find long-term and consistent funding.	• More comfortable with everyone working together to find funding, rather than having just one person • Language is regarding one person to coordinate the money, not just to find the money • Look at Wyoming Landscape Conservation Initiative model for securing funds • Transparency regarding where money comes from • This would allow the group to have matching funds • What are funds being gathered for? Implementing the plan?	Consider options for long-term and consistent project funding such as: - creating a full-time position for a "Prairie Dog Manager"; - creating a group to do this; - working with a bridge Organization; - using the Wyoming Land Conservation Initiative model.
9	Prairie dog management to a level that supports healthy landscape and permittees, while supporting associated species through personal relationships and a respect for all goals and viewpoints.	None.	Deleted
10	Role of the USFS in Prairie Dog Management Request that the USFS commits to following	• Likes the part about following through on plans, especially those that were made collaborative	USFS accountability in Prairie Dog Management The USFS will follow through on management commitments

through on management and regulatory obligations including: • Following USFS plans • Any new plans must be fiscally responsible 2012 FS planning regulations • LRMP revision is long overdue • Providing an answer regarding whether there will be a USFS Plan amendment. • Allowing ground-ready projects to move forward and provide reasons when they cannot. • Adhere to the Multiple Use Sustained Yield Act of 1960 • Reduce impairment of productivity of the land as per the Bankhead-Jones Act of 1937.	• Add: "Making decisions in a timely manner and notifying parties in advance of implementation" • Need clarification on who's the lead on issues and concerns • Have equal representation of viewpoints on field trips • Squeamish about LRMP revision; work backwards through strategy and then take it back to plan to see what's needed • USFS revisit regulations • Stick to LRMP revision 15-year schedule • Amendment process pulls resources from on-the-ground efforts • Want to assurances that strategy will be fully implemented • Identify what has and hasn't been implemented in current strategy • USFS perspective: plan revision not on table, amendment possible	and regulatory obligations and will collaborate on an improved Strategy that includes definitive triggers and associated actions. A Land Resource Management Plan revision is long overdue. Additional requests include: - Provide updates and rationale for implementations (or lack thereof) of the Plan and the Prairie Dog Strategy; - Ensure that any new plans are fiscally responsible; - Provide an answer regarding whether there will be a USFS Plan amendment; - Allow ground-ready projects to move forward and provide reasons when they cannot; - Have equal representation of viewpoints on field trips; - Make decisions in a timely manner and notify parties in advance of implementation.
11 Seek clarification of prairie dog as pest or sensitive species at state and federal levels and comply with State Weed and Pest laws (i.e., prairie dog is a pest) accordingly.	• Need to avoid additional federal listings • USDA Wildlife Services not a regulatory agency: does prairie dog removals and plague mitigation • WGFD designates p dogs as Species of Greatest? Conservation Need, State considers a pest • No Rozol per Association of Fish and Wildlife Agencies (WAFWA) • Others want Rozol • Thinks we can find solutions despite conflicting designations	Recognize in a revised strategy the conflicting classifications of prairie dogs. Acknowledge that prairie dogs are considered a pest by some people.

		• Discuss or allow the use of burrow fumigants in control efforts • Break option into two parts. Have a separate statement about using most effective method to control prairie dogs. Move this to Option 13 •	
12	Continue monitoring prairie dog towns and plague	None	Continue monitoring prairie dog towns and plague.
13	Prairie Dog Boundary Management • Manage 3.63 area's boundaries • Eliminations of prairie dogs outside the boundary • Prevent prairie dogs establishing outside the boundary.	• Statement should be about Category 1, not 3.63 • Want boundaries managed, but not eliminating p dogs outside of boundary • Better management of boundaries to minimize the number of p dogs outside of boundary • Would like to incorporate density into this statement. Need density control within boundary • Get rid of 3.63 so we can manage p dogs everywhere • Need to maintain two complexes with no control, can do experiments with density control in other areas of category one (southeast portion: Lone Crow) • Want to see some management within Category 1 • Possibly move lessee to a different pasture or compensate; consider the landowner • There could be economic incentives for these landowners (conservation groups working on this) • Focus on healthy rangelands, diversity of animals, look at ecosystem	Prairie Dog Boundary Management - Manage boundaries in conflict areas. This may include: - Eliminating prairie dogs outside the boundary; - Preventing prairie dogs from establishing outside the boundary - Conduct density control within the colony using best available science; - Allow lethal control within Category 1 and its boundaries, regardless of acreage, or change acreage objective

level

14	Permanently drop no shooting ban starting Fall 2017. Recreational shooting should remain everywhere (compare lead versus steel bullets)	•Change “steel” to “non-toxic” •No shooting within Category 1 areas (this would be consistent with the current plan) •Ban shooting in Category 1 if/when it becomes possible to reintroduce ferrets •Don’t require or ban specific tools, be flexible and adapt management tools •There is some “bycatch” of associated species in areas that allow shooting •Shooting is especially attractive if there are lots of prairie dogs •Shooting is one form of recreation use on the grassland •Want triggers put in place regarding when and where shooting is and isn’t allowed •How many p dogs do recreational shooters kill each year? Is there any harm in shooting if there are ferrets (since they’re nocturnal)? •On 4W, one shooter shot 450 p dogs in a day	As long as black-footed ferrets are not being reintroduced on the TBNG, drop the shooting ban in Category 3.63.
----	--	---	--

FINAL RECOMMENDATIONS

Consensus Recommendations

The following are full consensus recommendations to all agencies from the Thunder Basin Cooperative Working Group December 7, 2017. The language of these recommendations is specific and was crafted and agreed to by all present.

Recommendation 1: Revise the Current Black-tailed Prairie Dog Strategy

1. Create clear management goals and implementation strategies within the current Plan and Strategy.
2. Determine whether there needs to be an update to the Black-tailed Prairie Dog Strategy in 2018.
3. Determine whether the Plan needs to be amended
4. Recognize that there are no plans to reintroduce black-footed ferrets in the short run.
5. Include the issues raised in Options 2 and 3 to the extent possible without a Plan Amendment

Recommendation 2

Under a 2018 Strategy review, determine whether the current category designations are appropriate. If not, adjust prairie dog category areas based on a combination of scientific evidence and social support. If categories are being revisited, use a collaborative approach.

Recommendation 3

Balance forage management and competition of livestock and wildlife through cooperation and flexibility. Use innovative approaches to restoration and vegetation management, including:

- Continued prairie dog control;
- Invasive species control, including for cheatgrass;
- Use the plague situation to control prairie dog colonization and spread (buffer zones);
- Reduce erosion through prairie dog management;
- Remove cactus, three-awn, cheatgrass, and mound;
- Reseeding.
- Monitor and inventory range conditions, ground cover

Recommendation 4: Healthy Ecosystems

Maintain healthy sagebrush, riparian, and mesic communities. Do not allow prairie dogs to transition into these communities. Do this by doing the following:

- Identify species usage to determine areas that will use annual plant community;
- Identify areas of erosion concern;
- Control cheatgrass;
- Remove prairie dogs within sage grouse core areas.

Recommendation 5

Improve and develop consistent communication and information distribution between meetings. Explore other convening options to enhance participation from all interested stakeholders.

Recommendation 6

Create data-sharing clearinghouse regarding associated species and prairie dogs. Include TBGPEA, private landowner, University of Wyoming, USFS, and other relevant data sources.

Recommendation 7

Consider options for long-term and consistent project funding such as:

- creating a full-time position for a “Prairie Dog Manager”;
- creating a group to do this;
- working with a bridge organization;
- using the Wyoming Land Conservation Initiative model.

Recommendation 8: USFS accountability in Prairie Dog Management

The USFS will follow through on management commitments and regulatory obligations and will collaborate on an improved Strategy that includes definitive triggers and associated actions. A Land Resource Management Plan revision is long overdue.

Additional requests include:

- Provide updates and rationale for implementations (or lack thereof) of the Plan and the Prairie Dog Strategy;
- Ensure that any new plans are fiscally responsible;
- Provide an answer regarding whether there will be a USFS Plan amendment;
- Allow ground-ready projects to move forward and provide reasons when they cannot;
- Have equal representation of viewpoints on field trips;
- Make decisions in a timely manner and notify parties in advance of implementation.

Recommendation 9

Recognize in a revised strategy the conflicting classifications of prairie dogs. Acknowledge that prairie dogs are considered a pest by some people.

Recommendation 10

Continue monitoring prairie dog towns and plague.

Recommendation 11

Prairie Dog Boundary Management - Manage boundaries in conflict areas. This may include:

- Eliminating prairie dogs outside the boundary;
- Preventing prairie dogs from establishing outside the boundary
- Conduct density control within the colony using best available science;
- Allow lethal control within Category 1 and its boundaries, regardless of acreage, or change acreage objective.

Recommendation 12

As long as black-footed ferrets are not being reintroduced on the TBNG, drop the shooting ban in Category 3.63.

Consensus Recommendations with Major Reservations

Recommendation 2: Address density management in 2018.

Ideas for density monitoring include:

- Make a recommendation of acceptable level of density;
- Use the same definition of “density” across all lands;
- Create a standard set of protocols to be used across all lands;
- Conduct associated species counts consistently inside and outside categories.

Ideas for density control include:

- Do “strips” throughout towns to keep numbers down;
- Break up large complexes;
- Continue to allow shooting;
- Add more rodenticide options.

Major Reservation: Brad Rogers of US Fish and Wildlife Service: “USFWS doesn’t agree with using anti-coagulants, including Rozol”.

CONCLUSION

The next collaborative meeting for both the Collaborative Learning Group and the Cooperative Working Group will be on February 9, 2018 in Douglas.

Next steps the group identified were:

- Continue ongoing projects on the ground and build on them to learn what works.
- Have a collaborative discussion regarding the Strategy to see if a Plan Amendment is required (this is reflected in the Recommendations.)
- Information is needed from Douglas Ranger District regarding the number and location of acres of plague to finalize the map TBGBEA is working on, which in turn will inform upcoming projects.

Regarding the facilitation and leading of this process, the Ruckelshaus Institute has an agreement with the Medicine Bow-Routt National Forest that ends July 31, 2018. We suggest using that time to do the following:

1. Review and revise the Strategy as per the Working Group's Recommendation, in turn helping to determine whether a Plan Amendment is required. This would be hard work in six months but the pressure would allow everyone to keep up the momentum to create a collaboratively-derived Strategy. Use the process with two meeting types to stay within FACA as long as the USFS is the convener.
2. Explore convening options for further collaboration. The group discussed on December 7, 2017 the possibility that all partners would provide funds to allow a non-federal organization to act as bridge organization: receive and manage the funds and pay a facilitator of the group's choice. The first half of 2018 could be used to set this up.



See Appendices on the next page.

APPENDIX A: Cooperative Working Group Interests

April 2017

Original Interest Language	Category	Interest Statement
Good neighbor policy: manageable levels of species	Accountability	Management is important to learn what works and what does not through clear communication of information and actions.
Want to see accountability from USFS. Show of effort. Explaining reasoning. Addressing long-standing issues. More 'why' than 'why not.' Progress timeline, with check points. Planned list of management actions. Transparent/public info.	Accountability	
Want to see action	Accountability	
Interested in being engaged in management of TB – don't want unintended consequence from (ex) ESA listing – ripple effects	Collaboration	Management is important if done in a collaborative manner to implement solutions.
Interested in finding solutions, implementing them, and working together. Great success stories already exist with other issues. Before the next plague epidemic	Collaboration	
Short-term and long-term solutions	Collaboration	
Driving management decisions based on local input	Collaboration	
To discontinue loss of big game species and populations	Ecosystem Health	Management is important to protect environmental integrity of the Grasslands and its wildlife populations.
Reduce damage to rangeland	Ecosystem health	
Functioning ecosystem	Ecosystem health	
Protecting environmental integrity of area; protect the intrinsic value while accounting for changing demands, use, and balance	Ecosystem health	

Ecological sustainability – impacts to agency resources on inability to focus on other areas. Impacts to tourism – For example to hunters, because of lack of forage and fewer antelope.	Ecosystem health	
To ensure habitat quality for pdogs and obligates	Ecosystem Health	
Interested in ecosystem sustainability	Ecosystem health	
Interested in maintaining healthy wildlife populations	Ecosystem health	
Aesthetics	Ecosystem health	
Water quality and stream/riparian area protection (impacts of erosion)	Ecosystem health	
Weed control (preventing/mitigating invasion)	Ecosystem health	
Seeing USFS get better management tools	Governance	Management is important to balance all interests and to ensure efficient and effective governing.
State designated pest	Governance	
Balancing local/regional/national interests in social/cultural/legal/ecological/economical governing *	Governance	
Adequate staffing levels at county and USFS levels.	Governance	
Managing work loads	Governance	
Good stewards of tax payer \$	Governance	
No more regulations i.e.: if BFF is re-introduced	Governance	
Governmental relations	Governance	
Constantly dealing with constituents to be better stewards	Governance	
Mandated by WY state law to manage for pdogs	Governance	
Helping county boards implement their statutory obligations	Governance	
How is public funding being spent?	Governance	
Carefully thought out reintroduction (or not) with demonstrated ability of <u>all</u> landowners to manage these issues	Governance	
Would like better information on financial needs and where implementation should occur	Governance	
Protect interests of sportsmen and oil/gas	Multiple Use	Management is important to

		maintain multiple uses on the TBNG.
Economy, Ecology & Culture	Multiple Use	
Maintaining multiple use on TBNG	Multiple Use	
Recreation opportunities (specifically shooting) and advertising recreational shooting	Multiple Use	
Wildlife viewing opportunities	Multiple Use	
Keep pdog and other TES species from being listed	No T&E listing	Management is important to ensure no listing of prairie dogs or associated species as a threatened or endangered species.
To manage appropriately so as to prevent ESA listing *. In no one's interest, obligates listed too – so we can focus on other issues, for once.	No T&E listing	
Avoiding pdogs and associated/dependent species from being federally listed	No T&E listing	
Public perception of health of pdog populations	Pdog management	Management is important to control prairie dogs where so desired.
In relation to other species of importance, such as BFF Would like to know who pays for this	Pdog management	
Learning about most effective control methods for pdogs	Pdog management	
Representative of land owners	Property Rights	Management is important to protect private property rights and property values.
Protection of private property rights	Property Rights	
Short and long term protection of land asset values	Property Rights	
Protection of private property rights	Property Rights	
Land/property values	Property Rights	
Protect historical, cultural, and socio-economic viability of citizens, landowners, and leases of represented group	Socio-economic	Management is important to ensure the long term sustainability of ranching livelihoods and culture.
Physical health and well-being of citizens	Socio-economic	

Economic impacts – too many user groups and neighbors	Socio-economic	
Related impacts to livelihood, culture, and communities	Socio-economic	
Long term sustainability – including the ranching livelihood and culture	Socio-economic	
Managed since time of homesteading – cultural/historic value	Socio-economic	
Have to deal with public frustration	Socio-economic	
Inequity – some people being responsible and other not. Leads to inefficiency, lack of productivity, and wasted money	Socio-economic	
Economics and resources are important	Socio-economic	
To reduce forage competition	Socio-economic	
Ranching and grazing are a big part of the state's economy (that's impacted by pdog management)	Socio-economic	
Negative public perception/lack of knowledge/education	Socio-economic	
Minimizing potential health impacts to the public	Socio-economic	
Livelihoods of private landowners	Socio-economic	

Appendix B: Cooperative Working Group Issues

April 2017

Original Issue Language	Issue Category
Range condition: forage loss, competition with cattle, balance with non-monetary values such as wildlife, how to? Land/Asset value.	Ecosystem Functioning
Habitat loss/wildlife: how density of populations affect rangeland, conflicting research/science, quantity vs. quality, inter-related species, owls, plover etc.	Ecosystem Functioning
Water quality/ecosystem function: erosion, topsoil, management objectives and boundary control.	Ecosystem Functioning
Current rangeland conditions on the TB and other ecological conditions – water, air quality (dust)	Ecosystem Functioning
Ecology vs. Biology – where does sage grouse fit in?	Ecosystem Functioning
What is the vision of rangeland health?	Ecosystem functioning
Control efforts should consider ‘weeds’ so as not to spread	Ecosystem functioning
How do we address particularly in drought years?	Ecosystem functioning
Erosion in the watershed	Ecosystem Functioning
Concerns regarding wildlife habitat (mostly big game)	Ecosystem functioning
What is the threshold on habitat amount/quality for different species of wildlife?	Ecosystem functioning
Black footed ferret. Inconsistent messages depending on who you ask	Ferret
BFF re-introduction : private land owners worry that reintroduction will occur without involvement, need to be clear about objectives.	Ferret
Ferrets: what is planned? Process, history, truthfulness, who controls this? Need education, who is responsible, roles?	Ferrets
Emails, add to distribution lists	Full and Transparent Communications
Face to face	Full and Transparent Communications
Commission meetings	Full and Transparent Communications
Web site (need notified)	Full and Transparent Communications
Message board	Full and Transparent Communications
Diversity is a challenge	Full and Transparent Communications
Consistent messaging	Full and Transparent Communications
Keeping lists current	Full and Transparent Communications

No response/blow off	Full and Transparent Communications
Commitment to follow through on management decisions	Governance
Make limited money count via coordination	Governance
Contractor pool that will work with government contracts	Governance
Interest in multi-year contracts (lack of)	Governance
Priority of pdog management to USFS: other issues to prioritize, oil and gas, sage grouse, etc. Where does prairie dog management fit in?	Governance
Competing for staff/resources	Governance
Perception of adequate staffing	Governance
Need education on USFS structure, priorities, and allocation	Governance
Funding (lack of) and how it is being used. How is it being prioritized for management of pdog	Governance
Need a clear plan to primer how money will be spent and coordinating that with other agency efforts	Governance
Status of NEPA and ability to implement management actions	Governance
Is the TB plan a pdog plan or a BF plan?	Governance
Need to develop an actual strategy with identifiable actions	Governance
Forest plan limitations. Amendment?	Governance
Lack of trust on all sides	Governance
Forest plan – inconsistent application of standards, guides, or desired conditions. It is a moving target.	Governance
User conflict and interests in the management of the TB	Governance
Concern that it will take too long to get things done on the ground. We are already behind.	Governance
FS way or highway	Governance
Need better understanding of what FS is managing for, approaches used, etc.	Governance
Lack of funding to control pdogs	Governance
Section 12 Granger Thye Act	Governance
We've been discussing this topic for ages ; why no progress???	Governance
Gets at trust and lack of credibility	Governance
Need assurances that this process is not another example of 'insanity'	Governance
FS and other government agencies	Governance

Where are they similar?	Governance
Where are they different?	Governance
Lack of understanding regarding USFS budget	Governance
Lack of clarification regarding agency roles (USFWS + USFS) regarding BFF	Governance
Lacking understanding of USFS prioritization of resources/efforts	Governance
Threat of lawsuits against the USFS	Governance
Funding: Parameters of agency vs. corporation, Financial burden to private due to expansion boundary control issues, Allocation to pdog management, , Staffing	Governance
Where is money coming from: sources and process.	Governance
Need education on USFS limits	Governance
Cooperation: make it useable, threats against USFS, staffing in pairs, effect on work load?	Governance
Need understanding of history and regulatory frame works of all involved	Governance
Need current prairie dog information: Method of population count and the desire for density count. Who does this? Who coordinates? Accuracy? What data is used and how to use it?	Prairie Dog Management
Ecology of pdogs especially for figuring out best tools	Prairie Dog Management
Information gaps – identify the data that is missing	Prairie Dog Management
Use of data – gather data that is local	Prairie Dog Management
Need to agree on the science and data that will be used to support management decisions. Don't use data from CT in WY	Prairie Dog Management
Boundaries – Cat 1, 2, 3. Data to support management within categories is not current	Prairie Dog Management
Shooting ban: why does it against, data for and against? Wrong spot for signs. Misinformation. Consistency, Rigidity.	Prairie Dog Management
Boundaries: difference in management objectives across boundaries, how to effectively address? Coordinate, optimize limited funds. Lots of boundary, how to prioritize.	Prairie Dog Management
Rodenticide limitations: what is the process for allowable lethal controls? Lack of coordination between managers, time of year to treat, buffers, with residents, what distance? Funding.	Prairie Dog Management
Degradation ok if pdog's doing it	Prairie Dog Management

Conflicting management objectives for different species and across agency boundaries	Prairie Dog management
Risk – spreading plague and cyclic nature of pdog populations	Prairie Dog management
Impacts to private land	Prairie dog management
Buffers – we don’t use these effectively	Prairie dog management
(one size fits all) – doesn’t work	Prairie dog management
Need more control options	Prairie dog management
Lethal and non-lethal	Prairie dog management
Is there opportunity to identify options for more good neighbor type work?	Prairie dog management
Fear of litigation – don’t let it prevent proper management actions	Prairie dog management
Not being good neighbors	Prairie dog management
No buffers – if put, landowners are controlling - need commitment from FS to control on our side	Prairie dog management
Need incentives to reimburse landowners	Prairie dog management
½ of revenue from grazing leases should be used for control	Prairie dog management
Lack of will on part of FS to control pdogs	Prairie dog management
Need to expand control tool box to include Rozol	Prairie dog management
Way FS requires control to be done drives up prices on private lands	Prairie dog management
FS needs to better follow product labels and application timeframes	Prairie dog management
Burning of sagebrush to improve pdog habitat??	Prairie dog management
Need to understand FS management goals for sage grouse and how they interact with pdogs	Prairie dog management
Contradiction for other species management	Prairie dog management
Why are state laws readily ignored? Pdogs are a pest for many	Prairie dog management
Plague and disease: why buffers needed, potential to endanger human life,	Prairie dog management
Erosion from bare ground conditions that pdogs create	Prairie dog management
Misunderstanding on FS part relative to private landowner desires: don’t want them gone; want them controlled.	Prairie dog management
Site-specific reclamation needs should be considered	Prairie dog management
Pdog management and ability to treat	Prairie dog management
Over expansion of colonies	Prairie dog management
Density of pdogs and subsequent forage reduction	Prairie dog management

Encroachment onto private and state owned lands	Prairie dog management
USFS is limited in treatment tools and flexibility in existing tools	Prairie dog management
Boundary management	Prairie dog management
Lack of clarity regarding management tools	Prairie dog management
Lack of clarity regarding why USFS is managing for BFF reintroduction	Prairie dog management
Lack of mapping of existing and expanding pdog colonies	Prairie dog management
Control of pdogs for human health and safety	Prairie dog management
Need a discussion of who benefits from management	Prairie dog management
How to tackle short-term (< 2 year) issues for landowners	Prairie dog management
Lack of forage (quantity) on grazing land	Prairie dog management
Could we look at a “conservation cost share”?	Prairie dog management
Who holds the burden of financial responsibility? ... for harm already done by mismanagement?	Prairie dog management
Is it possible to expand the windows during which we can conduct pdog control?	Prairie dog management
Need a plan for exponential growth of colonies	Prairie dog management
When plague hits, we need a plan for adaptive management from that point on (as part of a strategy update?)	Prairie dog management
Short-term vs mid and long-term plans	Prairie dog management
Some short-terms needs addressed before April	Prairie dog management
Implementation of recommendations	Prairie dog management
Have they actually been implemented?	Prairie dog management
How is sage grouse habitat impacted by pdog management?	Prairie dog management
Non-lethal control methods may not address short-term concerns (and its success is difficult to document)	Prairie dog management
Lack of formal advisory committee to provide recommendations. What is the point of this group – it has no teeth. Fear this is just another meeting.	Process
Lack of management perspective	Process
Through meetings; come up with coordination and implement schedule with timely communication	Process
Socio Economic Issues: Cultural impact, historic use, social issues, concern over economic impact, way of living.	Socio-Economic Factors

Appendix C: Collaborative Learning Group Options (for projects to be implemented within the next year)

September 2017

Group 1 (consensus options)

- a. Create clear management goals and implementations of the current plan (consistency of management for the long-term, administration to administration)
- b. Continue monitoring prairie dog towns and plague
- c. Range condition – forage management and competition of livestock and wildlife
 - a. Leniency and flexibility for innovative approaches to vegetation treatments
 - b. Continued prairie dog control
 - c. Invasive species control
 - d. Use the plague situation to control prairie dog colonization and spread (buffer zones)
- d. Personal relationships – respect for all goals and viewpoints

Group 2 (not consensus)

- a. Goal: Prairie dog management to a level that supports landowners during drought, while supporting associated species
- b. Reduce 3.63 area
- c. *Manage 3.63 area's boundaries
 - a. Eliminations of prairie dogs outside the boundary
 - b. Prevention
- d. 5,000 acres
- e. *Improved or more consistent communication and distribution between meetings

Group 3

- a. Need a definitive answer on ferret reintroduction (would like WGFD to say no)
 - a. Eliminate 3.63
- b. Range condition
 - a. Erosion
 - b. Multiple use sustained yield act 1960
 - c. Impairment productivity of the land Bankhead-Jones FTA 1937
- c. Commitment to follow through on management decisions
 - a. Follow USFS (your) plans
 - b. Any new plans must be fiscally responsible 2012 FS planning regulations
- d. Remove all prairie dogs within sage grouse core area
- e. Permanently drop no shooting ban (start this fall)
- f. 1500 – 2000 acres prairie dogs max (see Gary for more details)
 - a. \$20,000 treats 2,300 acres
- g. Reclamation/restoration
 - a. Remove cactus, three-awn, cheatgrass, and mounds
- h. Drop multiple year contracts for prairie dog control
- i. Comply with State Weed and Pest laws (i.e., prairie dog is a pest)
- j. LRMP revision is long overdue

Group 4

- a. Problem statement or window of opportunity: Under current conditions, antelope (and deer to a smaller extent) along with prairie dogs, are at a lower level. Thus, providing an opportunity for better control of prairie dogs and restoration. May not need to look at sagebrush restoration but should strive to keep the sagebrush we have. On the ground projects: cheatgrass control, keep pds from impacting sagebrush, capitalize on low-hanging fruit
- b. Are there missing pieces?
 - a. Infrastructure for grazing management (water, fencing, rotations)
 - b. Incentives
 - c. Long-term: grazing associations have been beneficial
 - d. Consistent funding (access to some funding is increasing, like NFWF)
- c. The long-term goals need to be examined. What path are we on? Is it correct? What can we do under current FS plan?

Appendix D: Cooperative Working Group Options for Implementation

September 2017

Group 1

- a. Improve range conditions to benefit wildlife, health and safety through reseeding, weed management with treatment, and collapsing prairie dog burrows. Start restoration in areas that have had high plague numbers and most beneficial to land and biggest bang. Treatment determined by Weed and Pest, USFS and lease as to where to target. Also consider topography (i.e., where restoration has a good chance of success).
- b. Density management: do strips throughout towns to keep numbers down, break up large complexes, continue to allow shooting (multiple benefits: active control, economy stimulator, allows multiple avenues for control, and recreation), add more rodenticide options
- c. Updates from one authorized point of contact (receive and share)

Group 2

- a. Long-term funding
 - a. Clarification of prairie dog as pest or sensitive species
 - b. Maintenance (“MOU with counties” or who?) of plan
- b. Range restoration
 - a. Depends upon if prairie dogs “plague out”
 - b. Or reduce density
 - c. And restore vegetation, especially in plagued areas
- c. Make a decision of acceptable density/acres
 - a. Set of protocols – same throughout standards
 - b. Use the same definition of “density/acre” across all lands
 - c. Associated species counts – measure the same inside and outside categories
- d. Create data-sharing clearinghouse regarding associated species and prairie dogs
 - a. Include TBGPEA and USFS data
 - b. Include range conditions, ground cover
 - c. Include private landowner data
- e. Regardless of where Plan is amended, update Strategy that is tied to State plans
 - a. Bring all federal agencies together to coordinate ferret reintroduction Statewide
 - b. Explore whether private landowners are interested in black-footed ferret (re)introduction on their land

Group 3

- a. Monitoring and inventory of erosion
- b. Range conditions (cactus treatment, reseeding, cheatgrass)
- c. What is prairie dog objective? Action levels? Triggers?
- d. Allowing ground-ready projects
- e. Project deadlines and transparency why delayed
- f. Get house in order
 - a. Quicker internal decision
 - b. Plan amendment?
- g. Dedicated resources

Group 4

- a. Restoration
 - a. Sage brush areas need help before they can't help self (riparian, mesic)
 - b. Identify species usage to determine areas that will use annual plant community
 - c. Identify area of erosion concerns
 - i. Partner with Conservation Districts who can get water quality/erosion money
 - d. Use oil and gas mitigation dollars
 - e. Determine where there is landowner flexibility
- b. Prairie dog population control
 - a. Identify areas where we want prairie dogs
 - i. * "Category 1"
 - b. Coordinate with private landowners
 - c. Have Weed and Pest coordinate communication
 - d. Recreational shooting should remain everywhere
 - e. Implement lethal (compare lead versus steel bullets)
 - f. More education on lethal for landowners (chemical)
- c. Money manager to coordinate projects
- d. Determine impacted land areas to become new prairie dog core areas
 - a. If categories are being revisited, look at bottom-up approach
 - i. TBGPEA maps
 - ii. Mapping and funding and project ideas
 - iii. Prairie dog extant maps
 - b. Where we want prairie dogs: areas that are already impacted because can't afford restoring them
 - c. Where we don't want prairie dogs: preserve healthy lands and not accept

Appendix E: Collaborative Learning Group Suggestions for Option Modifications

October 2017

- Collectively fundraise/ create a grass bank/ savings fund for offsetting forgone forage in Category 1
- Eliminate all prairie dogs
- Use Centennial Woods (Laramie company) to build prairie dog fences
- Finish documenting group suggestions and related actions/ inactions
- Gather more information on prairie dog population dynamics and behaviors.
- Create ad-hoc group to tackle habitat restoration projects: Dave, Cheryl, Chamois
 - Include timelines, location, methods, spring meeting, summer implementation schedule
- Consider working with UW on grass banking with support from private landowners—create a “model farm”
- Group Goal: Determine how many prairie dogs and acres we need to sustain them, and where this should be? Related questions...
 - Consider prairie dog density per acre
 - Consider differences between white and black-tailed prairie dogs (invite Pam Wanek, prairie dog expert)
 - What is the future of the shooting ban in 2018?
 - Has 2001 Plan ended?

From: Kozlowski, Steve -FS
Sent: 18 Apr 2019 19:51:10 +0000
To: McDonald, Peter M -FS; Truex, Richard -FS
Subject: Grassland Plan Amendment Info
Attachments: Desktop outline for Grassland Plan Amendment - kozlowski 4-16-19.docx

In case you are interested.

Scoping Document – 20 pages or so. Very well written and accurate. -

https://www.fs.usda.gov/nfs/11558/www/nepa/110862_FSPLT3_4638367.pdf

Kozlowski's Thorough Cliff Notes of Scoping Document – 1 page, accurate, but incomplete sentences.
(see attachment)

Grassland Plan Amendment Public Website. <https://www.fs.usda.gov/project/?project=55479>

Enjoy, Steve



Steve Kozlowski
Wildlife Biologist
Resource Team Leader (RTL) for Wildlife, Botany, and Fish

Medicine Bow and Routt National Forests, Thunder Basin National Grassland

p: 307-745-2343

c: 559-972-1934

Steve.Kozlowski@usda.gov

2468 Jackson St
Laramie, WY 82070

www.fs.fed.us



Caring for the land and serving people

Desktop Guide (Cliff Notes) for the Preliminary Proposed Action - Also - Outline Idea for Public Presentation

1) Overview of Grassland Plan Amendment Process.

- Scope is 3.63 (although desire for grassland wide alternative is an issue)
- BTPD History – Native, not-warranted for listing, Active colonies since 2001 generally between 20K and 5K acres, but Rocketed to 77,000 in 2017, 1,000 in 2019.
- Important Documentation
 - 2002 Amendment, 2009 Amendment, 2015 Mgmt Strategy, 2018 WGFD BFF Mgmt. Plan
- Prelim proposal generated from the 6 mos. Collaborative Process
- 2012 Planning Rule (SCC versus, R2 Sensitive Spp)
- Purpose of Proposal
 - Align with 2018 WGFD BFF Plan
 - Reduce Encroachment onto Pvt.
 - Maintain appropriate amounts of short stature veg for associated spp.
 - Maintain forage for livestock and accommodate other uses.
- Timeline (scope April, DEIS Oct., FEIS May 20, Decision Sept. 20)

2) Main Elements of the Proposed Action

- 3.67 Short Stature Veg. Emphasis
- Boundary Changes based on topography, protect private from encroachment, reduce conflicts, Cheyenne R SIA.
- Eliminate 2015 Strategy (problems with keys, problems with acres)
- Boundary Mgmt Zones, 1/4mi, ¾ mile, 1 mile residences
- Establish target goals for short stature veg in 3.67, as well as minimum allowances
 - For viability of assoc. species
 - So as not to preclude reintro of BFF
 - Maintain adequacy for other uses including livestock forage.
- Collaborative plays an active/expert role in evolving science, mapping, integrated mgmt. strategies, and communicates them to USFS
- ESD used to evaluate site veg capabilities.

3) Colony Parameters

- Targets
 - 10,000 acres in 3.67
 - 100, 400, up to 1,000 acre colony sizes.
 - 1,500 acres of active colonies, in a connected area, to align with BFF mgmt. plan
- Minimums
 - 7,500 acres total for associated species viability.
 - **Flexibility** rather than rigid minimums. **Satellite colonies** can be identified outside of 3.67 to provide control options inside 3.67 when at minimum acreages. .i.e.
 - Colony expansion tools – Shooting restrictions, Dusting, Translocation
 - Colony Control Tools – Rodenticides, Veg. Barriers, Translocation
 - No to Anti-coagulants!
- Other Colonies (expected to exist across TBNG)
 - Non-target
 - Non-satellite
 - Important for Resiliency
 - Control would continue on a normal basis, no special requirements.

From: McDonald, Peter M -FS
Sent: 8 Mar 2017 15:09:06 +0000
To: Monks, Chelsea -FS; Painter, Cristi L -FS
Subject: Lift of shooting ban

Chelsea and Cristi, this is the first I've heard of a lifting of the prairie dog shooting ban on TBNG. Is this unit-wide or just outside the 3.63 area?

<https://www.fs.usda.gov/detail/mbr/news-events/?cid=FSEPRD534378>

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service
Rocky Mountain Region

p: 303-275-5029 (primary)
c: 303-475-3515 (travel & telework)
petermcdonald@fs.fed.us

740 Simms Street
Golden, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: 14 Feb 2019 15:27:29 +0000
To: Rice, Richard - FS
Subject: N. Great Plains viability assessment
Attachments: Broadscale-Terrestrial-Species-Viability-Assess-NoGreatPlains.pdf

You might be interested in this paper prepared for use in the N. Great Plains plan revisions. It's been around a while now but nonetheless a nice overview of the history and ecology of the Plains grasslands developed with the Nebraska, Thunder Basin, and Little Missouri (R1) plan revisions in mind at the time.

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service
Rocky Mountain Region
www.fs.usda.gov/detailfull/r2/home/?cid=stelprdb5261599&width=full

p: 303-275-5029
c: 303-475-3515
peter.mcdonald@usda.gov

1617 Cole Boulevard, Bldg 17
Lakewood, CO 80401
www.fs.fed.us



Caring for the land and serving people

Terrestrial Assessment: A Broad-scale Look at Species Viability on the Northern Great Plains

Introduction

Providing for viable populations of native and desirable introduced species on federal lands is among the major public issues involving the management and conservation of natural resources (Grumbine 1990). Protection of sufficient habitat and the consideration of other factors that place species at risk requires that we fully consider and employ the most reliable and accurate scientific information and judgement available. Toward this goal, a Committee of Scientists for the Northern Great Plains Assessment was established to ensure that (1) the best available scientific knowledge is brought into the consideration, (2) effects of special interests or biases inherent in planning processes are minimized, (3) scientific and non-scientific issues are clearly distinguished, (4) assumptions made in conducting scientific analyses are disclosed, and (5) risks associated with scientific assumptions and uncertainties associated with these assumptions are made explicit (Meffe et al. 1998).

The Committee of Scientists chartered to develop and or review the viability analysis for the Northern Great Plains Assessment includes Dr. Fred B. Samson (Leader), US Forest Service, Missoula, Montana; Dr. Fritz L. Knopf, Senior Scientist, USGS Biological Resources Division, Ft. Collins Colorado; Scott Larson, Wildlife Biologist, US Fish and Wildlife Service, Pierre, South Dakota; Dr. Barry R. Noon, Department of Wildlife and Fisheries Biology, Colorado State University, Ft. Collins, Colorado; Wayne R. Ostlie, Great Plains Director of Science, The Nature Conservancy, Bolder, Colorado; Dr. Glenn Plumb, Prairie Parks Biologist, National Park Service, Badlands National Park, South Dakota; and Dr. Carolyn L. Sieg, Research Scientist, US Forest Service, Rapid City, South Dakota.

In support of the Science Team are Timothy W. Byer, Wildlife Biologist, Thunder Basin National Grassland, Douglas, Wyoming; Jeff P. DiBenedetto, Ecologist, Custer National Forest, Billings, Montana; Clinton W. McCarthy, Wildlife Biologist, Custer National Forest, Billings, Montana; Susan M. Rinehart, Botanist, Dakota Prairie Grasslands, Medora, North Dakota; and Gregory L. Schenbeck, Wildlife Biologist, Nebraska National Forest, Chadron, Nebraska, and member, Northern Great Plains Interdisciplinary Team.

The strategies that influence environmental use are often broad in scale and are rarely spatially explicit or focused on individual species because of the unfeasibility and cost of implementation (Roughgarden 1997). A community and broad-scale approach to the conservation of biological diversity on public and private lands is the coarse filter. The coarse filter process is to (1) delineate the planning area (USDA 1999a), (2) compare the distribution of existing communities to their presettlement patterns (Sharpe et al. 1987), (3) describe the change if any in disturbance regimes (Risser 1995), and (4) check adequate ecological representation of existing conditions with species assessments (Haufler et al. 1996).

The coarse filter approach suggests viable populations will be maintained when the referenced communities contain almost all the species (Hunter et al. 1988) with the exception of those (1) with very large home ranges, (2) with consistently sparse population densities, (3) with highly specialized or unique habitats, (4) dependent on public lands where these occupy a small part of the planning area, (5) that are highly fragmented or isolated habitats, and (6) habitats that have undergone substantial changes due to the invasion of alien or exotic species.

The coarse filter approach to the maintenance of biological diversity contrasts sharply with the fine filter approach of conserving individual species (Fenger 1996, Gustafenson 1998, Panzer 1998). The majority of strategies developed for individual species are set up either because the species is endangered or because it is a game species (Arnold 1995). It should be recognized that the concepts of species rarity and species endangerment (typically anthropogenic) are not synonymous. Rarity is an expression of the intrinsic pattern of distribution and abundance of a species at a given time, while endangerment refers to factors that may make a species more susceptible to decline or extinction (Morse 1996). Intrinsically, rare species are defined as those that have a narrow geographic range, high habitat specificity, and small local population size (Primack 1995). In some cases, however, species have become rare throughout their geographic ranges as a result of habitat alteration or destruction (Given 1994). In either case, the categories defined below are intended to include species at risk that are also subject to ongoing habitat alteration or loss (see also Keith 1998).

There are at least three reasons to assign species at risk to categories (Mace and Lande 1990) (Appendix 1). First, categories reduce disputes and uncertainties over particular species that are not easily resolved and that may negatively affect species conservation. Second, categories based on risk can be used in setting priorities for conservation action including the development of viability strategies. Third, a number of techniques and the increased availability of information are helpful in assessing extinction risks.

The three categories of species at risk on the Northern Great Plains are as follows.

Category 1--Rangewide and national imperilment. Species listed by the US Fish and Wildlife Service or National Marine Fisheries Service as Threatened or Endangered or are proposed for such listing.

Category 2--Rangewide and or national imperilment to include populations. Species are Fish and Wildlife Service Candidate Species and those ranked by the Natural Heritage Program network with global ranks of G1-G3.

Category 3--Regional or State Imperilment. Species identified to be at risk by two or more federal, state, provincial or other organizations.

The coarse and fine filter approaches in this analysis focus on the diversity requirement in the National Forest Management Act (1976) and existing viability regulations as specified in 36 CFR 219.19, e.g., to maintain viable populations of existing native and desirable non-native vertebrate species in the planning area. For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence in the planning area. In order to insure that viable populations will be maintained, habitat must be provided to support a minimum number of reproductive individuals in well-distributed habitats so that individuals can interact with others in the planning area.

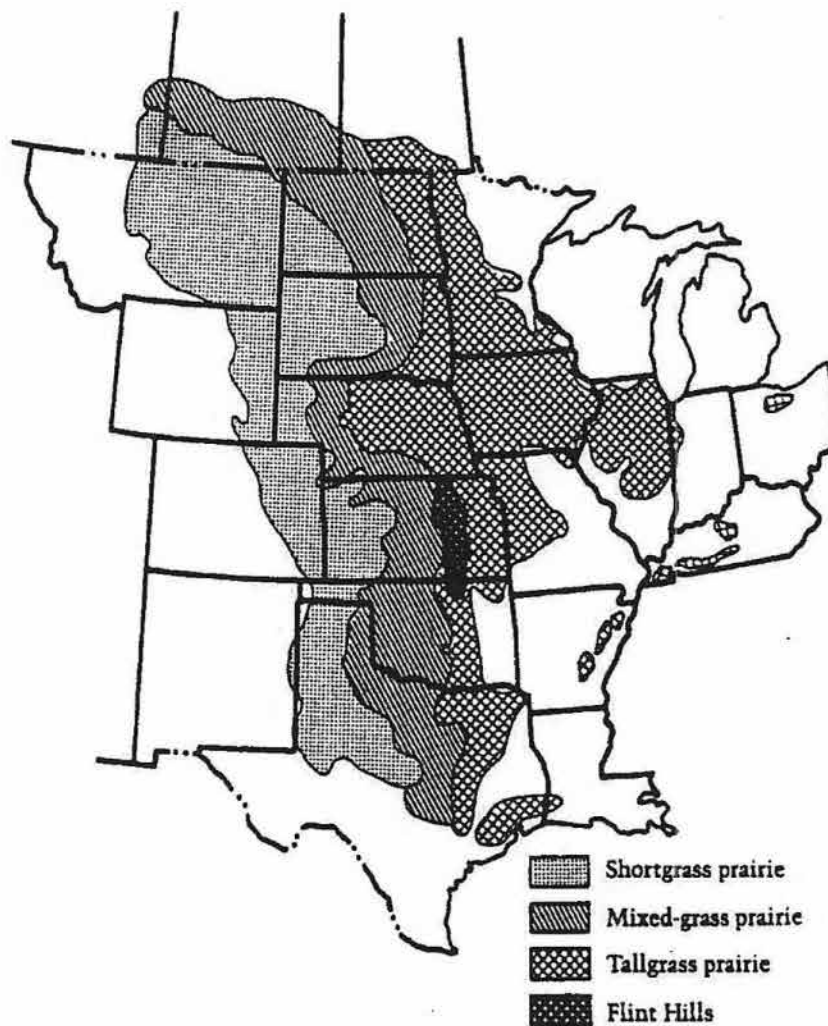
Background

Grasslands worldwide are the largest of the four natural vegetation formations covering the earth's surface (Simms 1988). Grasslands occur on most continents and include the steppes (Russia), veldts (south Africa), pampas (South America), pusta (Hungary), and prairies (North America). Grasslands are among the most biologically productive of all vegetation formations given the high retention of nutrients, efficient biological recycling, and structure that provides for a vast variety of animal and plant life (Estes et al. 1982). Grasslands have contributed the hereditary material for the principle human food crops—rice, wheat, corn, and other grains, and are of immense value to watershed integrity (National Research Council 1994).

Grasslands are the largest vegetation formation in North America and existed historically as extensive stands of vegetation in central United States, Canada and Mexico (Simms 1988). Historically, about 300 million of the 770 million ha in the United States were in grasslands. Environmental features that describe North America grasslands are an abiotic environment to which vegetation and structure respond (Vinton and Collins 1997), similarity in vegetation (Weaver 1968), and the nature of animal communities. Most important characteristics of prairie mammals (Kaufman and Kaufman 1997), birds (Knopf 1996), ungulates (Hartnett et al. 1997), reptiles and amphibians (Corn and Peterson 1996) and insects (Arnez and Joern 1996) are known.

The prairies of central North America, referred to as the Great Plains, have been suggested historically to be the western hemisphere counterpart of the Serengeti Plains of Africa, with large herds of free-roaming ungulates including bison (*Bison bison*), elk (*Cervus elaphus*), deer (*Odocoileus* spp.), pronghorn (*Antilocapra americana*), and an allied carnivore assemblage including the grizzly bear (*Ursus arctos*), grey wolf (*Canis lupis*), and coyote (*Canis lupus*) (Howe 1994). Today less than 1% of the original grassland remains undisturbed by recent (>1800) human activities (Kopatek et al. 1979). Human intrusions such as agricultural development, urbanization, water projects, and transportation systems have both local and regional effects on biological resources (Johnson and Bouzahr 1995).

Figure 1. Current range of native prairie on North America.



Nevertheless, understanding the biological resources of the Great Plains is difficult. The exact size and condition of remaining grasslands in North America are unknown and difficult to estimate (Samson et al. 1999). Fortunately, there is increasing recognition that broad-scale bioregional assessments can assist in understanding the factors that generate and maintain the diversity characteristic to an ecosystem or landscape (Poini et al. 2000). Examples of broad-scale assessments that focus on the central grasslands of the United States include that by the United States Department of Interior National Biological Service (1995), The Nature Conservancy (Chaplin et al. 1996), and the United States Geological Survey Biological Resources Division (Mac et al. 1998).

The main bodies of native grassland are the tall-grass prairie extending from Manitoba and Minnesota south to Texas; the mixed prairie from central Canada into Montana, North Dakota south to Texas; and the shortgrass prairie extending from eastern Wyoming south to western Texas and eastern Mexico (Figure 1). In the west, the grasslands are bordered by the coniferous forests of the Rocky Mountains and on the east by oak-savannah (Simms 1988) and in the north by aspen parkland in Manitoba and northwest Manitoba, with the transition from prairie to forest often abrupt (Great Plains Flora Association 1986). Across the Great Plains, coniferous and deciduous forest types meet only in the valley of the Niobrara River in north-central Nebraska and isolated stands of both types occur in the Black Hills of South Dakota.

Since the 1830's, declines in the area of tallgrass prairie with specific states and provinces are estimated to range from 82.6 to 99.9% (Table 1), and exceed declines in area reported for any other vegetation community in North America (Samson and Knopf 1994). The tallgrass is the most mesic grassland and has the largest number of dominant species (Simms 1988). The native tallgrass vegetation is primarily long-lived perennials with two primary associations: the bluestem prairie extending from the southern tip of Manitoba southward to eastern Oklahoma; the second association is dominated by wheatgrass, bluestem and needlegrass and originally extended from south central Canada through eastern North Dakota and South Dakota.

Climate and herbivory played significant role in shaping species distributions and community assemblages across the northern Great Plains (Risser 1996a). Climatic variability across the Plains is thought to be the most dominant influence on species distribution, composition and vegetation patterns (Simms 1988). Herbivory by bison is known to have favored the extent of the shortgrass prairie (Blakeslee 1996) with a shift eastward in the extent of the mixed prairie as bison were removed from the Great Plains (Figure 2). Precise estimates of the historic extent of either mixed prairie or shortgrass prairie are difficult given the substantial modification of the landscape.

Today the mixed prairie extends from southern Canada through central North Dakota into central Texas (Figure 1). The perimeter is not well defined because of the array of short-stature, intermediate and tallgrass species that form the ecotone between the shortgrass and tallgrass prairies (Bragg and Stuetz 1996). Because of the ecotonal mixing, the number of plant species found in the mixed prairie is higher than other prairie types. In general, warm-season grasses of the shortgrass prairie are common in the western mixed prairie, and the cool- and warm-season grasses, which grow taller, are found in the eastern portion of the mixed prairie. Estimated declines in area, although less than the tallgrass, range from 30.5% in Texas to over 99% in Manitoba (Table 1).

The shortgrass prairie extends south from Alberta through eastern Wyoming, western Nebraska into the high plains of New Mexico, Oklahoma and Texas. The shortgrass prairie landscape was one of relatively treeless stream bottoms and uplands dominated by blue grama and buffalo grass, two plant species that flourish under intensive grazing (Weaver et al. 1996). Unlike the more eastern grassland species, shortgrass prairie

Table 1. Summary of the extent of the main bodies of prairie in North America.

Prairie type Location	Past Area (hectares) ^a	Current Area (ha) ^a	Decline (percent)
<i>Tall-grass</i>			
Manitoba	600,000	300	99.9
Illinois	8,500,000	930	99.9
Indiana	2,800,000	404	99.9
Iowa	12,000,000	12,140	99.9
Kansas	6,900,000	1,200,000	82.6
Minnesota	7,300,000	30,000-60,000	99.2-99.6
Missouri	6,000,000	32,000	99.5
Nebraska	6,100,000	123,000	98.0
North Dakota	130,000	120	99.9
Oklahoma	5,200,000	N/A ^b	N/A ^b
South Dakota	2,600,000	20,000	99.2
Texas	7,200,000	720,000	90.0
Wisconsin	2,400,000	1,000	99.9
<i>Mixed-grass</i>			
Alberta	8,700,000	3,400,000	60.9
Manitoba	600,000	300	99.9
Saskatchewan	13,400,000	2,500,000	81.3
Nebraska	7,700,000	1,900,000	75.3
North Dakota	14,200,000	4,500,000	68.3
Oklahoma	2,500,000	N/A ^b	N/A ^b
South Dakota	1,600,000	480,000	70.0
Texas	14,100,000	9,800,000	30.5
<i>Short-grass</i>			
Saskatchewan	5,900,000	840,000	85.8
Oklahoma	1,300,000	N/A ^b	N/A ^b
New Mexico	N/A ^b	1,255,200	N/A ^b
South Dakota	179,000	116,350	35.0
Texas	7,800,000	1,600,000	79.5
Wyoming	3,000,000	2,400,000	20.0

^a Estimates of past and current area based on information from The Nature Conservancy's Natural Heritage Data Center Network; Provinces of Alberta, Manitoba, and Saskatchewan; universities; and state conservation organizations. Information on main bodies of prairie for some states was not available.

^b N/A means information is not available.

species remain digestible and retain their protein content when dormant. Declines in areas of shortgrass prairie are less than other prairie types (Table 1), yet extensive areas are dominated by invasive perennial and annual species, whose presence is attributed to overgrazing by domestic livestock and dryland farming.

Based on habitat loss, a recent survey of the conservation status of ecoregions (following Bailey 1996) in North America shows the central tallgrass prairie and the Flint Hills tallgrass prairie in Kansas to be globally outstanding (critical) in terms of need for conservation (Ricklefs et al. 1999:72). The shortgrass prairie in the north is considered endangered, and relatively stable in the southern portion. The mixed prairie is considered endangered. Reasons for assigning conservation status are many; urban and suburban development, agricultural conversion, pollution, altered hydrologic regimes, destructive grazing practices, habitat fragmentation, impacts of exotic species, among others. Of particular importance is the alteration of natural fire regimes.

Ricklefs et al. (1999) further note any serious discussion of endemism--a major focus in conservation of biological diversity--must consider the relationship to area. Species that are not cosmopolitan in distribution but are found in selected regions are termed endemic (Brown and Gipsen 1983). The coincident distribution of endemics is referred to as provincialism, and is influenced by both historic events (drifting continents, changing sea levels, and glaciation) and ecological processes (long-distance dispersal, biotic interactions, and extinction of small populations).

Ricklefs et al. (1999) suggest despite the size of grasslands, they hold few endemic species. In sharp contrast, Mares (1992) in *Neotropical Mammals and the Myth of Amazonian Forest Diversity* suggests the optimal conservation strategy for South America begins by increasing the number of protected dryland areas, recognizing that the size of an area and number of taxa (particularly endemics) are related. Clearly, many species (including endemics) associated with Amazon rain forests are widely distributed and are shared with other major habitats. Comparing the two studies, however, is difficult given the vagueness in defining endemism and whether two or more ecoregions share species in the report by Ricklefs et al. (1999) (see also Samson and Knopf 1999).

Robinson in Ricklefs et al. (1999:69) describes "*The Most Threatened Birds of Continental America*" as the "grassland" birds and offers the following conservation measures (1) increase the number of prairie restoration sites, (2) maintain a network of grassland reserves, (3) remove encroaching woody vegetation, (4) maintain some areas that are not grazed or burned for at least three years, (5) remove drainage tiles to conserve wetlands, (6) develop grazing practices that provide both tall and short grass, (7) minimize early season mowing, (8) minimize early season mowing of Conservation Reserve Program lands, (9) aggregate Conservation Program lands into large areas, and (10) give special attention to coastal wintering grassland areas. Such recommendations for grassland bird conservation described by Robinson are not uncommon (see Knopf 1996).

An approach to conservation at the broad-scale is to identify and retain the set of species and ecological processes characteristic to a particular landscape (Knopf and Samson 1997b). The Nature Conservancy (Chaplin et al. 1996) has identified significant concentration of prairie species that are rare or declining. The criteria to identify the significant areas include continuous natural cover, concentrations of species occurrences, ecological representation (i.e., a significant portion of the ecological variability),

significant core area, area-linked protection (i.e., sufficient size), core viability enhancement (i.e., size adequate to permit natural processes to operate), environmental diversity (i.e., wide range of habitats), good design, and appropriate size.

The priority conservation areas Great Plains-wide identified by Chaplin et al. (1996) include (1) the upper Missouri and Yellowstone rivers and their watersheds in Montana and North Dakota, (2) Glacial Lake Agassiz in eastern North Dakota and western Minnesota (tallgrass prairie), (3) Black Hills and publicly owned grasslands in South Dakota and Wyoming (shortgrass and mixed prairie), (4) Sand Hills of Nebraska (largest dune formation in North America), (5) western high plains in Colorado, Nebraska, and Wyoming (shortgrass prairie); (6) Arikaree sandsage prairie in Colorado, Kansas, and Nebraska (which includes the rare cottonwood-switchgrass savannah), (7) central plains wetlands in Nebraska, Kansas and Oklahoma, (8) Flint Hills in Kansas and Oklahoma (tallgrass prairie), (9) Osage Cuestas tallgrass prairie in Kansas, (10) Upper Cimarron mesas in Colorado, Kansas, New Mexico, and Oklahoma, (11) Fort Worth (tallgrass prairie) in Oklahoma and Texas, (12) Texas hill country, and (13) central Platte River in Kansas, a shallow and braided river of immense wetland value. Several Forest Service administrative units are within areas identified as priority conservation areas. (Table 2).

There is an increasing understanding about the prairies of North America, including their distribution, composition, behavior, as well as their goods, services, and values (Risser 1996a). Significant portions of the prairie have been lost since the time of European settlement. Certain prairie species are reported to be declining at a rate greater than for any group in North America. Initial areas are identified for the conservation of biological diversity. In brief, the primary concerns for the Great Plains-wide include but are not limited to the following.

- The main bodies of prairie on the Great Plains include the tallgrass, mixed prairie, and shortgrass prairie. Since the 1830s, estimates of decline in the extent of prairie in states and provinces range from 82.6 to 99% for the tallgrass, 30.5 to 99% for the mixed prairie, and 20.0 to 82.5% for the shortgrass prairie.
- Based on habitat loss, the central tallgrass prairie and the Flint Hills tallgrass prairie in Kansas are considered to be globally outstanding (critical) in terms of need for conservation. The shortgrass prairie (northern portion) and the mixed prairie are considered to be globally endangered.
- The prairies of central North America are suggested to have been historically the western hemisphere counterpart of the Serengeti Plains of Africa with large herds of roaming ungulates including bison, elk, deer, pronghorn and a large allied carnivore assemblage including the grizzly bear, gray wolf, and coyote.
- The most threatened birds of continental America are reported to be the "grassland" birds and conservation recommendations for these species are available.

- Available broad-scale assessments suggest certain areas on the Great Plains to be important to the conservation of biological diversity.

Although there are gaps in our knowledge and understanding of prairies, a major challenge today is to establish the ecological (and social-economic) context to conserve the remaining prairie and associated plants and animals. Several existing assessments (U.S. Department of Interior National Biological Service 1995; The Nature Conservancy, Chaplin et al. 1996; and the USGS Biological Resources Division 1999--Mac et al. 1999) provide important information but fall short of providing both the ecological context and conservation recommendations required by certain agencies to satisfy legal and policy requirements.

In this review, additional ecological context and conservation recommendations are provided in order to revise U.S. Department of Agriculture Forest Service Land and Resource Management Plans, Northern Great Plains. The goal is rare terrestrial community and species viability.

The Coarse Filter

Providing for viable populations of native and desirable introduced species on federal lands is among the major public issues involving the management and conservation of natural resources (Grumbine 1990). Protection of sufficient habitat and the consideration of other factors that place species at risk requires that we fully consider and employ the most reliable and accurate scientific information and judgement available.

The strategies that influence environmental use are often broad in scale and are rarely spatially explicit or focused on individual species because of the unfeasibility and cost of implementation (Roughgarden 1997). A community and broad-scale approach to the conservation of biological diversity on public and private lands is the coarse filter (Baydack and Campa 1999). The coarse filter process is to delineate the planning area (Haufler et al. 1996), compare the distribution of existing communities to their presettlement patterns (Sharpe et al. 1987), and describe any change in disturbance regimes (Risser 1995).

The coarse filter approach to the maintenance of biological diversity contrasts sharply with the fine filter approach of conserving individual species (Gustafsen 1998). The majority of strategies developed for individual species are set up either because the species is endangered or because it is a game species (Arnold 1995). It is only through both the coarse filter and fine filter that viability for all plants and animal species is considered (Wall 1999).

The Planning Area

The Northern Great Plains Planning Area (NGP) covers about 76 million ha, extending from northern Nebraska across North Dakota to eastern Wyoming. NGP is within the Great Plains Steppe, Great Plains-Palouse Dry Steppe and Prairie Parkland Provinces described by Bailey (1996). Delineating the three Provinces is based on broad climate differences and correspond to the tallgrass prairie, mixed prairie and shortgrass prairie. Broad-scale provinces may be further divided into Sections based on geologic and climate differences. The Section level is the most directly related to the 10 National Forest System administrative units included in the NGP assessment (Table 2).

Tallgrass Prairie

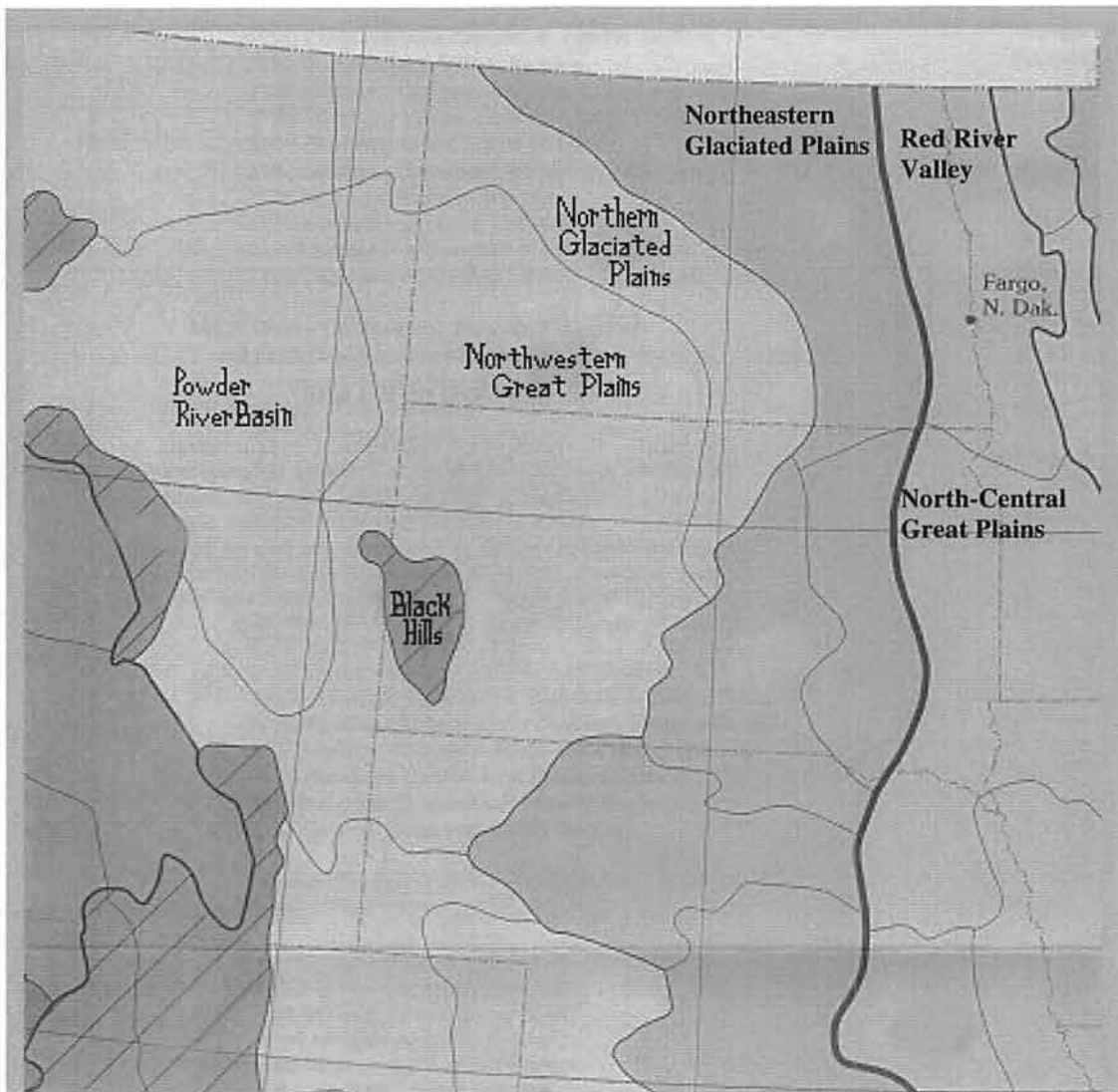
The Red River Valley Section encompasses the length of the Red River Valley (Figure 2). Kuchler (1964) potential vegetation types within this Section include bluestem prairie and northern flood plain forest. Precipitation ranges from 48-50 cm, the most mesic section within NGP. The Sheyenne National Grassland (NG) occurs in the southwest part of the Red River Valley Section, and differs physiographically from the rest of the Section. The Sheyenne NG, in part, is located on the Sheyenne River Delta, an area of low to high sand hills with sandy loam soils intermingled with lowlands and level deltaic plains.

Topographic position within the Sheyenne NG landscape appears to exert the primary influence on species distribution and plant community assemblages rather than soils. Oak savanna is found within the sand hills, while warm season tallgrass prairie species dominant the lower sand hills, deltaic plain and lowlands. Intermingled with warm season species are some cool season mid grass species, such as needle-and-thread grass (*Stipa comata*) and porcupine grass (*Stipa spartea*). On more disturbed sites, the invasive Kentucky bluegrass (*Poa pratensis*) and the native blue grama (*Bouteloua gracilis*) are dominant.

Mixed Prairie

The Northeastern Glaciated Plains Section is located on the Missouri Coteau, representing the eastern slope of the divide between the Hudson Bay Drainage and Missouri River Drainage (Figure 2). Physiography of the Section is level to undulating glacial till, glacial lake plains and other remnant glacial features composed of kettle holes, moraines and kames. This Section is a transitional zone between the tallgrass prairie to the east and the mixed grass prairie to the west. Kuchler (1964) and Barker and Whitman (1989) describes potential vegetation within the section as wheatgrass-bluestem-needlegrass association. The western part of the Sheyenne NG is a transition between the Northeastern Glaciated Plains Section and the Red River Valley Section. Vegetation patterns are determined more by topographic position relationships with changes in available moisture. Mixed prairie sites are dominated by warm and cool

Figure 2. Location and extent of ecological sections with the Northern Great Plains planning area.



season mid-grass species. Low prairie sites are dominated by warm season tallgrass species. Today, woody vegetation along the Sheyenne River Valley is dominated by American elm (*Ulmus americana*), green ash (*Fraxinus pennsylvanica*) and bur oak (*Quercus macrocarpa*). Snowberry (*Symphoricarpos occidentalis*) and Kentucky bluegrass are mostly found on disturbed sites.

The North Central Great Plains Section primarily in east central South Dakota (Figure 2) is comprised of level to gently rolling till plains and potholes. Kuchler (1964) described potential vegetation as wheatgrass-needlegrass prairie and wheatgrass-bluestem-needlegrass prairie.

The potential vegetation for Nebraska Sandhills Section located in north and central Nebraska is described as sandhills prairie (bluestem, prairie sandreed) and wheatgrass-bluestem-needlegrass plant associations (Kuchler 1964). Physiography is rolling to steep irregular sand dunes with stabilized vegetation and narrow, gently sloping valleys between dunes (Johnsgard 1995). Warm season tallgrass species are conspicuous, but floristic composition, percent cover characteristics, production capabilities and successional trends are different than eastern tallgrass prairies.

Vegetation patterns in the Nebraska Sandhills Section are determined by topographic position. Warm season tallgrass species share dominance with warm and cool season short and medium grass species on high and mid prairie sites. Warm season tallgrass species are dominant on the more mesic lowland prairie sites. Naturally occurring woodland vegetation is limited to ponderosa pine (*Pinus ponderosa*) on tertiary rock outcrops on the McKelvie Unit, and a planted forest on the Bessey Unit of the Nebraska National Forest.

Six of the 10 Forest Service administrative units are within the Northwestern Great Plains (Table 2) and located in western North Dakota, South Dakota, eastern Wyoming and northwestern Nebraska (Figure 2). The Section's physiography is composed of gently sloping to rolling plains, isolated flat topped buttes and badlands in western North Dakota and South Dakota. Kuchler (1964) described the potential vegetation here as wheatgrass-needlegrass association. This section has the greatest vegetation variation and spans the greatest elevational, longitude-latitude and climatic range of any section within the analysis area.

Vegetation of the Northwestern Great Plains Section is a mosaic of grassland, shrub steppe and woodland. Grasslands are dominated by cool season mid grass species. Severely disturbed sites have been converted to shortgrass dominance, primarily blue grama, cool season sedges and shortgrass species. Shrublands include big sagebrush (*Artemisia tridentata*), silver sagebrush (*Artemisia cana*) and skunkbrush (*Rhus trilobata*) on dry environments. Snowberry, buffaloberry (*Ribes odoratum*), shrubby cinquefoil (*Potentilla fruticosa*) grow on mesic environments. Ponderosa pine is primarily associated with isolated buttes in South Dakota and the pine ridge in northwest Nebraska. Rocky Mountain juniper (*Juniperus scopularum*) is associated with north aspect slopes in the North Dakota badlands. Deciduous trees are primarily green ash dominated wooded draws located in drainageways, draws and swales. Isolated communities of aspen (*Populus tremuloides*), paper birch (*Betula papyrifera*) and burr oak are also found within the subsection.

One administrative unit, the northern portion of the Little Missouri NG, is located within the Northern Glaciated Plains Section (Table 2). This Section includes gently undulating to rolling continental glacial till plains north and east of the Missouri River in northwestern and central North Dakota (Figure 2). Kuchler (1964) describes the potential

Table 2. Relationship of the main bodies of native grassland and ecological sections to National Forest (NF) and Grassland (NG) administrative units.

Prairie	Section	Administrative Unit
Tallgrass	Red River Valley	Sheyenne NG ^{1, 2}
Mixed	Northeastern Glaciated Plains	Sheyenne NG
	North-Central Great Plains	Ft. Pierre NG ¹
	Northwestern Great Plains	Little Missouri River NG ² Cedar River/Grand River NG ¹ Buffalo Gap NG Oglala NG Pine Ridge/Nebraska NF ² Little Missouri River NG ²
	Northern Glaciated Plains	Little Missouri River NG ²
Shortgrass	Powder River Basin	Thunder Basin NG ¹

¹ Administrative units located within priority conservation areas identified by The Nature Conservation (Chaplin et al. 1996).

² Administrative units located within priority conservation areas identified by The Nature Conservancy.

vegetation as wheatgrass-needlegrass association. Grassland vegetation is dominated by cool season mid grasses with inclusions of little bluestem on hill slopes with thin soils.

Existing and Historic Communities

Plant Communities

Estimates of existing vegetation and current land use patterns were provided by the University of Nebraska-Lincoln Center for Advanced Land Management Information Technology and were merged with vector coverages for the five Sections described in Table 2. Forest Service administrative unit boundaries were used to summarize land cover values within each unit, regardless of ownership, thus some private, state and other federal ownerships may be included in the Forest Service administrative unit summaries.

The conversion of native prairie and shrubland to other uses is extensive across the NGP assessment area, particularly in Sections associated with the tallgrass prairie (98% in the Red River Valley Section) and tallgrass prairie-mixed prairie transition (92% in the Northeastern Glaciated Plains Section) (Table 3). Less conversion is evident in the Nebraska Sandhills Section (18%), Powder River Basin (37%) and Northwestern Great Plains Section (38%).

Shortgrass Prairie

The Powder River Basin Section in southwest Montana and northeast Wyoming (Figure 2) represents the most xeric region of the analysis areas. Kuchler (1964) describes the potential vegetation as a grama-needlegrass-wheatgrass association. Shrub steppe dominated by big sagebrush is a dominant component on the landscape along with grassland vegetation composed of cool season mixed prairie and shortgrass species. Ponderosa pine is also a more common element on the landscape, associated with ridges, plateaus and buttes. The most striking aspect of this section is the increase in number of shrub dominated plant communities as compared with the Northwestern Great Plains Section and more eastern sections. The Thunderbasin NG is the sole administrative unit in the Powder River Basin Section (Table 2).

In brief, the Planning Area is characterized by the following.

- The tallgrass prairie is represented in one administrative unit, the mixed prairie in 8 administrative units, and shortgrass in one administrative unit.
- The mixed prairie is a transitional zone between the tallgrass prairie to the east and the mixed grass prairie to the west, and is varied in topography and vegetation.
- The Thunderbasin NG includes areas of shrub steppe dominated by big sagebrush and there is an increase in number of shrub dominated plant communities as compared with the Northwestern Great Plains Section and more eastern sections. Ponderosa pine is also a more common element on the landscape, associated with ridges, plateaus and buttes.

In 1997, The Nature Conservancy supported the development of a grassland map for the Northern Great Plains. The map is based on AVHRR one square kilometer satellite imagery. Results suggest: (1) few "intact" grasslands exist in North Dakota, only three polygons or about 7% of the state of North Dakota; (2) about one-third of the polygons in western South Dakota have "intact" grasslands; (3) grasslands in Nebraska "are concentrated in the Sand Hill region;" and (4) Wyoming has the fewest number of "intact" grassland polygons and those are largely located along the border of Wyoming and Montana.

The results provided by The Nature Conservancy in 1997 and those shown in Table 3 developed as part of the terrestrial assessment are similar. Few native grasslands remain in eastern North Dakota. Relatively large areas of grassland exist in western South Dakota and northwestern Nebraska and smaller areas persist in northeastern Wyoming. In either case, caution is necessary in describing grasslands as "native." No information in either assessment is provided as to the number and extent of invasive plant species nor are many non-grassland inclusions evident in AVHRR-based maps.

Table 3. Current land cover and use in the Northern Great Plains assessment area. Cover and land use includes grassland (GA), shrub (SH), shrub-steppe (SS), deciduous forest (DF), evergreen forest (EF), mixed forest (MF), water (WA), wetland (WE), barren (BL), and urban (UR). Area is in km².

Cover and Land Use											
Section	GA	SH	SS	DF	EF	MF	WA	WE	BL	UR	CR
Red River Valley	384.4	4.0	461.3	461.3			72.8	125.4	20.2	303.5	2063.9
Northeastern Glaciated Plains	5256.8	24.2	909.0	1143.3	4.0	12.1	1333.2	1175.6	64.1	298.9	61949.4
North-Central Great Plains	13129.8	68.7	222.2	432.3	323.2	28.3	589.8	266.6	60.6	109.1	272380.8
Nebraska Sandhills	39309.2		8.0	8.0	141.4	20.2	210.1	327.2	16.4	48.5	8314.3
Northwestern Great Plains	97796.2	3850.1	24417.8	747.4	5910.5	32.3	1551.4	2246.2	563.0	606.0	59291.0
Northern Glaciated Plains	17368.0	892.8	2727.0	250.5			2783.6	573.7	109.1	226.2	44661.2
Powder River Basin	29063.8	16067.1	39878.8	298.0	12738.1	4.0	290.9	290.9	290.9	351.5	17109.4

Climate, herbivory and fire influence habitat structure and the distribution of prairie plants and wildlife (Risser 1996a). Variation in the Great Plains climate is well documented and largely beyond the scope of public land and resource management (Hinckley 1995). Impacts of herbivory on grassland plant community structure is

estimated by sampling and recording visual obstruction readings (VORs) (Sousa 1984 and others). VOR measurements describe grassland structure important to many plant and wildlife species. The pattern in grassland structure across 8 of 10 administrative units within NGP is one of homogeneity—few areas with low or high structure with the majority of measurements falling in the moderate category (Table 5).

Table 4. Comparison and percent of cover and land use by administrative unit within the ecological sections. Cover and land use includes grassland (GA), shrub (SH), shrub-steppe (SS), deciduous forest (DF), evergreen forest (EF), mixed forest (MF), water (WA), wetland (WE), barren (BL), and urban (UR). Area is in km².

Cover and Land Use									
Section and Unit	GA	SH	SS	DF	EF	WA	WE	BL	CR
Red River Valley Sheyene NG	198.0 (52%)		28.3 (78%)						145.4 (1%)
Northeastern Glaciated Plains Sheyenne NG	84.8 (2%)			8.1 (1%)					
Northcentral Great Plains Ft. Pierre NG	299.0 (2%)								335.3 (1%)
Northwestern Great Plains									
Little Missouri NG	1474.6		5183.3	56.6					981.7
Cedar River NG	573.7		4.0						299.0
Grand River NG	1139.3		4.0						678.7
Ft. Pierre NG	105.0								97.0
Buffalo Gap NG	105.0							630.2	173.7
Oglala NG	3652.2	4.0	8.1	8.1	36.7	4.0	44.4	157.6	323.2
Pine Ridge RD	80.8 (21%)	12.1 (1%)			250.5 (7%)				181.8 (5%)
			(23%)	(11%)		(2%)	(23%)	(35%)	
Powder River Basin Thunder Basin NG									

Vertebrate Communities

The distribution and abundance of bison is of great interest to archeologists reconstructing human history on the Great Plains since the glacial retreat. Specific questions include whether the nature of the changes in human settlement and hunting patterns influenced the behavior of bison, particularly herding and migration patterns (Bamforth 1987).

Gunnerson (1972) argued the size and nature of large bison herds may have slowed permanent Native American colonization of the Great Plains due to trampling and other

Table 5. Comparison of visual obstruction readings in fall on National Forest Ranger Districts (RD) and Grassland (NG) administrative units on the Northern Great Plains.

Visual Obstruction Readings (inches)					
National Forest or Unit	Samples (No.)	Low	Moderate	High	Potential
Sheyenne NG ¹		<2.0	2-5.9	6.0-7.9	>8.0
1994	2663	26	41	15	9
1997	4528	14	61	13	13
Ft. Pierre NG ¹		<2.0	2-3.9	4.0-5.9	>6.0
1992	16,648		61	27	11
1993	16,836		46	42	13
1994	17,103	2	65	15	19
1995	16,803	2	71	13	13
1996	15,159	1	77	11	12
1997	16,872	3	41	42	13
McKelvie RD ¹		<2.0	2.0-2.9	3.0-3.4	>3.5
1987	14,300	12	77	11	
1988	14,300	18	73	8	
1989	14,300	12	72	26	
1991	21,491		76	19	
Buffalo Gap NG ¹		<2.0	2.0-2.5	2.5-2.9	>2.9
1995	28,174	14	30	28	28
1996	25,148	12	36	32	20
Grand River NG ²		<2.0	2.0-2.9	3.0-3.9	>4.0
1992	79	20	49	24	6
1996	65	48	49	3	
1997	91	53	40	7	1
Little Missouri NG ²		<2.0	2.0-2.9	3.0-3.9	>4.0
1996	302	52	36	9	7
1997	316	61	31	7	2
Oglala NG ²		<2.0	2.0-2.9	3.0-3.9	>4.0
1994		96	4		4
1995		57	25	14	7
1996		71	11	11	

¹ Total acres sampled and based on percent of area by VOR class.

² Number of transects and based on percent of transects.

impacts on earth-dwelling horticulturists. Native American long-term investments are evident at fixed locations (buffalo jumps or jumpcorrals) suggesting a strategy to lessen the effects of winter-spring food shortages (Niven and Hill 1998). On the other hand, Bozell (1995) suggests the interaction climate and related resource (maize agriculture) depletion were the most significant variables in the close and persistent association between bison and Central Plains Native Americans.

Native American hunting of bison may have influenced tribal social organization (Bozell 1995), development of hunting tools, and means of transportation (Gunnerson 1972). Effects of such hunting on bison numbers and distribution is considered minimal by Malaney and Sherriff (1996). On the other hand, the horse in combination with a firearm may have contributed to increased harvest of bison for tongue by Native Americans which, in turn, was traded for alcohol and related items. An example was the trade of 1400 fresh buffalo tongues for whiskey by the Sioux Indians observed by George Catlin, Fort Pierre, South Dakota, in 1832 (in McHugh 1972).

By 1720, European diseases reached the Great Plains. Nearly one-third of the Native American villages were empty by 1780, reports of annual disease-related mortality reached 22,500 to 30,000 in 1780-81, and Native American influences on vertebrate (and plant) communities began to decline (Ramenofsky 1987).

Shaw and Lee (1997) reviewed diaries of European travels in the southern Great Plains from 1806 to 1857. Organized by historical period and biome type, the authors suggest populations of three major and large herbivores—bison, elk and pronghorn—changed in the first half of the nineteenth century; (1) bison and elk disappeared from the tallgrass prairie regions by 1833, (2) bison were most numerous on the shortgrass prairie prior to 1821, (3) the most stable populations throughout the period being bison on the mixed prairie, (4) elk were most abundant on the tallgrass prairie, and (5) pronghorn were most abundant on the shortgrass prairie between 1806 and 1820, again in the 1850s, and were abundant on the mixed prairie in the intervening period of 1820 to 1850.

Shaw and Lee (1997) concluded that human influence was the important influence on populations of the three major large herbivores, particularly for the lack of bison on the tallgrass prairie (after 1833) and the persistence of all three species on the mixed prairie was influenced by that biome's distance to human populations encroaching from the east and the west.

Bamforth (1987) suggested that bison herds under relatively undisturbed conditions (<1846) most often ranged in size from several hundred to several thousand. The large herds which took days to cross and extended from horizon to horizon (>1870) are well after the substantive impact of Europeans on the Great Plains. Bamforth's analysis showed bison use of an individual area by an "abundant," "plentiful" or "large" herd varied from 1 to 18 years from 1776 to 1846 versus 1 to 3 years from 1846 to 1875--the influence of increasing European populations and actions.

Hanson (1984) suggested large herds were present year-around in North Dakota and predictable seasonal herd movements were lacking. Malainey and Sherriff (1996) provide an exhaustive review of historic records in southern Canada from 1754 to 1805 and suggest otherwise; that herd movements were predictable such that numbers of bison wintering on grasslands drew parkland and forest-adapted native tribes onto the grasslands in winter, assured of finding a predictable food source. Assessment of bison foraging and movement patterns via stable-carbon analysis in preserved bone collagen suggests bison seasonal movements were made between the plains and the parkland in Alberta (Chisholm et al. 1986).

Among the first Europeans to visit the mixed prairie was J. MacKay who in the late 1700s traveled along a river (the Niobrara) near Valentine Nebraska. MacKay described the landscape as a "great desert of drifting sand without trees, soil, rocks, water or animals of any kind, except little varied colored turtles, of which were in vast numbers" (Cherry County); and said "there were many wild oxen (buffalo) in summer and autumn (Loup County) and many beaver in Elkhorn River" and grizzly bears were common (Bogan 1997:109).

Based on Hayden (1855-57), Warren (1857), and Baird (1857), Bogan (1997) suggests 47 species of mammals were extant in the early 1800's in central Nebraska (Table 6). Since then, ten species, generally large herbivores and wide-ranging carnivores, were extirpated from the area, eight species have invaded, three have been introduced, and three are possible occurrences.

For the tallgrass prairie, the demise of the large native herbivore assemblages was evident by 1833 (Shaw and Lee 1997). In 1843 near Ft. Union (shortgrass prairie), John James Audubon (in 1846) recorded "even now there is a perceptible difference in the size of the herds, and before many years the buffalo, like the Great Auk, will have disappeared" (McFarling 1955). Hayden in 1855-1857 observed many of the large mammals (buffalo, elk, deer, pronghorn, and bighorn) in the Upper Missouri region (shortgrass and mixed prairie).

Table 6. Species of Mammals of the Northern Sandhills (Bogan 1997)

Extant Species

Sorex cinereus – masked shrew
Blarina brevicauda – northern short-tailed shrew
Cryptotis parva – least shrew
Scalopus aquaticus – eastern mole
Myotis ciliolabrum – western small-footed myotis
Myotis septentrionalis – northern myotis
Lasiurus borealis – eastern red bat
Lasiurus cinereus – hoary bat
Lasionycteris noctivagans – silver-haired bat
Eptesicus fuscus – big brown bat
Tadarida brasiliensis – Brazilian free-tailed bat
Sylvilagus audubonii – desert cottontail
Sylvilagus floridanus – eastern cottontail

Extant Species (continued)

Taxidea taxus – badger
Mephitis mephitis – striped skunk
Lutra canadensis – northern river otter
Lynx rufus – bobcat
Odocoileus hemionus – mule deer
Odocoileus virginianus – white-tailed deer
Antilocapra americana – pronghorn

Extirpated Species

Canis lupus – gray wolf
Ursus americanus – black bear
Ursus arctos – grizzly bear
Mustela nigripes – black-footed ferret

<i>Lepus townsendii</i> – white-tailed jackrabbit	<i>Gulo gulo</i> – wolverine
<i>Spermophilus spilosoma</i> – spotted ground squirrel	<i>Felis concolor</i> – mountain lion
<i>Spermophilus tridecemlineatus</i> – thirteen-lined ground squirrel	<i>Lynx lynx</i> – lynx
<i>Cynomys ludovicianus</i> – black-tailed prairie dog	<i>Cervus elaphus</i> – wapiti or elk
<i>Geomys bursarius</i> – plains pocket gopher	<i>Bison bison</i> – bison
<i>Perognathus fasciatus</i> – olive-backed pocket mouse	<i>Ovis Canadensis</i> – bighorn sheep
<i>Perognathus flavescens</i> – plains pocket mouse	<u>Invading Species</u>
<i>Chaetodipus hispidus</i> – hispid pocket mouse	<i>Didelphis virginiana</i> – Virginia opossum
<i>Dipodomys ordii</i> – Ord's kangaroo rat	<i>Lepus californicus</i> – black-tailed jackrabbit
<i>Castor canadensis</i> – beaver	<i>Marmota monax</i> – woodchuck
<i>Reithrodontomys megalotis</i> – western harvest mouse	<i>Sciurus niger</i> – eastern fox squirrel
<i>Reithrodontomys montanus</i> – plains harvest mouse	<i>Procyon lotor</i> – raccoon
<i>Peromyscus leucopus</i> – white-footed mouse	<i>Spilogale putorius</i> – eastern spotted skunk
<i>Peromyscus maniculatus</i> – deer mouse	<i>Vulpes vulpes</i> – red fox
<i>Onychomys leucogaster</i> – northern grasshopper mouse	<i>Urocyon cinereoargenteus</i> – gray fox
<i>Neotoma floridana</i> – eastern woodrat	
<i>Microtus ochrogaster</i> – prairie vole	<u>Introduced Species</u>
<i>Microtus pennsylvanicus</i> – meadow vole	<i>Sciurus carolinensis</i> – eastern grey squirrel
<i>Ondatra zibethicus</i> – muskrat	<i>Mus musculus</i> – house mouse
<i>Synaptomys cooperi</i> – southern bog lemming	<i>Rattus norvegicus</i> – Norway rat
<i>Zapus hudsonius</i> – meadow jumping mouse	
<i>Erethizon dorsatum</i> – porcupine	<u>Species of Possible Occurrence</u>
<i>Canis latrans</i> – coyote	<i>Sorex merriami</i> – Merriam's shrew
<i>Vulpes velox</i> – swift fox	<i>Spermophilus franklinii</i> – Franklin's ground squirrel
<i>Mustela frenata</i> – long tailed weasel	<i>Perognathus flavus</i> – silky pocket mouse
<i>Mustela nivalis</i> – least weasel	
<i>Mustela vison</i> – mink	

were "fast passing away, and in a few years must become extinct" (cited in Warren 1875:90-91).

Two important historical survey records for the NGP are those for the railroad to connect the Mississippi and the Pacific and of the 49th parallel separating the United States and Canada. In 1858, *Reports of Explorations and Surveys to Ascertain the Most Practical and Economic Route for a Railroad from the Mississippi River to the Pacific Ocean* were published (Henry 1858). Spencer F. Baird in cooperation with John Cassin and George Lawrence provide "a systematic account of the vertebrate animals of North America, collected or observed by different parties organized under the direction of the

Table 7. List of species collected during the explorations and surveys to determine the route for a railroad from the Mississippi River to the Pacific Ocean (Henry 1858) or observed during the survey of the Dakota-Canada border in 1873 and 1874 (Coues 1878). Species associated with the Turtle Mountains in North Dakota observed during 1873 and 1874 are excluded. Species with an indentation are considered subspecies to the preceding species. Scientific names remain as observed (1854-1874) but current English names are provided. Species designated by superscript were observed near the main bodies of grassland.

Cathartes aura, (Linn.) Illg. turkey vulture
Falco (Falco) anatum, Bonaparte. peregrine falcon
Falco (Gennaia) polyagrus, Cassin. prairie falcon
Falco (Tinnunculus) americanus, Linn. American kestrel
Buteo swainsoni, Bonap. Swainson's hawk
Buteo (Poecilopterus) borealis, (Gmelin,) Vieill. red-tailed hawk
 Buteo (Poecilopterus) montanus, Nuttall.
Archibuteo lagopus, (Brunnich,) Gray. rough-legged hawk
Buteo (Leucopternis) insignatus, Cassin. ferruginous hawk
Circus hudsonius, (Linn.) Vieillot. northern harrier
Aquila canadensis, (Linn.) Cassin. golden eagle
Haliaeetus leucocephalus, (Linn.) Savigny. bald eagle
Otus wilsonianus, Lesson. long-eared owl
Brachyotus cassinii, Brewer. short-eared owl
Athene hypugaea, Bonap. burrowing owl
 Athene cunicularia, (Molina,) Bon.
Nyctea nivosa, (Daud.) Gray. snowy owl
Coccyzus americanus, (Linn.) Bonap. yellow-billed cuckoo
Coccyzus erythrophthalmus, (Wils.) Bon. black-billed cuckoo
Neocorys spraguei, (Sclater), Sprague's pipit
Melanerpes erythrocephalus, (Linn.) Sw. red-headed woodpecker
Melanerpes torquatus, (Wils.) Bonap. Lewis' woodpecker
Colaptes auratus, (Linn.) northern flicker
 Colaptes hybridus, Baird. Cross between Flicker and Red-shafted Flicker (?)
Chordeiles popetue, (Vieill.) Baird. common night hawk
Tyrannus verticalis, Say. western kingbird
Sayornis sayi, (Bon.) Baird. Say's phoebe
Contopus richardsonii, (Sw.) Baird. western wood-pewee
Sialia sialis, (Linn.) Baird. eastern bluebird
Hirundo lunifrons, Say. cliff swallow
Progne subis, (Linn.) Boie. purple martin
Collyrio excubitoroides, (Sw.) Baird. northern shrike
 Collyrio elegans, (Sw.) white-winged shrike
Salpinctes obsoletus, (Say,) Cab. Rock Wren
Cistothorus (Telmatochlamys) palustris, (Wils.) Cab. marsh wren
Cistothorus (Cistothorus) stellaris, (Licht.) Cab. sedge marsh wren
Troglodytes aedon, Vieill. House wren
Poliophtila caerulea, (Linn.) Sclat. blue-gray gnatcatcher
Eremophila alpestris, (Wils.) Boie. horned lark
Pooecetes gramineus, (Gm.) Baird. vesper sparrow
Coturniculus passerinus, (Wils.) Bon. chipping sparrow
Coturniculus henslowi, (Aud.) Bon. Henslow's sparrow
Coturniculus lecontei, (Aud.) Bp. Le Conte's sparrow
Zonotrichia leucophrys, (Forster,) Sw. white-crowned Sparrow
Junco oreganus, (Townsend) Scalt. dark-eyed junco
Spizella monticola, (Gm.) Baird. American tree sparrow
Spizella pusilla, (Wils.) Bon. field sparrow
Spizella pallida, (Sw.) Bon. clay-colored sparrow
Melospiza (Melospiza) melodia, (Wils.) Baird. song sparrow
 Melospiza (Melospiza) fallax, Baird.
Melospiza (Melospiza) lincolnii, (Aud.) Baird. Lincoln's sparrow
Passerculus bairdi, (Aud.), Coues. Baird's sparrow
Pooecetes gramineus, (Baird). grasshopper sparrow
Calamospiza bicolor, (Townsend) Bon. lark bunting
Euspiza Americana, (Gm.) Bon. dickcissel
Plectrophanes ornatus, Townsend. chestnut-collared longspur

Plectrophanes pictus, (Swainson). McCown's longspur
Guiraca (Goniaphea) melanocephala, Sw. black-headed grosbeak
Guiraca caerulea, (Linn.) Sw. blue Grosbeak
Dolichonyx oryzivorus, (Linn.) Sw. Boblink
Molothrus pectoris, (Gm.) Sw. brown-headed cow bird
Agelaius phoeniceus (Linn.) Vieill. Red-winged blackbird
Xanthocephalus icterocephalus, (Bon.) Baird. Yellow-headed blackbird
Eremophila alpestris leucolema, Coues. Prairie horned lark
Sturnella magna, (Linn.) Eastern meadowlark
Sturnella neglecta, Aud. Western meadowlark
Icterus spurius, (Linn.) Bon. orchard oriole
Icterus bullockii, (Sw.) Bon. northern oriole
Icterus Baltimore, (Linn.) Daudin. Baltimore oriole
Corvus carnivorus, Bartram. common raven
Picicorvus columbianus, (Wils.) Bon. Clark's nutcracker
Pica hudsonica, (Sabine,) Bon. Black-billed magpie
Centrocercus urophasianus, (Bon.) Sw. sage grouse
Pedioecetes phasianellus, (Linn.) Baird. sharp-tailed grouse
Cupidonia cupido, (Linn.) Baird. greater prairie chicken
Grus canadensis, (Linn.) Temm. sandhill crane
Botaurus lentiginosus, Steph. American bittern
Charadrius virginicus, Borck. American golden-plover
Totanus semipalmatus, (Gm.) Temm. willet
Aegialitis (Oxyechus) vociferous, (Linn.) Cassin. killdeer
Aegialitis (Oxyechus) montanus, (Towns) Cassin. mountain plover
Aegialitis (Aegialeus) melodus, (Ord.) Cab. piping plover
Recurvirostra Americana, Gm. American avocet
Phalaropus wilsonii, Sab. Wilson's phalarope
Philohela minor, (Gm.) Gray. American woodcock
Ereunetes pusillus, (Linn.) Cass. semipalmated sandpiper
Gambetta melanoleuca, (Gm.) Bon. greater yellowlegs
Gambetta flavipes, (Gm.) Bon. lesser yellowlegs
Tringoides macularius, (Linn.) spotted sandpiper
Limosa fedoa. marbled godwit
Actiturus bartamius, (Wils.) Bon. upland sandpiper
Numenius longirostris (Wilson). long-billed curlew
Dafila acuta, (Linn.) Jenyns. northern pintail
Mergus cucullatus, Linn. hooded merganser
Anas boschas (linn.). mallard
Querquedula carolinesis, (Gm.) Steph. green-winged teal
Fulica americana, Gm. American coot
Querquedula discors, (Linn.) Steph. blue-winged teal
Spatula clypeata, (Linn.) Boie. northern soveller
Mareca Americana, (Gm.) Stephens. American widgeon
Erimatura rubida, (Wils.) Bon. ruddy duck
Chroicocephalus franklinii, (Rich.) Bruch. Franklin's gull
Sterna frenata, Gambel. least tern

Collected or observed along the periphery of the main grassland bodies.

Centurus carolinus, (Linn.) Bon. red-bellied woodpecker ¹
Turdus (Turdus) nanus, Aud. hermit thrush ²
Turdus (Turdus) swainsonii, Cab. Swainson's thrush ³
Setophaga ruticilla, (Linn.) Sw. American redstart ¹
Hirundo erythrogastra horreorum. barn swallow ⁸
Parus montanus, Gambel. mountain chickadee ³

Chrysomitris tristis, (Linn.) Bon. American goldfinch ⁴
Chrysomitris pinus, (Wils.) Bon. pine siskin ⁴
Passerculus savanna, (Wils.) Bon. savannah sparrow ^{2,5}
Chondestes grammacus, (Say.) Bon. lark sparrow ³
Zonotrichia querula, (Nutt.) Gamb. Harris's sparrow ⁶
Zonotrichia albicollis, (Gm.) Bon. white-throated sparrow ^{2,5}
Melospiza (Helospiza) palustris, (Wils.) Baird. swamp Sparrow ²
Plectrophanes lapponicus, (Linn.) Selby. lapland longspur ⁸
Guiraca (Goniaphea) ludoviciana, (Linn.) Sw. Rose-breasted Grosbeak ²
Cyanospiza amoena, (Say.) Baird. lazuli bunting ⁷
Anthus ludovicianus, (Gm.) Licht. American water pipit ⁸
Hydrochelidon lariformes, (Linn.) Coues. black tern ⁸
Podiceps auritus californicus, (Heerm.) Coues. eared grebe ⁸
Podilymbus podiceps, (Linn.) Lawr. pied-billed grebe ⁸
Branta canadensis, (Linn.) Gray. Canada goose ⁹

Taxa yet to be identified using current common names.

Accipiter mexicanus, Swainson
Buteo bairdii, Hoy. Baird's Buzzard
Buteo (Poecilopternis) elegans, Cassin
Tyrannus carolinensis, (Linn.) Baird. King Bird
Harporhynchus rufus, (Linn.) Cab. Brown Thrush
Plectrophanes (Centrophanes) melanomus, Baird.
Pipilo arcticus, Sw.
Macrorhamphus griseus, (Gm.) Leach. Red-breasted snipe
Tringa (Actodromas) Bonapartii, Schlegel.
Hydrochelidon plumbea, (Wils.) Short-tailed Tern

- ¹ Mouth of the Platte River
- ² Mouth of Vermillion River
- ³ Near Fort Laramie
- ⁴ Mouth of Little Missouri River
- ⁵ Mouth of Sioux River
- ⁶ Near Missouri River
- ⁷ Near Fort Union
- ⁸ Near Fort Pierre
- ⁹ Missouri River

Table 8. Bird species endemic to or closely associated with grasslands.

Endemics

Ferruginous hawk
 Mountain plover
 Marbled godwit
 Franklin's gull
 Wilson's phalarope
 Long-billed curlew
 Sprague's pipit
 Cassin's sparrow¹
 Baird's sparrow

Lark bunting
McCown's longspur
Chestnut-collared longspur

Secondary (more widespread) Species

Mississippi kite¹
Swainson's hawk
Northern harrier
Prairie falcon
Greater prairie chicken
Lesser prairie chicken¹
Sharp-tailed grouse
Upland sandpiper
Burrowing owl
Short-eared owl
Horned lark
Eastern meadowlark¹
Western meadowlark
Dickcissel
Savannah sparrow
Grasshopper sparrow
Henslow's sparrow¹
Vesper sparrow
Lark sparrow
Clay-colored sparrow

¹ Distribution not within the Northern Great Plains.

War Department for ascertaining the best route for a railroad from the Mississippi River to the Pacific Ocean" (preface). The second summary is from the survey of the Dakota-Montana and Canadian border reported by Coues (1878).

From 1840 to 1855, 119 bird species were collected on the NGP or along its periphery in determining the route for a railroad from the Mississippi River to the Pacific Ocean or during the 1873-74 survey of the Dakota-Canada border (Table 7). Ninety-eight bird species were collected or observed on the main grassland bodies or on interior wetlands. Twenty-one species, observed along the Missouri River, near the mouth of the Vermillion River, or near edges of the Black Hills, are associated with the eastern deciduous forest or western coniferous forest. Ten taxa are yet to be identified based on current taxonomy.

Comparison of the 330 species that breed today on the Great Plains (Knopf and Samson 1999) to those recorded by Spencer F. Baird, John Cassin, George Lawrence, and Elliot Coues (1856-1874) suggests (1) major increases in the number of birds historically associated with the eastern deciduous forest, (2) major increases in the number of birds

historically associated with the western coniferous forests, and (3) overall increases in generalist species, particularly those associated with riparian systems.

Mengel (1970) suggested that only 12 bird species are endemic to the Great Plains (Table 7). An additional 25 species listed in Table 8 are believed to have evolved on the Great Plains, though they range into adjoining vegetation provinces (Knopf 1996). Thirty-five species endemic or closely associated with the grasslands were observed in the 1856 or 1873-74 surveys within the main grassland bodies, two were recorded along the periphery. The endemic species are: (1) primarily shortgrass or shortgrass-- mixed prairie associates; (2) evolved with the large native herbivore assemblages of the western Great Plains; and (3) exhibit steeper, more consistent and widespread declines than any other behavioral or ecological guild of North American species.

In brief, comparison of existing and historic plant and animal communities shows the following.

- Within the planning area, conversion of native prairie and shrubland to cropland and other uses is from 98% for the tallgrass, 92% for tallgrass-mixed prairie transition, 38% for the mixed prairie, 37% for the shortgrass prairie, and 18% for the Sandhills.
- Within their respective Ecological Sections, National Grasslands contain a high proportion of remaining tallgrass prairie (52%), less so for mixed prairie (2% to 21%) and shortgrass prairie (21%).
- Historic records suggest bison were not evenly distributed across the prairie and left large areas ungrazed for one to several years. Today vegetation structure on public grasslands has been "homogenized," with little "short" or "tall" structure exists.
- Evident changes in animal communities include (1) a 20% loss in the number of mammal species since the early 1800s, (2) significant and widespread declines in numbers and distributions of endemic bird species, and (3) major increases in number of bird species associated with the eastern deciduous forest and western coniferous forests.
- Prairie animal communities were highly modified by European-related presence and activities by 1833 for the tallgrass prairie and by 1846 for the shortgrass and mixed prairie.

Change in Disturbance Regimes

The missing element and most essential issue in conservation today is the role of ecological processes (Smith et al. 1993). Emphasis on landscape pattern alone and not

the ecological processes that provide an evolutionary and ecological context for species falls short of that needed for conservation of species and communities (Holling 1992).

Ecological disturbances on the Great Plains include drought, grazing and fire (Knopf and Samson 1997). The Great Plains evolved in the rain shadow of the Rocky Mountains, where seasonal precipitation occurs mostly in spring and summer. From the Rocky Mountains east to the Mississippi River, the amount of precipitation increases and the frequency of drought decreases (Simms 1988). Along the north-south gradient from central Texas to south-central Canada, the growing season becomes shorter, the average temperature decreases, and a greater percentage of annual precipitation occurs as snow.

Broad-scale climate gradients significantly influence the evolutionary composition and distribution of prairie communities (Steinauer and Collins 1996). Such average rates, however, are only the partial drivers for prairie composition. Rather, the inherent unpredictable of precipitation among years is an important influence and severe droughts can cause massive local extinctions of annual forbs and grasses that have invaded stands of perennial stands, and recolonization of those sites is slow.

Expression of ungulate herbivory and habitat selection at several scales impact spatial and temporal patterns of plant communities on the Great Plains (Hartnett et al. 1997). Herbivory and grasslands on the Great Plains have a long and close relationship extending over several million years (Cid et al. 1989). From an ecological perspective, significant recent (>1800) changes to the Great Plains landscape resulted from (1) the reduction in the number and distribution of native herbivores and their replacement with domestic livestock--species adapted to the more mesic, wooded environments of Europe, (2) the suppression of fire, and (3) altering natural hydrologic and other processes.

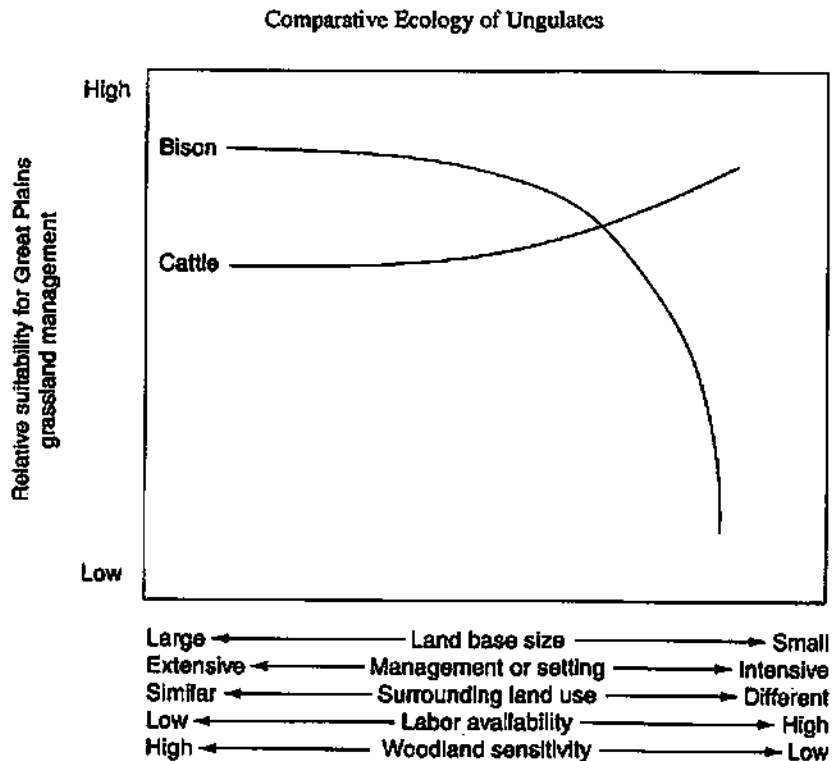
Bison historically moved nomadically in response to vegetation changes associated with rainfall and fire. The time lag for return movements provided deferment during the regrowth period for which according to both historic and archeological records may have ranged from 1 to 8 years. This interval would have provided a natural "rest" interval and is consistent with spatial heterogeneity models that suggest stability in plant-herbivore interactions (Coughenour 1991). Variation in landscape use by bison is evident in the following historical records.

"that every part of the country, which we had recently passed, had, at no distant period, been occupied by innumerable herds of bisons...(and the Platte valley) extending more than one hundred miles along that river, being a vast expanse, or natural meadow, without a hill or other inequality of surface, with scarce a tree or a shrub to be seen upon it" (S. H. Long 1820, cited in Thwaites);

Hancock, in 1845 observed great herds "at the Parkman Crossing," while Palmer in 1846 for the same site wrote "Four days on the Platte, and yet no buffalo! Last years signs of them were provokingly abundant" (cited in Roe 1955:555). Moreover, Parkman noted "not a buffalo nor an indian was visible for many miles...yet the ground was thickly

strewn with the skulls and bones of buffalo" suggesting intermittent use (cited in Roe 1955).

Figure 3. Scale-dependent suitability of bison and domestic cattle on the Great Plains (after Plumb and Dodd 1993, Hartnett et al. 1997).



In 1847, the narratives of the trans-Mississippi frontier edited by Phillips include *Diaries in Overland in 1846 Diaries and Letters of the California-Oregon Trail* (Morgan 1963) note:

(along the Platte River) "you find willow in quantities quite sufficient for fuel when this is not the case the travailor is oblidged as a substitute to use dried excrement of buffaloes...At about 4 or 5 days travail up river the travailor usually finds buffaloe in great qauntity...travailed 8 miles, travailed 16 miles up Blue, traveled at the Nebraska (Platte River), to day we saw a party of pawnees some hunters quite friendly distance 18 miles, traveled 8 miles, travailed 20 miles Saw and Killed some buffalo, traveled 18 miles and saw thousands of buffaloe" (Taylor diary);

Buffaloe plentiful...June 10 Buffalo in sight constantly...June 11-23, no buffalo and leave the prairie (Pringle dairy); and

Reed and Keyes diary (200 miles short of Ft. Laramie in a hunting party) found "no wood here for heat," and "regularly killed elk, and riding about 4 miles found buffaloe."

And, west of the Red River (in southern Canada) was a continuous level plain, "Not a tree or rising ground is to be met with to interrupt this view (Henry the Younger in 1800) although bison were uncommon that year (cited in Malainey and Sherriff 1996:339).

Tallgrass Prairie

The keystone role of bison in North American tallgrass prairie is known (Knapp et al. 1999). Effects of bison grazing often in conjunction with fire include the long-term performance of important tallgrass prairie forbs (Ewing and Engle 1988); plant community composition (Vinton et al. 1993); water response by key forbs and grasses (Briggs and Knapp 1995); growth, reproduction and abundances of prairie forbs (Damhoureyeh and Hartnett 1997); wallows on inherent landscape heterogeneity; and climatic variation and vegetation (Coppedge et al. 1998).

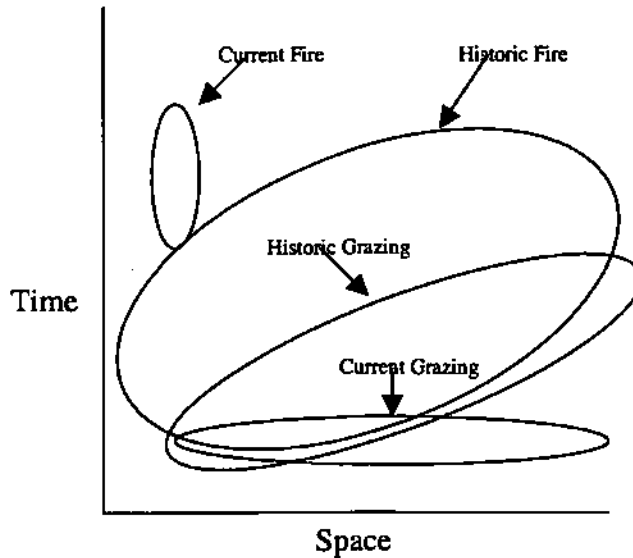
Overall, plant growth form, population size structure, and fire interact to influence patterns in grazing on the tallgrass prairie (Pfeiffer 1995). Increases in plant diversity associated with bison are generally greater in annually burned than in 4-year burned sites (Hartnett et al. 1997). Timing of fire is important to growth and reproduction of tallgrass prairie plants (Masters et al. 1993), persistence of individual plant species (Hartnett 1991), earthworms (James 1982), grasshopper assemblages (Evans 1984), gall wasps mortality (Fay and Samenus 1993), soil insect densities (Seastadt and Reddy 1996), bison grazing (Coppedge and Shaw 1998), and prairie microclimate and community composition (Ewing and Engle 1988).

Fire in the tallgrass prairie further influences tree spatial community heterogeneity (Collins 1992), community patterns (Briggs and Gibson 1992), ascomycete development (Wicklow 1975), arbuscular (Hartnett et al. 1999) and other mycorrhizas (Gibson and Hetrick 1989), primary productivity (Briggs and Knapp 1995), leaf structure and photosynthetic pigments (Knapp and Gilliam 1985), and above ground biomass (Abrams et al. 1986). Historically, fire may have been nearly a yearly event (S. H. Long's expedition 1819 in Thwaites 1966) and fire is important to tallgrass prairie restoration (Pakcard and Mutel 1997).

Fire as an influence on the tallgrass prairie within the Northern Great Plains is currently a rare event (Figure 4). The Sheyenne NG reports an average of two fires per year in the preceeding 20 years with an average size of 21 acres per year. Prescribed fire on Northeastern Glaciated Plains portion of the Sheyenne NG has averaged approximately 2,000 acres per year in the prior five years. However, the focus of recent prescribed fire

events has been largely to benefit livestock forage availability and may not reflect historic fire patterns.

Figure 4. Comparison of the extent (spatial and temporal) of historic and current primary ecological drivers (fire and grazing) for the tallgrass prairie on the Northern Great Plains.



In contrast to fire, grazing by domestic livestock today on remaining tallgrass prairie within the Planning Area is extensive (~ 98%) but differs from historic in temporal and spatial pattern, with grazing common and annual (Figure 4). The lack of fire and grazing in a pattern similar to historic are considered to be primary reasons for the lack of heterogeneity in vegetation structure on remaining tallgrass prairie sites.

Given the interaction of fire and bison herbivory and the habitat specificity for many species, tallgrass "prairie remnants should be managed with a variety of fire frequencies, including infrequently burned areas" (Steinauer and Collins 1996:45) with grazing level influenced by "size, goals, surrounding land use, and management of other reserves in the region" (p. 50) but should include "the largest subset of the natural disturbance regime or "analog" possible" (p. 49).

Mixed prairie

Primary ecological processes on the mixed prairie include: (1) climate (Simms 1988); (2) herbivory by large (bison, elk, and pronghorn), small (the black-tailed prairie dog, and smaller herbivores (insects, primarily grasshoppers) (Risser 1996b); and (3) fire (Bragg and Steuter 1996). Overall, "the structure of (mixed prairie) grasslands can not be accurately determined without considering the structure of the natural disturbance

regimes" and species diversity is maximized under a combination of natural processes (Collins and Barber 1986:87).

Effects of bison on the mixed prairie landscape is evident in the recent expansion in range by aspen (*Populus tremuloides*) in western Canada (Campbell et al. 1994). Historic references, in conjunction with the fossil pollen, show that aspen expansion occurred after the near extinction of bison in south central Canada. Bison browse on aspen shoots (Blyth and Hudson 1987) and topple mature aspen by rubbing against them (Knapp and Seastedt 1986). Looman (1979 cited in Blyth and Hudson 1987) in *The vegetation of the Canadian Prairie Provinces: !. An Overview* provides a similar and strong argument for the role of bison in precluding "the encroachment of woody vegetation on grasslands in several parts of the Prairie Provinces." Clear experimental evidence demonstrates the horning and rubbing behavior by bison on woody vegetation "may have influenced the historical distribution of woody vegetation in prairie environments" (Coppedge and Shaw 1997).

Increases in the regeneration and distribution of riparian woodlands along a prairie river in southern Canada followed the significant reduction in bison number (Cordes et al. 1997). Historically, "this country (southern Canada) appears to be more hilly but almost destitute of timber of any kind" (Harmon 1800) and, in the southeast corner of modern Alberta, "the nearest pine tree are 70-80 miles away, southwards of the Bad River, a journey of about four days (Fidler 1801) (cited in Malainey and Sherriff 1996). Other observations of bison and their influences include the following.

Warren (1875) described the Niobrara River "as destitute of wood with not even enough to build a campfire" although clumps of pine were rarely observed where high bluffs bordered the river (cited in Bogan 1997). Warren was "very disappointed in the amount of game" although evidence suggested the area had recently been occupied by large herds of buffalo (in 1875).

"the plain was literally covered with buffaloes as far as one could see" (in Nebraska) (Bradbury 1811) (cited in Thwaites 1996);

in 1813, the eastbound Astorians noted an "abundance of buffalo, which seemed absolutely to cover the country" on the mainstream below the (Loup) forks (of the Platte River in Nebraska) (cited in Roe 1955);

"the scenery of the Platte (near the mouth) there is utmost uniformity; a broad plain, unvaried by any object on which the eye could see, lies before us, on the right are the low and distant hills which bound the valley" and we passed "a number of prairie dog towns extending two to three miles along the river" with prairie dogs "in good condition and well-flavored" while latter (23 day) "large herds of bison were seen in every direction" and, at a point two miles distant from the mouth "it (the Platte River) was still from one to three miles in breadth, containing numerous islands, covered with scanty growth of cottonwood willows, the *Amorpha fruticosa*, and other shrubs."

Wyeth (in 1832) and Bonneville (in 1832) found buffalo "in frighten droves" and "as far as one could reach the country seemed absolutely blackened by innumerable herds" as did Townsend (in 1833) (cited in Roe).

Narratives of the trans-Mississippi frontier edited by Phillips (1932) include (June 6, 1847) "In the afternoon passed the Lone Tree, so called, it being the only tree that grows on the north side of the river for 200 miles...(May 27, near the latter Fort Kearney) no wood in sight (and) an immense city of prairie dogs (one described as extending from horizon to horizon)...Droves of elk, and packs of wolves...(May 25) hundred thousand prairie dogs, many square miles being covered with burrows...with no fuel except dry weeds."

Pierre Botineau in 1862, near the Red River in North Dakota, described one herd to be "5 or 6 miles (some say 8 or 10) wide, and the herd was more than an hour passing us at a gallop" (cited in McHugh 1972:14).

In North Dakota, a railroad surveyor observed "for great distance ahead every square mile seemed to have a herd of buffalo upon it" numbering as high as a half a million "and "Many times from hills and range summits, I have seen more than a half million of buffalo at one time" (cited in McHugh 1972:14-15).

A voluminous literature exists on bison, the black-tailed prairie dog, and their influence on grazing history and defoliation (Painter et al 1989), grass silicification (Cid et al. 1989), plant growth (Polley and Detling (1989), plant species-specific tolerance (Polley and Detling 1988), belowground nitrogen cycling (Holland and Detling 1990), mound architecture (Cincotta 1989), plant species differentiation (Folley and Detling 1990), plant species differentiation (Polley and Detling 1990), ungulate and small mammal distributions (Wydeven and Dahlgren 1985), soil nematodes-root biomass (Ingham and Detlking 1984), species-specific food selection (Uresk 1984), bison-prairie dog-pronghorn feeding relationships (Krueger 1986), mound soils (Carlson and White 1987), plant water stress (Archer and Detling 1986), light-herbivory-water stress in plants (Fahenstock and Knapp 1993), rates of vegetation change (Archer et al. 1987), effects of defoliation (Detling and Painter 1983), plant evapotranspiration (Day and Detling 1994), badger spacing and ecology (Goodrich and Buskirk 1998), and distribution of the northern pocket gopher (Steuter et al. 1995).

Black-tailed prairie dogs influence ecosystem structure and function through their burrowing and grazing activities and are referred to as an ecological engineer (Jones et al. 1994) and may substantially alter the composition of mixed prairie vegetation (Weltzin et al. 1997). The black-tailed prairie dog today is often viewed as the mixed and shortgrass prairie keystone species providing habitat for a variety of species (Miller et al. 1990) although not all authors are in agreement in designating the it as the keystone species (Kotliar et al. 1999).

Historically the black-tailed prairie dog is thought to have populated over 100 million acres across eleven western states (Sharps et al. 1990). One example of a historical

account is that of Langworthy in 1846 (cited in Phillips 1932) observed along the Platte River near the Loup fork "not a tree in sight in any direction....with small islands with green bushes....an immense city of prairie dogs....(and a) drove of elk."

Armenz and Joern (1996) point out that the grassland invertebrate fauna includes a vast array of protozoans, nematodes, earthworms, mollusks, mites, spiders, insects, isopods, and millipeds-centipedes but is poorly known. These authors also provide a useful framework to identify insects as indicators to track a particular habitat change or a set of changes to a landscape.

An extensive literature exists relative to insect control exists, particularly for grasshoppers (Rittenhouse and Rosentrester 1994). A significant impact of insect control is on pollinators, an assemblage of species of growing concern to conservationists. Specific concerns include successful reproduction in geographically restricted plant species (Karron 1987), the high number of plant species pollinated by specialized insects, and the general problem of pollinating small populations (Pettersson 1996).

Production of principle grasses on the mixed prairie is limited by available water during the growing season and by soil nutrients (Willms and Jefferson 1993). Grazing imposes an impact on the mixed prairie by altering the water and nutrient cycles which in turn may influence composition (Naeth et al. 1991, Rothenberger 1995). Removing litter may reduce plant production by up to 60% and repeated defoliation may favor more drought resistant but less productive species. Overall, however, species composition is affected by grazing and drought and may interact to increase the relative composition of warm-season grasses and forbs (Biondini and Llewellyn 1996). Herbivory-induced shifts in composition have been well documented (Anderson and Briske 1995, Biondini et al. 1998).

In 1859, Greeley in *Overland Journey, from New York to San Francisco* stated if "Could prairie-fires be wholly eliminated, the increase of timber would overbalance tenfold the annual use and waste" (p 21), "I rejoice to see *new* (italics added) timber creeping up the bluffs of streams" (page 62), and the "soil is washing away and running off to the Gulf of Mexico" with "not a cord of wood in all to each square mile" (page 96) "or township" (page 103).

Alpha (site) and beta (between site) plant diversity on mixed prairie is influenced by fire. Alpha and beta plant diversity in central South Dakota was highest on experimental unburned and summer treatments, while the landscape mosaic was highest after fall burns, and forb density was highest on fall and spring burns (Biondini et al. 1989). Fire and available nutrients do influence plant community structure but may not alter local competition in terms of plant size and growth rate (Wilson and Shaw 1990). Topography also is important, the ratio of cool season to warm season grasses in a xeric high prairie community was the result of long-term adaptation rather than short-term adjustments to fire and weather effects (Steuter 1987). Fire temperature is another influence on plant communities in the northern mixed prairie (Archibold et al. 1998).

The response of mixed prairie warm season and cool season grass ratios to mid-summer and fall burns appears to be influenced by phenological and indirect weather effects rather than by changes in site microclimate caused by fires (Steuter 1987). Most (71%) natural fires (by lightning) occur during July and August, a lesser number in April, May, June or September, and is important to consider in mixed prairie conservation (Higgins 1984). Increases in warm season grasses more characteristic to the shortgrass prairie are favored by late-spring fire (Schacht and Stubbendieck 1985). On the other hand, the suppression and reduction in frequency of fire and grazing favors increases in number of tallgrass prairie species (Nagel et al. 1994). Fire as a natural disturbance is known to be important to certain insect assemblages including grasshoppers (Evan 1984). Fire is an evolutionary force on grasslands (Bock 1987).

Early explorers of the Great Plains reported frequent prairie fires. McGilvery in 1794 on the Canadian Plains reported extensive fire (in Mailaney and Sherriff 1996). Lewis and Clark found the prairie "...much parched with frequent fires" and there were "almost yearly fires" (cited in Coues 1893). Fremont (1845) wrote how buffalo "scarcely left a blade of grass standing" suggesting that fires where they did occur were intense "providing a natural deterrent of other parts of their range" (cited in White and Lewis 1967).

Higgins (1986) provided an excellent summary of historical fire accounts on NGP. Higgins notes that historical records are difficult to obtain. He further suggests (1) records after 1740 should be used with caution given the substantial change that had occurred on the NGP by that time, (2) descriptions based on records between 1740 and 1850 describe "relatively" natural conditions, and (3) after 1850 fire's role and impacts were influenced by progressive settlement and cultivation.

Higgen's review suggests (1) fire related to Native Americans was a modest influence; (2) most fires were of short duration and small extent; (3) fires in frozen swamps were particularly dangerous as were those in tall grass over snow; (4) wetlands, streams and sandy areas provided escape from fire; (5) mortality of bison and other wildlife due to fire was observed; (6) frequency of fire varied "every spring" to "annual fires in different areas;" and (7) grassland fires occurred within hours or days after rain or snow.

By the mid-1700s, European-related diseases had a decimating impact on Native American populations (Ramenofsky 1987). By the time Lewis and Clark arrived, a nearly complete abandonment of South Dakota was evident and villages were smaller and few in North Dakota. The Arikara were restricted to two or three villages in the Grand River Area and the Hidatsa as Mandan were located in five villages. European exploration and trade was not uncommon on the Great Plains prior to Lewis and Clark, beginning with the Spanish (1541-1690) and latter the French (1700-1790s).

Since 1980, within the NGP, the average annual burn area across five Forest Service administrative units in the southern portion of mixed prairie within the NGP was 3334 ha. Seven fires per year are reported by three Forest Service administrative units in the northern mixed prairie within the NGP with an average area of 440 ha per year during the

same time interval. Between 1981 and 1985, prescribed fire was limited to the Pine Ridge RD (158 ha), the Soldier Creek Management Unit (16 ha), and the Bordeaux area (350 ha).

Today both the temporal and spatial pattern of grazing and fire differs from that historic to the mixed grass prairie (Figure 5). The historic northern mixed prairie was influenced by grazing and fire (Bragg and Steuter 1996). In general, grazing favors short-statured species, such as western wheatgrass and blue gramma, over taller bunch grass species. Shifts in species composition therefore are more of a function of grazing than species morphology and reproductive mechanisms than whether there are a warm season or cool season species. Moderate grazing is important to ecosystem processes, particularly decomposition and soil chemical properties (Biondini et al. 1998), as evident in historic grazing by bison.

Stohlgren et al. (1999) suggest that domestic livestock grazing on the central and western Great Plains grasslands has little effect on native species richness and few plants show consistent, directional responses to grazing or the cessation of grazing. On the other hand, the dynamics of herbivory differ between that of wide ranging bison herds and present day domestic livestock grazing systems (Hartnett et al. 1997). For a particular area, herbivory by wide ranging bison herds was one of high intensity and short duration followed by a 2 to 3 year period of rest (Higgins 1986). In contrast, grazing by domestic livestock is characterized by high intensity over long duration followed by short lengths of rest, depending on the grazing system and management scenario. Grazing in terms of spatial extent has exhibited little change in extent with substantial portions of the current landscape (about 95%) grazed by domestic cattle (Figure 5).

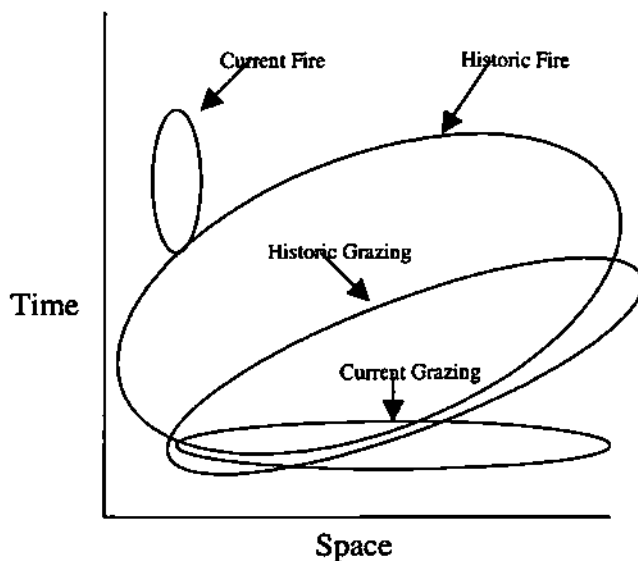
Historic fire return intervals vary on the mixed prairie and range from 3 to 5 years (Umbanhowar et al. 1996). Lightning is the primary source of ignition occurring from March through December, but most often in late summer (Higgins 1984). Fire today is neither a frequent event nor does fire influence a substantial portion of the current landscape (Figure 2). The McKelvie Ranger District (RD), Bessey RD, Pine Ridge RD, and Oglala NG report an average of 21 fires per year during the preceding 20 years. The average area across these five administrative units affected by fire per year is 8,471 acres. The Little Missouri NG, Cedar River NG, and Grand River NG report 7 fires per year during the preceding 20 years. The average area across these three administrative units affected by fire per year is 1,130 acres. Prescribed fire between 1981 and 1985 is limited to 400 acres on the Pine Ridge RD, 270 acres on the Soldier Creek Management Unit, and 900 acres on the Bordeaux area. The focus of prescribed burns has been on crested wheatgrass plantings to enhance the palatability.

Historic fire frequencies varied from 20 to 30 or more years in more dissected topography of the western Great Plains (Wright and Bailey 1982). Historic fires documented in a dendrochronological study in the Black Hills occurred mostly late in the growing season or after plant growth had ceased for the year (Brown and Sieg 1996). Fires in fall or early spring may have been more significant than summer fires (Sieg 1997). High fuel

moisture in July and August slow the rates of spread and result in a smaller area being burned (Steuter 1988).

Higgins (1984) suggests the recent extent and spread of lightning fires has been modified by cultural features such as roads and differing patterns in grazing. Several examples illustrate the point. The fire return interval increased from 27 to every 42 years after 1900 near Devils Tower Wyoming (Fisher et al. 1987). Brown and Sieg (1996) in the Black Hills record a 104 year fire free period in ponderosa pine forests between 1890 and 1994 and Wendtland and Dodd (1992) near Scotts Bluff, Nebraska note that 46 fires recorded since 1935 have dramatically shifted to a pattern of spring occurrence.

Figure 5. Comparison of the extent (spatial and temporal) of historic and current primary ecological drivers (fire and grazing) for the mixed prairie on the Northern Great Plains.



Evident in the mixed and sandhill prairie--primarily the Ft. Pierre NG, Mckelvie RD, Bessey RD, Cedar River NG, Grand River NG, Oglala NG, Pine Ridge RD, and Little Missouri NG--relative to fall vegetation height and density is a trend toward few areas with very low or high measurement categories and the majority of measurements falling in the moderate category (Table 5). The lack of fire and grazing in a pattern similar to historic are considered to be primary reasons for the lack of heterogeneity in vegetation structure on remaining mixed prairie sites.

Conservation of mixed prairie requires incorporating the natural disturbance regimes. Species diversity is maximized under a combination of natural processes (Collins and Barber 1986). Large herbivore grazing is a required process for maintaining mixed prairie with the season, intensity and frequency important (Bragg and Steuter 1996). Fire

every 5 to 10 years is important to maintain long-term native plant diversity with seasonal peaks in March-May and September-October and management independent of landscape context will limit prairie conservation (Steuter et al. 1990).

Shortgrass prairie

The exact historical extent of the shortgrass prairie is unknown but most likely extended east to a line extending south through east-central North Dakota, central Nebraska, east-central Kansas and farther south--substantially different from the current extent (Figure 1).

An ecologist Floyd Larson (1940, cited in Blakeslee 1996) was among the first to describe the impact of bison extirpation on the extent of short grasses. Blakeslee (1996) describes the shift to mixed prairie in the mid-1800s, e.g., "The uplands were covered with buffalo grass common to the plains. The other grasses did not grow until the buffalo had left the country. In all central Kansas the buffalo grass died soon after the buffalo ceased to tramp it and "blue-joint (Bluestem) and other grasses took its place" "in other words, wherever the buffalo ceased to eat, the prairie grasses and the rank grasses grew up, and the prairie dogs perished."

C. E. Bessey, the Nebraska State Botanist, wrote in the 1890's that in the Sand Hills of western Nebraska all the species commonly called buffalo grass were disappearing given "since (buffalo) have disappeared and that prairie fires no longer are allowed to sweep the plains, the buffalo grass is being rapidly choked out by the ranker species" (Bessey 1893).

Milchunas et al.'s (1998) review of livestock grazing on animal and plant biodiversity on shortgrass prairie suggests: (1) diversity, abundance, dominance, and dissimilarity response to long-term grazing were highly variable across classes of organisms; (2) birds in particular responded significantly with increasing grazing intensity; (3) plant species composition changed little relative to grazing intensity; (4) shifts in "quality" factors—exotic, endemic, and rare species were apparent; and (5) large effects of grazing do not translate into similar effects on ecosystem processes such as primary production, soil nutrient pools and cycling rates.

There are, however, "important qualitative and quantitative differences between native and introduced ungulates in some of their nongrazing behaviors and their ecological consequences" (Hartnett 1997). Figure 3 depicts the relationship by scale of grazing by domestic livestock and bison. At site and local scales, difference between domestic livestock and bison may exist in diet and in search time required to locate forage (Plumb and Dodd 1993) but the affects are less than observed at landscape and larger scales.

Early historic records, however, that describe the shortgrass prairie other than along major rivers are few and largely limited to near the Missouri River and much latter, the Powder River. One exception is Nasatir (1952) in *Before Lewis and Clark* which

describes the extensive network of trade established by the French, Spanish and British with Native Americans reaching from the upper Midwest into the Southwest. In 1797, a man named Juson in trading with the Mandans in central North Dakota observed "The land on both sides of the river is at one time Mountainous & barren and at other times even & fertile, but in the black part a tree can hardly be found."

Between 1794 and 1802, Loisel traveling up the Missouri observed the banks to be well-wooded as far as the approach to the Platte River and the "Then vast and high prairies, separated from the river by low and humid plains, present to the eye a monotonous expanse." Loisel's fort of red cedar logs (Fort aux Cedres), on one of three islands, near where the Little Missouri enters the Missouri River, was no longer evident by 1809 (Abel 1939).

Larocque's daily journal (1805) describes the plains along or near the Powder Rivers "it is amazing how very barren the ground is between this and the lesser Missouri, nothing can hardly be seen but those Corne de Racquettes (prickly pear cactus). Our horse nearly starved." Below the mouth of the Powder, Larocque commented that smoke from prairie fires plagued them for three days (cited in Thwattes 1996).

Other historic records include the following.

Lewis and Clark observed (in 1805) "The country on both sides of the Missouri from the tops of the river hills, is one continued fertile level plain as far as the eye could reach, in which there is not even a solitary tree or shrub to be seen." In 1806, as Clark reached the Yellowstone in eastern Montana "the river and creek abound in cotton wood tress, thou' none of sufficiently large enough for canoes" (cited in Coues 1893).

Further south near the present Grand Island, Nebraska, the (1820) character was one of a river "three miles in breadth, containing numerous small islands, covered with a scanty growth of cotton wood willow, the *Amorpha frutosa*, and other shrubs," with the upland "scenery of the Platte valley is utmost uniformity, a broad plain, unvaried by any object," with a number of "prarie dog villiages" (cited in McFarling 1955).

By 1830, the "Portuguese House" trading post was established along the Powder River and, by the 1836, Fort Laramie was in place built of sun dried (adobe) bricks (Coues 1898) given the probably lack of tress.

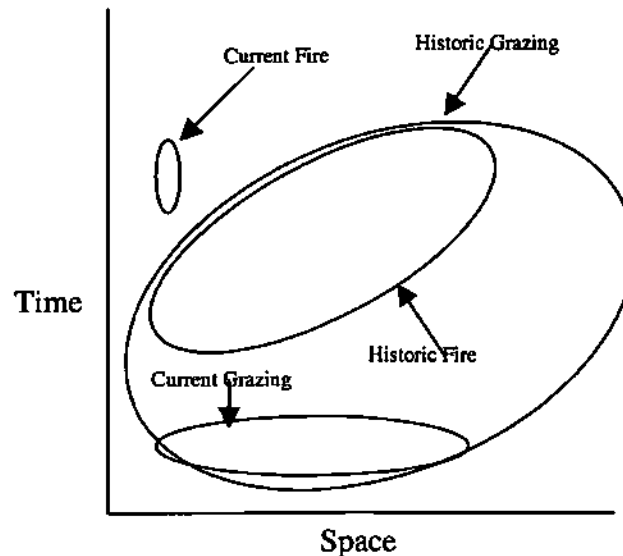
Near Ft. Union in North Dakota, Maximilian (1833) recorded "prairies, either bare or covered with artemisa (sage), an extensive wilderness, traversed by paths of stags and buffaloes" and (at night) "the loud howling of the wolves was out never-ceasing music" and "that drought and want of wood are the chief impediments to the cultivation and settlement of Whites in the prairies of the upper Missouri" (cited in Thwattes 1996).

Maximilian (1834) described the "desolate" chain of hills that extends to Fort Union and "a chain of hills, with their singular angles and ravines, before the yellow prairie, with its orange-coloured woods of popular and ash on the banks" near Fort Union (cited in

Thwaites 23). "The whole (country) is grey and dry, without diversity, covered with low plants, which afford food to numerous herds of the large heavy buffalo. Here and there small hollows, in which there is rather more moisture, cross the prairie, and here some water-plants and grasses grow: in spring and winter there is running or stagnant water in them."

Also, in 1834, Townsend described the landscape between the Platte River and the Sweetwater River as "a wide, sandy desert, dry and desolate" yet near "Rock Independence" "the banks of the stream are covered the most luxuriant" (cited in Thwaites 1996)

Figure 6. Comparison of the extent (spatial and temporal) of historic and current primary ecological drivers (fire and grazing) for the shortgrass prairie on the Northern Great Plains.



The Mathews diary (1846, cited in Morgan 1963) describes the country near the North Fork of the Platte "rough and barren" with "No timber near" and the letter from James Frazier Reed to James W. Keyes (1846 in Morgan 1963) along the South Fork of the Platte River has children collecting buffalo chips for fuel and "the plains appeared to be one living mass of bulls, cows and calves." Wislizenus describe the southern Platte as very sandy and vegetation scant (1839, cited in McFarling 1955).

Perhaps no other ecosystem in North America is so close associated with grazing. Yet Milchunas and Lauenroth (1993) show that species composition whether in grazed or ungrazed areas is more sensitive to certain environmental variables, particularly water

availability, and length of grazing than intensity of grazing. Moreover, they suggest the geographic location of grazing may serve as the important longterm index to sustainability given the slow responses of species to environmental change, possible complexity in short term versus longterm nutrient cycling, and no clear effect of grazing on root mass, soil carbon or soil nitrogen. Milchunas and Lauenroth (1993) further report grazing had no clear effect on other environmental variables to include soil carbon or soil nitrogen.

Grazing continues as the dominant ecological driver on the shortgrass prairie (Figure 6). The spatial extent of grazing has changed reflecting economic and ecological factors. The major change in the temporal frequency reflects two primary factors; the shift from nomadic bison and other native herbivore herds domestic grazing rather evenly spaced across the landscape and second, the annual pattern in grazing.

Fire is clearly historic to the shortgrass prairie. Fire like grazing removes plant materials and recycles nutrients and is viewed as important in slowing the invasion of sagebrush, juniper and ponderosa pine (Wells 1965). Today fire on the shortgrass prairie is a rare event (Figure 6). The Thunder Basin NG reports an average of nine fires per year affecting an estimated 3,500 acres per years. Prescribed fire on the Thunder Basin NG is limited to an estimated 100 acres per year.

Today, on National Forest system lands in the NGP, grazing by domestic livestock on remaining tallgrass (~ 98% of the area), mixed- (~95% of the area) and shortgrass prairie (~95% of the area) is characterized by high intensity rather evenly spaced across the landscape and over long duration. In addition, fencing, additions of fixed watering points, and fire policy further impact plant and animal communities.

In brief, comparison of existing and historic disturbance regimes shows the following.

- Historic records after 1740 are to be viewed with substantial caution given European impacts, although records prior to ~1833 (tallgrass prairie) and ~1846 (shortgrass- and mixed prairie) may in some circumstances describe "natural" conditions.
- There is little if any similarity in the temporal or spatial aspects of the historic ecological processes (fire and grazing) to that evident today.
- Grazing by bison was the major determinant in the historic extent of the shortgrass prairie, a prairie ecosystem that has greatly declined in the extent.
- An immense literature describes the close relationship of bison and prairie dogs to the diversity of prairie wildlife and processes significant to prairie diversity.
- Significant scale-dependent differences exist in the impact of domestic livestock and bison.

- Natural disturbance regimes are essential to tall-, mixed-, and shortgrass prairie conservation.

The coarse filter approach to the maintenance of biological diversity is a four-step process: (1) delineate the planning area; (2) compare the distribution of existing communities to their presettlement patterns; (3) describe the change if any in disturbance regimes; and conduct species' assessments. There are immense changes (declines) in area and extent of native prairie and most estimates are based on recent versus the historic extent of major bodies of native prairie, particularly the short- and tallgrass prairie. Mammal and bird communities on the NGP have changed dramatically with both extirpations and large scale invasions evident. Patterns in the current frequency and extent of ecological processes such as herbivory and fire have little resemblance to natural disturbance regimes.

Briefly, in summary, the purpose of the Coarse Filter is to provide for the diversity of plants and animals, and therefore the viability of the majority of species. Conservation recommendations based on the Coarse Filter include the following.

- (1) Increase the number of prairie relicts through land exchange or acquisition; particularly for the critically endangered shortgrass- and tallgrass prairie;
- (2) Implement grazing practices that provide both tall and short grass for extended periods (1 to 8 years) with public lands having adequate (>20%) representation of three structural classes, short, mid, and tall.
- (3) Restore where feasible natural fire regimes--at a minimum every 1 to 4 years in the tall grass prairie and every 5 to 10 years in the mixed prairie and shortgrass prairie.
- (4) Remove encroaching woody vegetation. Highly scattered and very small patches of fire-resistant oak and juniper appear historically to have existed on islands, escarpments or other areas protected from fire, particularly on islands, and near the eastern and northern edges of NGP.
- (5) Manage to control non-desirable invasive plant species; and
- (6) Implement a scientifically credible inventory and monitoring system to insure progress toward (1) through (5) is achieved.

Species Assessments--Vertebrates

Category 3 vertebrate species at risk (Appendix 1), or those associated with regional or state imperilment, are addressed using a coarse filter process. These species are identified with habitats they potentially occur within in the planning area (Appendix 2). Habitats in this matrix are roughly associated with a gradient from mesic to xeric

communities. We also address special habitat features (e.g. prairie dog colonies and buttes) and agricultural habitats that do not necessarily conform to a moisture gradient.

A species versatility index was used (Arnold 1997) to describe the breadth of different habitats occupied by a set of species and was used to group Category 3 Species at Risk. Single habitat related species are defined as "alpha" species. Those species that have large home ranges or are associated with many habitats are termed "gamma" species. Species corroborated with a primary habitat (s), but also found in other habitats are referred to as "beta" species. The occurrences of species are depicted by biophysical structure and process gradients that are found within these broad habitat groups (Table 9). For example, we identified species at risk associated with grassland communities on the basis of whether they occur in shortgrass prairie (low structure) versus tallgrass (high structure), low versus high fire occurrences, and heavy versus light grazing.

These associations are useful in determining habitat elasticity of individual species, identifying biophysical features important as habitat requisites, and in identifying conservation measures for these broad habitats that could be used to insure habitat integrity. Appendix 2 provides a list of the habitat groupings that were used for the planning area and include the following.

Aquatic/Wetland. These communities include rivers and their habitat features (e.g. sand bars), streams, wetlands, springs, bogs and fen and marsh habitats. Generally, rivers and stream habitat gradients were depicted on the basis of turbidity, size (width and length) and velocity. Wetland habitat types were discriminated on the basis of their size and depth.

Riparian/Riparian Woodland. Riparian communities are associated with riverine, stream, and subirrigated hydrological systems. Dominant communities include, but are not limited to, cottonwood, green ash, and woodland draws communities. Gradient features addressed were tree size (diameter), canopy closure, and understory density (sapling and shrub layers). Shrub riparian communities were identified on the basis of canopy closure.

Conifer Communities. Conifer communities include juniper woodland and ponderosa pine communities. Gradient features include tree size (diameter), understory density (sapling and shrub layers), and the frequency of fire occurrences.

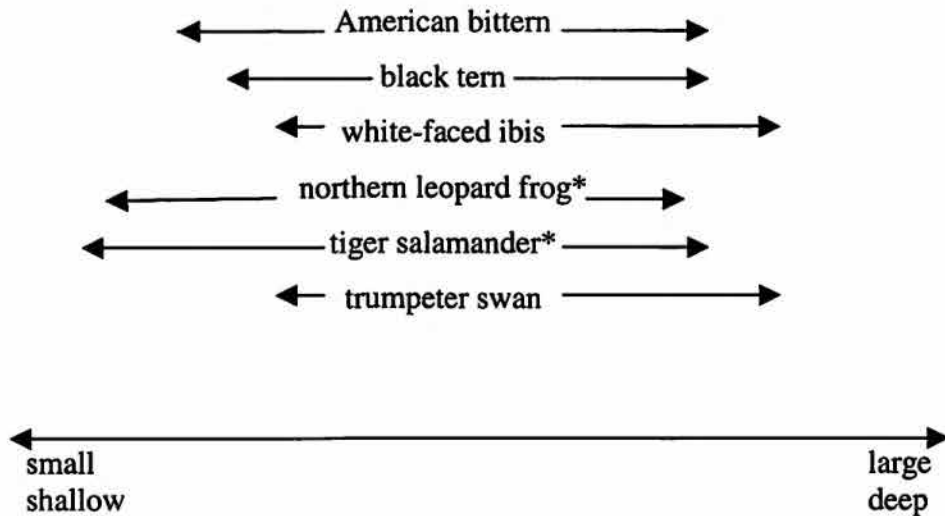
Grasslands. Grasslands include short, mixed and tallgrass prairie systems. The gradients used for these systems include the seral state of the grassland, grazing intensity, fire occurrence frequencies.

Shrublands. Shrubland communities include sagebrush, chokecherry, greasewood/saltbrush, and other shrub or shrub-steppe communities. The primary gradient used in describing these systems is stand canopy closure (open versus closed).

Badlands. This category includes those landscape features such as badlands, buttes, rock outcrops and caves. The gradients used to describe these specific habitat components include relief (low versus steep) and slope.

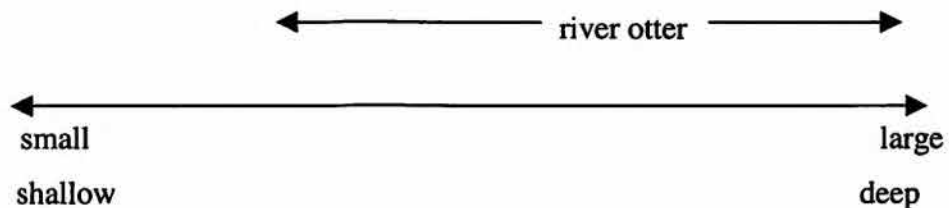
Table 9. Association of animal species at risk within the Northern Great Plains based on habitat types at the broad scale. Habitat types are similar to the comparison of historic to current (Table 3) and include aquatic (wetland and riverine) (A and B), riparian woodlands (deciduous forests) (C), coniferous forests (D), grasslands (E), shrublands (F), and specific habitat components, e.g., badlands (G).

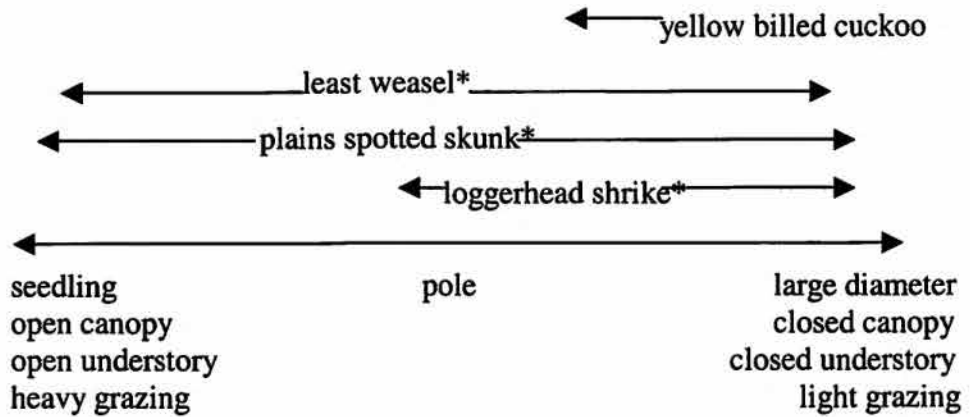
(A) Species at risk associated predominantly with wetland communities



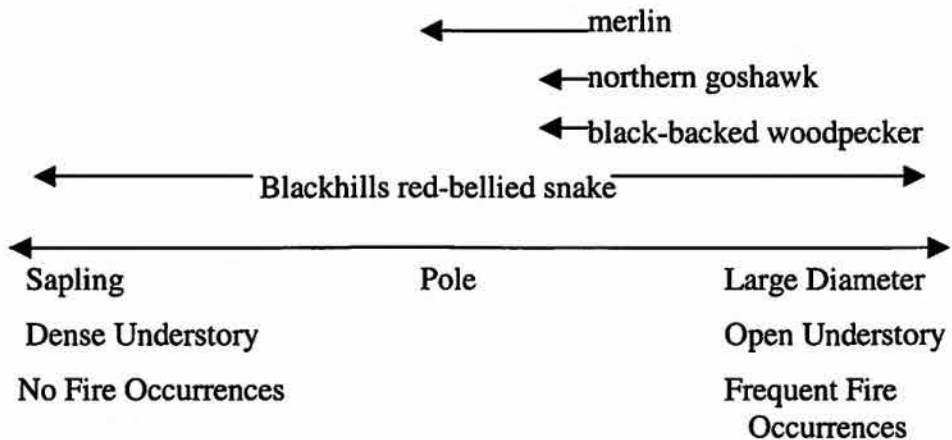
* occurs in wetlands that are distributed in a variety of vegetation communities

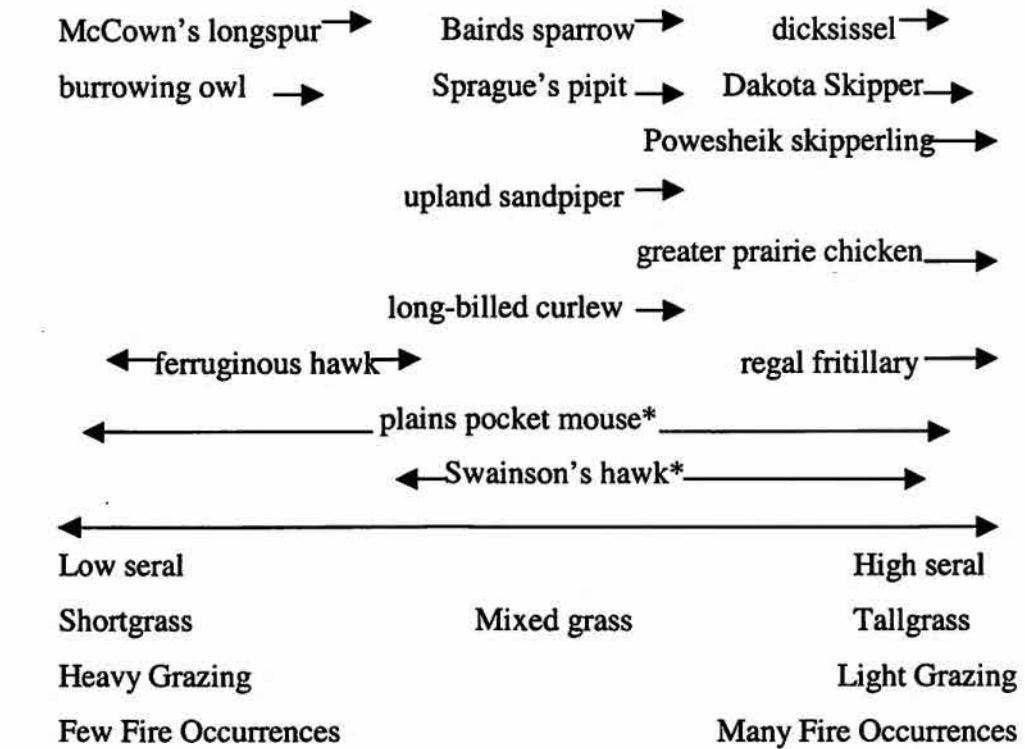
(B) Species at risk associated predominantly with riverine communities



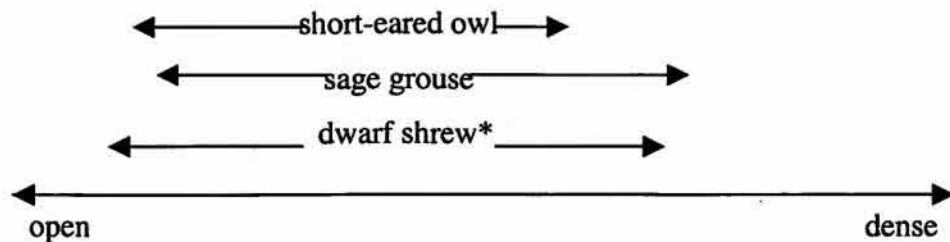
(C) Species at risk associated predominantly with deciduous riparian communities

* species are found in several different communities and seral stages

(D) Species at risk associated predominantly with conifer communities

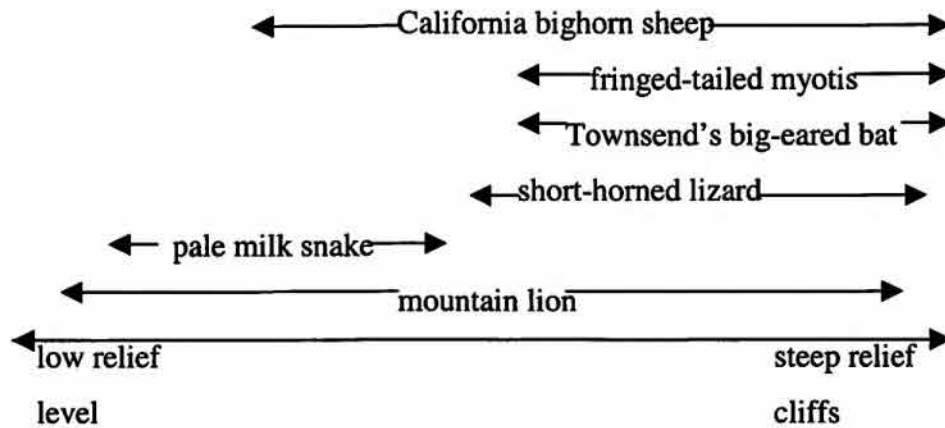
(E) Species at risk associated predominantly with grassland communities

* found in several different vegetation communities and seral stages

(F) Species at risk associated predominantly with shrubland communities

* also occurs in grassland types

(G) Species at risk associated predominantly with badland communities



* also found in riparian areas

Three species (fox sparrow, osprey and common loon) identified as Category 3 Species at Risk were excluded from this analysis because they do not use the analysis area for breeding habitats. Potential impacts to viability of these species is considered minimal.

Eleven species are considered to be Alpha, restricted primarily to a single habitat (Table 9). Of interest is that grassland terrestrial Alpha species are closely associated with either low or high/potential VOR levels. In other words, the Alpha species considered at risk are those closely associated with the VOR samples that fall in the low (10% of the samples) or high-potential categories (5% to 20% of the samples). Second, seven Alpha terrestrial species are closely associated with native prairie known to have declined in area since pre-intensive settlement and three are associated with prairie rivers characterized by conditions evident prior to intensive settlement.

Eighteen species are listed as Beta (Table 9), thus utilize two to four habitats (Appendix 2). Nine of the 18 species are associated with habitats estimated to have declined due to intensive settlement, and specific impacts on grasslands ($n = 3$), shrub types ($n = 1$) and the rare habitat elements ($n = 5$). Factors affecting the concern for the remaining nine Beta species vary and may extend beyond habitat.

Seventeen species are considered to be versatile or Gamma (Table 9), e.g., utilize several habitats (Appendix 2). The majority of terrestrial Gamma species are associated with wetland habitats ($n = 5$). Habitat for the Blanding's turtle, a species wide in distribution, is difficult to describe and therefore this species is not included in Table 9 (A). Two of three Gamma species associated with the coniferous forest are dependent on older seral, open pine or juniper stands. For example, the concern for the black-backed woodpecker, a species closely associated with recently burned coniferous forest, most likely reflects

the decline in the temporal frequency and spatial extent of fire since pre-intensive settlement. These species, although associated with older seral stages, are Table 9. Association of animal species at risk with habitat within the Northern Great Plains based on the Versatility Index and habitat types able to be distinguished at the broad scale. Habitat types are similar to the comparison of historic to current (Table 3) and include aquatic (water and wetlands), riparian woodlands (deciduous forests), coniferous forests, grasslands (rangeland shrub and rangeland mixed), habitat components (e.g., caves, rocks, sand bars, etc.) and agriculture (croplands).

Versatility Index		
Alpha	Beta	Gamma
Flathead chub	Trumpeter swan	Northern leopard frog
Longnose sucker	Blackhills redbelly	Tiger Salamander
Plains top minnow	snake	Blanding's turtle
Sage grouse	Pale milk snake	American bittern
Dakota skipper	Yellow-billed cuckoo	White-faced ibis
Powesheik skipperling	Fox sparrow	Black tern
Greater prairie chicken	Lewis woodpecker	Osprey
Sprague's pipit	Dwarf shrew	Common loon
McCown's longspur	Least weasel	River otter
Baird's sparrow	Ferruginous hawk	Northern goshawk
Burrowing owl	Swainson's hawk	Merlin
	Regal fritillary	Black-backed
	Upland sandpiper	woodpecker
	Dicksissel	Loggerhead shrike
	Townsend's big-eared	Short-eared owl
	bat	Mountain lion
	California bighorn	Plains pocket mouse
	sheep	Plains spotted skunk
	Fringe-tailed myotis	
	Long-billed Curlew	
	Short-horned lizzard	

also found in a variety of forest communities. One species--the plains pocket mouse--is associated with grasslands (Table 9) but has strong associations with other habitat types (Appendix 2). One Gamma species--the short-eared owl--is associated with the decline in the extent of shrub habitats, but is found in a variety of other habitats.

Overall, the conservation goals (Table 10) should provide and or contribute to the population viability of the wetland and riverine species through the maintenance and or restoration of historical habitats for those species influenced by Forest service management--six species, Blanding's turtle, American bittern, white-faced ibis, black tern, osprey, common loon, are either periferal to the planning area or utilize habitats rarely if ever influenced by Forest Service management activities.

Conservation of the six species most closely with coniferous forest and shrub (Table 9) will benefit from the increase in the amount of large diameter, open conifer stands within the context of the natural range of variability and the increase in older stands of sage. Moreover, several species --the fringe-tailed myotis and mountain lion--are either periferal to the planning area or rarely utilize habitats influenced by Forest Service management activities. Two species, the northern goshawk and merlin, are associated with habitats that have increased since historic suggesting other factors beyond those influence by National Forest System management may play a role in the conservation concern.

In general, there is a close association between the estimated changes in grassland and shrub habitats from historic to current (Table 3) and habitats required for the terrestrial Category 3 Species at Risk. Six of 7 species are closely associated with high (Knopf 1996 and others) high vegetation structure--a seral stage known to have declined in area. In contrast, the McCown's longspur is associated with open, more intensively grazed areas, a rare habitat within the planning area. The conservation strategies evident in Table 10 will provide for a high degree of heterogeneity of grassland structure, emphasizing both low and high seral habitats.

Table 10. Habitat conservation and improvement goals for Category 3 species based on where they occur along environmental gradients within broad communities. Habitat is defined as that capable of supporting a population for one or more Category 3 species over the planning period.

Habitat	Conservation Recommendations
Aquatic - riverine	Projects will contribute to the maintenance and or restoration of historical habitats. Manage for an array of habitat conditions that support endemic species
Aquatic - wetland	Projects will maintain and restore integrity of wetlands. Manage for an array of habitat conditions that support endemic species
Conifer	Projects will increase the amount of large

	diameter, open conifer stands within the context of the natural range of variability and potential of the landscape.
Deciduous woodlands	Projects will increase the full range of structural diversity within large diameter stands and within the context of the natural range of variability and potential of the landscape.
Grasslands - shortgrass prairie	Allotment management plans will provide for a diverse gradient of structure, emphasizing low seral habitats. Management will also optimize prairie dog colonies.
Grasslands - mixed grass prairie	Allotment management plans will provide for high degrees of heterogeneity of grassland structure, emphasizing low and high seral habitats. Management will emphasize prairie dog colonies on low seral habitats.
Grasslands - tallgrass prairie	Allotment management plans will provide for a high degree of heterogeneity of grassland structure. High seral habitats will be emphasized. Prescribed fire will be a primary tool for nutrient recycling and habitat restoration.
Shrublands	Projects and allotment management plans will provide for a diverse gradient of structure, emphasizing older seral habitats. Manage understories to maintain and enhance perennial herbaceous components.
Badlands	Projects will retain/restore the full spectrum of communities within badlands. Manage towards a reduction in road densities. Reduce the number of water developments for livestock, and restore historic hydrologic regimes.

A guild system (Table 11) was used to address Category 3 (Appendix 1) plant Species at Risk in order to associate habitat needs of these species. Category 1 and 2 plant Species at Risk are addressed through fine filter analysis under the fine filter portion of this report. Use of the guild system is intended to be a coarse filter approach to addressing rare plant population viability. Within a landscape context, areas containing a mosaic of high quality native plant communities in conjunction with natural disturbance regimes provide a primary focus for managing rare plant populations within their natural range of variation. The coarse level guild approach should be used in conjunction with more species specific analysis (fine filter analysis) in protecting plant species at risk and their habitats.

Within specific guilds, further analysis may be needed to identify and select for management those priority areas which provide the highest probability of meeting population viability goals for plant species at risk. Certain disturbance events and processes have occurred since historic settlement which provide a paradigm shift from the disturbance processes which defined the former natural range of variation for many plant communities and species. For example, both past agriculturalization and the introduction of non-native plant species have highly altered the disturbance equilibrium and the range of natural variation in plant communities in some areas. On the plains, large areas may have been cropped at one time resulting in tilled soils, altered native soil profiles, and removal of the native vegetation. In addition, some plant communities contain non-native plant species including noxious weeds. Priority areas within guilds may include those areas of native profile soils (untilled) and high quality native plant communities as well as those areas which capture unique habitat components. In addition, disturbance processes similar to those under which the species and communities evolved should be incorporated into habitat management.

Eastern prairie boggy wetlands. This guild includes the plant species found in habitats associated with bogs, calcareous fens, springs, boggy woodlands, and the Green ash/basswood deciduous hardwoods found along the Sheyenne River in eastern North Dakota. Many of the species are water-loving species and their habitats are dependent upon the interaction of hydrologic regimes within specific landscape features. In addition, this guild contains the river gallery forests of elm and basswood found along the Sheyenne River. This guild contains the largest number of Category 3 plant Species at Risk for the Northern Great Plains planning area. In addition, the majority of these species on the Sheyenne National Grassland are primarily restricted to a narrow range of habitats (Table 11), i.e. they are considered species with either a narrow-range or mid-range of versatility (refer to the Plant Versatility Index). The list includes one shrub, several sedges, and numerous fern species. It lies within the Red River Valley Section (Figure 2).

Tallgrass prairie wetlands. This guild includes the plant species found in habitats associated with lowland swales, wetland depressions, marshes, and the sedge/willow complexes found within the tallgrass prairie of the Sheyenne National Grasslands of eastern North Dakota. Three of the 42 Category 3 plant Species at Risk are found in

habitats associated with this guild. Two of the species are categorized as occurring in the mid-range of versatility, i.e. they are associated primarily with one habitat type but may also be found in other habitat types. One species is considered to be in the narrow-range of versatility as it is associated with only one habitat type. In addition, the Western Prairie Fringed Orchid, a threatened plant species, also occurs within habitats of this guild. Mesic areas which provide habitat on other units of the planning area may differ in habitat, soils, and hydrologic regime from those found on the Sheyenne NG, however these other habitats share the common feature of having a perennial moisture regime which may vary seasonally or annually. The guild is delineated by the Red River Valley Section and North-Central Glaciated Plains Section (Figure 2).

Tallgrass prairie deciduous hardwoods. This guild includes the hardwood forests and woodlands found on the Sheyenne National Grasslands in eastern North Dakota. The habitat types associated with this guild are predominately characterized by Green ash-box elder communities, as well as American elm and cottonwood communities. These communities occur upslope from the river gallery forests and intergrade into savanna with increasing distance and elevation above the river valleys. Mesic woodlands and moist areas which provide habitat on other portions of the planning area may differ in habitat, soils, and hydrologic regime from those described for the Sheyenne National Grassland, however these other habitats share the common feature of rich loam soils and mesic conditions which are capable of supporting wooded communities dominated by eastern deciduous hardwood trees. Six plant species, including one shrub, one forb, one sedge, and three ferns are found in habitats associated with this guild. All six species are categorized as occurring in the mid-range of versatility, i.e. they are associated primarily with one habitat type but may also be found in other habitat types. The guild is delineated by the Red River Valley Section and North-Central Glaciated Plains Section (Figure 2).

Tallgrass prairie. This guild captures the tallgrass prairie habitats in the eastern portion of the planning area. The habitats within the guild are dominated by grass species such as big bluestem, Indiangrass, and switchgrass. The tallgrass prairie intergrades into the mixed grass prairie to the west as precipitation patterns change. One plant Species at Risk, upright pinweed, occurs within this guild. Upright pinweed is categorized as a generalist species being found within several habitats across the tallgrass and mixed grass prairie. The guild is delineated by the Red River Valley Section and North-Central Glaciated Plains Section (Figure 2).

Tallgrass prairie choppy sandhills. This guild captures the various components of the choppy sandhills landtype found within the tallgrass prairie on the Sheyenne National Grasslands in North Dakota. This landtype consists of mixed grass prairie intermingled with Bur oak savanna woodlands. Sand dunes and sand blowouts are other distinguishing features of the guild. Bur oak seral stages such as aspen communities may also be present. The Sheyenne sandhills are a unique geologic area formed by the Sheyenne River delta as it flowed into ancient Lake Agassiz. At one time, glacial Lake Agassiz formed the largest inland fresh water lake in North America. Where major tributaries entered the lake, deltas were built such as the Sheyenne River delta. The

geologic origins of the sandhills are unique to the planning area as are the association of habitats found here. Four Species at Risk are found within this association. Two of the species are categorized as occurring in the mid-range of versatility, i.e. they are associated primarily with one habitat type but may also be found in other habitat types. The other two species, a grass and a tree, are considered to be in the narrow-range of versatility. The guild is delineated by the Red River Valley Section and North-Central Glaciated Plains Section (Figure 2).

Western riparian. This guild includes the wide variety of wetland and riparian habitat types found in the mixed and shortgrass prairie of the Little Missouri, Grand River and Cedar River National Grasslands. The habitat types associated with this guild are varied, but are primarily distinguished by being areas of added moisture within a xeric landscape. Vegetation communities include the riparian cottonwoods found along perennial and intermittent streams, sedge and juncus habitats found in conjunction with springs and seeps, saline subirrigated zones, woody draws, and wet meadows. Three plant species, including a cottonwood, a grass, and a forb, are found in habitats associated with this guild. Two of the species are categorized as occurring in the mid-range of versatility, i.e. they are associated primarily with one habitat type but may also be found in other habitat types. Alkali sacaton is found within the narrow subirrigated zone of saline drainageways. Blue lips occurs primarily in niches of low evapotranspiration rates, added moisture conditions, and limited sunlight reflectance in the mixed prairie. Habitats associated with woody draws provides these conditions as well as north-facing cliffs associated with butte escarpments. The other species, a cottonwood, is considered to be in the narrow-range of versatility. The guild is delineated by the Northern Glaciated Plains Section and Northwestern Great Plains Section (Figure 2).

Scoria hills. This guild includes the scoria hills and rocky scoria knobs found across the mixed and shortgrass prairie in the western national grasslands. The habitat types associated with this guild are predominately characterized by grass habitat types including those dominated by needlegrasses and wheatgrasses with a diverse forb community which is often very different from the forb component in the surrounding landscape. The scoria hills and knobs represent microsites within the rolling grassland and badlands landscape. Some components of their plant communities may be similar to surrounding communities however the lithic soil horizon often favors droughty species, early seral species, and occasionally shrub or tree species which may establish roots in the rocky soil profile. Two plant species, a conifer and a forb, are found within these scoria sites. Golden stickleaf is categorized as a narrow-range species, being found in scoria breaks and knobs as well as rock outcrops in the mixed grass and shortgrass prairie of western North Dakota. Limber pine, a mid-range of versatility species, is found in scoria breaks above the Little Missouri River in North Dakota. The guild is delineated by the Northern Glaciated Plains Section and Northwestern Great Plains Section (Figure 2).

Sandy plains: This guild is very broad in scope and includes the wide variety of sandy habitat types found across the mixed and shortgrass plains in the western portion of the planning area. Edaphic characteristics primarily define this guild with primary emphasis upon sandy soils whether they occur within sandy swale microsites, decomposing

sandstone hills, or broad grassland habitat types influenced by a sandy soil horizon. Habitat types within this guild may be dominated by prairie sandreed, needlegrasses, Indian ricegrass, or wheatgrasses. The forb component within this guild is often very high. One plant Species at Risk is found within this guild. Sand lily is categorized as a mid-range of versatility species which prefers sandy soils and sandstone decomposition areas within the mixed grass plains of North Dakota. The guild is delineated by the Northern Glaciated Plains Section and Northwestern Great Plains Section (Figure 2).

Buttes. This guild captures the unique butte landforms which occur as isolated and scattered topographic features within the surrounding landscape of rolling grasslands and badlands. Many of the buttes are capped by geologic formations which are very different from the geologic strata of the surrounding landscape. In addition, butte landforms often contain uncommon edaphic, moisture, and vegetative conditions resulting in unique plant communities as well as concentrations of rare species elements. Four forb species out of the 42 Category 3 plant Species at Risk are found within this guild. The nodding buckwheat is a narrow range specialist found only within decomposing sandstone rock associated with Roundtop Butte in western North Dakota. The alyssum-leaved phlox is a mid-range of versatility species associated with the rimrock feature of Bullion Butte but also having limited occurrences in other habitats adjacent to the butte. Two other forb species are known from very limited populations along the rim of Bullion Butte, one of the largest buttes within the Little Missouri National Grassland in western North Dakota. The guild is delineated by the Northwestern Great Plains Section and Northern Glaciated Plains Section (Figure 2).

Table 8 summarizes the Category 3 Species at Risk for plants within the context of a versatility index. Thirteen plant species were rated as narrow-range and as such would be considered to be restricted to a single habitat. These species are primarily concentrated in the Eastern prairie boggy wetlands although others are found associated with western buttes landforms and the Sheyenne choppy sandhills landtype. The Eastern prairie boggy wetlands which provides habitat for the main concentration of narrow-range species has been greatly reduced in total area since pre-intensive settlement. In addition, these areas are sensitive to disturbance and development such as roads, drainage, introduction of non-native plant species, and grazing.

The other concentration of narrow-range species occurs within restricted habitats occurring within butte and sand dune landtypes. In the sand dune habitats, soils have often been stabilized and revegetated resulting in the loss of primary successional species which need actively-eroding slopes at the edge of moving sand. The primary threats to these species are loss of habitat through changes in grazing and fire regimes, introduction of non-native plant species, and management which has favored stabilization of sand dunes. Similarly, several concentrations of narrow-range species are associated with the butte landforms found in the western part of the planning area. The butte escarpments in

Table 11. Groupings of plant Species at Risk with habitat within the Northern Great Plains based on the Versatility Index and community/habitat types able to be

distinguished at the broad scale. Habitat types are similar to the comparison of historic to current (Table 3) and include wetlands, riparian (stream, meadows, and deciduous woodlands), coniferous forests, shrublands, grasslands, and agriculture (croplands).

Versatility Index			
	Narrow-range	Mid-range	Generalists
Eastern prairie boggy wetlands (bogs, calcareous fens, springs, boggy woodlands, Green ash-basswood hardwoods along Sheyenne River)	Marsh bellflower Buckbean Bog willow Slender cottongrass Showy lady's slipper	Labrador bedstraw Marsh fern Spinulose woodfern Marsh horsetail Delicate sedge Sensitive fern Loesel's twayblade Shining flatsedge Umbrella flatsedge Meadow horsetail Crested shield fern	
Tallgrass prairie wetlands (lowland swales, sedge/willow complexes, marshes, wet depressions)	Little grape fern	Adder's tongue Small white lady's slipper	
Tallgrass prairie deciduous hardwoods (Green ash-elm woodlands)		Dogberry Lady fern Broad-leaved goldenrod Oak fern Foxtail sedge Leathery grapefern	
Tallgrass prairie			Upright pinweed
Tallgrass prairie choppy sandhills	Sandgrass Beach heather	Frostweed Wahoo spindle-tree	
Western plains riparian (perennial and intermittent streams, seeps/springs, wet meadows)	Lanceleaf cottonwood	Alkali sacaton Blue lips	
Scoria hills (scoria hills and knobs)	Golden stickleaf	Limber pine	
Sandy plains (sandy swales, sandy soils)		Sand lily	
Buttes	Nodding buckwheat Torrey's cryptantha	Alyssum-leaved phlox	

western North Dakota are unique islands within the surrounding rolling grasslands and badlands. Nodding buckwheat is known from only one population in North Dakota, associated with habitat found on Roundtop Butte. Hooker's townsendia and Torrey's cryptantha are also known from limited populations located along the rimrock edge of Bullion Butte, the second largest butte in North Dakota. The threats to these butte habitats primarily involve grazing and introduced species competition to native flora.

Twenty six plant species are rated as mid-range of versatility species meaning that they may primarily occur on one habitat type but also are found in other habitat types. The majority of the species in this category are found in the Eastern prairie boggy wetlands guild and tend to be found in the bogs, fens, and marshes associated with the Sheyenne National Grassland. Many of these wetland habitat types have been altered and drained throughout their former pre-settlement range. In addition, these wetland habitats are sensitive to disturbance and development, introduction of non-native plant species, trampling, and grazing.

In addition, mid-range species include several tallgrass species associated with the tallgrass prairie deciduous hardwoods guild on the Sheyenne National Grassland. Within the Northern Great Plains planning area, the habitat components captured by this guild are uncommon and occupy a very small percentage of the total land base. This guild includes broadleaf tree communities such as Green ash/box elder, American elm, and cottonwood. These communities occur upslope from river valley forests yet are also highly dependent upon maintenance of hydrologic regimes and are sensitive to grazing, road development, and introduction of non-native plant species.

It should be noted that mid-range species, by definition, occur primarily on one habitat type, but are also found in other habitat types. Under some situations this may be a function of response to a moisture gradient which may vary considerably depending on whether the current growing season involves drought conditions or wet conditions. Therefore some mid-range species may function as narrow-range species in drought years when moisture conditions restrict suitable habitat. Conversely, some narrow-range species may expand their range during wet climate cycles and behave more like mid-range species.

Only one plant species was categorized as a generalist species meaning that it occurs across a wide variety of habitat types. This species, upright pinweed, is found on the tallgrass prairie of the Sheyenne National Grasslands. Limited information is known about the upright pinweed population to be able to more closely define its population

Table 12. Habitat conservation and improvement goals for Category 3 Species at Risk based on where they occur along environmental gradients within broad communities.

Habitat is defined as that capable of supporting a population for one or more Category 3 species over the planning period.

Habitat	Conservation Recommendations
Eastern prairie boggy wetlands	Manage landscape for maintenance of natural hydrological regimes, restore or maintain the natural wetland mosaic of vegetation communities, and control non-native plant species. Allotment management plans will preclude grazing in these areas.
Tallgrass prairie wetlands	Manage for maintenance of natural hydrological regimes, restore or maintain the natural mosaic of wetland vegetation communities, and control non-native plant species. Allotment management plans will permit grazing within the framework of historic processes. Properly timed fire and grazing may limit willow invasion. Management of Off Road Vehicle (ORV) and related recreation is important and the impacts of grasshopper and other spraying must be considered.
Tallgrass prairie deciduous hardwoods	Manage landscape for maintenance of natural hydrological regimes, restore or maintain the natural mosaic of seral vegetation communities including wetlands, and control non-native plant species. Allotment management plans will preclude grazing in these areas. Properly timed fire and grazing may limit willow invasion. Management of ORV and related recreation is important. Impacts of grasshopper and other spraying must be considered.
Tallgrass prairie	Manage for maintenance of natural hydrological regimes, restore or maintain

the natural mosaic of seral vegetation communities, and control non-native plant species. Allotment management plans will permit grazing within the framework of historic processes. Properly timed fire and grazing may limit willow invasion. Management of ORV and related recreation is important and the impacts of grasshopper and other spraying must be considered.

Tallgrass prairie choppy sandhills

Manage for maintenance of natural hydrological regimes. Restore the natural mosaic of seral vegetation communities including early seral sand dunes. Control non-native plant species. Allotment management plans will permit grazing within the framework of historic processes. Properly timed fire and grazing may limit willow invasion. Management of ORV and related recreation is important and the impacts of grasshopper and other spraying must be considered.

Western plains riparian

Manage landscape for maintenance of natural hydrologic processes. Control non-native plant species. Allotment management plans will promote structural integrity of woodland species and will be timed to permit recruitment of young trees. Management of ORVs and roads to reduce impacts is important. Limit development of springs and seeps.

Scoria hills

Manage projects for maintenance of natural landscape processes. Control non-native plant species. Allotment management plans will utilize grazing within the framework of historic patterns.

Sandy plains

Manage projects for maintenance of natural landscape processes and restore or

maintain the natural mosaic of seral vegetation communities. Control non-native plant species. Allotment management plans will permit grazing within the framework of historic processes. The impacts of grasshopper and other spraying must be considered.

Buttes

Projects will maintain or restore the full spectrum of communities associated with buttes. Unique habitats associated with buttes should be protected. Road densities should be reduced and fragile butte soils should be protected. Reduce the number of water developments for livestock. Restore historic hydrologic regimes. Minimize the impacts of grasshopper spraying on insect-pollinated plant populations.

demographics and habitat preferences. The known population is found within the broad scope of the tallgrass prairie guild.

Conservation measures for plant species at risk were derived for each of the guilds (Table 12). These measures focus upon biotic and abiotic processes and the degree to which management can accommodate those processes. The vast majority of plant Species at Risk are associated with wetland and riparian habitats. The maintenance of hydrologic regimes is paramount to the conservation of plant Species at Risk associated with these communities. Management activities will be allowed to the extent that hydrologic processes are maintained. Species that are associated with terrestrial habitats are largely adapted to drought, herbivory and fire. Management in these types of habitats should be designed to emulate these historic processes using livestock grazing, native ungulate herbivory, and prescribed fire.

The Fine Filter

The coarse filter approach suggests viable populations will be maintained when the referenced communities contain almost all the species (Hunter et al. 1988) with the exception of those (1) with very large home ranges, (2) with consistently sparse population densities, (3) with highly specialized or unique habitats, (4) dependent on public lands where these occupy a small part of the planning area, (5) that are highly

fragmented or isolated habitats, and (6) habitats that have undergone substantial changes due to the invasion of alien or exotic species.

The theoretical complexity in accounting for the myriad of factors (demographic, genetic, habitat fragmentation, species turnover, suitability etc.) involved in estimating a viable population has hindered the development of a defensible model (Grumbine 1990).

Recently, Beissinger and Westphall (1998) provide an extensive review on the use of models of population viability in endangered and threatened species management. Their concerns and recommendations in part include that most quantitative models are unreliable due to poor demographic data, unreliable estimates arise through the use of stochastic models because the inherent structure is often different, alternative models can give very different results and consideration of alternative models is essential and, that if models are used, start with simple models and choose an approach the data can support and examine all possible scenarios. Another significant factor in estimating and managing for population viability is the necessity of cooperation across administrative boundaries and public and private land ownerships (Grumbine 1990).

Uncertainties in parameter estimates (Beissinger and Westphall 1998) and the need for cooperation (Grumbine 1990) frame the fine filter approach on the Northern Great Plains. Where available data permit, alternative models are considered with the focus on relative rates and short periods of time. Where no information (other than habitat relationships based on the literature and professional opinion) is available, qualitative approaches and or conservation principles to maintain and or enhance the habitat and ecological drivers important to the species form the basis for conservation.

Each species in Category 1 is considered individually in one of two categories, i.e., alternative models or qualitative information. Moreover, each individual species description includes four elements; species description, conservation status, habitat, and management practices favoring population viability/recovery.

Alternative Models

Black-footed Ferret (Category 1)

Species description: The black-footed ferret (*Mustela nigripes*), only ferret native to North America, is a medium-sized carnivore about the size of a mink. Their long, slender body is mostly buff in color accented by a black face mask, black feet and a black-tipped tail. They are primarily active at night, and their diet consists mostly of prairie dogs. Black-footed ferrets have 1 litter per year with an average of approximately 4 kits. For more detailed descriptions of this species, consult Anderson et al. (1986), Clark (1989), and the Black-footed Ferret Recovery Plan (U. S. Fish and Wildlife Service 1988).

Conservation status: This is one of the rarest wild mammalian species in North America and the world. It was listed as endangered in 1967, and the last known wild ferrets were

captured because of disease concerns in 1987 near Meeteetse, Wyoming. The few populations known to occur in the wild today are the result of reintroductions. The major factors leading to the endangerment of the species include:

- Substantial reductions and fragmentation of prairie dog populations and colonies by poisoning, fumigation, cultivation, urbanization and plague,
- Unintentional poisoning of black-footed ferrets during prairie dog control and eradication programs,
- Disease (canine distemper and plague).

Black-footed ferrets are currently being raised in captivity at several locations including the National Ferret Breeding Center (Wyoming), Henry Doorly Zoo (Nebraska), Louisville Zoological Garden (Kentucky), National Zoological Park's Conservation and Research Center (Virginia), Phoenix Zoo (Arizona), Cheyenne Mountain Zoological Park (Colorado), and the Metropolitan Toronto Zoo (Ontario). Approximately 240 breeding ferrets are currently in the captive breeding program. The objective of the captive breeding program is to provide ferrets for release back into suitable wild habitats. To date, reintroductions have occurred in Wyoming (Shirley Basin), north-central Montana, South Dakota (Conata Basin/Badlands), Arizona (Aubrey Valley) and northwest Colorado/northeast Utah. Of these locations, the South Dakota reintroduction area is the only one where plague epizootics are not an immediate threat. Plague is an exotic disease spreading across the range of the black-tailed prairie dog and decimates prairie dog populations that ferrets need for survival. The ultimate success (viable ferret populations) of each reintroduction program remains questionable, although the lack of plague epizootics and relatively high levels of survival, reproduction, and dispersal of released ferrets currently gives reason for optimism at the Conata Basin/Badlands reintroduction site.

The recovery objective identified in the Black-footed Ferret Recovery Plan calls for establishing a prebreeding census population of 1,500 free-ranging, breeding adult ferrets in 10 or more populations with no fewer than 30 breeding adults in any population by the year 2010. This objective is "to ensure immediate survival" of the species, and if this objective is met, down-listing the black-footed ferret from endangered to threatened may occur. To de-list and ensure long-term viability may require larger and more widespread ferret populations, especially when considering the possible continued spread of plague. Canine distemper is another disease that can result in direct mortality of black-footed ferrets and further complicates the recovery of the species.

Potential of plague to eliminate or substantially impact recovery efforts must be considered in planning for recovery of the species. As previously mentioned, plague epizootics have already impacted recovery efforts at all current reintroduction sites, except the Conata Basin/Badlands site in South Dakota. A plague epizootic recently occurred on and near the Thunder Basin National Grassland, and it has to be recognized

that plague epizootics could eventually threaten the Conata Basin/Badlands reintroduction area as well.

To date, critical habitat has not been designated for the black-footed ferret.

Habitat: The historic range of black-footed ferrets nearly coincided with the range of prairie dogs across North America. Black-footed ferrets occur almost exclusively in prairie dog colonies, and ferret movements off prairie dog colonies represent dispersal in search of other prairie dog colonies. Ferrets prey primarily on prairie dogs and spend most of their time in prairie dog burrows and colonies. Large prairie dog colonies and colony complexes are needed for long-term viability of black-footed ferret populations. According to the recovery plan, approximately 185,000 acres of prairie dog colonies are needed as suitable reintroduction habitat to make it possible to meet the down-listing objective of 1,500 breeding adult ferrets (124 acres of prairie dog colony per adult ferret) in at least 10 locations by the year 2010. This equates to an average of approximately 18,500 acres of prairie dog colonies per reintroduction area. However, this acreage projection is based on black-footed ferrets occurring in white-tailed prairie dog colonies. It is suspected that area requirements would be less in black-tailed prairie dog colony complexes due to the higher prairie dog densities typically found in black-tailed prairie dog colonies. Based on recent information on habitat requirements of adult ferrets in the Conata Basin/Badlands reintroduction area (black-tailed prairie dogs), area requirements may be in the range of approximately 35 to 60 acres of active prairie dog colony per adult ferret (Bill Perry and Travis Livieri, personal communication). Since the recovery plan specifies at least 30 adult ferrets in each reintroduction area, the minimum size of each colony complex in black-tailed prairie dog habitat, based on the current Conata Basin/Badlands ferret densities, is currently projected to be approximately 1,000 to 1,800 acres. However, results from several modeling studies (Stromberg et al. 1983, Houston et al. 1986, Clark 1989, Harris et al. 1989, Biggins et al. 1993, , Bevers et al. 1997) suggest the need for much larger colony complexes to increase the probability of long-term persistence of ferret populations. The Black-footed Ferret Recovery Plan also identifies the need for the larger complexes but at the same time suggests that the contributions smaller complexes can make to the national recovery efforts should not be overlooked.

Various authors have provided estimates of minimum viable populations (MVP). Frankel and Soule' (1981) provided a general rule that at least 50 adults are needed to maintain short-term genetic fitness (30 generations). Groves and Clark (1986), using data from the Meeteetse ferret population, suggested that a MVP of 214 breeding adult ferrets would be needed to maintain an effective population of 50 adults. Using the area requirements of ferrets in the Conata Basin/Badlands reintroduction site, a minimum complex size of 7,490 to 12,840 acres would be needed to support 214 adult ferrets. Harris et al. (1989) used demographic data from both South Dakota and Wyoming ferret populations in a computer simulation model and suggested that 90 to 100 black-footed ferrets would have a 95% probability of surviving 50 to 100 years. This would result in the need for a complex of approximately 3,150 to 5,400 acres of active black-tailed

prairie dog colonies. Lande (1998) provides information that suggests much larger populations (several thousand) are typically needed for long-term viability.

For more detailed descriptions of black-footed ferret habitat, consult the Black-footed Ferret Recovery Plan, Harris et al (1989), Clark (1989), Minta and Clark (1989) and Biggins et al. (1993).

Management Practices Favoring Population Viability/ Recovery:

Tasks for meeting the recovery objectives for black-footed ferrets are outlined and discussed in the recovery plan. Specific tasks identified in the recovery plan that the Forest Service could help implement are summarized as follows:

- Locate, evaluate, and maintain potential black-footed ferret habitat (Task #2 in BFFNRP),
- Establish cooperative black-footed ferret management agreements with public and private landowners (Task #2416),
- Provide protection for potential reintroduction habitat, including habitat acquisition (Task #244),
- Develop and implement monitoring and management prescriptions for potential black-footed ferret habitat (Task #24),
- Develop and implement management plans for prairie dog colonies (Task #241),
- Collect information on potential reintroduction sites for screening and baseline data purposes (Task # 242),
- Initiate information and education programs for reintroduction sites (Task #245),
- Re-introduce black-footed ferrets into suitable habitat following recommended release strategies (Task #4),
- Develop strategic management and monitoring plans for reintroduced populations (Task #51),
- Develop plans for translocating free-ranging ferrets to other populations (Task #53).

Guidelines have been developed by the U.S. Fish and Wildlife Service (unpublished draft, February, 1990) for protecting reintroduced black-footed ferret populations and their habitat from possible adverse effects from oil and gas activities. These guidelines are very lengthy and are not repeated here but are available from the Denver Regional Office of the U.S. Fish and Wildlife Service.

The National Fish and Wildlife Foundation and the U.S. Fish and Wildlife Service recently contracted the American Zoo and Aquarium Association (AZA) to conduct a comprehensive review of the black-footed ferret recovery program. AZA's review findings (Hutchins et al. 1997) also support the priority need to identify and preserve, as soon as possible, both existing and potential "large prairie dog complexes" as potential black-footed ferret habitat.

Given current plague risks and the shortage of available reintroduction areas, identifying and developing additional reintroduction areas as quickly as possible remains a priority need. This includes developing new reintroduction areas by attempting to accelerate expansion of remnant, fragmented prairie dog populations. To accelerate development of new reintroduction areas supporting large colony complexes will likely require modified livestock grazing practices (high grazing intensities), possible restrictions on prairie dog shooting, and, in some cases, prairie dog translocations. (initiating new colonies). The need for active landownership adjustment programs by the Forest Service and others is also needed to enhance opportunities for prairie dog colony expansion and to reduce conflicts with adjoining land jurisdictions in areas that have the potential to be future black-footed ferret reintroduction sites.

Literature Cited

- Anderson, E., S.C. Forest, T.W. Clark, and L. Richardson. 1986. Paleobiology, biogeography, and systematics of the black-footed ferret, *Mustela nigripes* (Audubon and Bachman), 1851. Pages 11-62 in *The black-footed ferret*. Brigham Young University, Great Basin Naturalist Memoirs, No. 8. 208pp.
- Bevers, M., J. Hoff, D.W. Uresk and G. L. Schenbeck. 1997. Spatial optimization of prairie dog colonies for black-footed ferret recovery. *Operations Research* 45(4): 495-507.
- Biggins, D. E., B.J. Miller, L. Hanebury, R. Oakleaf, A. Farmer, R. Crete, and A. Dood. 1993. A technique for evaluating black-footed ferret habitat. Pages 73-88 in *Proceedings of the symposium on the management of prairie dog complexes for the reintroduction of the black-footed ferret*. U.S. Fish and Wildl. Serv., Biol. Rep. 13. 96pp.
- Clark, T.W. 1989. Conservation biology of the black-footed ferret. *Wildlife Preservation Trust International, Special Scientific Rep. No. 3*. 175pp.
- Franklin, I. R. 1980. Evolutionary changes in small populations. Pages 135-149 in M. E. Soule', and B. A. Wilcox, eds. *Conservation biology: the science of scarcity and diversity*. Sinauer Associates, Sunderland, MA.

- Groves, C. R., and T. W. Clark. 1986. Determining minimum population size for recovery of the black-footed ferret. Pages 150-159 in *The black-footed ferret*. Brigham Young University, Great Basin Naturalist Memoirs, No. 8. 208pp.
- Harris, R. B., et al. 1989. Extinction probabilities for isolated black-footed ferret populations. Pages 69-82 in U. S. Seal, et al., eds. *Conservation biology and the black-footed ferret*. Yale University Press, New Haven. 302pp.
- Houston, B. R., T. W. Clark, and S. C. Minta. 1986. Habitat suitability index model for the black-footed ferret: a method to locate transplant sites. Pages 99 -114 in *The black-footed ferret*. Brigham Young University, Great Basin Naturalist Memoirs, No. 8. 208pp.
- Hutchins, M., R. J. Wiese, and J. Bowdoin. 1996. Black-footed ferret recovery program: analysis and action plan. American Zoo and Aquarium Association. 137pp.
- Lande R. 1995. Mutation and conservation. *Conserv. Biol.* 9:782-791.
- Minta, S. C., and T. W. Clark. 1989. Habitat suitability analysis of potential translocation sites for black-footed ferrets in northcentral Montana. Pages 29-45 in Clark, T. W., et al., eds. *The prairie dog ecosystem: managing for biological diversity*. Montana BLM Wildl. Tech. Bull. No. 2.
- Shaffer, M. L. 1981. Minimum viable population sizes for species conservation. *Bio Science* 31:131-135.
- Soule', M. E. 1980. Thresholds for survival: maintaining fitness and evolutionary potential. Pages 151-170 in M. E. Soule' and B. A. Wilcox, eds. *Conservation biology: an evolutionary-ecological perspective*. Sinauer Associates, Sunderland, MA.
- Stromberg, M. R., R. L. Rayburn, and T. W. Clark. 1983. Black-footed ferret prey requirements: an energy balance estimate. *J. Wildl. Manage.* 47:67-73.

Black-tailed Prairie Dog (Category 2)

Species description: Black-tailed prairie dogs (*Cynomys ludovicianus*) are burrowing rodents (ground squirrels) that live in colonies on North American grasslands and shrublands. They are diurnal, herbivorous and highly gregarious. They forage primarily on grasses and forbs but are also known for cutting down vegetation, including shrubs, to improve their visibility and reduce predator cover. Females have a single litter annually of 1 to 6 pups with an average of approximately 3 (at first emergence, not birth). Consult Hoogland (1995) and Jones et al. (1983) for more detailed descriptions of the species.

Conservation status: Black-tailed prairie dog colonies now cover about 800,000 acres in the United States, Canada and Mexico, and this is thought to represent an overall reduction in colony acreage since European settlement of North America of greater than 90% (Knowles 1998, Mulhern and Knowles 1997). Prior to European settlement, the species was believed to have inhabited somewhere between 100 and 200 million acres of the North American prairie (U.S. Fish and Wildlife Service, 12-month black-tailed prairie dog petition finding). The species was recently petitioned for listing as a threatened species under the Endangered Species Act (ESA) by several conservation organizations, and these petitions were determined by the U.S. Fish and Wildlife Service to be warranted, but precluded by higher listing priorities. The black-tailed prairie dog is now classified as a candidate species for possible future protection under ESA. The species is currently listed as vulnerable by the Committee on the Status of Wildlife in Canada (COSEWIC), sensitive by the Bureau of Land Management, and as a species of concern in the States of Wyoming and Montana. The Northern, Rocky Mountain and Southwest Regions of the Forest Service list the species as sensitive.

The 12-month finding prepared by the U.S. Fish and Wildlife Service for the petitions to list black-tailed prairie dogs as threatened (Federal Register, February 4, 2000, Volume 65, Number 24) provides a discussion of the following major threats to the species:

Destruction, modification and fragmentation of habitat rangewide,

Recreational shooting of local populations,

Plague across most of the specie's range,

Inadequacy of existing regulatory mechanisms,

Widespread prairie dog control (poisoning, fumigation).

Plague, an exotic disease that is highly lethal to prairie dogs, is a serious threat to the persistence of local and possibly regional black-tailed prairie dog populations, especially in the southern part of the species range. Plague appears to be extending its range into the northern plains (Barnes 1993, Cully 1993, K. Gage pers. com.), and we remain uncertain of the rate and extent of further expansion across the northern plains. We know that plague can reduce or eliminate sizeable black-tailed prairie dog populations within a season or less. Colony complexes of thousands or tens of thousands of acres can be eliminated or nearly eliminated in an epizootic (Barnes 1993, Cully 1993). The potential of plague to spread across the remaining portions of the range of black-tailed prairie dogs in North Dakota, South Dakota and Nebraska needs to be considered when assessing viability of the species across the northern plains. Because our incomplete understanding of plague epidemiology and its frequently unpredictable patterns of spread, it is very difficult to quantitatively evaluate extinction probabilities for local or regional prairie dog populations subject to plague epizootics. A plague epizootic has recently occurred on the Thunder Basin National Grassland, not too distant from the Buffalo Gap and Oglala

National Grasslands. Plague titers have also been recently confirmed in coyotes in South Dakota and western Nebraska.

Studies of the genetic heterogeneity of selected black-tailed prairie dog populations in South Dakota and Wyoming give us some idea of the genetic fitness of these populations in a highly fragmented landscape (Bowser 1993, Chesser 1983, Daley 1992). The results of these studies indicate that despite the current levels of habitat fragmentation and apparent isolation, the current level of inbreeding within fragmented black-tailed prairie dog populations is not elevated. Hoogland (1995) also reported finding no inbreeding depression among South Dakota prairie dogs. This information suggests that the ability of prairie dogs to successfully disperse and share genetic information between colonies and colony complexes is frequently underestimated.

Consult the Federal Register notice for a more thorough discussion on the threats to the species.

Habitat: Prairie dogs occur in densely populated colonies, mostly on shortgrass and mixed grass prairie on the Great Plains. Some populations are also found in the Nebraska sandhills and in shrub-steppe regions. Habitat suitability is enhanced for the species by low vegetative cover and increased visibility to detect predators. Prairie dogs prefer areas with disturbed soils and/or grasslands grazed by livestock or bison, and rate of colony expansion and establishment is largely determined by past agricultural practices (soil disturbances) and current livestock grazing intensities (Knowles 1986, Jones et al. 1983, Uresk et al. 1981). Annual precipitation patterns and resulting plant productivity levels also influence the rate of colony establishment and expansion. Black-tailed prairie dogs can also modify shrublands to meet their needs by cutting down individual shrubs from the perimeter of their colonies.

For more detailed descriptions of the habitat relationships for this species, consult Hoogland (1995), Jones et al. (1983), Knowles (1982), and Clippenger (1989).

Management Practices Favoring Population Viability/Recovery:

Conservation strategies for maximizing the contribution that the Forest Service and National Grasslands can make to the long-term viability of black-tailed prairie dogs are described below:

- Establish and maintain multiple (two or more) prairie dog colony complexes on each National Grassland within the range of the black-tailed prairie dog. To facilitate inter-colony gene flow and recolonization in the event of a colony extinction within a complex, individual complexes should be identified and managed on the basis of maximum effective dispersal distance of prairie dogs. A distance of 10 km (Knowles 1985) is currently suggested for defining and identifying individual colony complexes. Individual colony complexes should consist of at least 10 colonies, preferably 15 or more. The minimum number of colonies in a complex follows a recommendation by Hanski (1997) on the

minimum number of subpopulations to help ensure long-term persistence of metapopulations exposed to environmental stochasticity. Although not specific to long-term viability of black-tailed prairie dog populations, complexes should be or have the potential of growing to a size capable of supporting future reintroductions of black-footed ferrets.

- To help establish new colony complexes, consider use of heavy grazing intensities, restrictions on prairie dog shooting, and prairie dog relocation to accelerate colony expansion and establishment of new colonies.
- To reduce plague risks, the distance between colony complexes should be maximized to the extent possible. This may require poisoning some stepping-stone colonies located between complexes, but this should only be considered when plague risks are eminent (recent and nearby epizootics). It needs to be kept in mind that both avian and mammalian predators can carry the disease between complexes (Barnes 1993, Cully 1993).
- Ideally, colony complexes would be a mosaic of suitable and occupied prairie dog habitat interspersed with unsuitable habitat. This would prevent some or many of the colonies within a complex from eventually growing together and increasing plague risks.
- Some of the more isolated colonies on each National Grassland should be managed and maintained as potential local sources of prairie dogs for translocation to augment re-colonization of other populations lost to plague or other factors. These colonies should be identified and intensively managed and monitored for this purpose.
- Working with other government agencies and conservation organizations, help establish conservation agreements and easements for prairie dog conservation on lands adjoining National Grasslands.
- Identify National Grassland areas where active landownership adjustment programs should be implemented to reduce prairie dog conflicts with adjoining land jurisdictions and to create larger blocks of public lands suitable for prairie dog colony expansion.

Literature Cited

- Barnes, A. M. 1993. A review of plague and its relevance to prairie dog populations and the black-footed ferret. Pages 28-37 in J. L. Oldemeyer, et al., eds. Proceedings of the symposium on the management of prairie dog complexes for the reintroduction of the black-footed ferret. Fish Wildl. Serv. Biol. Rep. 13.

- Bowser, G. 1993. Genetic variation among three prairie dog colonies (*Cynomys ludovicianus*) on the Great Plains: a preliminary report. Unpub. Rpt. Nat. Park Serv.
- Chesser, R. K. 1983. Genetic variability within and among populations of the black-tailed prairie dog. *Evolution* 37:320-331.
- Clippinger, N. W. 1989. Habitat suitability index models: black-tailed prairie dog. Fish Wildl. Serv. Biol. Rep. 82.
- Daly J. G. 1992. Population reductions and genetic variability in black-tailed prairie dogs. *J. Wildl. Manage.* 56:212-220.
- Hanski, I. 1997. Metapopulation dynamics: from concepts and observations to predictive models. Pages 69-91 in I. Hanski, and M. E. Gilpin, eds. *Metapopulation biology: ecology, genetics and evolution*. Academic Press, San Diego.
- Hoogland, J.L. 1995. The black-tailed prairie dog: social life of a burrowing mammal. Univ. Chicago Press, Chicago and London.
- Jones, J.K., Jr., et al. 1983. *Mammals of the northern Great Plains*. Univ. Nebraska Press, Lincoln.
- Knowles, C.J. 1982. Habitat affinity, populations, and control of black-tailed prairie dogs on the Charles M. Russell National Wildlife Refuge. Unpub. PhD Disser. Univ. Montana, Missoula.
- Knowles, C. J. 1985. Observations of prairie dog dispersal in Montana. *Prairie Nat.* 17:33-39.
- Knowles, C. J. 1986. Some relationships of black-tailed prairie dogs to livestock grazing. *Great Basin Nat.* 46:198-203.
- Knowles, C. J. 1998. Status of the black-tailed prairie dog. Unpub. Rpt. to the U.S. Fish Wildl. Serv.
- Uresk, D. W., J. G. MacCracken, and A. J. Bjugstad. 1981. Prairie dog density and cattle grazing relationships. Pages 199-201 in R. M. Timm, and R. J. Johnson, eds. *Fifth Great Plains wildl. damage control wks.* Univ. Nebraska, Lincoln.

Mountain Plover (Category 2)

(submitted by Dr. Fritz L. Knopf)

Species description. The Mountain Plover is a medium-sized bird of uplands. First collected by John Kirk Townsend in 1832 along the Sweetwater River of Wyoming and

named by Audubon as the Rocky Mountain Plover, the species is an endemic of the dry tablelands of the western Great Plains and Colorado Plateau. An unwary plover, it often faces away from an observer and merely squats and sits motionless in response to disturbance. This behavior results in the drably marked bird virtually disappearing and has fostered the nickname 'Prairie Ghost' among those who seek it out. Single birds fly only short distances when flushed; flocks fly swiftly and much further.

The Mountain Plover nests primarily in shortgrass prairie sites of historically major herbivore assemblages, specifically of prairie-dogs (*Cynomys* spp.), bison (*Bison bison*), and pronghorn (*Antilocapra americana*). It also nests sporadically in more xeric, desert shrub zones to the west. Most birds winter in the Central, Imperial, and San Joaquin valleys of California. These valley historically supported large number of Tule elk (*Cervus elaphus*), pronghorn, and kangaroo rats (*Dipodomys* spp.) that created a microlandscape similar to the nesting grounds. Some plovers also winter in Mexico, southern Texas, southern Arizona, and elsewhere in California.

Throughout its range, this plover arrives on breeding grounds in late March and April, two months before warm-season grasses begin to green. Adults and fledged chicks leave the breeding grounds by early August and wander throughout the southwestern plains until early November, when they arrive at the wintering grounds.

Conservation Status The continental population of the Mountain Plover has declined 2.7%/year from 1966-1997. The Fish and Wildlife Service upgraded the species to a Category I Candidate Species under the Endangered Species Act on 3 May 1993. In 1997, The Biodiversity Legal Foundation of Boulder, Colorado, petitioned the Fish and Wildlife Service to list the species under the auspices of The Act as either threatened or endangered. A draft listing package is currently being finalized in FWS, and publication in the Federal Register is tentatively scheduled to appear in early 1999.

Habitat. The plover is a bird of open, flat tablelands. An endemic species of the Great Plains (Mengel 1970), the plover is generally considered an associate of the shortgrass prairie (Graul and Webster 1976) dominated by blue grama (*Bouteloua gracilis*) (Knopf and Miller 1994). They avoid montane landscapes and seek areas of local aridity, disturbance, or short, intensively grazed grass when found on prairies. The plover is especially attracted to landscape altered by active prairie dog towns. In the norther Great Plains where grazing intensity is not as intense as historically and mixed grasses are more prevalent now, most plovers are found on remnant prairie dog towns (Tyler 1968, Knowles et al. 1982, Knowles and Knowles 1984, Olson-Edge and Edge 1987, Shackford 1991).

The plover also breeds in semidesert sites within, and west of, the shortgrass prairie. These sites are mostly bare ground with scattered short shrubs of the genera *Atriplex* or *Artemisia* (Wallis and Wershler 1981, Parrish 1988, Day 1994), prickly pear (*Opuntia*) and Spanish-bayonet (*Yucca* spp.) (Coues 1874). In these areas too, birds often are associated with prairie-dog activities or other forms of surface disturbance such as areas

of cattle concentrations. Open, dry alkali flats are also favored habitat (Knopf and Rupert 1995).

Management Practices Favoring Plover Population Viability/Recovery. The historical distribution of Mountain Plovers on the northern Great Plains included eastern and central Montana and sites throughout Wyoming. A single record of a plover in North Dakota is available (Roosevelt 1885), and the species was historically a rare breeder in western South Dakota. The most recent sighting in South Dakota was in 1977 (South Dakota Ornithologists' Union 1991). Some birds have been recorded recently in western Nebraska. Within this historical range, conservation and management practices that will favor current historical range, conservation and management practices that will favor current plover populations and may facilitate expansion of those populations into new areas include:

1. Maintain/expand prairie dog landscapes. Active prairie dog towns are critical habitat features for Mountain Plovers rangewide. Prairie dog landscapes have been reduced an estimated 98% continentally (Summers and Linder 1978), and pressure to poison prairie dogs remain. The Fish and Wildlife Service has been petitioned to list the black-tailed prairie dog (*C. ludovicianus*) as endangered. Such petition is currently under a one-year review at FWS. Emphasis in favoring prairie dogs should not be consolidated into specific areas but rather should include well spaced towns across larger landscapes. Such spacing will help assure a complex within which some towns will hopefully always be active as plague periodically knocks down populations at other towns. Prairie dog towns that are grazed by cattle or sheep are even more likely to attract plovers.
2. Burn extensive, flat landscapes. Burned landscapes attract plovers both on winter (Knopf and Rupert 1995) and breeding grounds. The Pawnee National Grassland began experimental burning of plover habitats in 1995. The 1998 burn was in an area known to not have been used by plovers since 1990. Twenty-nine nests were located on the 640-acre burn this past summer. The Cimarron and Comanche National Grasslands began burning for plovers in 1998, having burned over 2,000 acres. Intensive follow-up monitoring was not conducted, but biologists reported plovers landing on the burns as the old cow pies were still smoking. Plovers are very attracted to burns. Burns around existing prairie dog towns would be simultaneously valuable in that they would favor expansion of the dog town. Control burns would be conducted either after the growing season in preparation for the next breeding season, or in early spring before plovers arrive (mid March). Burn effects are for one season only.
3. Graze domestic livestock intensively in extensive, flat areas. Plover habitat includes a strong element (>30%) of bare ground (Shackford 1991, Knopf and Miller 1994, Knopf and Rupert 1999). They are not dependent upon grass in any way.
4. View predator introductions skeptically. The main predator of plover eggs and chicks is the Swift Fox (*Vulpes velox*). Nest predation rates in 1998 on the Pawnee National Grassland were 95% in a burnt area that was home to a fox known to have a litter. This

compares to 35% for the same time period on BLM lands in Phillips County, Montana, where there are no foxes.

5. Radio telemetry studies of Mountain Plovers on the Pawnee National Grassland documented the area required for a plover to successfully raise a brood. That area ranged from a minimum of 70 acres to a maximum of 225 acres. The average brood-rearing area for 6 successful plovers that raised chicks to fledging was 140 acres (Knopf and Rupert 1996). Management activities probably should not be conducted on areas of <100 acres. However, plovers will nest on prairie dog towns as small as 5 acres.

Literature Cited

Coues, E. 1874. Birds of the Northwest: a hand-book of the ornithology of the region drained by the Missouri River and its tributaries. U.S. Govt. Print. Office. Washington, D.C. [Reprinted in 1974 by Arno Press, New York.]

Day, K.S. 1994. Observations on Mountain Plovers (*Charadrius montanus*) breeding in Utah. Southwest. Nat. 39:298-300.

Graul, W.D. and L.E. Webster. 1976. Breeding status of the Mountain Plover. Condor 78:265-267.

Knopf, F.L. and B.J. Miller. 1994. *Charadrius montanus*—montane, grassland, or bare-ground plover? Auk 111:504-506.

Knopf, F.L. and J.R. Rupert. 1995. Habits and habitats of Mountain Plovers in California. Condor 97:743-751.

Qualitative Information

Blowout Pestimon (Category 1)

Species Description. Blowout penstemon exists in isolated population centers in four counties in Nebraska and is restricted to active blowouts in the sandhills (Fritz et al. 1992). The species was once a common plant in blowouts but with the control of fire and range management practices considered to be influences on the decline. Insect predation may also play a role with competition from both native and non-native species a factor in the decline. In general, plants bud in early May, plants flower from mid-May through late June, with seed capsules dehiscing in late July or August.

Habitat Blowout penstemon requires sites that are devoid or nearly devoid of vegetation, sites usually created by active wind erosion. Historically, repeated fires and concentrations of grazing animals caused disturbances such that relative small blowout were created via the wind. Blowout penstemon is usually found in the blowout crater and usually on the leeward side of blowouts. These blowouts should not be confused with

wind eroded field or plane sand sweeps nor with areas around windmills where livestock aggregate and disturb the vegetation. Moreover, the blowout is not static and wind erosion continually moves the blowout across the landscape.

Conservation Status Endangered Species Act of 1973 (ESA)-Endangered, The Nature Conservancy/Natural Heritage Program (TNC/NHP)-G1, Nebraska (NE)-Endangered

Management Practices Favoring Population Viability/Recovery

- 1) Maintain or restore natural processes that influence development of naturally-occurring blowouts.
- 2) Maintain and monitor natural occurring populations and possible reintroduction sites. Restriction use of off road vehicles within blowouts with known occurrence or within possible re-colonization. Limit construction of powerline or pipelines in natural occurring populations and possible reintroduction sites. Consider herbicide drift in any application and control collecting.
- 3) Inventory suitable habitat and determine potential reintroduction sites.
- 4) Establish in cooperation with other agencies and private landowners a minimum of 15,000 plants in at least 5 population groups.

Ute ladies' tresses (Category 1)

Species Description. Ute ladies' tresses was first described as a species in 1994. Until 1992, only 11 populations were known in Colorado, Utah, and Nevada. This perennial herb grows to a maximum height of 65cm with mostly basal, linear leaves with bracts further up the stem. The inflorescence is a spike 3-15 cm in length and the inflorescence ranges from 7.5 to 15mm in length. The stem is 20 to 50 cm in length with the upper stem glandular pubescent.

Habitat. The Ute ladies' tresses is found in moist meadows, wet streambanks, abandon oxbows between elevations of 5100 ft and 5200 ft. It is found presently in 26 locations in Wyoming and Nebraska, with additional sites in Colorado, Utah, Idaho, Montana, and Washington, increasing the number of known populations to 32 in 1998.

Conservation Status. ESA-Threatened, TNC/NHP-G2/S1

Management Practices Favoring Population Viability/Recovery

- 1) Contribute to meeting goals and objectives stated in a forthcoming recovery plan.
- 2) Survey for, identify and protect habitats where this species is known to occur.

- 3) Allow mowing or grazing of wet meadows and other habitats containing Ute ladies' tresses in early summer to enhance growing conditions for this plant by reducing competing grass cover. Coordinate management activities with the Fish and Wildlife Service.
- 4) Maintain hydrological processes in habitats potentially occupied by the orchid. Wet or subirrigated conditions are considered important habitat requisites.
- 5) Identify suitable habitats that could be used as reintroduction sites for this species into currently unoccupied habitats.

Literature Cited

Hazlett, D. L., 1997, A search for *Spiranthes divuvialis* in Sotheastern Wyoming and Western Nebraska, Unpub. Rpt. BLM, Cheyenne, WY.

Hazlett, D. L., 1998, A 1998 survey for *Spiranthes divuvialis* (Ute ladies'-tresses orchid) Thunder Basin National Grassland, Wyoming. Unpub. Forest Serv. Rept. Douglas Ranger District, Douglas, WY.

Western Prairie Fringed Orchid* (Category 1)

Species Description. The western prairie fringed orchid historically occurred in the northern tallgrass prairie region from Iowa east to North Dakota and from Canada south to Nebraska. Currently, the three meta-populations for the species that exist are on Sheyenne NG, in western Minnesota, and southern Manitoba. All three of these populations are associated with Pleistocene Lake Agassiz interbeach deposits. Occasionally, small populations are identified in other parts of the species historic range, but these are considered non-viable.

Conservation Status: ESA - Threatened, COSEWIC-Endangered

Habitat. The western prairie fringed orchid is associated with graminoid wetland sites within the tallgrass prairie biome. Currently, the Sheyenne NG is the only Grassland Unit containing a viable meta-population within the Northern Great Plains Planning Area. Historic disturbance factors important in maintain orchid habitats included periodic fires, hydrologic regimes including water table levels, flooding and grazing by bison. Conversion of native prairie to agricultural croplands, depletion of the water table, encroachment of alien species (e.g. leafy spurge) and repeated heavy grazing are practices that adversely affect orchid habitats.

Management Practices Favoring Prairie Fringe Orchid Viability/Recovery

- 1) Follow management prescriptions identified in the "Management Guidelines for the Western Prairie Fringed Orchid on the Sheyenne National Grassland." The

"Management Guidelines for the Western Prairie Fringed Orchid on the Sheyenne National Grassland" provides specific life history, habitat requisites and management guidance for this species on the Sheyenne NG. These guidelines were developed as a means to implement Recovery Plan objectives for this population, and as consultation document between the Forest Service and the Fish and Wildlife Service.

- 2) Reintroduce orchids on to National Grasslands where this species was formerly found.

Literature Cited

USDA. In Prep. Management guidelines for the western prairie fringed orchid on the the Sheyenne National Grassland. For. Serv., Dakota Prairie National Grassland, Bismarck, ND.

USDI. 1996. *Plantanthera praeclara* (western prairie fringed orchid) recovery plan. Fish Wildl. Serv., Ft. Snelling, MN.

Dakota buckwheat (Category 2)

Species description. Dakota buckwheat is a regional endemic known from west-central North Dakota and west-central South Dakota. The species was first collected and identified as a new species by Stephen Sargent Visser in 1912 while conducting a geological reconnaissance for the South Dakota Geological Survey. Despite being described as a new species in 1913 by Aven Nelson, very few specimens were collected over the subsequent years. The species did not receive full recognition as a taxonomically distinct species until James Reveal studied the genus *Eriogonum* more thoroughly in the 1960's. It has not been determined whether *E. visseri* is an ancient species or has recently evolved (Ode 1987). The northern Great Plains contains few annual *Eriogonum*s and none are closely related to *E. visseri*. Dakota buckwheat has the distinction of being the only known vascular plant that is endemic to the Dakotas (Ode 1987).

Known occurrences within the planning area include the Little Missouri NG, the Cedar River NG, Grand River NG and the Buffalo Gap NG.

Conservation Status. TNC/NHP-G3,N3; Forest Service (FS)-Sensitive. Formerly considered as a Category 2 species by the Fish and Wildlife Service.

Habitat. The Dakota buckwheat is considered an obligate resident of badland habitats. It is a primary successional species that inhabits mostly barren, actively eroding clay and shale substrates. Important habitats are toeslopes of eroding clay knobs. These badlands landforms contain habitats for a variety of plant and wildlife species not commonly found in the adjacent rolling grassland plains. Common native plant species found with Dakota buckwheat include: Broom snakeweed (*Gutierrezia sarothrae*),

saltbush (*Atriplex argentea*), and knotweed (*Polygonum ramossissimum*). Introduced plant species are also found with its badlands habitats including Russian thistle (*Salsola iberica*), Sweetclover (*Melilotus officinalis*), and Kochia (*Kochia scoparia*).

Dakota buckwheat first emerges in the spring from May through late June, depending on its geographic location. It is an annual species whose flowers first appear from late June to late July and continue to be produced into September. Seeds ripen and fall throughout this period. *E. visheri* is wind-pollinated and self-fertile.

Soil analyses have shown that Dakota buckwheat grows in a very harsh soil environment characterized by dense clay soils which are sodium-affected and nutrient-poor. In addition, the soils have a high shrink-swell capacity. All these characteristics contribute to a harsh environment which inhibits secondary plant succession and provides Dakota buckwheat with a habitat niche which can be largely free from most plant competition.

Major threats to the Dakota buckwheat include competition from non-native plant species and trampling by livestock. Most Dakota buckwheat sites are located within rangeland which is grazed by livestock. Ode (1987) did not cite livestock grazing as a direct threat to Dakota buckwheat. However, it was observed that excessively grazed ranges appeared to contain more exotic, non-native plant species and heavily stocked ranges seemed to have heavier infestations of Russian thistle and kochia. These two introduced species could be expected to aggressively compete with Dakota buckwheat within its narrow growing environment.

All four national grasslands contain potentially suitable habitats that could function as important refugia for this species and provide for its distribution throughout its known range. The McKenzie RD of the Little Missouri NG and the Buffalo Gap NG contain some of the most extensive populations and largest occupied habitat of this species.

Management Practices Favoring Dakota buckwheat Population Viability /Recovery

- 1) Identify all known populations and the high probability suitable habitat adjacent to these known populations. Surveys should be conducted to identify additional populations. These areas should be managed to retain the known populations and provide for their habitat integrity.
- 2) Conduct rare plant surveys in badlands habitats during an appropriate time of year prior to implementing any ground disturbing activities. In addition, any range development projects which may indirectly affect any known populations or high probability habitat should also be surveyed.
- 3) Prepare a conservation strategy for the species assessing population trends and identifying the location of key populations occupying high quality habitat.

Literature cited

Ode, D. 1987. The Status of Dakota Wild Buckwheat (*Eriogonum visheri* A. Nels.) in South Dakota. A Report to the U.S. Fish and Wildlife Service Endangered Species Office. Report No. 87-8. South Dakota Game, Fish and Parks Depart.

Smooth Goosefoot (Category 2)

Species Description. This annual forb flowers from July through September. Its fruit is an indehiscent utricle. The species is known from several populations on the Little Missouri National Grassland. Species distribution is centered in Nebraska and South Dakota, with additional outlying populations found in southern Canada, eastern Oregon and Washington, through the western states to North Dakota, Kansas, Wyoming, Colorado, Utah, Nevada, Montana, and Idaho. However records from at least five of these states are in question (Lenz 1993). The species was first collected in North Dakota in 1946. All of the known populations in North Dakota are very small and habitat is considered limited and threatened (Lenz 1993).

The *Flora of the Great Plains* (1986) notes that the species is quite rare and has been collected infrequently during the past several decades. The population(s) located during the 1989 survey of Teddy Roosevelt National Park are among the most recent collections of this species anywhere. It has not been considered to date by the U.S. Fish and Wildlife Service for listing as Threatened and Endangered, and cannot be considered until distribution and taxonomy are settled in western parts of the species' distribution (Heidel 1990). Within the planning area, the species may be considered a regional endemic (Heidel 1994), however records are few and need clarification.

Conservation Status TNC/NHP-G3; IUCN-Rare; COSEWIC -V; FS-Sensitive. It is given a rarity rank in Alberta, Manitoba, Nebraska, South Dakota, Saskatchewan, Wyoming, and Montana (Lenz 1993). A conservation strategy has not been prepared for smooth goosefoot.

Habitat The species appears to be restricted to sand dunes, sandy soils, and riverbanks. It is considered a primary successional species on actively eroding slopes at the edge of stabilizing sand. Populations are highest in areas of finer and more compacted sand. In addition, the species is tolerant of alkali impregnated areas, including areas which are so sodium affected that few other plants will grow there. The species is considered both a halophyte (salt-loving) and xerophyte (adapted for growth under dry conditions) plant. Populations throughout its range on all habitats are always very low (Smith and Bradley 1990).

In Canada, the species is known from sand dunes and sandy hills within the mixed grass plains. The primary threats to its habitat occur from conversion of native grassland to tame pasture and cropland, loss of natural habitat through changes in grazing and fire regime, invasion of non-native species, and management which has favored stabilization of sand dunes (Smith and Bradley 1990). A study on stabilization of sand dunes in Canada attributes a lack of fire cycle to a loss in the dynamic nature of actively moving

sandy areas. Large areas of sandy plains in Canada have become stabilized over the last forty years (Smith and Bradley 1990).

On the Little Missouri National Grassland, three populations are known, all of which are located along the sandy floodplains of the Little Missouri River. An additional six populations are known from Little Missouri River floodplain habitat on private and National Park Service land. These floodplains are typically flooded for a short period of time in normal years. Primary management threats are invasion by exotic species, particularly leafy spurge which can overrun habitat along the river (Lenz 1993). All of the 1989 park populations were in close proximity to leafy spurge (Heidel 1990). Additional threats include herbicide spraying, livestock trampling, and changes in river hydrology which may result in loss of floodplain habitat.

In 1993 the Little Missouri River experienced significant flood events and some of the known populations for this species could not be relocated (S.Rinehart, field notes). It is not known if populations within the Park were also affected. Therefore the population base for this species may have been significantly reduced through this stochastic event. Populations may have become re-located along the Little Missouri River corridor however no target surveys have been conducted since the flood (North Dakota Heritage Program, pers. com.).

Threats to smooth goosefoot include the encroachment of non-native plant species into suitable habitats (i.e., leafy spurge, Kentucky bluegrass, smooth brome, Russian thistle, kochia, crested wheatgrass, and others), repeated livestock grazing and trampling, the stabilization of sand dune habitats, exclusion of processes that actively form sand dunes (e.g., fire and grazing), and insecticide use that potentially impacts pollinators.

Management Practices Favoring Population Viability/Recovery

1. Survey areas which provide a high probability of providing habitat for the species to locate new populations.
2. Monitor known populations to insure that management activities are not affecting the species or its habitat. Monitoring would also help assess population trend and vigor.
3. Provide management direction for sand dunes and other actively eroding sandy areas. These areas should not be stabilized or actively seeded with the intent of providing vegetative cover. Actively eroding sandy zones should be managed through fire regimes and grazing to maintain open conditions. For example, it is hypothesized that late summer or fall fires formerly created lush green areas the following spring. These green patches may have attracted large herds of grazing bison and resulted in re-activation of the sand dunes (Smith and Bradley 1990). However, livestock should be discouraged from hanging around sand dunes all summer long as this may result in mortality to the species.

4. Manage riverine and sand dune habitats as high priority areas for noxious weed control. In addition, these habitats should be monitored periodically for new starts of noxious weeds and these areas should also be priority areas for control.

5. Range improvements such as fences, salt, and water developments should not be placed near sand dune or riverine habitats.

Literature Cited

Heidel, B. L., and K. H. Dueholm. 1994. Sensitive Plant Survey in the Sioux District, Custer National Forest: Carter County, Montana and Harding County, South Dakota. Montana Natur. Her. Prog., Helena MT.

Heidel, B. 1990. Inventory of Rare Plant Species in Theodore Roosevelt National Park, Billings and McKenzie Counties, ND. North Dakota Parks and Rec. Dept., Bismarck, ND.

Lenz, D. 1993. 1991-1992 Inventory of Rare Plant Species in the Little Missouri National Grasslands. North Dakota Natural Heritage Program, North Dakota Parks and Rec. Dept., Bismarck, ND.

Smith, B., and C. Bradley. 1990. Status Report on Smooth Goosefoot (*Chenopodium subglabrum* [S. Wats.] A. Nels.), a Threatened Species in Canada. Submitted to: Committee on the Status of Endangered Wildlife in Canada.

Great Plains Flora Association. 1986. Flora of the Great Plains. Univ. Press of Kansas, Lawrence, KS. 1392 pp.

Barr orphaca (Category 2)

Species Description. This perennial forb is endemic to this region. The plant grows in low, dense mats and its trifoliate leaves are densely pubescent. The species flowers from June through August depending on locality and annual weather patterns. As a long-lived perennial, it may produce few or no flowers in any particular year. The species is known to occur on the Buffalo Gap National Grassland and is suspected of occurring on the Oglala and Thunder Basin National Grasslands. Throughout its range, *Barr orphaca* is known from sparse populations in four counties in southwest South Dakota, six counties in northeast Wyoming, and three counties in eastern Montana (Schassberger 1990).

Conservation Status TNC/NHP G3; International Union for Nature and Natural Resources (IUCN)-Rare; FS-Sensitive

Habitat The species occurs in areas of sparse vegetative cover. Within the planning area it is found on eroding knolls, buttes, and hilltops in thin barren soil that has eroded from sandstone or siltstone. The species appears to be restricted to specific

rock stratum in and along several major drainages in the three states where it is known. Schassberger (1988) speculates that due to its intolerance to competition from other plant species, it may not be present in habitat in more advanced successional stages. In other parts of its range (Montana), the species has occasionally been found with overstory cover such as ponderosa pine, Rocky Mountain juniper (*Juniperus scopulorum*), big sagebrush and shadscale (*Atriplex confertifolia*) (Schassberger 1988). In Montana, the species is found on eroding knolls and barren hilltops of limestone caprock. In Wyoming, the Powder River populations of Barr orphaca are found on eroding sandstone bluffs.

Drought induced loss of individual Barr orphaca plants in Montana suggests that a long-term change towards a warmer and drier climate might threaten the existence of some populations, especially those on more exposed locations (Schassberger 1990). Other potential threats to the species includes heavy livestock grazing and trampling, encroachment of non-native plant species, ground disturbing activities associated with infrastructure development (e.g., oil and gas development, recreation developments), and insecticide spraying that potentially affects pollinators.

Management Practices Favoring Population Viability/Recovery

The following conservation and mitigation measures are recommended for addition to the final planning direction for all units containing this guild:

1. Survey areas which provide a high probability of providing habitat for the species to locate new populations.
2. Monitor known populations to insure that management activities are not affecting the species or its habitat. Monitoring would also help assess population trend and vigor. Areas of known populations should be managed to maintain habitat integrity.
3. Conduct rare plant surveys in potential habitat during appropriate times of year prior to implementing any ground disturbing activities. In addition, any range development projects which may affect known populations or highly suitable habitat should be surveyed and evaluated.
4. Prepare a conservation strategy for the species assessing population trends and identifying locations of key populations. Specific conservation measures may need to be identified. For example Schassberger (1988) notes that many suitable habitat areas do not contain populations of the species. Additional study is needed to determine if soil factors contribute to presence or absence of the species.
5. Manage mixed grass and shortgrass habitats to provide for a mosaic of seral stages and disturbance regimes within the landscape. Especially important may be seral stages which provide a high component of species diversity. Well distributed plant communities of high species diversity will be needed to act as seed sources for other areas within the landscape where diversity may be reduced. Landscapes which do not

provide a mosaic of seral stages and disturbance regimes may result in loss of suitable habitat for sensitive species.

Literature Cited

Schassberger, L. A. 1988. Status Review of *Astragalus barrii*, U.S.D.A. Forest Service, R1, Custer National Forest, Montana. unpublished, Montana Natur. Her. Progr., Helena, MT.

Schassberger, L.A. 1990. Report on the Conservation Status of *Astragalus barrii*, A Candidate Threatened Species. Unpub. Report. Montana Natur. Her. Progr.

Handsome sedge (Category 2)

Species Description. This perennial sedge is caespitose with short, tough root stocks. The fruit is an achene. Fruiting occurs from early June to mid-July. The species is known to occur on the Sheyenne National Grassland. The population on the Sheyenne NG represents the western-most extension of this species' range. *C. formosa* is considered a rare inhabitant of mesic deciduous forests throughout its range, which is centered around the Great Lakes and extends from New England to North Dakota.

Conservation Status TNC/NHP G4; FS - Sensitive, North Dakota (ND) - S1. At one time this species was a candidate for federal listing (C2 species) under the Endangered Species Act. A conservation strategy has not been prepared.

Habitat The species appears to be restricted to moist eastern deciduous woodlands on alluvial soils. Dominant vegetation includes Green ash (*Fraxinus pennsylvanica*) and aspen (*Populus tremuloides*). The one known population on the Sheyenne National Grassland is found in the riverine wetlands complex, consisting of mesic areas resulting from upland drainage patterns of the Sheyenne River. Here it occurs on the river bottom near the base of north-facing bluffs along the river valley margin. Potential threats to handsome sedge include trampling and grazing by livestock, encroachment of woody species, encroachment of non-native species (e.g., leafy spurge), any activity that potentially affects ground-water levels (e.g., channelization, aquifer depletion), infrastructure developments (e.g., road and trail construction), and habitat conversion to agricultural uses.

Management Practices Favoring Population Viability/Recovery

The following conservation and mitigation measures are recommended for addition to the final planning direction for all units containing this species:

1. Survey areas which provide a high probability of providing habitat for the species to locate new populations. This species is known from very limited populations.

2. Monitor known populations to insure that management activities are not affecting the species or its habitat. Monitoring would also help assess population trend and vigor.
3. Manage habitats for this species as priority areas for noxious weed control. In addition, habitats should be monitored periodically for new starts of noxious weeds and these areas should also be priority areas for control.
4. Prepare a conservation strategy for the species assessing population trends and identifying locations of key populations. Specific conservation measures also need to be identified.
5. Range improvements such as fences and water developments should be not be placed near these sites. Biocontrol of noxious weeds using goats or sheep should be avoided in these areas. Riparian area management guidelines should be developed to avoid impacts in occupied and potential habitat.

Literature Cited

Challey, J. R. and B. L. Heidel. 1993. Rediscovery of *Carex formosa* (Cyperaceae) in North Dakota. *Prairie Naturalist* 25:

USFWS. 1993. Status report on Handsome sedge (*Carex formosa*), a Candidate Endangered species. Fish Wildl. Serv., Bismark, ND.

American Burying Beetle (Category 1)

Species Description. The American burying beetle, formerly distributed throughout eastern United States, now persists in widely distributed but separated populations including the Platte River Valley in west-central Nebraska (Raithel 1991). A single Montana record is also known. This species is unusual for the high level of parental care and in the role they play in the recycling of nutrients--the latter the result of burying carcasses found on the ground.

Habitat The rangewide activity for the American burying beetle is generally late April through September and adults are fully nocturnal. Most reproductive activity and carcass burial occurs in the months of June and July. Reproduction depends upon the availability of vertebrate carbon of an appropriate size and weight (optimum weight between 100 and 200 grams)--a discrete, unpredictable, and patchily distributed resource. Little is known about their habitats with historical records in Nebraska suggesting the species occurred along water courses where riparian deciduous forests or scrub forests were the predominant habitat. Considering the broad geographic range, it is unlikely that vegetation structure is the most important variable determining the species distribution. Rather, it appears soil type (for burying) and availability of prey are most important as determinants of the species range.

Major threats to the species include spraying of insecticides, presence of non-native species-specific pathogen, and loss of habitat--with none adequate to explain why congeneric species are still relatively common rangewide.

Conservation Status. ESA-Endangered, IUCN-Critically Endangered, TNC/NHP-G1, NE-Endangered

Management Practices Favoring Population Viability/Recovery

The approved Recovery Plan (Raithel 1991) recommends to protect and manage known sites, maintain captive populations for reintroduction, inventory for remaining populations, and to re-establish two additional self-sustaining populations (one in the west) with a minimum of 500 individuals as estimated by capture rates and blacklight inventories.

Literature Cited

Raithel, C. 1991. American burying beetle Recovery Plan. Fish Wildl. Serv., West Kingston, RI.

Dakota Skipper (Category 2)

Species description. The Dakota Skipper historically occurred from southern Manitoba across portions of North Dakota, South Dakota, Minnesota, Iowa, Illinois. Several extant sites documented in North and South Dakota including the Little Missouri NG and Sheyenne NG. The species is thought to occur on the Cedar River NG and Grand River NG but inventories are incomplete.

Conservation status. IUCN-Vulnerable, TNC/NHP-G2/G3, N2, FS-Sensitive Iowa (IA)-Endangered, Minnesota (MN)-Threatened

Habitat. The Dakota Skipper is considered an obligate resident of undisturbed tallgrass to mixed grass and bluestem prairies. In particular, big and little bluestem (*Andropogon gerardii* and *A. scoparius* respectively) prairie dominated with a variety of compositae to serve as a nectar source for adults (e.g. *Echinacea angustifolia*, *Ratibida columnifera*, *Petalostemum candidum*, *Campanula rotundifolia*, *Erigeron* spp., *Gaillardia* spp., and *Rudbeckia* spp). Particularly strong is the correlation between occurrence of little bluestem and Dakota skippers.

On the Sheyene NG, the Dakota Skipper prefers wet mesic sites dominated by big and little bluestem with forb associates including wood lily (*Lilium philadelphicum*), harebell (*Campanula rotundifolia*), and alkalai grass (*Zigadenus elegans*). May also include narrow-leaf purple coneflower. These species are strongly associated with adult flight and the end of adult flight synchronized with withering of alkalai grass blooms. Dry mesic sites in rolling prairie terrain near river valleys are preferred on the Little Missouri

NG. Vegetation communities are dominated by little bluestem and needlegrasses (*Stipa* spp.). Forb associates include harebell, wood lily, and rarely alkalai grass. These sites typically consist of extensive stands of narrow-leaf purple coneflower (*Echinacea purpurea*), *Gaillardia* spp. and black-eyed Susan. Adult flights are strongly synchronized with narrow-leaf purple coneflower bloom. Habitats tend to be restricted to situations where runoff favors moisture retention (north slopes of river valleys).

Both sexes emerge in mid-June in western North Dakota, and the third week of June in eastern North Dakota. Mating is single generational, and occurs shortly after emergence. Main flight lasts from two to three weeks. Females oviposit near larval floodplains. Little bluestem is considered a larval preference. Other grass species include bluegrass (*Poa* spp.), switchgrass (*Panicum* spp.) and other grasses.

Major threats to the Dakota Skipper habitats include conversion of native prairie, use of insecticides (e.g. grasshopper control), invasion of habitats by alien or native shrub/tree species (e.g. leafy spurge, snowberry, etc.), conversion of mesic grassland communities to alien or undesirable grassland communities (e.g. changes from bluestem dominated sites to bluegrass or brome grass dominated sites), moderate to heavy grazing by livestock (effects on vegetation structure), and prescribed burning of occupied larval habitats.

The Sheyenne NG may contain suitable habitats that could function as important refugia for this species in southeastern North Dakota. Other federal lands that could potentially provide refugia include The Nature Conservancy lands, US Fish and Wildlife Service National Wildlife Refuges, etc. Recovery goals need to be coordinated with other landowners and groups (e.g. Lake Agassiz Interbeach Working Group) to identify and prioritize refugia areas for managing habitats suitable for this species.

Management Practices Favoring Dakota Skipper Viability/Recovery

- 1) Prohibit activities that potentially alter ground-water levels.
- 2) Survey for and identify potentially suitable habitats (e.g. bluestem sites with associated forbs) and maintain and increase such habitats to retain characteristics required by Dakota skippers.
- 3) Prohibit use of insecticides in suitable habitats.
- 4) Aggressively manage leafy spurge stands using biological/chemical means.
- 5) Inventory suitable habitats prior to prescribed burning and mowing.
- 6) Manage so that suitable habitats (composition and structure) are available to butterflies on an annual basis for adult flight (nectar, perching, etc.) and larval foraging and overwintering sites. Protect these sites to insure population availability for recolonization of suitable habitats.

7) Restore tallgrass prairie species, including composite forbs, on lands that are capable of supporting tallgrass prairie systems.

8) Establish well distributed populations on the Sheyenne NG and Little Missouri NG. Increase the size and juxtaposition of occupied habitats, and avoid isolating populations (Harrison 1991). Cooperate with other agencies and private landowners to identify and manage populations adjacent to National Grasslands that contributes to the viability of this species on a regional basis.

Literature Cited

Harrison, S. 1991. Local extirpation in a metapopulation context: an empirical evaluation. *Biol. J. Linnean Soc.* 42:73-88.

Royer, R. A. 1995. A comprehensive annotated list of the butterflies (Lepidoptera: Rhopalocera) occurring in the Sheyenne National Grassland: Richland and Ransom Counties, North Dakota. *Nat. Biol. Serv., North. Prairie Wildl. Res. Center, Jamestown, ND.*

Royer, R. A. 1995. A comprehensive annotated list of the butterflies (Lepidoptera: Rhopalocera) occurring in Little Missouri National Grassland: Billings, Golden Valley, McKenzie and Slope Counties, North Dakota. *Nat. Biol. Serv., North. Prairie Wildl. Res. Center, Jamestown, ND.*

Royer, R. A. 1988. Butterflies of North Dakota: an atlas and guide. *Minot State Univ., Minot, ND. Sci. Monograph No. 1.*

Royer, R. A., and G. M. Marrone. 1992. Conservation status of the Dakota skipper (*Hesperia dactae*) in North and South Dakota. *Fish Wildl. Serv., Denver, CO.*

Swengel, A.B. 1996. Effects of fire and hay management on abundance of prairie butterflies. *Biol. Conserv.* 76:73-85.

Regal Fritillary (Category 2)

Species description. The Regal fritillary historically occurred from the eastern United States west into Manitoba, North and South Dakota. The species currently exists on relict prairie sites across the Plains states and is known on the Little Missouri NG, Sheyenne NG, Ogalala NG and the Pine Ridge RD. It is suspected on the Cedar River NG and Grand River NG. Inventories are incomplete on the latter two National Grasslands and on the remainder of the grasslands units in the Planning Area.

Conservation Status. TNC/NHP- G3,N3, FS-Sensitive, IA-Species of Concern

Habitat. The species is most commonly associated with resident of undisturbed tallgrass to mixed grass/bluestem prairies. Preferred habitats include big and little bluestem and wheatgrass (*Agropyron* spp.)/needlegrass (*Stipa* spp.) with a variety of Asteracea species that serve as a nectar source for adults. Other preferred nectar sources include *Viola* spp., *Asclepias* spp., *Cirsium* spp., *Monarda* spp., and *Liatris* spp. The principle requirement in all habitats appears to be the presence of extensive grasslands with high densities of violet and other nectar sources.

Males emerge in mid-June and appear through early July and females follow one to two weeks later. The species tends to disperse over large areas.

Major threats to habitats include use of insecticides (e.g. grasshopper control), invasion of habitats by alien or native shrub/tree species, conversion of mesic grassland communities to alien or undesirable grassland communities (e.g. changes from bluestem dominated sites to bluegrass or brome grass dominated sites), moderate to heavy grazing by livestock as an effects on vegetation structure, and the prescribed burning of occupied larval habitats.

The Shyenenne NG potentially contains suitable habitats that could function as important refugia for this species in southeastern North Dakota. The Nature Conservancy lands, Fish and Wildlife Service National Wildlife Refuges and other protected areas offer possibilities for the management of suitable habitat. Recovery goals need to be coordinated with other landowners (e.g. Lake Agassiz Interbeach Working Group) to ensure the availability of suitable habitats on a landscape basis.

Management Practices Favoring Regal Fritillary Population Viability/Recovery

- 1) Survey for and identify potentially suitable habitats (e.g. bluestem sites with associated forbs) and maintain and increase such habitats to retain needed characteristics.
- 2) Aggressively manage leafy spurge stands using biological/chemical means.
- 3) Prohibit use of insecticides in suitable habitats.
- 4) Inventory suitable habitats prior to prescribed burning and mowing.
- 5) Manage so that suitable habitats (composition and structure) are available to butterflies on an annual basis for adult flight (nectar, perching, etc.) and larval foraging and overwintering sites. Protect these sites to insure population availability for recolonization of suitable habitats.
- 6) Restore tallgrass and mixed grass prairie species, including composite forbs, on lands that are capable of supporting tallgrass prairie systems.
- 7) Establish well distributed populations. Increase the size and juxtaposition of occupied habitats and avoid isolating populations (Harrison 1991). Cooperate with other agencies

and private landowners to identify and manage populations adjacent to National Grasslands that contributes to the viability of this species on a regional basis.

Literature Cited

Harrison, S. 1991. Local extirpation in a metapopulation context: an empirical evaluation. *Biol. J. Linnean Soc.* 42:73-88.

Royer, R.A. 1995. A comprehensive annotated list of the butterflies (Lepidoptera: Rhopalocera) occurring in the Sheyenne National Grassland: Richland and Ransom Counties, North Dakota. Nat. Biol. Serv., North. Prairie Wildl. Res. Center, Jamestown, ND.

Royer, R.A. 1995. A comprehensive annotated list of the butterflies (Lepidoptera: Rhopalocera) occurring in Little Missouri National Grassland: Billings, Golden Valley, McKenzie and Slope Counties, North Dakota. Nat. Biol. Serv., North. Prairie Wildl. Res. Center, Jamestown, ND.

Royer, R.A. 1988. Butterflies of North Dakota: an atlas and guide. Minot State Univ., Minot, ND. Sci. Monograph No. 1.

Royer, R.A. and G.M. Marrone. 1992. Conservation status of the regal fritillary (*Speyeria idalia*) in North and South Dakota. Fish Wildl. Serv., Denver, CO.

Swengel, A.B. 1996. Effects of fire and hay management on abundance of prairie butterflies. *Biol. Conserv.* 76:73-85.

Powesheik Skipperling (Category 2)

Species description. The powersheik occurs from Michigan west to southeastern Manitoba, eastern North Dakota and and South Dakota. Several extant sites are documented in southeastern North and northeastern South Dakota. The species historically was common across the prairies and now, at least in North Dakota, restricted to isolated, remnant prairie sites. The only known occurrence within the planning area is on the Sheyenne NG.

Conservation Status. TNC/NHP-G2/G3,N2,N3, FS-Sensitive, IA-Threatened, MN-Species of Concern.

Habitat. The Powesheik skipperling is considered an obligate resident of undisturbed tallgrass/wetland ecotones. Important habitats are composed of perennial forb, grass and sedge components growing on saturated soils. These areas form the transition area between aquatic and upland sites. Lowland to Midland sites on the Sheyenne NG are potentially important habitats. Indicator plants of suitable habitat include Joe Pye weed (*Eupatorium maculatum*), marsh milkweed (*Asclepias incarnata*), marsh aster (*Aster*

simplex), and gayfeather (*Liatris pynostachya*). Grass species include big bluestem (*Andropogon gerardii*), prairie code grass (*Spartina pectinata*), green bulrush (*Scirpus atrovirens*) and spikerushes (*Eleocharis* spp.). The species frequently associated with areas that support Dakota skippers and Arogos skippers (*Atrytone arogos*). It is also roughly synchronous and sympatric with these species. The presence of a significant Asteraceae component is also considered a requisite. Important nectar sources include narrow-leaved purple coneflower, long-headed coneflower (*Ratidiba columnifera*), and black-eyed Susan (*Rudbeckia* spp.).

Peak emergence in the Dakotas is in late June and fly through mid-July. Mating is single generational and occurs shortly after emergence. Main flight lasts from two to three weeks. *Eleocharis* is potentially an important larval host.

Major threats to Powesheik skipperling habitat include use of insecticides (e.g. grasshopper control), alteration of wetland habitats, invasion of habitats by alien or native shrub/tree species (e.g. leafy spurge, snowberry, etc.), conversion of mesic grassland communities to alien or undesirable grassland communities (e.g. changes from bluestem dominated sites to bluegrass or brome grass dominated sites), moderate to heavy grazing by livestock (effects on vegetation structure), prescribed burning of occupied larval habitats, and the mowing of lowland habitats.

The Sheyenne NG potentially contains suitable habitats that could function as important refugia for this species in southeastern North Dakota. Other federal lands that could potentially provide refugia include the Tewaukon National Wildlife refuge. It is important to work with other landowners and groups (e.g. Lake Agassiz Interbeach Working Group) to identify and prioritize refugia areas for managing habitats suitable for this species.

Management Practices Favoring Powesheik Skipperling Population Viability/Recovery

- 1) Survey and identify potentially suitable habitats (wetland/upland transition zones) and manage these to retain their habitat characteristics.
- 2) Prohibit use of insecticides in suitable habitats.
- 3) Aggressively manage leafy spurge stands using biological/chemical means.
- 4) Inventory suitable habitats prior to prescribed burning and mowing.
- 5) Manage so that suitable habitats (composition and structure) are available to butterflies on an annual basis for adult flight (nectar, perching, etc.) and larval foraging and overwintering sites. Protect these sites to insure population availability for recolonization of suitable habitats.
- 6) Restore tallgrass prairie species, including composite forbs, on lands that are capable of supporting tallgrass prairie systems.

7) Establish well distributed populations on the Sheyenne National Grassland. Increase the size and juxtaposition of occupied habitats, and avoid isolating populations (Harrison 1991). Cooperate with other agencies and private landowners to identify and manage populations adjacent to National Grasslands that contributes to the viability of this species on a regional basis.

Literature Cited

Harrison, S. 1991. Local extirpation in a metapopulation context: an empirical evaluation. *Biol. J. Linnean Soc.* 42:73-88.

Royer, R. A. 1995. A comprehensive annotated list of the butterflies (Lepidoptera: Rhopalocera) Occurring in the Sheyenne National Grassland Richland and Ransom Counties, North Dakota. *Nat. Biol. Serv., North. Prairie Wildl. Res. Center, Jamestown, ND.*

Royer, R. A. 1988. Butterflies of North Dakota: an atlas and guide. Minot State Univ., Minot, ND. *Sci. Monograph No. 1.*

Royer, R. A. and G. M. Marrone. 1992. Conservation status of the Powesheik skipper (*Oarisma powesheik*) in North and South Dakota. *Fish Wildl. Serv., Denver, CO.*

Swengel, A. B. 1996. Effects of fire and hay management on abundance of prairie butterflies. *Biol. Conserv.* 76:73-85.

Sturgeon chub (Category 2)

Species Description. The sturgeon chub was historically found in the Mississippi and Missouri River drainages extending from Louisiana, northwest into Montana and Wyoming. Recently known extant populations have been described in Missouri, Montana, Nebraska, North Dakota and Wyoming. There are 39 documented occurrences from the Little Missouri River in North Dakota. Many of these are within the boundary of the Little Missouri National Grassland. The species was also documented in the Powder River in Montana and Wyoming, White River in South Dakota, and the Grand River in South Dakota.

Conservation Status. USFWS-Candidate, IUCN-Vulnerable, TNC/NHP-G2/N2, FS-Sensitive, BLM-Sensitive, Montana-Species of Concern, SD-Threatened.

Habitat. Sturgeon chub are associated with turbid, free-flowing riverine habitats with gravel, rock and sand substrates. Sturgeon chub were considered widely distributed in the Little Missouri River the late 1970s (Kelsh 1993). Kelsh (1993) did not document this species on 24 sampling stations between Marmarth and Medora. Other surveys of

the Little Missouri River did not document sturgeon chub in this river system. The species is still documented in the Yellowstone River in Montana. Kelsh (1993) hypothesizes that the extended droughts of the 1980s, and the resultant impacts on the suitability and availability of sturgeon chub habitat may have resulted in the extirpation of this species from this system. Sturgeon chub appear to be turbid water specialists. The reduced flows, clearing water and silty substrates resulting from reduced water flows, may have rendered much of the habitat unsuitable.

Weldon (1993) summarizes historic and current demographic information of survey efforts in extant sturgeon chub habitats. He cites substantial contractions of occupied habitat over the last decade. The lower Yellowstone River, Powder River, Platte River and Missouri River (by the early 1990s) as still containing remnant populations of sturgeon chub. Recent data suggests other extant populations may have been extirpated.

Major threats to sturgeon chub habitats include development of large impoundment structures (e.g. Fort Peck Reservoir and Lake Sakakawea--these impoundments flooded riffle habitats, altered flow and temperature regimes and reduced turbidity in the large riverine systems), channelization of extensive portions of the Missouri and Mississippi River systems (channelization narrows and straightens rivers, reduces habitat diversity, and reduces overbank flooding), agricultural draw-down (these types of draw-downs may affect water availability during time periods important in sustaining habitat quality, especially during drought periods), water quality (agrochemical pollutants), small impoundments on private and federal lands (e.g. stock dam impoundments which may modify hydrological flow patterns on a small scale), introduction of non-native piscivorous fishes (e.g. walleye, northern pike), and drought. Drought is a common and expected occurrence in the Great Plains. The loss of large areas of suitable habitat due to the aforementioned threats, may make remaining smaller tributaries more susceptible to extirpation during extended drought periods. Extant populations are isolated by large areas of unsuitable habitat. Historically, population expansions and contractions were expected given the variability of Great Plains climates. Remaining habitats are restricted and isolated and are considered at risk.

Management Practices Favoring Sturgeon Chub Population Viability/Recovery

- 1) If the species is listed under the Endangered Species Act, contribute to meeting goals and objectives stated in a recovery plan.
- 2) Obtain remaining instream flow rights in suitable riverine habitats, where these are available adjacent to federal lands. Encourage states to obtain flow rights for suitable riverine habitats adjacent to their lands.
- 3) Work with Army Corp of Engineers, Bureau of Reclamation, and power companies to manage large rivers for instream flows that will encourage the reestablishment of habitats important to this and other native fish species..

- 4) Protect riparian areas from activities that will impact the quality of riverine habitats, particularly riffle areas important to chub spawning.
- 4) If unoccupied habitats are suitable, consider restocking from extant populations
- 5) Work with states to discourage the planting of piscivorous fishes into suitable, occupied or potential sturgeon chub habitat.
- 6) Establish in cooperation with other agencies and private landowners core populations in three or more river systems within the planning. These include the Little Missouri, White River and Cheyenne Rivers. A core population is defined as one which will persist over time despite environmental and human induced variability.
- 7) Survey for and map core population areas to prevent the development of small impoundments in core population drainages.
- 8) Maintain and or restore natural hydrological processes in basins with core populations or basins identified to have suitable habitat.

Literature Cited

Kelsch, S. W. 1993. Survey of the fishes of the Little Missouri River from Marmarth to Medora, North Dakota, 1993. Univ. North Dakota, Fargo.

Weldon, 1993. Status report on sturgeon chub (*Macrhybopsis gelida*) - a candidate endangered species. Fish Wildl. Serv., Bismarck, ND.

Peregrine Falcon (Category 1)

Species description. Breeding and migration habitats for the peregrine falcon are distributed across the North American continent. The Northern Great Plains Planning area lies within the Rocky Mountain/Southwest Recovery Zone. A few historic nest sites are described for North Dakota and South Dakota. Historic nest sites are documented on the Little Missouri and Buffalo Gap National Grasslands. There are no known current nest sites within the planning area.

Conservation status. ESA- Endangered, COSEWIC - Endangered; TNC/ NHP- G4T4,N3, NE--Endangered, SD-Endangered; Wyoming(WY)-Species of Concern.

Habitat. Nesting habitats occur on high, extensive cliff faces within close proximity to riverine and wetland habitats. Foraging habitats are associated with coastal, wetland and riverine habitats. Most of the National Grassland units do not contain suitable nesting habitats due to the lack of sufficient nesting substrates. Badlands habitats in the Little Missouri NG and Buffalo Gap NG may provide limited nesting habitat opportunities. Foraging habitats during migration occur primarily occur along the major riverine systems, including the Little Missouri Grand, Cheyenne and White Rivers, and extensive

wetlands. Several of the Grassland units provide potential habitat during the migration period and transient falcons are occasionally observed

Management Practices Favoring Peregrine Falcon Viability/Recovery

- 1) Maintain and or restore habitats within wetland and riverine systems that provide habitats for peregrine falcon prey species.
- 2) Restrict human activities and disturbances between February 1 and August 31 which occur within one mile of nesting cliffs.
- 3) Discourage land use practices and other development which adversely alter or eliminate the character of the hunting habitat or prey base within 10 miles and immediate habitats within one mile of a nesting cliff.
- 4) Write a management plan if a nest site is discovered to ensure that necessary habitat components are maintained.

Literature Cited

USDI. 1984. American peregrine falcon Rocky Mountain/Southwest Recovery Plan. Prep. by Rocky Mountain/Southwest Peregrine Falcon Recovery Team. Fish Wildl. Serv., Denver, CO.

Bald Eagle (Category 1)

Species Description

With the exception of Wyoming, the Northern Great Plains Planning Area lies within the Northern States Bald Eagle Recovery Zone. Wyoming is located within the Pacific States Bald Eagle Recovery Zone. Bald eagles historically nested within the planning area along the larger river systems (e.g. Missouri and Red Rivers in North Dakota), but were considered a rare breeding species in South Dakota.

Conservation Status: ESA-Threatened, TNC/NHP-G4,N4, NE-Endangered, SD-Endangered, WY-Species of Concern

Habitat. Migrating bald eagles use riparian areas, ungulate winter ranges and prairie dog towns during the spring, fall and winter months. Eagles shift away from rivers and ponds once they freeze over. Wintering bald eagles have been documented on all of the National Grasslands and district within the planning area. Winter roost sites are suspected on the Little Missouri NG along the Little Missouri River. Approximately 15 roost sites have been documented on the Thunder Basin NG.

Several recent nest sites are documented on river systems within the boundaries of Little Missouri and Thunder Basin NG. Four nesting attempts are documented on the Thunder

Basin NG, none of which fledged young. Only one nest site along the Little Missouri River successfully fledged young in 1975 .

Management Practices Favoring Bald Eagle Viability/Recovery

- 1) Write a management plan if a winter roost area or nest site is discovered to ensure that the necessary habitat components are maintained. Management plans will be prepared to prescribe strategies that ensure or promote regeneration of woodlands where roosting areas or nest sites are discovered.
- 2) Prohibit human activities within one mile of bald eagle winter roosting areas from November 15 through February if disturbance could cause an adverse effect.
- 3) Prohibit human activities within 1 mile of an active bald eagle nest from February 1 through July 31 if disturbance could cause nest abandonment or failure.

Literature Cited

USDI. 1984. Pacific states bald eagle recovery plan. Pacific States Bald Eagle Recovery Team. Fish and Wildl. Serv.

USDI. 1984. Northern States bald eagle recovery plan. Northern States Bald Eagle Recovery Team. Fish Wildl. Serv.

Whooping Crane (Category 1)

Species Description. Whooping cranes historically occurred from the Arctic coast, south to central Mexico, and east from Utah to the east coast. Currently, three wild populations remain plus five captive populations. The only viable wild population nests at Wood Buffalo National Park in Canada and winters primarily at the Aransas National Wildlife Refuge in Texas.

Conservation Status: ESA - Endangered, IUCN-Endangered, TNC/NHP-G1/N1, NE-Endangered, SD-Endangered.

Habitat. Large wetlands and riverine habitats are potential resting sites for migrating whooping cranes. The Northern Great Plains Planning area lies within the migration path for whooping cranes travelling between Texas and Canada. Migrating whooping cranes have been observed on three National Grasslands in the planning area (Little Missouri, Buffalo Gap, and Fort Pierre). Observations are also documented just off-site of the Bessie Ranger District.

Management Practices Favoring Whooping Crane Viability/Recovery

- 1) Maintain and or restore habitats within wetland and riverine systems that provide habitats for migrating whooping cranes.

2) Report all observations of migrating whooping cranes to the Fish and Wildlife Service, Grand Island, NE

Literature Cited

USDI. 1992. Whooping Crane Recovery Plan. Prep. by the Whooping Crane Recovery Team. Fish Wildl. Serv., Albuquerque, NM.

Swift Fox (Category 2)

Species Description. Scientists have long debated the taxonomic status of the two arid land foxes, the swift fox and kit fox (Kahn et al. 1997). These two taxa are the smallest canids in North America. Swift fox are monestrous and apparently monogamous and form pairs in early winter that may last for years. Litter size based on pup counts ranges from 4 to 5 and dispersal begins in September and August. Swift fox use dens year-round to protect themselves from predators and the weather.

Recent accounts suggest that the swift fox may be increasing and reoccupying some portions of their historic range (Kahn et al. 1997). Current swift fox distribution can be considered as relatively widespread to include portions of South Dakota, Wyoming and Nebraska. Swift fox are apparently absent from North Dakota although several recent confirmed observations suggest the species may exist at extremely low densities in the southwestern counties. In Wyoming, swift fox occupy much of their historical range although surveys in some counties are incomplete. Swift fox are known to occur in very limited numbers in the panhandle and southwestern Nebraska. Nonetheless, distributions and associated densities appear highly variable.

Habitat. Swift fox habitat descriptions vary with geo-physiographic area although the species occupies these habitats within the short and mixed grass prairie which tends to be level to gently rolling (Kahn et al. 1997). These habitats consist of relatively firm soils and tend to have intermittent and permanent water sources during most years. In the western portion of the range, the swift fox appears to use a broader range of habitats.

The major factor influencing the numbers and distribution of swift fox is the decline in area of native prairie and degradation of remaining prairie (Kahn et al. 1997). Swift fox historically inhabited open, level prairies that provide a small mammal, bird and grasshopper prey base. Historic habitats have largely been converted to cropland, or modified by intensive grazing, habitat fragmentation and urban/rural development. Yet the direct or indirect influence of these factors have not yet undergone scientific investigation. Recent information suggests that habitat use by the swift fox may include other vegetation types including sage systems and certain croplands.

Predation is presently the most common mortality factor (Kahn et al. 1997). The literature on the swift fox suggests the coyote is the primary cause of mortality. This

issue of predator hierarchies has been discussed by several authors. In essence, the removal of a large carnivore such as the wolf permits the increase in distribution and abundance of species such as the coyote (*Canis latrans*), red fox (*Vulpes vulpes*), and grey fox (*Urocyon cinereoargenteus*). Swift fox appear to prosper in certain areas where intensive control measures were applied to coyotes.

Conservation Status FWS-candidate, TNC/NHP-G3, FS-Sensitive, BLM-Sensitive, Montana and WY-Species of Concern, NE-Endangered, SD-Threatened.

Management Practices Favoring Population Viability/Recovery

- 1) Identify and delineate public lands under state or federal control in occupied or suitable swift fox habitat.
- 2) State and federal agencies will initiate habitat protection agreements as habitat conservation needs are identified by the swift fox.
- 3) Federal agencies will limit use of chemical control devices in occupied and suitable swift fox habitat.
- 4) The well distributed requirement in the viability regulations (CFR 219.19) that implement the National Forest Management Act require that a minimum number of individuals be maintained that are able to interact within the planning area. To achieve this requirement, habitat for the swift fox and the distribution of key prey (prairie dogs etc.) shall be maintained such that current occupied and suitable habitat for the swift fox is maintained and is well distributed.
- 5) Manage for six populations within the planning area to contribute towards the viability of the swift fox on the Northern Great Plains. A population is defined as a passively aggregated group of at least 30 pre-breeding adult animals.

Little Missouri NG: 2 populations
 Buffalo Gap NG: 2 populations
 Fort Pierre NG: 1 population
 Bessie/McKelvie RD: 1 population
 Thunder Basin NG: 1 population

For the fine filter, Beissinger and Westphall (1998) in their article "On the use of demographic models of population viability in endangered species management" provide important guidelines, i.e., use models only where data permit, test alternative models in that different models provide different estimates, consider a short and reasonable time period for viability estimates, and avoid stochastic models among many other recommendations. This draft report limits use of models to species with clear and well documented data sets yet offers habitat conservation and improvement goals to ensure the viability of species with known population declines (Category 1) and species with known population declines (Category 2). The habitat conservation and improvement goals are

offered within the context of natural processes that have shaped both the environment and traits of species characteristic to the Northern Great Plains.

Literature Cited

- Abel, A. H. 1939. Tabeau's narrative of Loisel's expedition to the Upper Missouri. Univ. Oklahoma Press, Norman.
- Abrams, M. D., et al. 1986. A ten-year record of aboveground biomass in a Kansas tallgrass prairie: effects of fire and topographic position. *Amer. J. Bot.* 73 :1509-1515.
- Anderson, V. J., and D. D. Briske. 1995. Herbivore-induced species replacement in grasslands" It s driven by herbivory tolerance or avoidance. *Ecol. Appl.* 5:1014-1024.
- Archer, S., and J. K. Detling. 1986. Evaluation of potential herbivore mediation of plant water status in a North American mixed-grass prairie. *Oikos* 47:287-292.
- Archer, S., and J. K. Detling. 1988. Evaluation of potential herbivore mediation of plant water status in a North American mixed-grass prairie. *Oikos* 47:287-292.
- Archer, S., et al. 1987. Rates of vegetation change associated with prairie dog (*Cynomys ludovicianus*) grazing in North American mixed-grass prairie. *Vegetatio* 72:159-166.
- Archibold, O. W., et al. 1998. Fire temperatures in plant communities of the northern mixed prairie. *Can. Field Nat.* 112:234-240.
- Arenz, C. L., and A. Joern. 1996. Prairie legacies--invertebrates. Pages 91-111 in *Preserving North America's most endangered ecosystem*. F. B. Samson and F. L. Knopf, eds. Island Press, Washington, DC.
- Arnold, G. H. 1995. Incorporating landscape pattern into conservation programs. Pages 309-337 in *Mosaic landscapes and ecological processes*. L. Hansson, et al., eds. Chapman & Hall, NY.
- Bailey, R. G. 1996. *Ecosystem Geography*. Springer-Verlag, NY.
- Bamforth, D. B. 1987. Historical documents and bison ecology on the Great Plains (USA). *Plains Anthro.* 32:1-16.
- Barker, W., and W. Whitman. 1989. Vegetation of the Northern Great Plains. *Rangelands* 10:266-272.
- Baydack, R. K., and H. Campa III. 1999. Setting the context. Pages 3-16 in *Practical approaches to the conservation of biological diversity*. R. K. Baydack, et al., eds. Island Press, Washington, DC.

- Beissinger, S. R., and M. I. Westphall. 1998. On the use of demographic models of population viability in endangered species management. *J. Wildl. Mgmt.* 62:821-841.
- Bessey, C. E. 1893. Seventh annual report of the botanist. Nebraska Board of Agriculture, Lincoln.
- Biondini, M. E., et al. 1989. Seasonal fire effects on the diversity patterns, spatial distribution and community structure of forbs in the northern mixed prairie, USA. *Vegetatio* 85:21-32.
- Biondini, M. E., and M. Llewellyn. 1996. Grazing frequency and ecosystem processes in a northern mixed prairie. *Ecol. Appl.* 6:239-256.
- Biondini, M. E., et al. 1998. Grazing intensity and ecosystem processes in a northern mixed-grass prairie, USA. *Ecol. Appl.* 8:469-479.
- Blakeslee, D. J. 1996. Persistence and change in the natural and cultural landscapes of the central plains. *Trans. Kansas Acad. Sci.* 99:86-94.
- Blyth, C. B., and R. J. Hudson. 1987. A plan for the management of vegetation and ungulates. Elk Island National Park, Alberta.
- Boch, J. H. 1987. Fire as an evolutionary force in North American grasslands. *Amer. J. Bot.* 74:661.
- Bogan, M. A. 1997. Historical changes in the landscape and vertebrate diversity of North Central Nebraska. Pages 105-131 in *Ecology and conservation of Great Plains Vertebrates*. F. L. Knopf and F. B. Samson, eds. Ecological Studies 125, Springer-Verlag, New York.
- Bozell, J. R. 1995. Culture, environment, and bison populations on the late prehistoric and early historic Central Plains. *Plains Anthro.* 40: 145-163.
- Bragg, T. B., and A. A. Steuter. 1996. Prairie ecology, the mixed-grass prairie. Pages 53-66 in *Prairie conservation, preserving North America's most endangered ecosystem*. Samson, F. B. and F. L. Knopf, eds. Island Press, Washington, DC.
- Briggs, J. M., and D. J. Gibson. 1992. Effect of fire on tree spatial patterns in a tallgrass prairie. *Bull. Torrey Bot. Club.* 119:300-307.
- Briggs, J. M., and A. K. Knapp. 1995. Interannual variability in primary production on tallgrass prairie: climate, soil moisture, topographic position, and fire as determinants of aboveground biomass. *Amer. J. Bot.* 82:1024-1030.

Brown, P. M., and C. H. Sieg. 1996. Fire history in interior ponderosa pine communities of the Black Hills, South Dakota. *Internat. J. Wildl. Fire* 6:97-105.

Campbell, C., et al. 1994. Bison extirpation may have caused aspen expansion in western Canada. *Ecography* 17:360-362.

Carlson, D. C., and E. M. White. 1987. Effects of prairie dogs on mound soils. *Soil Sci. Soc. Amer. J.* 51:389-393.

Chaplin, S. J. 1996. A multiple-scale approach to conservation planning on the Great Plains. Pages 187-202 *in* *Prairie conservation, preserving North America's most endangered ecosystem*. Samson, F. B., and F. L. Knopf, eds. Island Press, Washington, DC.

Chisholm, B., et al. 1986. Assessment of prehistoric bison foraging and movement patterns via stable-carbon isotopic analysis. *Plains Anthro.* 31:193-205.

Cid, M. S., et al. 1989. Patterns in grass silicification: Response to grazing history and defoliation. *Oecologia* 80:268-271.

Cincotta, R. P. 1989. Note on mound architecture of the black-tailed prairie dog. *Great Basin Natur.* 49:621-623.

Collins, S. L., and S. C. Barber 1986. Effects of disturbance on diversity in mixed grass prairie. *Vegetatio* 64:87-94

Collins, S. L. 1992. Fire frequency and community heterogeneity in tallgrass prairie. *Ecology* 73:2001-2006.

Coppedge, B. R., and J. H. Shaw. 1997. Effects of horning and rubbing behavior by bison, *Bison bison*, on woody vegetation in tallgrass prairie. *Amer. Mid. Natur.* 138:189-196.

Coppedge, B. R., and J. H. Shaw. 1998. Bison grazing patterns on seasonally burned tallgrass prairie. *J. Range Mgmt.* 51:258-264.

Coppedge, B. R., et al. 1998. Effects of seasonal fire, bison grazing and climate variation on tallgrass prairie vegetation. *Plant Ecology.* 139:235-246.

Cordes, L. D., et al. 1997. Factors affecting the regeneration and distribution of riparian woodlands along a northern prairie river: The Red Deer River, Alberta, Canada. *J. Biogeo.* 24:675-695.

Corn, P. S., and C. R. Peterson. 1996. Prairie legacies-Amphibians and reptiles. Pages 125-135 *in* *Preserving North America's most endangered ecosystem*. F. B. Samson and F. L. Knopf, eds. Island Press, Washington, DC.

Coues, E. 1878. Field notes on birds observed in Dakota and Montana along the forty-ninth parallel during the seasons of 1873 and 1874. GPO, Washington, DC.

coues 93

Coues, E. 1898. Forty years a fur trader on the upper Missouri. The personal narrative of Charles Larpeur. 1833-1872. Vol. 1 & 2. F. P. Harper, New York.

Coughenour, M. B. 1991. Spatial components of plant-herbivore interactions in pastoral, ranching, and native ungulate ecosystems. *J. Range. Mgmt.* 44:530-542.

Damhoureyeh, S. A., and D. C. Hartnett. 1997. Effects of bison and cattle on growth, reproduction, and abundances of five tallgrass prairie forbs. *Amer. J. Bot.* 84:1719-1728.

Day, T. A., and J. K. Detling. 1994. Water relations of *Agropyron smithii* and *Bouteloua gracilis* and community evapotranspiration following long-term grazing by prairie dogs. *Amer. Mid. Natur.* 132: 381-392.

Detling, J. K., and E. L. Painter. 1983. Defoliation responses of western wheatgrass (*Agropyron smithii*) populations with diverse histories of prairie dog (*Cynomys ludovicianus*) grazing. *Oecologia* 57:65-71.

Estes, J. R., et al. 1982. Grasses and grasslands, systematics, and ecology. Univer. Oklahoma Press, Norman.

Evans, E. W. 1984. Grasshopper (Insecta: Orthoptera: Acrididae) assemblages of tallgrass prairie: influences of fire frequency, topography, and vegetation. *Oikos* 43:9-16.

Ewing, A. L., and D. M. Engle. 1988. Effects of late summer fire on tallgrass prairie microclimate and community composition. *Amer. Mid. Natur.* 120:212-223.

Fahenstock, J. T., and A. K. Knapp. 1993. Water relations and growth of tallgrass prairie forbs in response to selective grass herbivory by bison. *Inter. J. Plant Sci.* 154:432-440.

Fay, P. A.; Samenus, R. J., Jr. 1993. Gall wasp (Hymenoptera: Cynipidae) mortality in a spring tallgrass prairie fire. *Environ. Ent.* 22:1333-1337.

Fenger, M. 1996. Implementing biodiversity conservation through the British Columbia forest practices code. *For. Ecol. Mgmt.* 85:67-77.1996

Fisher, R. F., et al. 1987. Fire and the prairie-forest mosaic of Devils Tower National Monument. *Amer. Midl. Natur.* 117:250-257.

Fleharty, E. D. 1995. Wild animals and settlers on the Great plains. Univ. Oklahoma Press, Norman.

Friedman, J. M., et al. 1997. Water management and cottonwood forest dynamics along prairie streams. Pages 49-71 in Ecology and conservation of Great Plains vertebrates. F. L. Knopf and F. B. Samson, eds. Springer-Verlag, NY.

Gibson, D. J., and B. A. D. Hetrick. 1989. Topographic and fire effects on the composition and abundance of VA-mycorrhizal fungi in tallgrass prairie. *Mycologia*. 80:433-441.

Given, D. R. 1994. Principles and practice of plant conservation. Timber Press, Inc., Portland, OR.

Goodrich, J. M., and S. W. Buskirk. 1998. Spacing and ecology of North American badgers (*Taxidea taxus*) in a prairie-dog (*Cynomys leucurus*) complex. *Journal of Mammalogy*. 79:171-179.

Great Plains Flora Association. 1986. Flora of the Great Plains. Univ. Kansas Press.

Greeley, H. 1860. An overland journey from New York to San Francisco. C. M. Santon, Barker and Co. San Francisco.

Grumbine, R. E. 1990. Viable populations, reserve size and federal land management: a critique. *Conserv. Biol.* 4:127-135.

Gunnerson, D. A. 1972. Man and bison on the plains in the protohistoric period. *Plains Anthro.* 17:1-10.

Gustafsen, E. J. 1998. Quantifying landscape spatial pattern: what is the state of the art? *Ecosystems*. March-April 1:143-156.

Hanson, J. R. 1984. Bison ecology in the Northern Plains and a reconstruction of bison patterns for the North Dakota region (USA). *Plains Anthro.* 29:93-113.

Hart, R. H., and J. A. Hart. 1998. Rangelands of the Great Plains before European settlement. *Rangelands* 19:4-11.

Hartnett, D. C. 1991. Effects of fire in tallgrass prairie on growth and reproduction of prairie coneflower (*Ratibida columnifera*: Asteraceae). *Amer. J. Bot.* 78:429-435.

Hartnett, D. C., et al. 1996. Effects of bison grazing, fire, and topography on floristic diversity in tallgrass prairie. *J. Range Manage.* 49:413-420.

Hartnett, D.C., et al. 1997. Comparative ecology of native and introduced ungulates. Pages 105-130 in *Ecology and conservation of Great Plains Vertebrates*. F. L. Knopf and F. B. Samson, eds. Ecological Studies 125, Springer-Verlag, New York.

Haufler, J. B. 1999. Strategies for conserving terrestrial biological diversity. Pages 17-34 in 1999. *Practical approaches to the conservation of biological diversity*. Baydack, R. K., et al., eds. Island Press, Washington DC.

Haufler, J., et al. 1996. Using a coarse filter approach with species assessment for ecosystem management. *Wild. Soc. Bull.* 24:200-208.

Henry, J. 1858. Explorations and surveys for a railroad route from the Mississippi River to the Pacific Ocean. Part II. A. O. P. Nicholson, Printer, Washington, DC.

Higgins, K. F. 1984. Lightning fires in North Dakota grasslands and in pine-savanna lands of South Dakota and Montana. *J. Range Manage.* 37:100-103.

Higgins, K. F. 1986. Interpretation and compendium of historical fire accounts in the northern Great Plains. U. S. Dept. Inter. Fish Wildl. Serv. Res. Pub. 161, Washington, DC.

Hinckley, D. 1995. Great Plains climates and biota: past, present, and future. Page 149-160 in *Conservation of Great Plains ecosystems: current science, future options*. S. R. Johnson and A. Bouzaher, eds. Kluwer Academic Publishers. Dordrecht, Netherlands.

Holland, E. A., and J. K. Detling. 1990. Plant response to herbivory and belowground nitrogen cycling. *Ecology* 71:1040-1049.

Holling, C. S. 1992. Cross-scale morphology, geometry, and dynamics of ecosystems. *Ecol. Monogr.* 62:447-502.

Howe, H. F. 1994. Managing species diversity in tallgrass prairie: assumptions and implications. *Conserv. Biol.* 8:691-704.

Ingham, R. E, and J. K. Detling. 1984. Plant-herbivore interactions in a North American mixed-grass prairie: 3. Soil nematode populations and root biomass on *Cynomys ludovicianus* colonies and adjacent uncolonized areas. *Oecologia* 63:307-313..

James, S. W. 1982. Effects of fire and soil type on earthworm populations in a tallgrass prairie Ecology, United States of America. *Pedobiologia.* 24:37-40.

Johnsgard, P. A. 1995. *This fragile land. A natural history of the Nebraska Sandhills.* University of Nebraska Press, Lincoln.

Johnson, S. R., and A. Bouzaher. 1995. *Conservation of Great Plains ecosystems: Current science, future options.* Kluwer Academic Publishers, Dordrecht, Netherlands.

- Johnson, W. C. 1994. Woodland expansion in the Platte River, Nebraska. *Ecol. Monogr.* 64:45-84.
- Jones, C. G., et al. Organisms as ecosystem engineers. *Oikos* 69:373-386.
- Karron, J. D. 1987. The pollination ecology of co-occurring geographically restricted and widespread species of *Astragalus* (Fabaceae). *Biol. Conserv.* 39:179-194.
- Kaufman, G. A., and D. W. Kaufman. 1997. Ecology of small mammals in prairie landscapes. Pages 207-243 in *Pages 3-19 in Ecology and conservation of Great Plains Vertebrates*. F. L. Knopf and F. B. Samson, eds. Ecological Studies 125, Springer-Verlag, New York.
- Keith, D. A. 1998. An evaluation and modification of World Conservation Union Red List criteria for classification of extinction risk in vascular plants. *Conserv. Biol.* 12:1076-1090.
- Knapp, A. K., and F. S. Gilliam. 1985. Response of *Andropogon gerardii* (Poaceae) to fire-induced high vs. low irradiance environments in tallgrass prairie: leaf structure and photosynthetic pigments. *Amer. J. Bot.* 72:1668-1671.
- Knapp, A. K., and T. R. Seastedt. 1986. Detritus accumulation limits productivity of tallgrass prairie. *BioScience* 36:662-668.
- Knapp, A. K., et al. 1999. The keystone role of bison in North American tallgrass prairie. Bison increase habitat heterogeneity and alter a broad array of plant, community, and ecosystem processes. *BioScience* 49:39-50.
- Knopf, F. L. 1996. Prairie legacies--birds. 1996. Pages 135-148 in *Preserving North America's most endangered ecosystem*. F. B. Samson and F. L. Knopf, eds. Island Press, Washington, DC.
- Knopf, F. L., and F. B. Samson. 1997a. Ecology and conservation of Great Plains Vertebrates. Ecological Studies 125. Springer-Verlag, New York.
- Knopf, F. L., and F. B. Samson. 1997b. Conservation of grassland vertebrates. Pages 273-291 in *Ecology and conservation of Great Plains vertebrates*. F. L. Knopf, and F. B. Samson, eds. Springer Verlag, NY.
- Kopatek, E. V., et al. 1979. Landuse conflicts with natural vegetation. *Environ. Conserv.* 6:191-200.
- Kotliar, N. B., et al. A critical review of assumptions about the prairie dog as a keystone species. *Environ. Manage.* 24:177-192.

- Krueger, K. 1986. Feeding relationships among bison (*Bison bison*), pronghorn (*Antilocapra americana*) and prairie dogs (*Cynomys ludovicianus*) an experimental analysis. *Ecology* 67:760-770.
- Kuchler, A.W. 1964. Potential natural vegetation of the conterminous United States. Spec. Publ. 36. New York: Amer. Geograph. Soc. 116p. with separate map at 1:3,168,000.
- Mac, M. J., et al. 1998. Status and trends of the nation's biological resources. Vol. 1 & 2. U. S. Dept. Inter., U. S. Geol. Surv., Reston, Va.
- Mace, G. M., and R. Lande. 1990. Assessing extinction threats. Towards a reevaluation of IUCN threatened species categories. *Conserv. Biol.* 5:148-157.
- Malainey, M. E., and B. L. Sherriff. 1996. Adjusting our perceptions: historical and archaeological evidence of winter on the plains of Western Canada. *Plains Anthro.* 41: 333-357.
- Mares, M. A. 1992. Neotropical mammals and the myth of Amazonian biodiversity. *Science* 255:976-979.
- Masters, R. A., et al. 1993. Influence of improvement practices on big blue-stem and indiangrass seed production in tallgrass prairies. *J. Range Manage.* 46:183-188.
- McFarling, L. 1955. Exploring the Northern Great Plains. The Caxton Printers, Ltd. Caldwell, ID.
- McHugh, T. 1972. The time of the buffalo. Univ. Nebraska Press, Lincoln.
- Meffe, G. K., et al. 1998. Independent scientific review in natural resource management. *Conserv. Biol.* 12:168-173.
- Mengel, R. M. 1970. The North American Great Plains as an isolating agent in bird speciation. Pages 279-340 in *Pleistocene and recent environments of the Central Great Plains*. W. Dort and J. K. Jones, Jr., eds. University of Kansas, Lawrence.
- Michunas, D. G., et al. 1998. Livestock grazing: animal and plant biodiversity of shortgrass steppe and the relationship to ecosystem function. *Oikos* 83:65-74.
- Milchunas, D. G., and W. K. Lauenroth. 1993. Quantitative effects of grazing by large herbivores on grassland community structure. *Amer. Nat.* 132:87-106.
- Miller, B., et al. 1990. A proposal to conserve black-footed ferrets and the prairie dog ecosystem. *Environ. Manage.* 14:763-770.
- Morgan, D. 1963. Overland in 1846. Volume 1. The Talismn press, Georgetown, CA.

- Morse, L. E. 1996. Plant rarity and endangerment in North America. Pages 7-22 in *Restoring diversity – strategies for reintroduction of endangered plants*. D. A. Falk, et al., eds. Island Press, Washington, DC.
- Naeth, M. A., et al. 1990. Grazing impacts on infiltration in mixed prairie and fescue grassland ecosystems of Alberta. *Can. J. Soil. Sci.* 70:593-605.
- Nagel, H. G., et al. 1994. Management effects on Willa Cather Prairie after 17 years. *Prairie Natur.* 26:241-250.
- Nasatir, A. P. 1952. *Before Lewis and Clark*. Vol. 1 & 2. St. Louis Historical Documents Foundation, St. Louis.
- National Research Council. 1994. *Rangeland health. New methods to classify, inventory, and monitor rangelands*. Nat. Acad. Press, Washington, DC.
- Niven, L. B., and M. G. Hill. 1998. Season of bison mortality at three Plains Archaic kill sites in Wyoming. *Plains Anthro.* 43:5-26.
- Painter, E. L., et al. 1989. Grazing history, defoliation, and frequency-dependent competition: effects on two North American grasses. *Amer. J. Bot.* 76:1368-1379.
- Packard, S., and C. F. Mutel. 1997. *The tallgrass prairie restoration handbook for prairie, savanna, and woodlands*. Island Press, Washington, DC.
- Panzer, R. 1998. Effectiveness of a vegetation-based approach to insect conservation. *Conserv. Biol.* 12:693-702.
- Pettersson, M. W. 1996. Pollination in small populations: about plant protection of threatened species. *Vaxtskyddsnotiser* 60:14-16.
- Pfeiffer, K. E. 1995. Bison selectivity and grazing response of little bluestem in tallgrass prairie. *J. Range Manage.* 48:26-31.
- Phillips, P. C. 1932. *Scenery of the plains, mountains and mines*. Princeton Univ. Press, Princeton, NJ.
- Plumb, G. E., and J. L. Dodd. 1993. Foraging ecology of bison and cattle on a mixed prairie: Implications for natural area management. *Ecol. Appl.* 3: 631-643.
- Poini, K. A., et al. 2000. Biodiversity conservation at multiple scales: functional sites, landscapes and networks. *BioScience* 50:133-146.
- Polley, H. W., and J. K. Detling. 1988. Herbivory tolerance of *Agropyron smithii* populations with different grazing histories. *Oecologia* 77:261-267.

- Polley, H. W., and J. K. Detling. 1989. Defoliation, nitrogen, and competition: Effects on plant growth and nitrogen nutrition. *Ecology* 70:721-727.
- Polley, H. W., and J. K. Detling. 1990. Grazing-mediated differentiation in *Agropyron smithii*: evidence from populations with different grazing histories. *Oikos* 57:326-332.
- Primack, R. B. 1995. Essentials of conservation biology. Sinauer Associates Inc., Sunderland, MA.
- Ramenofsky, A. F. 1987. Vectors of death. University of New Mexico Press, Albuquerque.
- Ricklefs, T. H., E., et al. 1999. Terrestrial ecoregions of North America. Island Press, Washington, DC.
- Risser, P. G. 1995. Biodiversity and ecosystem function. *Conserv. Biol.* 9:742-746.
- Risser, P. G. 1996a. Summary: a new framework for prairie conservation. Pages 261-274 in *Preserving North America's most endangered ecosystem*. F. B. Samson and F. L. Knopf, eds. Island Press, Washington, DC.
- Risser, P. G. 1996b. Biodiversity and ecosystem function. *Conserv. Biol.* 9:742-746.
- Rittenhouse, B., and R. Rosentreter. 1994. The autecology of Challis Milkvetch, an endemic of east-central Idaho. *Natur. Areas J.* 14: 22-30.
- Roe, F. G. 1970. The North American buffalo. A critical study of the species in its wild state. Univ. Toronto Press, Toronto.
- Rothenberger, S. J. 1985. Community analysis of the forest vegetation in the Lower Platte River Valley, eastern Nebraska (USA). *Prairie Naturalist* 17:1-14.
- Roughgarden, J. 1997. Production functions from ecological populations: a survey with emphasis on spatially explicit models. Pages 296-317 in *Spatial ecology. The role of space in population dynamics and interspecific interactions*. D. Tilman and P. Kareiva, eds. Monogr. Pop. Biol. Princeton Univ. 30.
- Samson, F. B., and F. L. Knopf. 1994. Prairie conservation in North America. *BioScience* 44:418-421.
- Samson, F. B., and F. L. Knopf. 1999a. Grasslands. Pages 437-472 in *Status and trends of the nation's biological resources. Volume 2*. U.S. Depart. Inter., U. S. Geol. Surv., Washington, DC.

- Samson, F. B., and F. L. Knopf. 1999b. Putting diversity into resource conservation. Pages 167-178 in *Practical approaches to the conservation of biological diversity*. R. K. Baydack, et al, eds. Island Press, Washington, DC.
- Schacht, W., and J Stubbendieck. 1985. Prescribed burning in the Loess Hills mixed prairie of southern Nebraska (USA). *J. Range Manage.* 38:47-51.
- Seastedt, T. R, and M. V. Reddy. 1991. Fire, mowing and insecticide effects on soil *Sternorrhyncha*. *J. Kansas Ent. Soc.* 64: 238-242.
- Sharpe, D. M., et al. 1987. Vegetation in a southern Wisconsin agriculture landscape. Pages 137-158 in *Landscape heterogeneity and disturbance*. M. G. Turner, ed. Springer-Verlag, NY.
- Sharps, J. C., et al. 1990. Ecological review of black-tailed prairie dogs and associated species in western South Dakota (USA). *Great Basin Natur.* 50:339-346.
- Shaw, J. H., and M. Lee. 1997. Relative abundance of bison, elk, and pronghorn on the Southern Plains, 1806-1857. *Plains Anthro.* 42: 163-172.
- Sieg, C. 1997. The role of fire in managing for biological diversity on native rangelands of the Northern Great Plains. Pages 31-38 in *Conserving Biodiversity on Native Rangelands: Symposium Proceedings*. D. W. Uresk, et al., eds. U. S. For. Serv. Gen. Tech. Rpt RM-GTR-298. RMRS, Fort Collins, CO.
- Simms, P. L. J. D. 1988. Grasslands. Pages 265-286 in M. G. Barbour and W. D. Billings, eds. *North American terrestrial vegetation*. Cambridge University Press, New York.
- Singer, F. J., et al. 1998. Niche relationships within a guild of ungulate species in Yellowstone National Park, Wyoming, following release from artificial controls. *Wildl. Soc. Bull.* 26: 375-390.
- Smith, T. B., et al. 1993. The preservation of process: the missing element of conservation programs. *Biodiv. Letters* 1: 164-167.
- Sousa, W. P. 1984. The role of disturbance in natural communities. *Ann. Rev. Ecol. Syst.* 15:353-391.
- Steinauer, E. M., and S. L. Collins. 1996. Prairie ecology--the tallgrass prairie. Pages 39-52 in *Prairie conservation. Preserving North America's most endangered ecosystem*. F. B. Samson and F. L. Knopf, eds. Island Press, Washington, DC.
- Steuter, A. A. 1987. 3 carbon and 4 carbon photosynthetic pathway production shift on seasonal burns: northern mixed prairie. *J. Range Mgmt.* 40:27-31.

- Steuter, A.A. 1988. Restoring a mixed prairie process: the fire-bison grazing interaction. *Bull. Ecol. Soc. Amer.* 69:308.
- Steuter, A. A. et al. 1990. A synthesis approach to research and management planning: The conceptual development and implementation. *Nat. Areas. J.* 10:61-68.
- Steuter, A. A., et al. 1995. Distribution and diet of bison and pocket gophers in a sandhills prairie. *Ecol. Appl.* 5:756-766.
- Stohlgren, T. J., et al. 1999. How grazing and soil quality affect native and exotic plant diversity in Rocky Mountain grasslands. *Ecol. Appl.* 9:524-560.
- Thwaites, R. G. 1996. Early western travels. 1748-1846. Vol. 1-23. AMS Press, Inc., New York.
- Towne, E. G., and Knapp, A. K. 1996. Biomass and density responses in tallgrass prairie legumes to annual fire and topographic position. *Amer. J. Bot.* 83:175-179.
- U.S. Department of Interior National Biological Service. 1995. Our living resources. A report to the nation on the distribution, abundance, and health of U.S. plants, animals, and ecosystems. U.S. GPO, Washington, DC.
- Umbanhowar, C. E. 1996. Recent fire history of the Northern Great Plains. *Amer. Midl. Natur.* 135:115-121.
- Uresk, D. W. 1984. Black-tailed prairie dog (*Cynomys ludovicianus*) food habits and forage relationships in western South Dakota (USA). *Journal of Range Management* 37:325-329.
- USDAa. 1999. Northern Great Plains analysis of the management situation. Draft environmental impact statement. USDA For. Serv. Chadron, NE. in prep.
- Vinton, M. A., and S. L. Collins. 1996. Landscape gradients and habitat structure in native grasslands of the Central Great Plains. Pages 3-19 in *Ecology and conservation of Great Plains Vertebrates*. F. L. Knopf and F. B. Samson, eds. Ecological Studies 125. Springer-Verlag, New York.
- Vinton, M. A., and S. L. Collins. 1997. Landscape gradients and habitat structure in native grasslands of the central Great Plains. Pages 3-20 in *Ecology and conservation of Great Plains vertebrates*. F. L. Knopf, and F. B. Samson, eds. Springer-Verlag, NY.
- Vinton, M. A., et a. 1993. Interactive effects of fire, bison (*Bison bison*) grazing and plant community composition in tallgrass prairie. *Amer. Midl. Natur.* 129:10-18.
- Wall, W. A. 1999. Maintaining biodiversity in an intensively managed forest: a habitat-based planning process linked with fine filter management process approach. Pages 127-

140 in Practical approaches to the conservation of biological diversity. R. K. Baydack, et al., eds. Island Press, Washington, DC.

Warren, G. K. 1875. Preliminary report of explorations in Nebraska and Dakota in the years 1855-'56-'57. Engineer Department, GPO, Washington, DC.

Weaver, J. E. 1968. Prairie plants and their environment. A fifty-year study in the Midwest. Univ. Nebraska Press, Lincoln.

Weaver, T., et al. 1996. Prairie ecology--the shortgrass prairie. Pages 67-76 in Preserving North America's most endangered ecosystem. F. B. Samson and F. L. Knopf, eds. Island Press, Washington, DC.

Wells, P. V. 1965. Scarp woodlands, transported soils and the concept of grassland climate in the Great Plains region. *Science* 148:246-249.

Weltzin, J. K., et al. 1997. Small-mammal regulation of vegetation structure in a temperate Savanna. *Ecology* 78:751-763.

Wendtland, K. J. and J. L. Dodd. 1992. The fire history of Scotts Bluff National Monument. Pages 141-143 in Proc. 12th N. Amer. Prairie Conf. D. D. Smith, and C.A. Jacobs, eds. Univ. North. Iowa, Cedar Falls, IA.

White, E. M., and J. K. Lewis. 1967. Recent gully formation in prairie areas of the Northern Great Plains. *Plains Anthro.* 12:318-322.

Wicklowsky, D. T. 1975. Fire as an environmental cue initiating ascomycete development in a tallgrass prairie [Fungal bloom]. *Mycologia* 67: 852-862.

Wilson, S. D., and J. H. Shaw. 1990. Competition, fire, and nutrients in a mixed-grass prairie. *Ecology* 71:959-1967.

Wright, H. A., and A. W. Bailey. 1982. Fire Ecology. John Wiley & Sons, NY.

Wydeven, A. P., and R. B. Dahlgren. 1985. Ungulate habitat relationships in Wind Cave National Park (South Dakota, USA). *J. Wildl. Manage.* 49:805-813.

Western Prairie Fringed Orchid	Platanthera praeclara	ESA - Threatened			K			N		N				
		COSEWIC - Endangered												
		IA - Threatened												
		TNC/NHP-G2												
		MN - Endangered												
Ute ladies-tresses	Spiranthes diluvialis	ESA - Threatened											N	
INVERTEBRATE														
American Burying Beetle	Microphorus americanus	ESA - Endangered						K		U		N		
		IUCN - Critically Endangered												
		TNC/NHP - G1, N1												
		NE - Endangered												
					NATIONAL GRASSLAND / FOREST									
COMMON NAME	SCIENTIFIC NAME	CLASSIFICATION	LMNG	CRNG	SNG	GRNG	ONG	NNEBRL	NNEPRRI	SRMNF	BGNG	FPNG	TBNG	
BIRD														
Whooping Crane	Grus americana	ESA - Endangered	K	S		S		OS			K	K		
		IUCN - Endangered												
		TNC/NHP - G1, N1												
		MT, NE, SD - Endan												
Bald Eagle	Haliaeetus leucocephalus	ESA - Threatened (delist?)	K	K	K	K	K	K	K	K	K	K	K	
		TNC/NHP - G4, N4												
		NE, SD, IA - Endangered												
		WY-PIF - Level 1												
Peregrine Falcon	Falco peregrinis	ESA - Endangered (pro delist)	K	S	S	S	K	S	K	S	K		K	
		TNC/NHP -G4T4, N2												
		MT, NE, SD - Endan												
		WY - Spp Concern												
		WY-PIF - Level 1												
Black-footed Ferret	Mustela nigripes	ESA - Endangered	U	U		U	U	U			K	U	U	

[illegible]

					NATIONAL GRASSLAND / FOREST									
COMMON NAME	SCIENTIFIC NAME	CLASSIFICATION	LMNG	CRNG	SNG	GRNG	ONG	NNFBRL	INFPRI	SRMNE	BGNG	FPNG	TBNG	
BIRD														
Mountain Plover	Charadrius montanus	FWS - Candidate	K	U		S	U				U		K	
		IUCN - Vulnerable												
		TNC/NHP - G2, N3												
		COSEWIC - Endangered												
		BLM - Sensitive												
		MT, WY - Spp Concern												
		NE - Threatened												
		PIF - Highest												
		WY-PIF - Level 1												
		FS - Sensitive												
					NATIONAL GRASSLAND / FOREST									
COMMON NAME	SCIENTIFIC NAME	CLASSIFICATION	LMNG	CRNG	SNG	GRNG	ONG	NNFBRL	INFPRI	SRMNE	BGNG	FPNG	TBNG	
MAMMAL														
Swift Fox	Vulpes velox	FWS - Cand.	U	U		U	K				K		K	
		IUCN - Lower Risk												
		TNC/NHP - G3, N3												
		FS - Sensitive												
		BLM - Sensitive												
		MT, WY - Spp Concern												
		SD - Threatened												
		SD - Threatened												
Black-tailed Prairie Dog	Cynomys ludovicianus	COSEWIC - Vulnerable	K	N		K	K	K		N	K	K	K	
		BLM - Sensitive												
		MT, WY - Spp Concern												
Mountain Lion	Felis concolor	SD - Threatened	S				S		K		S		K	

COMMON NAME	SCIENTIFIC NAME	CLASSIFICATION	LMNG	CRNG	SNG	GRNG	ONG	NNFBRL	INEPRRI	SRMNE	BGNG	FPNG	TBNG	
Plant														
Hooked Agrimony	Agrimonia gryposepala	FS - Sensitive			K		S	S	S	S				
Silky Aster	Aster sericeus	FS - Sensitive			K							S		
Labrador Bedstraw	Galium	FS - Sensitive			K									
Marsh Bellflower	Campanula aparinoides	FS - Sensitive			K			S		S	S			
Buckbean	Menyanthes trifoliata	FS - Sensitive			K									
		IA - Threatened												
Nodding	Eriogonum	FS - Sensitive	K			S	S							
Green-killed Cotton-grass	Eriophorum viridicarinatum	FS - Sensitive			K									
Slender	Eriophorum gracile	FS - Sensitive						S	S					
Lanceleaf Cottonwood	Populus acuminata	FS - Sensitive	K								S		S	
Dogberry	Ribes cynosbati	FS - Sensitive			K									
Prairie Fameflower	Talinum	FS - Sensitive		S		K								
Crested Shield Fern	Dryopteris cristata	FS - Sensitive			K			S		S				
March Fern	Thelypteris palustris	FS - Sensitive			K			S		S	S			
Oak Fern	Gymnocarpium dryopteris	FS - Sensitive			K									
		IA - Threatened												
Sensitive Fern	Onoclea sensibilis	FS - Sensitive			K			S		S		S		
Spinulose Wood Fern	Dryopteris spinulosa	FS - Sensitive			K			S		S				
Lady-Fern	Athyrium kliebergorum	FS - Sensitive			K									
NATIONAL GRASSLAND / FOREST														
COMMON NAME	SCIENTIFIC NAME	CLASSIFICATION	LMNG	CRNG	SNG	GRNG	ONG	NNFBRL	INEPRRI	SRMNE	BGNG	FPNG	TBNG	
Shining Flatsedge	Cyperus rivularis	FS - Sensitive			K			S	S	S				
Umbrella Flatsedge	Cyperus diandrus	FS - Sensitive			K			S	S	S				
Frostweed	Helianthemum bicknellii	FS - Sensitive			K			S		S	S			
Broad-leaved Goldenrod	Solidago flexicaulis	FS - Sensitive			K									
Three-tooth Groundsel	Senecio tridenticularis	FS - Sensitive			K		S	S	S	S	S			

[illegible]

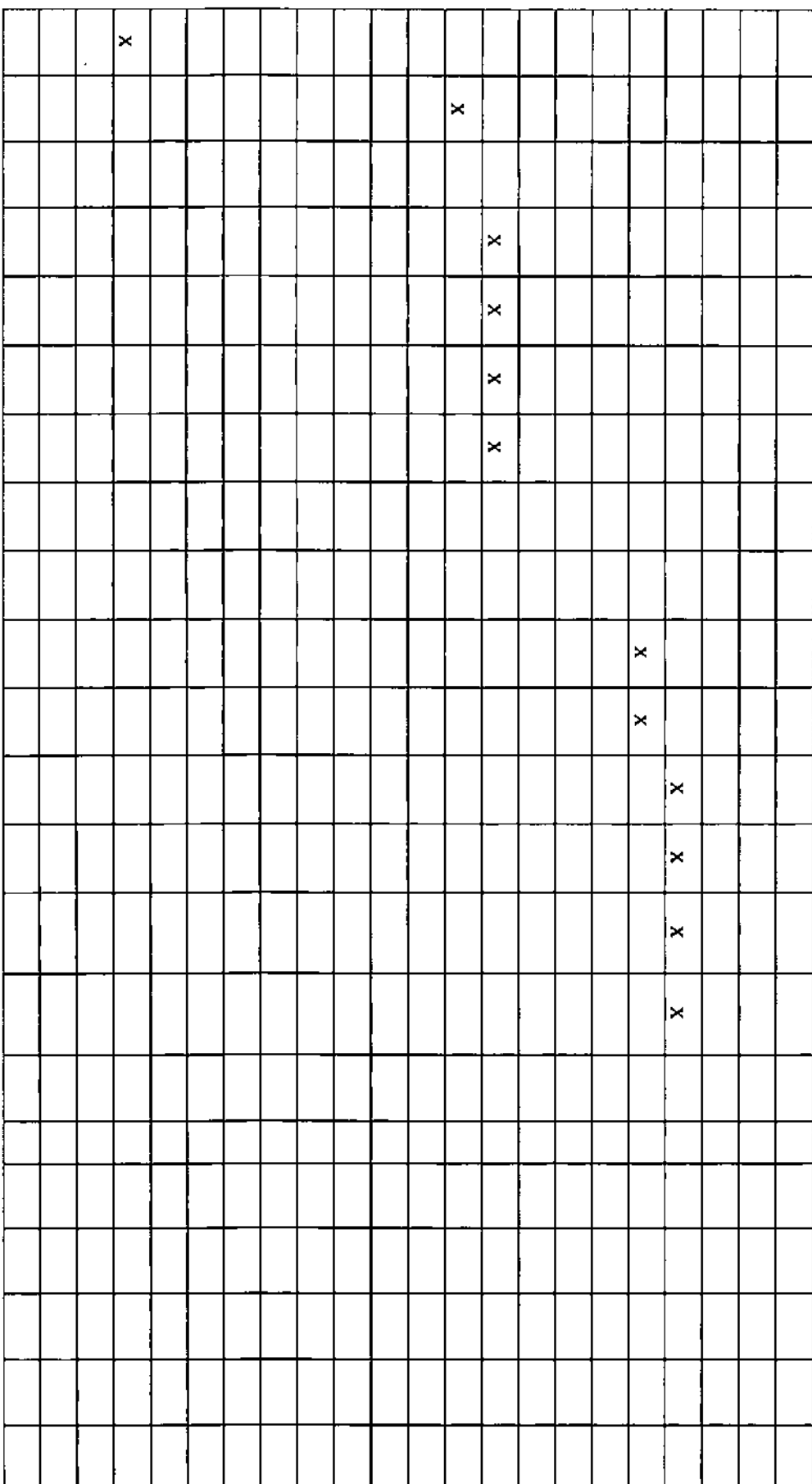
[illegible]

[illegible]

[illegible]

[illegible]

[illegible]



[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Appendix 4. Code Definitions for the Northern Great Plains Species (Appendix 2 and 3).

AQUATIC/WETLAND

ALF	Aquatic, large fast river
ALS	Aquatic, large slow river
ASF	Aquatic, small fast stream
ASS	Aquatic, small slow stream
SB	Sand bar
GB	Gravel Bar
WMM	Wetland, man-made
WD	Wetland, depressional pothole
WS	Wetland, spring
BF	Bog or fen
MAR	Marsh
BW	Boggy woodlands

RIPARIAN

WM	Wet meadows
SAS	Saline, sub-irrigated
SH	Stream herbaceous
RSO	Riparian shrub (open) <20% CC
RSD	Riparian shrub (dense) = or >20% CC

RIPARIAN WOODLAND

RCIO	Riparian cottonwood (immature, open) -- <8" DBH, <40% CC
RCID	Riparian cottonwood (immature, dense) -- <8" DBH, >40% CC
RCMO	Riparian cottonwood (mature, open) -- >8" DBH, <40% CC
RCMD	Riparian cottonwood (mature, dense) -- >8" DBH, >40% CC
RCE	Riparian cottonwood communities, eastern
RAIO	Riparian green ash/elm (immature, open) -- <5" DBH, <40% CC
RAID	Riparian green ash/elm (immature, dense) -- <5" DBH, >40% CC
RAMO	Riparian green ash/elm (mature, open) -- >5" DBH, <40% CC
RAMD	Riparian green ash/elm (mature, dense) -- >5" DBH, >40% CC
WDIO	Woody Draw (immature, open) -- <5" DBH, <40% CC
WDID	Woody Draw (immature, dense) -- <5" DBH, <40% CC
WDMO	Woody Draw (mature, open) -- >5" DBH, <40% CC
WDMD	Woody Draw (mature, dense) -- >5" DBH, >40% CC
RGB	Riparian green ash/basswood

CONIFEROUS WOODLANDS

JIO	Juniper (immature, open) -- <5" DBH, <40% CC
JID	Juniper (immature, dense) -- <5" DBH, >40% CC
JMO	Juniper (mature, open) -- >5" DBH, <40% CC
JMD	Juniper (mature, dense) -- >5" DBH, >40% CC
PIO	Ponderosa Pine (immature, open) -- <8" DBH, <40% CC
PID	Ponderosa Pine (immature, dense) -- <8" DBH, >40% CC
PMO	Ponderosa Pine (mature, open) -- >8" DBH, <40% CC
PMD	Ponderosa Pine (mature, dense) -- >8" DBH, <40% CC

GRASSLANDS

GRS	Grassland, short grass
GRMW	Grassland, mixed grass, western
GRME	Grassland, mixed grass, eastern
GRT	Grassland, tall grass

SAVANNA WOODLANDS

BO	Bur oak savanna
----	-----------------

SHRUB TYPES

SS	Shrub/steppe
SCO	Shrubland, chokecherry/green ash (open) -- $\leq$ 20% CC
SCD	Shrubland, chokecherry/green ash (dense) -- $\geq$ 20% CC

BSO Big sagebrush (open) -- E 20% CC
BSD Big sagebrush (dense) -- 20% CC
GSB Greasewood saltbrush

SPECIAL FEATURE HABITATS

PD Prairie dog
CA Cave
RO Rock outcrop
BU Buttes
BL Badlands
SD Sand dune or blowout

AGRICULTURAL

AG Agricultural grassland
AC Agricultural cropland
SB Shelterbelt

From: Kozlowski, Steve -FS
Sent: 24 Jul 2017 15:08:18 +0000
To: McDonald, Peter M -FS
Cc: Reynolds, Kelle A -FS
Subject: Plague Event on Thunder Basin National Grassland

Hi Peter,
Shane Walker, District Ranger, prepared the quick briefing in messages below and I wasn't sure if you received it through other channels. Very useful.

Also, I queried Dennis regarding dusting and shooting ban topics, very brief hallway conversation, and here is what I heard.

Dusting - will be discussed in more detail Tuesday at FLT meeting with Dennis, Jason Kuikan (Acting F.Sup.), and Shane Walker. Discuss doing it in cooperation/coordination with WGF, TBGPEA, and others.

Shooting Ban – No plan to reinstate at this time, the lift remains in effect until March 18th.

Larger goal here is to get on board between WGF and FS, work more together on these things so nobody hanging out by themselves.

Steve Kozlowski, USFS

Sage-grouse Coordinator – MBRTB
Wildlife Biologist - TEAMS
559 972-1934 cell, 307 745-2343 office, skozlowski@fs.fed.us

From: Jaeger, Dennis -FS
Sent: Monday, July 24, 2017 7:27 AM
To: Voos, Aaron T -FS <atvoos@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Kozlowski, Steve -FS <skozlowski@fs.fed.us>
Subject: FW: Epizootic Plague Event on Thunder Basin National Grassland

FYI



Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National Grassland

p: 307-745-2400
c: 307-399-1404

djaeger01@fs.fed.us

2468 Jackson Street
Laramie, WY 82070
www.fs.fed.us



Caring for the land and serving people

From: Walker, Michael S -FS
Sent: Friday, July 21, 2017 4:20 PM
To: Jaeger, Dennis -FS <djaeger01@fs.fed.us>
Subject: Epizootic Plague Event on Thunder Basin National Grassland

Background

- Sylvatic plague has been present on the Thunder Basin National Grassland for at least 15-years.
- Small outbreaks of plague is a regular occurrence.
- The last epizootic event on the grassland occurred 2007-09, reducing the occupied acreage from approximately 16,000-acres to approximately 3,000-acres.
- The associated sensitive species (Mountain plover, Burrowing owl, and Swift fox) populations were significantly reduced for several years following the last epizootic event.
- A minimum of 43,000-acres of occupied prairie dog colony habitat on the TBNG in 2016.
- Acreage exceeded scientific understanding and TBNG plan expectations of growth and behavior.
- USGS study of plague resistance fleas on TBNG in 2015 and 2016 determined that the fleas are not yet resistant to Delta-dust.
- Planned to poison approximately 10,000-acres of occupied prairie dog colonies on NFS in collaboration and cooperation with partners, cooperators, and neighbors.

Current Situation

- Signs appear to indicate that the epizootic event started in fall 2017 in Weston county and moved west.
- A second outbreak started in Converse county – possibly in winter 2016/17 – and moved east.
- Approximately 6,000 – 8,000 acres of prairie dog colonies have died as to date.
- Anticipate approximately 75% of the prairie dog colony acres to die of plague by fall.
- Anticipate approximately 90% of the prairie dog colony acres to die of plague by spring 2018.
- No guarantee that plague will not kill 100% of the prairie dog colonies in conjunction with recreational shooting and poisoning.
- Collaborating and cooperating with partners, cooperators, and neighbors to monitor the progress of plague across northeastern Wyoming.
- Wyoming Game and Fish Department confirmed two prairie dogs from northeastern Wyoming died of sylvatic plague.

Actions

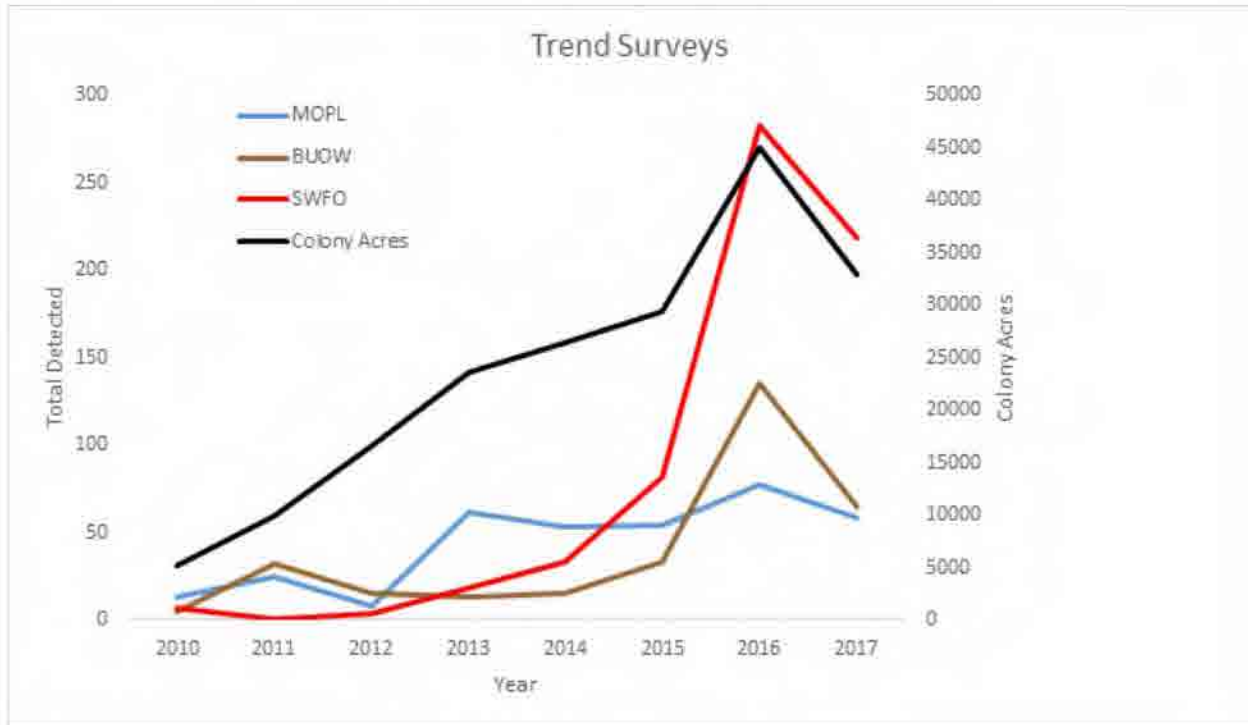
- Monitoring the progress of plague in coordination and cooperation with our partners on National Forest System, state, and private lands.
- Executing poisoning priorities from the grazing associations this fall.

- Executing broad prairie dog control agreements with Converse, Campbell, and Weston counties.
- Agreements with counties will cover lethal and non-lethal control methods, and dusting for fleas.
- Explaining to the grazing associations and county weed and pest departments the rationale for dusting prairie dogs before poisoning.
- Planning to dust prairie dogs to kill fleas prior to poisoning on National Forest System lands.
- Developing a public service announcement in cooperation with the BLM, WGFD, Converse County, Campbell County, Weston County, Niobrara County, and the chamber of commerce's for communities in northeastern Wyoming in preparation to a large influx of visitors during the solar eclipse.

Recommendations

- Apply shooting restrictions in select areas of the MA 3.63.
- Coordinate with partners and cooperators in applying Delta-dust in up to 3 colonies with high value and occupied habitat for multiple sensitive species in MA 3.63.
 - 12-people in 5-days can cover 1,000-acres.
- Dusting in the 3 priority colonies would occur for the next 3-6 years to ensure plague does not enter the colonies.
-

From: Painter, Cristi L -FS
Sent: 29 Aug 2017 15:22:13 +0000
To: McDonald, Peter M -FS; Kozlowski, Steve -FS
Subject: population trend for 2017



I am pretty sure you can interpret this without my assistance.



Cristi Painter
Wildlife Biologist

Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger District

p: 307-358-7132

f: 307-358-7107

cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633

www.fs.fed.us



Caring for the land and serving people

From: Kozlowski, Steve -FS
Sent: 7 Dec 2017 17:41:38 +0000
To: McDonald, Peter M -FS
Subject: RE: BFF statement

It would appear that this was a result of the monthly collaborative meetings occurring on the grasslands, the public learning series and the local gov't cooperative group. They are meeting all day today, so I do not have any more info. I just heard about it 2 days ago. Steve

Steve Kozlowski, USFS

Wildlife, Botany, and Fish Resource Team Leader for the MBRTB
Forest Wildlife Biologist
Sage-grouse Coordinator
559 972-1934 cell, 307 745-2343 office, skozlowski@fs.fed.us

From: McDonald, Peter M -FS
Sent: Thursday, December 07, 2017 10:37 AM
To: Kozlowski, Steve -FS <skozlowski@fs.fed.us>
Subject: RE: BFF statement
Who worked on this?
Peter

From: Kozlowski, Steve -FS
Sent: Thursday, December 07, 2017 10:27 AM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: FW: BFF statement
BFF statement in Wyoming.

Steve Kozlowski, USFS

Wildlife, Botany, and Fish Resource Team Leader for the MBRTB
Forest Wildlife Biologist
Sage-grouse Coordinator
559 972-1934 cell, 307 745-2343 office, skozlowski@fs.fed.us

From: Voos, Aaron T -FS
Sent: Monday, December 04, 2017 3:16 PM
To: Kozlowski, Steve -FS <skozlowski@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>
Cc: Underhill, Sandra - FS <sandraunderhill@fs.fed.us>
Subject: BFF statement

Kelle/Koz,

This interagency statement will be shared publicly by Russ on Thursday in Gillette. Just making sure you are aware. See attached...

Aaron



Aaron Voos
Public Affairs Specialist

Forest Service
Medicine Bow-Routt National Forests & Thunder Basin National Grassland

p: 307-745-2323
c: 970-819-2898
atvoos@fs.fed.us

2468 Jackson St.

Laramie, WY 82070
www.fs.usda.gov/mbr
[Twitter.com/FS_MBRTB](https://twitter.com/FS_MBRTB)



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: 22 May 2019 20:30:32 +0000
To: J Sidle
Subject: RE: Comments on TBNG Proposed 3.63 action

Thank John, these are very helpful and I share many of your observations. The ID team will need to do a much better job in the NEPA document supporting many of the claims made in the scoping document's purpose and need and other sections.

Good to hear from you and hope you're doing well.



Peter McDonald
Threatened, Endangered and Sensitive Species
Program Leader

Forest Service
Rocky Mountain Region

p: 303-275-5029

c: 303-475-3515

peter.mcdonald@usda.gov

1617 Cole Boulevard, Bldg 17
Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: J Sidle (b) (6)
Sent: Saturday, May 18, 2019 1:32 PM
To: McDonald, Peter M -FS <peter.mcdonald@usda.gov>; (b) (6)
Subject: Comments on TBNG Proposed 3.63 action

Hi Peter and Nancy - Attached are the comments I sent to USFS regarding the TBNG 3.63. The Interdisciplinary Team Leader, Monique, at Laramie said during the webinar that comments submitted in response to the Scoping Document would not be shared with the public. So, here they are.

John

From: Upton, Carolyn -FS
Sent: 21 Jul 2017 00:18:20 +0000
To: McDonald, Peter M -FS
Cc: Lohr, Steve -FS
Subject: Re: FS Updated Plague Map/files as of 7/18/2017

Please keep Forest Leadership (Forest Supervisor) included on messages you send directly to Jacque. Jacque will likely ask Forest leadership what they think about this and I don't know that they know.

Also, please explain the map to me and to Dennis. What is the data source? What do the items on the key of the map mean? I don't know what the combo area is, for example. Jacque will likely ask what the data source is and what the map means. I don't know.

I will follow up with Jacque and tell her I have requested context for the map - data source and what the different polygons mean.

Thank you for being so prompt. I was unaware this data could even be available so soon.

Sent from my iPad

On Jul 20, 2017, at 9:28 AM, McDonald, Peter M -FS <petermcdonald@fs.fed.us> wrote:

Jacque and everyone,

Attached is an updated plague map for Thunder Basin. The areas affected by plague so far are in blue and I'm told equals ~8000+ acres and growing, including affecting the MA 3.63. Given the rapid and extensive impact of the plague so far together with a continued high risk of more spread across the grasslands, I believe there is a genuine need for some active management of the situation including revisiting the shooting ban, dusting plans, and rodenticide control and overall more active, strategic management of the situation. I realize there still may be a need for some targeted boundary control of prairie dogs yet this year. However, I am concerned there is a genuine risk under the current situation that without more active management of it, we could see some pretty dramatic loss of prairie dogs district-wide. Worst case scenario is the prairie dogs falling below viability thresholds and out of alignment with the LMP. I don't consider this to be an overly dire forecast but a very likely scenario without more active management of the situation given what has happened so far and still possible.

I also called Steve Kozlowski, acting MBR forest biologist, this morning to relay some of these concerns.

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species
Forest Service
Rocky Mountain Region

p: 303-275-5029
c: 303-475-3515
petermcdonald@fs.fed.us

1617 Cole Boulevard, Bldg 17
Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: Painter, Cristi L -FS
Sent: Wednesday, July 19, 2017 4:57 PM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: FW: FS Updated Plague Map/files as of 7/18/2017



Cristi Painter
Wildlife Biologist
Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger District

p: 307-358-7132
f: 307-358-7107
cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633

www.fs.fed.us



Caring for the land and serving people

From: Parker, Ryan - FS
Sent: Tuesday, July 18, 2017 1:26 PM
To: (b) (6) Painter, Cristi L -FS <cpainter@fs.fed.us>
Cc: Lauren Cathleen Connell (b) (6)
Subject: FS Updated Plague Map/files as of 7/18/2017

Ignore previous email. This has attached files.

Ryan

<UpdatedPlagueMap7_18.pdf>

From: Painter, Cristi L -FS
Sent: 31 Jul 2017 22:39:31 +0000
To: McDonald, Peter M -FS
Subject: RE: FS Updated Plague Map/files as of 7/18/2017

It's okay. It's not your fault. But I really can't talk to anybody at this point. It's sad.



Cristi Painter
Wildlife Biologist
Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger District

p: 307-358-7132
f: 307-358-7107
cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633
www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: Monday, July 31, 2017 3:15 PM
To: Painter, Cristi L -FS <cpainter@fs.fed.us>
Subject: RE: FS Updated Plague Map/files as of 7/18/2017
Sorry I dragged you into that. I'm not impressed with the whole situation.
Peter

From: Painter, Cristi L -FS
Sent: Monday, July 31, 2017 2:36 PM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: RE: FS Updated Plague Map/files as of 7/18/2017

I was recently chastised for sending you that map, and not cc'ing everybody in the SO (which I don't even know who that is supposed to be at this point, as nobody is telling me what they expect). I had provided a briefing paper and the same map to leadership, but I don't know what happened after I provided it. Suffice it to say, I am respectfully requesting that all inquiry go through Shane from here on out. Thanks.



Cristi Painter
Wildlife Biologist
Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger District

p: 307-358-7132
f: 307-358-7107
cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633
www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: Friday, July 21, 2017 3:41 PM

To: Painter, Cristi L -FS <cpainter@fs.fed.us>

Subject: FW: FS Updated Plague Map/files as of 7/18/2017

I inadvertently sent the below note last night back to Carolyn instead of you. I am out on the Shoshone all next week so would you send any additional map details directly to Carolyn and Steve Lohr, with a cc to me. Thanks Cristi.

Peter

From: McDonald, Peter M -FS

Sent: Thursday, July 20, 2017 8:19 PM

To: Upton, Carolyn -FS <cupton@fs.fed.us>

Subject: Re: FS Updated Plague Map/files as of 7/18/2017

Cristi, would you provide a few more details about the map along the lines of Carolyn's questions below?

"Also, please explain the map to me and to Dennis. What is the data source? What do the items on the key of the map mean? I don't know what the combo area is, for example. Jacque will likely ask what the data source is and what the map means. "

For me, it would also be helpful I think to include the 3.63 boundaries on the map too. Thanks.

Peter

From: Lohr, Steve -FS
Sent: 23 Mar 2017 16:30:55 +0000
To: McDonald, Peter M -FS
Subject: RE: grazing language

10-4. Thanks.



Steve Lohr
Director of Renewable Resources

Forest Service
Rocky Mountain Region

p: 303-275-5014

c: 303-242-7675

f: 303-275-5075

slohr@fs.fed.us

740 Simms Street

Golden, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: Thursday, March 23, 2017 10:29 AM
To: Lohr, Steve -FS <slohr@fs.fed.us>
Subject: grazing language

Sorry I had an issue I had to resolve with Harry and this also took a little digging. The current plan and prairie dog decisions for TBNG didn't go into some of the original details for the MA 3.63 and other uses like grazing. I had to go into the 2001 northern great plains FEIS (Nebraska entire, TBNG, Little Missouri in R1) and 2002 TBNG ROD for that. I've included some passages from both here:

2001 FEIS:

Management areas are defined as parts of the grasslands and/or forests that are managed for a particular emphasis

The change of acres of the Broken Hills and Cellars Rosecrans Geographic Areas from Management Area 3.65 and 5.12 Prescription Allocation, respectfully, to Management Area 3.63 Prescription Allocation is specific in nature (see Appendix C). This change in land use allocation does not change the goods or services that otherwise would be produced. Black-footed ferrets have not occupied this area. This re-allocation will not threaten the black-footed ferret population thresholds and recovery efforts, nor will it alter the current livestock grazing activities and outputs.

Cellars-Rosecrans is MA 3.63 area on Thunder Basin

From the 2002 ROD which originally established the MA 3.63 and framed the role of other uses including livestock grazing in managing prairie dogs and the MA 3.63 at Thunder Basin:

The TBNG Revised Plan direction at Chapter 1, Grassland-wide Direction, addresses the general direction for the management of black-tailed prairie dogs. In addition, Chapter 3, Management Area 3.63 provides management direction for prairie dog colonies in black-footed ferret reintroduction areas. The Revised Plan limits the use of rodenticide for managing prairie dogs. The Forest Service is utilizing grazing management systems and stocking levels to enhance prairie dogs expansion where desired and to discourage encroachment on adjacent private lands.

3.63 Black-Footed Ferret Reintroduction Habitat – Black-tailed prairie dog colony complexes are actively and intensively managed as reintroduction habitat for black-footed ferrets.

This area is managed to maintain prairie dog complexes and compatible land uses are established and/or maintained for black-footed ferret reintroduction.

Livestock grazing is usually considered a compatible use in prairie dog management areas because the dogs need low structure vegetation. An exception may be if there are some cumulative impacts from the prairie dogs and livestock during drought but it's not unusual for the units to adjust livestock grazing seasons or numbers across the districts during drought.

Management Area 3.63 – Black-footed Ferret Reintroduction Habitat This area is managed to maintain prairie dog complexes and compatible land uses are established and/or maintained for black-footed ferret reintroduction. Prairie dog populations are maintained or increased through vegetation management and/or relocation of prairie dogs to suitable habitat. Prairie dog shooting is prohibited in this area. Because of the low vegetative structure in these areas, they are often the key habitat for mountain plover and other species that require this structure.

Peter

From: McDonald, Peter M -FS
Sent: 12 Sep 2017 18:08:16 +0000
To: Kozlowski, Steve -FS
Subject: RE: Lethal Prairie Dog Control Decision

Thanks Steve, it's a little more comforting to see there will still be some consideration of the current plans and oversight.

Peter

From: Kozlowski, Steve -FS
Sent: Tuesday, September 12, 2017 10:20 AM
To: Painter, Cristi L -FS <cpainter@fs.fed.us>; McDonald, Peter M -FS <petermcdonald@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>
Subject: RE: Lethal Prairie Dog Control Decision

We will be discussing this more on the Forest to get pertinent details displayed. Cristi and I will work together to prepare a GIS map showing

Category 1 boundary

Prairie dog colonies

1,000 acre prairie dog colonies

Plague

Known locations of associated species (for avoidance)

Pvt. Lands with residences

Prairie dog colonies/locations being authorized for control treatments (6,000 acres or so)

Visitor map as background for reference.

To reiterate, this map is so that we can display what and where the action being taken is, and how it aligns with current management direction in the Grassland Plan and 2015 Mgmt. Strategy.

This is not an analysis, but rather a communication tool.

Thanks, Steve

Steve Kozlowski, USFS

Sage-grouse Coordinator – MBRTB

Wildlife Biologist - TEAMS

559 972-1934 cell, 307 745-2343 office, skozlowski@fs.fed.us

From: Painter, Cristi L -FS

Sent: Tuesday, September 12, 2017 8:48 AM

To: Kozlowski, Steve -FS <skozlowski@fs.fed.us>; McDonald, Peter M -FS <petermcdonald@fs.fed.us>

Subject: FW: Lethal Prairie Dog Control Decision



Cristi Painter
Wildlife Biologist

Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger District

p: 307-358-7132

f: 307-358-7107

cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633

www.fs.fed.us



Caring for the land and serving people

From: Walker, Michael S -FS

Sent: Monday, September 11, 2017 4:31 PM

To: Proctor, Geri A -FS <gproctor@fs.fed.us>; Painter, Cristi L -FS <cpainter@fs.fed.us>; Hays, Misty A -FS <mahays@fs.fed.us>

Subject: Lethal Prairie Dog Control Decision

All,

After consulting with the Acting Forest Supervisor, I approved all but one of the lethal control requests we processed. The rationale is that there needed to be a measurable effort to actively reduce some of the colonies given the high acreage we have experienced in the past few years. I am also authorizing the Weed & Pest District to take any precautionary measure they deem necessary to manage the risks associated with the spread of plague. They are to report back to us what they actually poisoned and any additional measure they take to manage the risks with plague. Because we have an agreement with the Weed & Pest Districts, we will continue to collaboratively and cooperatively work with them in this and future control efforts. In our collaboration and cooperation efforts, we will not micro-manage the on-the-ground work, but rather strive to build trust in our budding relationship with them.

We had a 10,000-acre target, but in cooperation and collaboration with our neighbors, partners, and permittees, approximately 6,000-acres were identified. I approved less than 6,000-acres. With plague moving through the area, we will give the local Weed & Pest District the final say as to whether or not a colony should be poisoned. We will learn this winter how many acres were actually poisoned.

The one request that was not approved was the proposed colony control effort in cooperation with Pat Lynch. Pat contacted Moriah late last week and told us he wanted to withdrawal the request as the plague was moving through the area and that he wasn't going to poison and didn't want to ask the Forest Service to do control if he wasn't.

Such actions as this are not wonderful. It may seem like we are not conserving our nation's resources by killing some of it. However, we should remind ourselves to step back and find a bigger picture to look at and measure our nation's progress within. The future of our nation's conservation effort is directly tied to our ability to make lasting connections between the American public, our nation's resources, and ourselves, the United States Forest Service. It will get better.

Geri – please convey to the Weed & Pest Districts that they are approved to apply Zinc-phosphide to the identified prairie dog colonies on National Forest System lands within the Thunder Basin National Grassland. They are authorized to make the final decision as to whether an approved colony for control is controlled or not. They are also authorized to take precautions they deem necessary to manage risks associated with the spread of plague to humans. Please have them report back to us after the application season their actions and acreages.

Best,
Shane

From: Kozlowski, Steve -FS
Sent: 29 Aug 2017 22:04:47 +0000
To: Painter, Cristi L -FS; McDonald, Peter M -FS
Subject: RE: need help

Hi Cristi,

Just to let you know, I will call you tomorrow, Wednesday at 9AM as we planned earlier today. We can discuss what ever level of detail you care to share. You have contributed greatly to our Forest and our mission. I recognize it, and I'm sure that many others do as well. If you would like to talk sooner, please call my cell phone at (b) (6). Thanks, Steve

Steve Kozlowski, USFS

Sage-grouse Coordinator – MBRTB

Wildlife Biologist - TEAMS

559 972-1934 cell, 307 745-2343 office, skozlowski@fs.fed.us

From: Painter, Cristi L -FS
Sent: Tuesday, August 29, 2017 9:29 AM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>; Kozlowski, Steve -FS <skozlowski@fs.fed.us>
Subject: need help

There have been conversations with me indicating that I won't be doing surveys for associated species next year. There are also rumors that my program is going away, to include me. I am not sure what any of that means. I am hoping you guys can help me save my program.



Cristi Painter
Wildlife Biologist

Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger District

p: 307-358-7132
f: 307-358-7107
cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633
www.fs.fed.us



Caring for the land and serving people

From: Kozlowski, Steve -FS
Sent: 29 Aug 2017 22:04:47 +0000
To: Painter, Cristi L -FS; McDonald, Peter M -FS
Subject: RE: need help

Hi Cristi,

Just to let you know, I will call you tomorrow, Wednesday at 9AM as we planned earlier today. We can discuss what ever level of detail you care to share. You have contributed greatly to our Forest and our mission. I recognize it, and I'm sure that many others do as well. If you would like to talk sooner, please call my cell phone at (b) (6). Thanks, Steve

Steve Kozlowski, USFS

Sage-grouse Coordinator – MBRTB

Wildlife Biologist - TEAMS

559 972-1934 cell, 307 745-2343 office, skozlowski@fs.fed.us

From: Painter, Cristi L -FS
Sent: Tuesday, August 29, 2017 9:29 AM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>; Kozlowski, Steve -FS <skozlowski@fs.fed.us>
Subject: need help

There have been conversations with me indicating that I won't be doing surveys for associated species next year. There are also rumors that my program is going away, to include me. I am not sure what any of that means. I am hoping you guys can help me save my program.



Cristi Painter
Wildlife Biologist

Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger District

p: 307-358-7132
f: 307-358-7107
cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633
www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: 25 Jul 2017 01:48:21 +0000
To: Kozlowski, Steve -FS
Cc: Lohr, Steve -FS
Subject: Re: Plague Event on Thunder Basin National Grassland

Steve thanks for the update. I hope the monitoring will continue and some flexibility to adapt decisions to the situation that will be continually changing. I'll continue to monitor from here too.
Peter

Sent from my phone

On Jul 24, 2017 9:08:20 AM, "Kozlowski, Steve -FS" <skozlowski@fs.fed.us> wrote:

Hi Peter,

Shane Walker, District Ranger, prepared the quick briefing in messages below and I wasn't sure if you received it through other channels. Very useful.

Also, I queried Dennis regarding dusting and shooting ban topics, very brief hallway conversation, and here is what I heard.

Dusting - will be discussed in more detail Tuesday at FLT meeting with Dennis, Jason Kuikan (Acting F.Sup.), and Shane Walker. Discuss doing it in cooperation/coordination with WGF, TBGPEA, and others.

Shooting Ban – No plan to reinstate at this time, the lift remains in effect until March 18th.

Larger goal here is to get on board between WGF and FS, work more together on these things so nobody hanging out by themselves.

Steve Kozlowski, USFS

Sage-grouse Coordinator – MBRTB

Wildlife Biologist - TEAMS

559 972-1934 cell, 307 745-2343 office, skozlowski@fs.fed.us

From: Jaeger, Dennis -FS

Sent: Monday, July 24, 2017 7:27 AM

To: Voos, Aaron T -FS <atvoos@fs.fed.us>; Reynolds, Kelle A -FS <kareynolds@fs.fed.us>; Kozlowski, Steve -FS <skozlowski@fs.fed.us>

Subject: FW: Epizootic Plague Event on Thunder Basin National Grassland

FYI



Dennis L. Jaeger
Forest Supervisor

Forest Service
Medicine Bow-Routt National Forests, Thunder Basin National Grassland

p: 307-745-2400
c: 307-399-1404
djaeger01@fs.fed.us

2468 Jackson Street
Laramie, WY 82070
www.fs.fed.us



Caring for the land and serving people

From: Walker, Michael S -FS

Sent: Friday, July 21, 2017 4:20 PM

To: Jaeger, Dennis -FS <djaeger01@fs.fed.us>

Subject: Epizootic Plague Event on Thunder Basin National Grassland

Background

- Sylvatic plague has been present on the Thunder Basin National Grassland for at least 15-years.
- Small outbreaks of plague is a regular occurrence.
- The last epizootic event on the grassland occurred 2007-09, reducing the occupied acreage from approximately 16,000-acres to approximately 3,000-acres.
- The associated sensitive species (Mountain plover, Burrowing owl, and Swift fox) populations were significantly reduced for several years following the last epizootic event.
- A minimum of 43,000-acres of occupied prairie dog colony habitat on the TBNG in 2016.
- Acreage exceeded scientific understanding and TBNG plan expectations of growth and behavior.
- USGS study of plague resistance fleas on TBNG in 2015 and 2016 determined that the fleas are not yet resistant to Delta-dust.
- Planned to poison approximately 10,000-acres of occupied prairie dog colonies on NFS in collaboration and cooperation with partners, cooperators, and neighbors.

Current Situation

- Signs appear to indicate that the epizootic event started in fall 2017 in Weston county and moved west.
- A second outbreak started in Converse county – possibly in winter 2016/17 – and moved east.
- Approximately 6,000 – 8,000 acres of prairie dog colonies have died as to date.
- Anticipate approximately 75% of the prairie dog colony acres to die of plague by fall.
- Anticipate approximately 90% of the prairie dog colony acres to die of plague by spring 2018.
- No guarantee that plague will not kill 100% of the prairie dog colonies in conjunction with recreational shooting and poisoning.
- Collaborating and cooperating with partners, cooperators, and neighbors to monitor the progress of plague across northeastern Wyoming.
- Wyoming Game and Fish Department confirmed two prairie dogs from northeastern Wyoming died of sylvatic plague.

Actions

- Monitoring the progress of plague in coordination and cooperation with our partners on National Forest System, state, and private lands.
- Executing poisoning priorities from the grazing associations this fall.
- Executing broad prairie dog control agreements with Converse, Campbell, and Weston counties.
- Agreements with counties will cover lethal and non-lethal control methods, and dusting for fleas.

- Explaining to the grazing associations and county weed and pest departments the rationale for dusting prairie dogs before poisoning.
- Planning to dust prairie dogs to kill fleas prior to poisoning on National Forest System lands.
- Developing a public service announcement in cooperation with the BLM, WGFD, Converse County, Campbell County, Weston County, Niobrara County, and the chamber of commerce's for communities in northeastern Wyoming in preparation to a large influx of visitors during the solar eclipse.

Recommendations

- Apply shooting restrictions in select areas of the MA 3.63.
- Coordinate with partners and cooperators in applying Delta-dust in up to 3 colonies with high value and occupied habitat for multiple sensitive species in MA 3.63.
 - 12-people in 5-days can cover 1,000-acres.
- Dusting in the 3 priority colonies would occur for the next 3-6 years to ensure plague does not enter the colonies.
-

From: McDonald, Peter M -FS
Sent: 18 Jul 2017 18:32:02 +0000
To: Painter, Cristi L -FS
Subject: RE: plague

Cristi checking in again to see if I can get that map. Also have you heard anything recent on the shooting ban or dusting plans? Thanks.

Peter

From: Painter, Cristi L -FS
Sent: Thursday, July 13, 2017 1:51 PM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: RE: plague

Yes we have a map. I will get it to you. Ryan was updating it, so let me make sure I send you the most updated version.



Cristi Painter
Wildlife Biologist
Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger District

p: 307-358-7132
f: 307-358-7107
cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633

www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: Thursday, July 13, 2017 1:50 PM
To: Painter, Cristi L -FS <cpainter@fs.fed.us>
Subject: RE: plague

Thanks Cristi. Is it possible to gin up a map or if you have one already sending me, showing the colonies on the district, 3.363 area, and towns so far affected by plague? Putting a visual to the number would be I think very helpful. If it's a bigger ask than I realize then that's ok. I won't share your email of course.

Peter

From: Painter, Cristi L -FS
Sent: Thursday, July 13, 2017 1:40 PM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>
Subject: RE: plague

We are keeping track of it. We document colonies as they plague out, and have been tracking that on a map. We are also following up with any reported areas from the researchers running around out there, and we go ground truth it. So far we have lost about 8,000 acres, most of it in the 3.63 so far. And it is moving fast. We started to notice some signs in May, and by June it was off to the races. We are already noticing associated species leaving and are finding them in other places we haven't traditionally found them. We are trying really hard to get a good inventory of associated species this year, but plague will have an impact to be sure. Just when we were starting to see our numbers of plover, owls, and foxes come back. I have recommended to Shane that we put the shooting closure back in place and do some emergency dusting. But I got the feeling that he may not get a green light on that from leadership.

Everything is so politically toxic right now. And just so you know, I have been treated pretty badly by the range shop this last year, and I know some if it has to do with prairie dogs. We just gave a short presentation at the safety meeting this week on things to watch out for and be careful about with plague, and that we had already lost 8,000 acres. One of the range folks said "good". Not telling you this to complain, but just so you have a feel for the climate here. I don't think biology has much to do with decisions being made at this point. So unfortunately, things don't look good right now for pdogs on TBNG. I wish I knew what to ask for in the help department. And I am sorry I haven't communicated better, but to be honest, I don't know who I am allowed to talk to at this point. I am hoping you don't share this email with anyone.



Cristi Painter
Wildlife Biologist

Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger District

p: 307-358-7132

f: 307-358-7107

cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633

www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS

Sent: Thursday, July 13, 2017 8:23 AM

To: Painter, Cristi L -FS <cpainter@fs.fed.us>

Cc: Kozlowski, Steve -FS <skozlowski@fs.fed.us>

Subject: plague

Hi Cristi, I heard the horrible news that plague may have re-activated again on the district. I was visiting with Jacque Buchanan yesterday on our way back from a meeting at the ferret center. She was asking whether the district is documenting the occurrence and extent to get something more firm about the current status. Particularly to help inform management options and response. She has seen your note and this is a follow-up. I realize it's probably quite early and you all may still be trying to wrap your heads around this latest development and make sense of what is going on. Can you tell me if there are efforts afoot or plans to capture the extent of the impact so far, even so much as an estimate of colonies and acres affected? This would be very helpful.

I'm very sorry for this news and can imagine the blow it must be on top of everything else that's been transpiring the past few weeks. Let me know if there is anything I can do to help from here and thanks for any more specifics you can provide about the current situation.

Peter



Peter McDonald
Regional Program Leader
Threatened, Endangered and Sensitive Species

Forest Service
Rocky Mountain Region

p: 303-275-5029

c: 303-475-3515

petermcdonald@fs.fed.us

1617 Cole Boulevard, Bldg 17
Lakewood, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: 8 Sep 2017 16:33:12 +0000
To: Painter, Cristi L -FS
Subject: RE: plover viability

This will be an important report if and when the conversation veers to what prairie dog management should look like into the future at TBNG to meet the various objectives. What is the CU study?
Peter

From: Painter, Cristi L -FS
Sent: Tuesday, September 05, 2017 12:45 PM
To: McDonald, Peter M -FS <petermcdonald@fs.fed.us>; Kozlowski, Steve -FS <skozlowski@fs.fed.us>
Subject: plover viability

You have seen the graph below. Also, I am going to include the viability analysis that we did a couple of years ago. Peter, I believe you were a peer reviewer on that document. Based on what is going on with management and what we know about data and populations on TBNG, to include the research Ryan is doing with CU, I do not believe we have a viable plover population, or at least we are almost there. I perceive we probably don't and won't have a viable population of mountain plover based on what is going on here. But what do I do with this information? What do we do next? Help please.



Cristi Painter
Wildlife Biologist

Forest Service
Medicine Bow-Routt National Forests, Thunder
Basin National Grassland, Douglas Ranger District

p: 307-358-7132

f: 307-358-7107

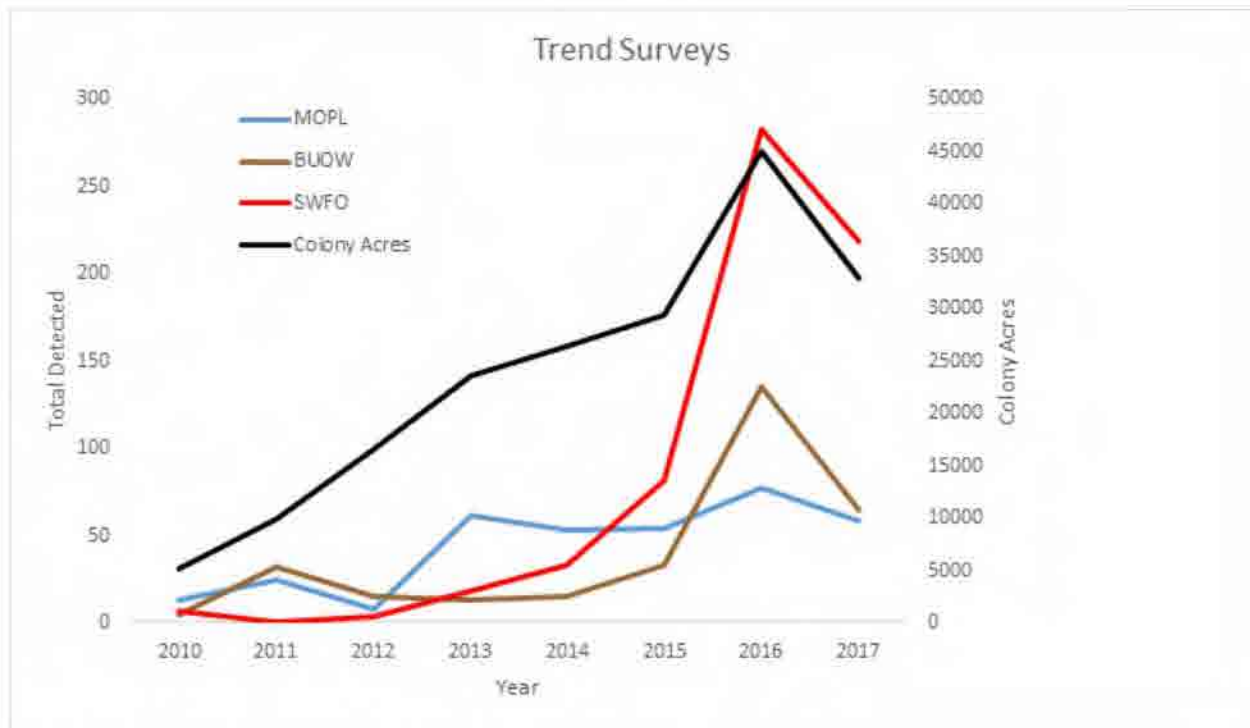
cpainter@fs.fed.us

2250 E. Richards
Douglas, WY 82633

www.fs.fed.us



Caring for the land and serving people



I am pretty sure you can interpret this without my assistance.



Cristi Painter
Wildlife Biologist

Forest Service
 Medicine Bow-Routt National Forests, Thunder
 Basin National Grassland, Douglas Ranger District

p: 307-358-7132

f: 307-358-7107

cpainter@fs.fed.us

2250 E. Richards
 Douglas, WY 82633

www.fs.fed.us



Caring for the land and serving people

From: Lohr, Steve -FS
Sent: 23 Mar 2017 16:20:32 +0000
To: McDonald, Peter M -FS
Subject: RE: plover

Thanks-



Steve Lohr
Director of Renewable Resources

Forest Service
Rocky Mountain Region

p: 303-275-5014

c: 303-242-7675

f: 303-275-5075

slohr@fs.fed.us

740 Simms Street

Golden, CO 80401

www.fs.fed.us



Caring for the land and serving people

From: McDonald, Peter M -FS
Sent: Thursday, March 23, 2017 10:19 AM
To: Lohr, Steve -FS <slohr@fs.fed.us>
Subject: plover

P. 63 of their 2015 prairie dog management implementation strategy provides the direction from the TBNG plan: 29. To help reduce disturbances and risks to nesting mountain plover, do not authorize the following activities in plover nesting areas or within 0.25 miles of plover nests from March 15 through July 31:

- Construction (e.g., pipelines, utilities, fencing),
 - Workover operations for maintenance of oil and gas wells,
 - Permitted recreation events involving large groups of people,
 - Grasshopper spraying,
 - Prairie dog shooting (in consultation with state wildlife agencies and U.S. Fish and Wildlife Service).
- Peter