November 30, 2012

Scott Fitzwilliams, Forest Supervisor
White River National Forest- Oil and Gas Leasing DEIS
P.O. Box 1919
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(via email and U.S. Mail)

Re: Comments on White River National Forest Oil and Gas Leasing EIS #29938 regarding the impacts of leasing alternatives on Canada lynx

Dear Mr. Fitzwilliams,

Please accept these comments on behalf of the Sierra Club and Wilderness Workshop in response to the Forest Service's issuance of the WRNF Oil and Gas Leasing DEIS. We appreciate the opportunity to comment.

While the preferred action represents a significant improvement over managing leasing under the 1993 WRNF Oil and Gas Leasing ROD, we are concerned about the preferred action's potential impacts on Canadian lynx (*Lynx canadensis*). This section of our comments addresses the negative impacts that oil and gas leasing has on lynx and their habitat.[1] While the DEIS does recognize that lynx are a special status species that occur within the analysis area,[2] the DEIS does not discuss the particularized impacts the proposed action would have on lynx.[3] Rather, it discusses the impacts that all alternatives would

[1] We recognize the difference between the decision to make lands administratively open to oil and gas leasing and the decision to actually lease and allow development of a parcel itself. Our comments aim to raise awareness of the impact that lease development would have on lynx in order to allow the Forest Service to make a well informed decision regarding what land to administratively open to leasing.
[2] United States Forest Service, White River National Forest Oil and Gas Leasing Draft Environmental Impact Statement 3-204 (2012) (hereinafter WRNF DEIS).
[3] WRNF DEIS, at 3-209–13.

have on terrestrial wildlife generally.[4] Our comments are therefore designed to provide information on how making lands available for oil and gas leasing will specifically impact lynx in order to supplement and expand upon the information the Forest Service provided in the DEIS.

The status of the lynx population and lynx habitat within the United States, and especially within Colorado and the White River National Forest, has changed dramatically since the 1993 WRNF Oil and Gas Leasing ROD was issued. In 2000, the Fish and Wildlife Service (FWS) listed the contiguous United States Distinct Population Segment ("DPS") of the lynx as "threatened." 65 Fed. Reg. 16052 (March 24, 2000). In 2006, the FWS designated critical habitat for the lynx, but limited it to 1,841 square miles in Minnesota, Montana, and Washington. 71 Fed. Reg. 66007 (Nov. 9, 2006). Following litigation, FWS issued a revised critical habitat designation for the lynx in 2009 that designated approximately 39,000 square miles of critical habitat in Maine, Minnesota, Montana, Wyoming, Idaho, and Washington, but excluded vast areas of occupied and unoccupied lynx habitat in Colorado. 74 Fed. Reg. 8616 (February 25, 2009).

On July 28, 2010, the U.S. District Court of Montana held that FWS' exclusion of Colorado from the critical habitat designation was arbitrary and capricious and remanded the rule to the agency. FWS is in the process of revising the critical habitat designation, with a draft rule due on September 1, 2013 and a final rule due on September 1, 2014.

Meanwhile, the Colorado lynx population has thrived since a reintroduction program introduced 218 lynx to the state beginning in 1999. Of these, there were 98 mortalities of released adult lynx. Successful reproduction was documented in 2003, 2004, 2005 and 2006. That includes 6 litters and 16 kittens in 2003; and 14 litters and 39 kittens in 2004. No dens were documented in 2007. However, in 2008 another 10 kittens were born in the wild. *See* Exhibit 6 hereto.[5] The program has been deemed a success, and over a decade of monitoring the reintroduced lynx and subsequent generations suggests that the Colorado lynx population can survive well into the future if public lands are managed appropriately.[6]

A. Lynx in the White River National Forest

The Forest Service manages the preponderance of lynx habitat in Colorado.[7] Part of this habitat is contained in the White River National Forest ("WRNF").[8] The total

[4] WRNF DEIS, at 3-209–13.
[5] *Lynx Kittens Found in Spring Survey*, Colo. Division of Wildlife (July 24, 2009).
[6] *See* Exhibit 22 (Predictive Map of Canada Lynx Habitat Use in Colorado): Exhibit 23 (Areas of high habitat use from 1999-2010 for radio-collared Canada lynx reintrouce d to Colorado); Exhibit 24 (Wildlife Research Report 2011); Exhibit 25 (Colorado Lynx Reintroduction Assessment).
[7] United States Fish and Wildlife Service, Biological Opinion on the Effects of the Southern Rocky Mountains Lynx Amendment (SRLA) on the Distinct Population Segment

number of habitat acres within WRNF that are suitable for lynx is 1,125,762 acres.[9] Of this, 459,800 acres provide a mixture of denning and winter forage habitat.[10] An additional 321,382 acres provide non-denning winter forage habitat.[11] The total number of lynx that were document as being within WRNF was a total of 43 lynx from the period of February 4, 1999 to February 1, 2005.[12]

Specifically, lynx have been documented within one leasing area identified in the preferred action[13] and near the second leasing area identified in the preferred action.[14] The following map demonstrates this. Additionally, the Forest Service recognized in the DEIS that lynx are located in the analysis area.[15]

(DPS) of Canada Lynx (*Lynx canadensis*) in the Contiguous United States 28 (2008) (attached as Exhibit 1).

[8] Exhibit 1, at 28.

[9] Exhibit 1, at 33, Table 1: NFS Acres of Lynx Habitat within the Southern Rockies Amendment Area; see also Exhibit 20 (Southern Rockies Linkages Map).

[10] Exhibit 1, at 33, Table 1: NFS Acres of Lynx Habitat within the Southern Rockies Amendment Area.

[11] Exhibit 1, at 33, Table 1: NFS Acres of Lynx Habitat within the Southern Rockies Amendment Area.

[12] Tanya Shenk, General Locations of Lynx (Lynx canadensis) Reintroduced to Southwestern Colorado from February 4, 1999 through February 1, 2005 1 (2005) (attached as Exhibit 2). This is the most recent period for which this data is available.

[13] The area located in the western panhandle of the southern segment of WRNF.

[14] The area located in the northern tip of the northern segment of WRNF.

[15] WRNF DEIS, at 3-204.

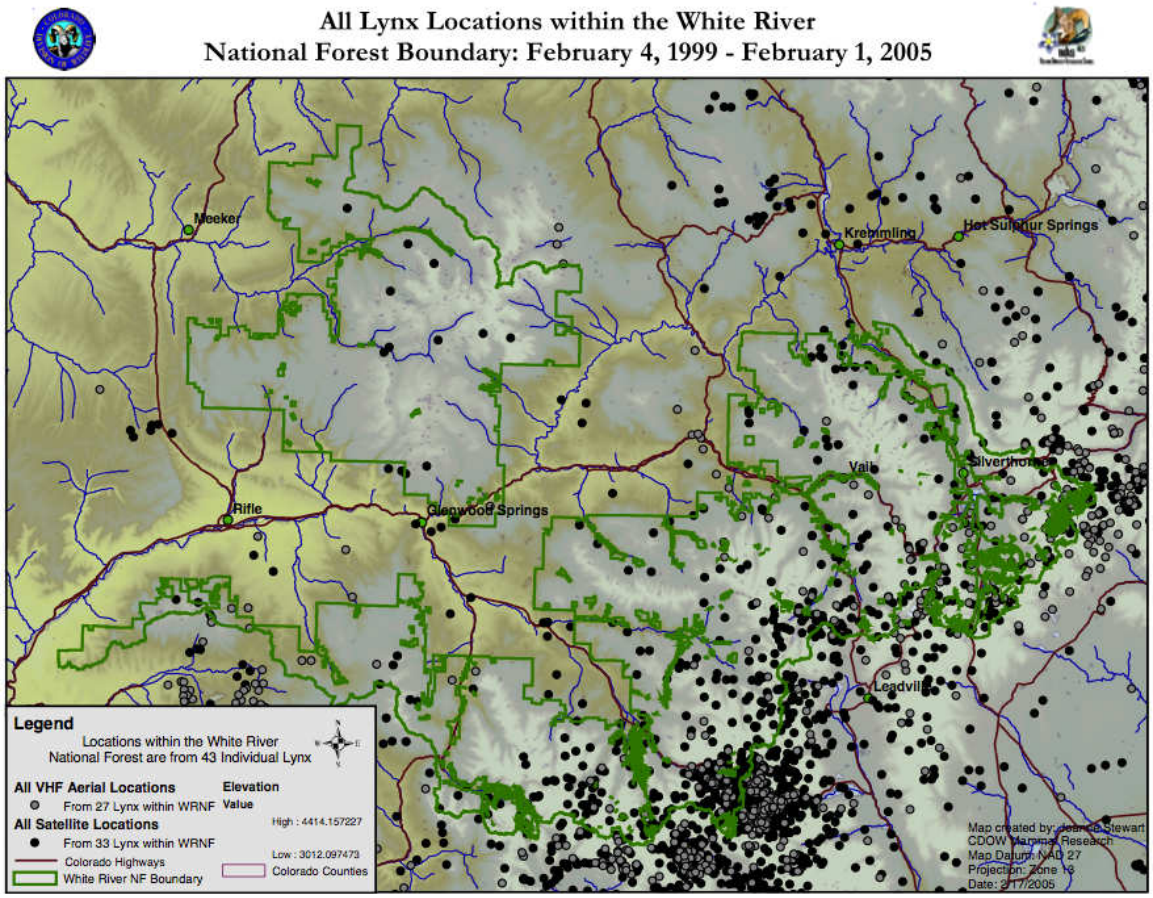

Figure 1: Map showing all lynx locations within the White River National Forest boundary from February 4, 1999 to February 1, 2005.

B. Lynx Population Requirements

1. General Habitat Requirements

Primary lynx habitat in Colorado consists of subalpine and upper montane forest that occurs between 8,000 and 12,000 feet.[16] In the subalpine, lynx are associated with subalpine fir and Englemann spruce.[17] In the lower montane, lynx are associated with lodgepole pine, mixed pine and aspen stands, and any subalpine fir and Englemann spruce that occur in cooler, mid-elevation sites.[18]

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[16] Exhibit 1, at 31; Elizabeth Roberts, Biological Assessment for Federally Listed Threatened, Endangered, and Proposed Species for Additional Outfitter Guide User Days within Vail Pass Winter Recreation Area, Holy Cross and Dillon Ranger Districts, White River National Forest, Eagle & Summit Counties, Colorado 14 (2007) (attached as Exhibit 3).

[17] Exhibit 3, at 14; Exhibit 1, at 31.

[18] Exhibit 3, at 14; Exhibit 1, at 31.

Lower montane forests are important for movement between primary habitat and for dispersal.[19] The lower montane is dominated by ponderosa pine, Douglas-fir, and mixed pinyon pine/juniper communities.[20]

Lynx also use high elevation sagebrush and mountain shrub communities that are adjacent to or intermixed with forested communities.[21] This habitat type is an important source of prey other than snowshoe hare and also serves to connect patches of coniferous habitat.[22] Similarly, riparian and wetland shrub communities, such as willow, alder, serviceberry, that occur in valleys, drainages, wet meadows, and moist timberline locations support important prey resources and provide rich hunting opportunities.[23] The lynx that were transplanted to Colorado in 1999 are frequently found in well developed riparian and valley wetland shrub habitats of the upper montane and subalpine zones.[24]

In the White River National Forest, lynx habitat is designated to include the following: 1) all spruce-fir, Douglas-fir, lodgepole pine, lodgepole-conifer mixed, and aspen-conifer mixed forests of all sizes with canopies <40%; 2) pure lodgepole pine forests with medium size and >40% canopy; 3) willow, pure aspen, and sagebrush within 500 meters of denning or winter foraging habitat; and 4) aspen-mixed conifer forests of small size and >40% canopy.[25]

Importantly, lynx avoid large openings in habitat, either natural or created, during their daily movements.[26] They also avoid sparse, open forest stands dominated by small-diameter trees during the winter.[27] This information is relevant to the proposed action because the development that will very likely occur as a result of the FS's decision to lease areas within lynx habitat will create openings that lynx avoid. Construction of well-pads, storage, and other facilities associated with oil and gas drilling results in the removal of trees and understory. Even with remote monitoring stipulations, construction activities will create openings that lynx will avoid, thereby rendering that area of their habitat useless. Furthermore, even if the lessee is required to reclaim the area upon completing drilling

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[19] Exhibit 3, at 14; Exhibit 1, at 31.
[20] Exhibit 1, at 31.
[21] Exhibit 1, at 31; Bill Ruediger, Jim Claar, Steve Gniadek, Bryon Holt, Lyle Lewis, Steve Mighton, Bob Naney, Gary Patton, Tony Rinaldi, Joel Trick, Anne Vandehey, Fred Wahl, Nancy Warren, Dick Wenger & Al Williamson, Canada Lynx Conservation Assessment and Strategy 54 (2000) (attached as Exhibit 4).
[22] Exhibit 1, at 31; Exhibit 4, at 54; J. Randal Hickenbottom, Bob Summerfield, Jeff Aardahl, George Halekas, Mark Hilliard, Lynn Jackson, David Prevedel & John Rupe, Biological Assessment of the Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Land Use Plans on Canada Lynx 73 (1999) (attached as Exhibit 5).
[23] Exhibit 1, at 32; Exhibit 4, at 54.
[24] Exhibit 4, at 54.
[25] Exhibit 3, at 18.
[26] Exhibit 1, at 15; Exhibit 4, at 7.
[27] Exhibit 1, at 15.

activities, the area is still likely to be unsuitable for lynx for decades. This is because it takes years for planted trees to reach the diameter that lynx prefer. As noted before, lynx avoid even open stands dominated by small-diameter trees.[28] Therefore, if the lessee does plant the appropriate trees, it will take years to regenerate the disturbed areas into suitable habitat, and if the lessee plants merely grasses and shrubs, the area may never fully regenerate into suitable lynx habitat.

2. Foraging Habitat Requirements

Foraging habitat encompasses both primary and secondary lynx habitat.[29] Spruce-fir, lodgepole pine, Englemann spruce, aspen, and mesic Douglas-fir all provide important foraging habitat.[30] High elevation sagebrush and mountain shrub communities are valuable sources of alternate prey, particularly when located next to primary coniferous and conifer/aspen habitat.[31] Densely regenerating conifer forests with an extensive shrub and woody debris understory typically produce the highest densities of snowshoe hares.[32] Additionally, habitat located in valleys, drainages, wet meadows and moist timberlines support alternate prey.[33] Large and medium willow carrs, beaver pond complexes, and shrub dominated riparian communities are particularly productive and useful to lynx.[34] The habitat requirements of important prey species will be discussed in detail later in these comments.

In the White River National Forest, lynx winter foraging habitat is designated to include the following:1) spruce-fir habitats of small and medium size and > 40% canopy; 2) Douglas-fir types and mixed lodgepole pine forests of small size and >40% canopy or with trees >8.9 inches dbh and >40% canopy on all aspects; 3) aspen-conifer mixed forests with trees >4.9 inches dbh and >40% canopy on all aspects; 4) and pure lodgepole pine forest of small size and >40% canopy or with trees >8.9 inches dbh and >40% canopy on all aspects.[35]

As noted earlier, lynx do not hunt in large, open areas with little or no cover.[36]

3. Denning Habitat Requirements

Denning habitat is habitat that lynx used during parturition and rearing of young

[28] Exhibit 1, at 15.
[29] Exhibit 1, at 34.
[30] Exhibit 1, at 31, 34; Exhibit 3, at 14; Exhibit 4, at 54.
[31] Exhibit 1, at 34; Exhibit 3, at 14–15; Exhibit 4, at 55.
[32] Exhibit 3, at 14.
[33] Exhibit 1, at 35.
[34] Exhibit 3, at 15.
[35] Exhibit 3, at 18.
[36] Exhibit 5, at 24.

until kittens are able to travel freely alongside their mother.[37] It is important to consider the effects that a leasing decision would have on denning habitat because Colorado has an actively reproducing lynx population.[38]

Den sites are usually located in mature conifer or mixed conifer-deciduous forests or older regenerating stands that have not been disturbed for over twenty years.[39] Dens in Colorado were located on steep slopes (an average of 30 degrees) at high elevations that ranged from 10,226 feet to 11,765 feet.[40] In the southern Rockies, dens are typically located in late-successional spruce-fir, lodgepole pine, Englemann spruce, aspen, and mesic Douglas-fir forests.[41] In the White River National Forest, lynx winter denning habitat is designated to include all spruce-fir forests on all aspects with trees >8.9 inches dbh and >40% canopy and all northfacing lodgepole pine and Douglas-fir forests with trees >8.9 inches dbh and >40% canopy.[42] Denning stands should be at least 1 hectare (2.47 acres) in size.[43]

Denning habitat must contain substantial amounts of large woody debris that serve as den sites, primarily on north aspects.[44] Having a large amount of downed, large woody debris appears to be more important than either the age of the forest stand[45] or the type of forest cover.[46] Large woody debris consists of downed logs, root wads, and windfalls.[47] The debris provides thermal cover for kittens as well as protection from predators such as owls, hawks, and other carnivores.[48] Protection from predators is especially important because for the first few months after kittens are born, the mother leaves them alone while she hunts.[49]

Additionally, denning habitat with multiple quality nursery site options must be

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[37] Exhibit 3, at 15.
[38] Exhibit 6. A total of 126 lynx kittens are known to have been born in Colorado: 16 kittens in 2003; 39 kittens in 2004; 50 kittens in 2005; 11 kittens in 2006; and 10 kittens in 2009.
[39] Exhibit 1, at 17.
[40] Exhibit 1, at 18; Exhibit 3, at 28.
[41] Exhibit 1, at 31; Exhibit 3, at 15, 28; Exhibit 4, at 54.
[42] Exhibit 3, at 18.
[43] Exhibit 5, at 24.
[44] Exhibit 1, at 31; Exhibit 3, at 15, 28; Exhibit 4, at 54.
[45] Exhibit 1, at 6.
[46] Exhibit 3, at 15; Exhibit 5, at 23.
[47] Exhibit 1, at 6; Exhibit 3, at 15; Exhibit 5, at 23; United States Fish and Wildlife Service, Biological Opinion, Implementing Current Forest Plans and Conservation Agreements 7 (Oct. 2000) (attached as Exhibit 7).
[48] Exhibit 1, at 17; Exhibit 7, at 7; United States Fish and Wildlife Service, Environmental Assessment, Designation of Critical Habitat for the Contiguous United States Distinct Population Segment of the Canada Lynx 6 (2009) (attached as Exhibit 8).
[49] Exhibit 7, at 7.

available throughout the mother's home range.[50] This is because lynx frequently move their kittens to different den sites until they are old enough to hunt with their mother.[51] Even when kittens are old enough to travel, the mother's home range must still contain downed logs and overhead cover throughout the area to provide continued security for the kittens.[52]

For denning habitat to be functional, it must be in or in close proximity to large acres of productive foraging habitat.[53] This is because females' hunting range is restricted during parturition due to the fact that the female must leave her kittens at the den when hunting and does not want to travel too far away from them.[54]

Adequate natal den sites are crucial to the success of reproduction.[55] Human presence near denning sites can result in den abandonment, which negatively impacts kitten survival.[56] Therefore, natal den sites and nearby foraging habitat "should be isolated from human disturbance."[57]

4. Security Habitat Requirements

A key component of the national lynx conservation strategy is to provide for diurnal security areas around developed recreation areas.[58] Diurnal security areas are defined as areas that "provide secure winter daytime bedding sites for lynx in highly disturbed landscapes, e.g., large developed winter recreation sites . . . . Security habitats will provide lynx the ability to retreat from human disturbances during winter daytime hours, emerging at dusk to hunt when most human activities ceases."[59] Diurnal security areas are most effective if 1) they contain dense cover that discourages human activities, 2) they are large enough to visually and acoustically insulate lynx from human activities and allow lynx to easily move from infrequent human intrusion, and 3) they are located in proximity to foraging habitat.[60]

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[50] Exhibit 1, at 17; Exhibit 4, at 8, 26; Exhibit 5, at 23; Exhibit 7, at 8.
[51] Exhibit 1, at 17; Exhibit 4, at 8, 56; Exhibit 7, at 7–8.
[52] Exhibit 7, at 8.
[53] Exhibit 3, at 15, 29; Exhibit 4, at 8; Exhibit 7, at 7.
[54] Exhibit 3, at 29; Exhibit 4, at 8; Exhibit 7, at 7.
[55] Exhibit 3, at 29.
[56] J.J. Claar, N. Anderson, D. Boyd, M. Cherry, B. Conrad, R. Hompesch, S. Miller, G. Olson, H. Ihsle Pac, J. Waller, T. Wittinger, and H. Youmans, Carnivores, in Effects of Recreation on Rocky Mountain Wildlife: A review for Montana 7.1–7.63 (G. Joslin & H. Youmans eds. 1999) (attached as Exhibit 9).
[57] Exhibit 3, at 29; see also Exhibit 5, at 24.
[58] Exhibit 3, at 15.
[59] Exhibit 3, at 15.
[60] Exhibit 3, at 15.

5. Breeding and Raising Young

Reproduction is critical to achieving a self-sustaining viable population of lynx in Colorado.[61] Lynx breed once a year, and females remain in estrus for only 1-2 days.[62] Breeding season occurs in late January and February.[63] In Colorado, the average number of kittens born per litter was 2.78 from 2003 to 2006.[64] Initial parental care for offspring is vital in May, when the young are born, through June because lynx kittens do not become mobile until July or August.[65] Only females hunt for and raise kittens.[66]

A decision to lease land for oil and gas development has the potential to negatively impact lynx breeding and young rearing in several ways. The preferred action would result in the administrative availability of 260,308 acres.[67] Not only would a large amount of land still be available for lease, but the leases would cover two large, contiguous blocks of lynx habitat.[68] This is concerning because reproductive females have home ranges of 75.2 km^2, and reproductive males have home ranges of 102.5 km^2.[69] Therefore, the lynx that are located within the proposed leasing area would have to contend with further habitat fragmentation and other forms of disturbance such as roads and noise in a concentrated area of their range in addition to the barriers to reproduction that lynx face naturally, which are 1 to 2 days in estrus and large ranges that decrease the likelihood that a reproductive male and female will locate each other in the necessary time window. The disturbances caused by oil and gas development under the preferred action will further reduce the likelihood that breeding will occur.

The Biological Assessment for the Vail Pass Recreation Area stated that winter recreation activities "have the potential to prohibit lynx home ranges from overlapping during that critical period or to create harassment to individuals that may prevent mating opportunities."[70] In addition to disrupting breeding, the BA also found that winter activities might "disrupt[] the gestation period . . . and disrupt[] weaning and/or initial parental care period from summer activities."[71] Although winter recreation and oil and gas development are not identical in their impacts, they are comparable in that both result in habitat fragmentation, increases in road density, and increased human activity in lynx habitat. Therefore, the concerns that arise from winter recreation's impact on breeding, gestation, and rearing also arise in the context of oil and gas leasing and development.

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[61] Exhibit 3, at 29.
[62] Exhibit 3, at 28–29.
[63] Exhibit 3, at 29.
[64] Exhibit 1, at 18.
[65] Exhibit 3, at 29.
[66] Exhibit 1, at 18.
[67] WRNF DEIS, at 2-48.
[68] WRNF DEIS, at 2-52, Figure 13.
[69] Exhibit 3, at 28.
[70] Exhibit 3, at 28.
[71] Exhibit 3, at 29.

6. Habitat Connectivity

Interconnected ecosystems are essential to maintaining the ability of subpopulations to expand and colonize new habitats, to recolonize areas where subpopulations have been locally extirpated, to allow individuals to find mates, and to allow dispersal when prey populations decline or habitat quality declines.[72] Populations have a higher probability of persisting in landscapes where suitable habitat patches are large and highly connected.[73] The Biological Assessment of National Forest Land Plans stated that "large, contiguous, well-connected areas of suitable habitat appear to be essential for the persistence of lynx populations."[74] Lynx have large ranges and connected forest habitats provide the large landscapes they need to allow them to move long distances to find food, cover, and mates.[75] Lynx combine both forested and non-forested areas into their home range.[76] Lynx use riparian areas, low elevation ponderosa pine, pinyon-juniper woodlands and shrublands to travel between forested habitats.[77] Notably, however, lynx prefer moving through continuous forest, and particularly use ridges, saddles, and riparian areas.[78] The leasing decision should account for the importance of these areas. Additionally, habitat connectivity is more assured when areas of habitat are closer to each other.[79]

Connectivity is particularly important to the lynx population in Colorado due to the natural patchiness of primary lynx habitat in the state.[80] The Biological Assessment of National Forest Land Plans recognizes that "[n]atural patterns of fragmentation increase the value of existing landscape connections and increase an area's vulnerability to additional fragmentation."[81] Therefore, the BA found that maintaining a lynx metapopulation in the Southern Rockies "depends on successful dispersal between habitat fragments."[82]

The Forest Service acknowledged that habitat connectivity was important for lynx in Colorado in its Biological Assessment for Vail Pass Recreation Area.[83] This document contained the following statement regarding linkage habitat:

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[72] Exhibit 1, at 19; Exhibit 4, at 58.
[73] Exhibit 5, at 33.
[74] Exhibit 5, at 33.
[75] Exhibit 7, at 38; Exhibit 8, at 4.
[76] Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Contiguous United States Distinct Population Segment of the Canada Lynx, 74 Fed. Reg. 8616, 8616 (Feb. 28, 2009) (attached as Exhibit 10).
[77] Exhibit 1, at 32–33.
[78] Exhibit 5, at 24.
[79] Exhibit 5, at 49.
[80] Exhibit 5, at 73–74.
[81] Exhibit 5, at 73.
[82] Exhibit 5, at 74.
[83] Exhibit 3, at 21.

> Forest Landscape Linkages are areas intended to provide landscapelevel linkages between forested landscapes across the White River National Forest (USDA Forest Service, 2002). According to the White River NF forest Plan these areas are found adjacent to human-created constriction and should provide secure movement zones to connect portions of the forest that have land allocations providing a high level of habitat protection or security. In addition, these areas may be designed to provide movement pathways through areas with adjacent high human development or disturbances (USDA Forest Service, 2002). The desired condition of Forested Landscape linkages is to maintain dense, undisturbed, closed canopy conifer stands that provide security habitats for landscape-scale forest carnivore movement, migration, and dispersal between forested landscapes.[84]

Habitat connectivity is an important consideration for the leasing decision. We are concerned that the preferred action, while superior to the no action alternative, would still ultimately result in a high degree of habitat fragmentation. The areas that would be administratively open to leasing under the preferred action are all land parcels that surround existing leased lands.[85] When combined with existing leased lands, the lands to be available for leasing cover almost the entire western panhandle of the southern segment of the WRNF, and a significant portion of the northwest tip of the northern segment of the WRNF.[86] The proposal encompasses large expanses of contiguous habitat that would be fragmented by drilling activities and would therefore limit the ability of lynx to not only forage and den in the area but even to travel through it. This could negatively impact lynx by isolating lynx and prey populations and hindering movements to other areas.[87] There should be enough land not open to leasing in these two locations to allow for sufficient habitat connectivity to protect lynx and prey populations.

7. Requirements of Prey Species

Lynx primarily prey on snowshoe hare (*Lepus americanus*), which make up 35-97% of the rangewide diet.[88] Secondary prey species include red squirrel (*Tamiasciurus hudsonicus*), grouse (*Bonasa umbellus*, *Dendragopus* spp., *Lagopus* spp.), flying squirrel (*Glaucomys sabrinus*), ground squirrel (*Spermophilus parryii*, *S. Richardsonii*), porcupine (*Erethrizon dorsatum*), beaver (*Castor canadensis*), mice (*Peromyscus* spp.), voles (*Microtus* spp.), shrews (*Sorex* spp.), fish, and ungulates as carrion or occasionally as prey.[89] Red squirrels are particularly important when snowshoe hare are scarce.[90] The rangewide observed diet holds true in Colorado, where the primary winter prey species are snowshoe hare and red squirrel, with other mammals and birds forming a minor part of the

[84] Exhibit 3, at 21.
[85] WRNF DEIS, at 2-52, Figure 13.
[86] WRNF DEIS, at 2-52, Figure 13.
[87] See Exhibit 4, at 32.
[88] Exhibit 3, at 23; Exhibit 5, at 24; Exhibit 7, at 6.
[89] Exhibit 3, at 23; Exhibit 7, at 6.
[90] Exhibit 5, at 24; Exhibit 7, at 6.

diet.[91] Between November 1999 and April 2000, ground crews in Colorado located 139 lynx kills or chases.[92] Of these, 75 percent were snowshoe hare, 23 percent were red squirrel, and the remaining 2 percent were other mammals and birds.[93] Doc 5, page 12: 7).

The Lynx Conservation Assessment found that "conservation and management of [prey species] and their habitats are a critical component of the lynx conservation strategy."[94] The Assessment noted that:

> Many parts of the Southern Rockies currently have a shortage of regenerating forest (particularly lodgepole pine stands). Consequently, in the short term it is important to protect and encourage habitats that now support moderate to high snowshoe hare populations and those which are developing towards quality snowshoe hare habitat. It is equally important to protect and encourage those habitats that are good producers of alternative prey, such as red squirrels, grouse, and other lagomorph species . . . . Consequently, manipulation of spruce-fir forests should probably be undertaken with great caution, especially until large areas of lodgepole pine can be converted into densely regenerating stands and begin to support strong snowshoe hare production.[95]

In general, maintenance of persistent snowshoe hare and red squirrel populations requires a landscape mixture of coniferous stands with dense understory cover along with stands of mature and old-growth forest with abundant coarse woody debris.[96]

Snowshoe hare habitat is a component of lynx habitat.[97] Lynx generally concentrate their foraging and hunting activities in areas where snowshoe hare populations are high.[98] Primary forest types that support snowshoe hare include subalpine fir, Englemann spruce, Douglas fir, and lodgepole pine.[99] Within these habitat types, snowshoe hares prefer stands of conifers with dense, edible shrub understories that provide forage, cover to escape from predators, and protection from the elements.[100] Hares' use of habitat

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[91] Exhibit 1, at 16.
[92] Colorado Division of Wildlife, Colorado Lynx Recovery Project 2000 Progress Report to the U.S. Fish and Wildlife Service 12 (2000) (attached as Exhibit 11).
[93] Exhibit 11, at 12. Caution, however, must be used in interpreting the proportion of identified kills. Id. at 14. Such a proportion ignores other food items that are consumed in their entirety. Id. Additionally, nearly all the scat samples collected have been found through snow-tracking efforts and thus are representative of winter diet only. Id.
[94] Exhibit 4, at 9.
[95] Exhibit 4, at 55.
[96] Exhibit 5, at 27.
[97] Exhibit 8, at 6.
[98] Exhibit 8, at 6.
[99] Exhibit 7, at 7.
[100] Exhibit 4, at 10; Exhibit 5, at 24; Exhibit 7, at 7.

is correlated with understory cover, as is overwinter survival and population density.[101] Dense horizontal must be three to ten feet above ground level in summer and above snow level in winter.[102] Early successional forest stages generally have greater understory structure than do mature forests and therefore support higher hare densities.[103] However, mature forests can also provide snowshoe hare habitat when openings are created in the canopy and the understory develops.[104] Snowshoe hares avoid clearcuts.[105] Snowshoe hares feed on conifers, deciduous trees, and shrubs.[106] Maintaining snowshoe hare habitat is particularly important because "when hare densities decline, the lower quality diet causes sudden decreases in the productivity of adult female lynx and decreased survival of kittens, which causes the numbers of breeding lynx to level off or decrease."[107]

Red squirrel densities tend to be highest in older, closed-canopy forests with substantial quantities of coarse woody debris, and lower in young stands that lack cone production.[108] Population densities are highest (250-400/km2 or 96-154 /mi2) in spruce forests, lower (100-200/km2 or 38-77/mi2) in mixed conifers and mixed conifer/hardwoods, and lowest (25-100/km2 or 10-38/mi2) in pines and hardwoods.[109] The basis of the red squirrel's year-round diet is coniferous seeds, but deciduous and coniferous buds are also important during winter and spring.[110] Newly matured conifer cones are cut and cached to help assure a year-round food supply.[111] The activity center of each territory is the midden.[112] Caches often accumulate over several years and provide food during cone crop failures.[113] Large species of fungi are eaten fresh and also cached in the canopy for later consumption.[114] In deciduous forests, red squirrels utilize and cache a large variety of seeds and mast from species such as oaks (*Quercus* spp.), hickory (*Carya* spp.), maple (*Acer* spp.), elm (*Ulmus* spp.), and beech (*Fagus grandifolia*).[115] These caches, however, do not normally accumulate from year to year.[116]

We are concerned that the leasing decision under the preferred action will ultimately result in activities that destroy and fragment snowshoe hare and red squirrel habitat. The building of wellpads, roads, pipelines, and additional facilities on the lands

[101] Exhibit 4, at 10; Exhibit 7, at 7.
[102] Exhibit 1, at 17; Exhibit 7, at 28.
[103] Exhibit 1, at 17; Exhibit 7, at 7.
[104] Exhibit 1, at 17; Exhibit 7, at 7.
[105] Exhibit 4, at 10.
[106] Exhibit 1, at 16.
[107] Exhibit 7, at 6.
[108] Exhibit 4, at 12.
[109] Exhibit 4, at 12.
[110] Exhibit 4, at 12.
[111] Exhibit 4, at 12.
[112] Exhibit 4, at 12.
[113] Exhibit 4, at 12.
[114] Exhibit 4, at 12.
[115] Exhibit 4, at 12.
[116] Exhibit 4, at 12.

proposed for leasing will necessarily result in the loss of some habitat and render areas unsuitable for sustaining prey populations, which will negatively impact prey species and therefore affect lynx. The leasing decision should take into account the impact that oil and gas development will have on the two primary prey species of lynx in Colorado.

C. The DEIS Fails to Analyze Impacts to Lynx

The DEIS fails to analyze all direct, indirect, and cumulative impacts on lynx of its decision to make lands administratively open to oil and gas leasing. The DEIS states that for the analysis of impacts to lynx, "consultation with the USFWS will take place after the United States Forest Service identifies a preferred alternative. DEIS, at I-26. However, direct, indirect, and cumulative impacts to lynx must be considered in the Forest Service NEPA analysis regardless of whether ESA Section 7 consultation will take place in the future. An analysis of lynx impacts must include the vast amount of information on the Colorado lynx population compiled by the Colorado Division of Wildlife (CDOW). The DEIS appears to have omitted much or all of this information from its analysis.[117]

Impacts to lynx that must be analyzed include, but are not limited to, the following.

1. General Impacts of Oil and Gas Development on Lynx

Mining and energy development may directly degrade lynx habitat.[118] The primary impact to habitat results from changing or eliminating native vegetation and contributing to fragmentation.[119] Development of wells can destroy lynx habitat.[120] The construction of pipelines can have both short and long term impacts to lynx habitats, depending on location, vegetation clearing requirements, and maintenance access.[121] The primary effect is to disrupt connectivity of lynx habitat.[122] When located adjacent to highways and railroads, utility corridors can further widen the right-of-way, thus increasing the likelihood of impeding lynx movement.[123] The greatest impact of oil and gas development is likely the development of road access to facilitate exploration and development.[124] Roads will result in snow compaction in the winter, which allows improved access of predators such as coyotes, bobcats, and mountain lions into lynx habitat.[125] Roads also may attract recreational activity, which could disturb lynx and affect their distribution as well as result

[117] Many of the CDOW documents are attached as exhibits to these comments. The rest can be found at http://wildlife.state.co.us/Research/Mammal/Lynx/Pages/Lynx.aspx.
[118] Exhibit 1, at 61; Exhibit 4, at 75.
[119] Exhibit 4, at 86.
[120] Exhibit 4, at 28.
[121] Exhibit 4, at 32.
[122] Exhibit 4, at 32.
[123] Exhibit 4, at 32.
[124] Exhibit 4, at 28.
[125] Exhibit 4, at 28, 86. The DEIS acknowledges that snow compaction may adversely affect lynx, but does not adequately analyze the extent of the impacts. DEIS, at 3-210.

in additional snow compaction.[126] Furthermore, roads improve the efficiency of hunters and poachers,[127] as will be discussed in a later section.

2. Cumulative Impacts of Oil and Gas Development on Lynx

The DEIS fails to adequately analyze the cumulative impacts on lynx and lynx habitat from oil and gas development within the WRNF and on other areas of lynx habitat. The DEIS contains less than two pages on "Cumulative Impacts Common to All Alternatives on Terrestrial Wildlife," which includes only general statements on impacts to wildlife in general. DEIS, at 3-224-225; *see also* DEIS, at 3-210, 212 (mentioning potential impacts to lynx). However, the DEIS never evaluates the extent to which lynx and lynx habitat would be impacted from various levels of oil and gas development within the WRNF, on surrounding public lands, and other areas of lynx habitat in the Southern Rockies and the Western United States. For example, the following map shows the extent of existing oil and gas development on public lands adjacent to the WRNF. The DEIS must analyze the cumulative impacts of oil and gas development on these public lands combined with development on surrounding public lands.

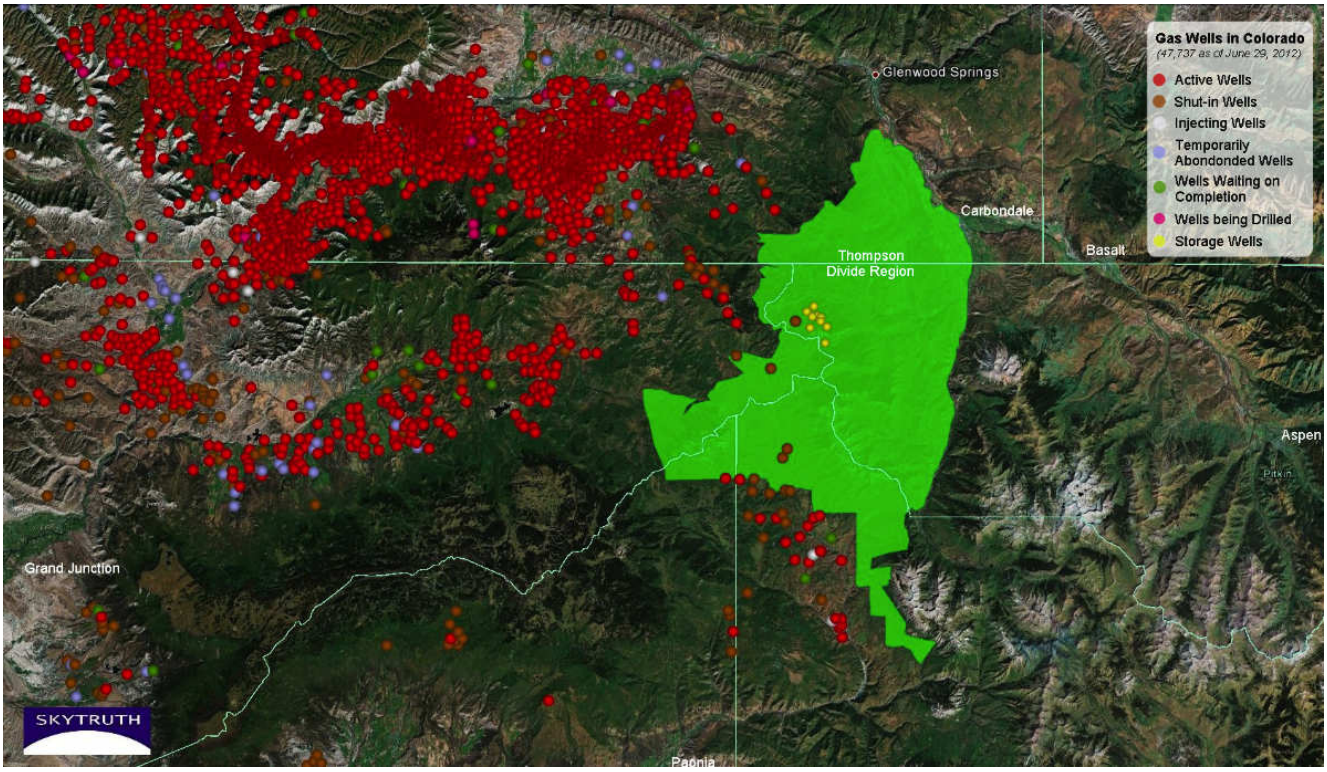

Figure 2: Map showing gas wells on and adjacent to the WRNF.

The Forest Service must perform this cumulative impacts analysis now, at the earliest practicable stage, and cannot defer that cumulative impacts analysis to be

[126] Exhibit 1, at 61; Exhibit 4, at 28.
[127] Exhibit 4, at 28.

completed when actual leasing decisions are made. *Pennaco Energy Inc. v. U.S. Dep't of the Interior*, 377 F.3d 1147, 1159 (10th Cir. 2004) ("Agencies are required to satisfy the NEPA 'before committing themselves irretrievably to a given course of action, so that the action can be shaped to account for environmental values.'") (quoting *Sierra Club v. Hodel*, 848 F.2d 1068, 1093 (10th Cir. 1988)); *Sierra Club v. Bosworth*, 510 F.3d 1016, 1027-30 (9th Cir. 2007)(Forest Service violated NEPA by deferring its cumulative impacts analysis of a categorical exclusion to the project level); *Envtl. Prot. Info. Ctr. v. U.S. Forest Serv.*, 451 F.3d 1005, 1014 (9th Cir. 2006) ("[i]t is not appropriate to defer consideration of cumulative impacts to a future date"); *Wyoming Outdoor Council v. U.S. Army Corps of Engineers*, 351 F. Supp. 2d 1232, 1243 (D. Wyo. 2005).

3. Predation and Competition

The decision to lease lands for oil and gas development could negatively impact lynx by improving access to lynx habitat for predators and competitors of lynx. Oil and gas drilling can result in snow compaction from machines and vehicle used on roads to access leased lands.

Lynx are morphologically and physiologically adapted for hunting snowshoe hares and surviving in areas that have cold winters with deep, fluffy snow for extended periods.[128] These adaptations provide lynx a competitive advantage over potential competitors, such as bobcats (*Lynx rufus*) or coyotes (*Canis latrans*).[129] Bobcats and coyotes have a higher foot load (more weight per surface area of foot), which causes them to sink into the snow more than lynx.[130] Therefore, bobcats and coyotes cannot efficiently hunt in fluffy or deep snow and are at a competitive disadvantage to lynx.[131] As such, under natural conditions, a spatial segregation exists between lynx habitat and habitats used by coyotes and bobcats.[132]

The disadvantage that competitors have, however, breaks down when snow is compacted.[133] This is because competitors can more easily and effectively travel on compacted snow, which allows them to access deep, snowy areas they normally would not be able to.[134] The Forest Service has recognized the negative impact that compacted snow can have on lynx. In the ROD for the NRLA, the FS states that they were unwilling to completely forgo guidelines restricting snow compaction because "there is evidence

[128] Exhibit 8, at 4.
[129] Exhibit 8, at 4.
[130] Exhibit 4, at 22; Exhibit 8, at 4.
[131] Exhibit 8, at 4.
[132] Exhibit 4, at 22; Exhibit 7, at 36.
[133] Exhibit 1, at 58; Exhibit 4, at 22; Exhibit 7, at 36.
[134] Exhibit 1, at 58; Exhibit 3, at 31; Exhibit 4, at 22; Exhibit 7, at 36.

competing predators use packed trails, suggesting a potential effect on individual lynx."[135]

When predators gain access to lynx habitat, they compete with lynx in two primary ways.[136] The first way is through exploitation, which is competition for food.[137] The second is through interference, which means that lynx change their behavior to avoid predators.[138] Coyotes are most likely to impact lynx through exploitation.[139] This is because coyotes have a "strong prey- and habitat-switching ability . . . that may contribute to its success as a competitor with lynx."[140] In Colorado, during the winter, coyotes are well-distributed within the range of the snowshoe hare and are common in the 9,000 to 11,000 foot elevation zone.[141] Additionally, coyote population numbers have increased in recent years.[142] Coyotes feed on snowshoe hare, the primary prey of lynx, when they are available.[143] Bobcats and mountain lions also prey on snowshoe hare, and therefore can have an exploitative impact on lynx as well when they gain access to lynx habitat.[144] Exploitative competition is an important problem because may contribute to lynx starvation and reduced recruitment.[145] In Colorado, between 1999 and 2006, 11 lynx died from starvation.[146] This number was as of 2009.[147] This represents 21 percent of total lynx deaths during this period.[148] Therefore, increased competition from other predators for snowshoe hare and other prey is a real concern for Colorado's lynx population.

Bobcats, coyotes, and, mountain lions may exert interference competition on lynx populations.[149] Predation on lynx by these three species has been confirmed.[150] This is particularly a problem in the Southern Rockies region due to "abundance of mountain lion, bobcat and coyote populations in this geographic area."[151]

Since oil and gas development can increase snow compaction along roads and near

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[135] United States Department of Agriculture, Northern Rockies Lynx Management Direction Record of Decision: National Forests in Montana, and parts of Idaho, Wyoming and Utah 24 (2007) (attached as Exhibit 12).
[136] Exhibit 1, at 4.
[137] Exhibit 1, at 4.
[138] Exhibit 1, at 4.
[139] Exhibit 1, at 4; Exhibit 4, at 16.
[140] Exhibit 4, at 23.
[141] Exhibit 3, at 16.
[142] Exhibit 4, at 22; Exhibit 7, at 36.
[143] Exhibit 1, at 21, 58; Exhibit 7, at 9.
[144] Exhibit 1, at 21, 58; Exhibit 7, at 9.
[145] Exhibit 7, at 9.
[146] Tanya Shenk, Lynx Update: May 25, 2009 1 (2009) (attached as Exhibit 13); see also Exhibit 1, at 30.
[147] Exhibit 13, at 1.
[148] Exhibit 1, at 30.
[149] Exhibit 4, at 16; Exhibit 7, at 9.
[150] Exhibit 7, at 9.
[151] Exhibit 4, at 59.

wellpads and other facilities, the impact that snow compaction has on lynx should be considered when deciding what lands to open to leasing.

4. Invasive Species

Another concern we have is the potential for a decision to lease lead to an increased risk of non-native invasive species colonizing known lynx habitat. The impact of non-native invasive plants on biological diversity is a major concern, and the potential exists for large-scale invasions of and modifications of lynx habitat.[152] Weeds such as diffuse and spotted knapweed (*Centaurea diffusa, C. maculosa*), leafy spurge (*Euphorbia* spp.), rush skeletonweed (*Chondrilla juncea*), dalmation toadflax (*Linaria dalmatica*), and Canada thistle (*Cirsium arvense*) have the potential to alter lynx habitat at both the local and ecosystem scale.[153]

Most oil and gas development requires new roads to access the leased lands. Roads, however, facilitate the spread of invasive species.[154] Furthermore, invasive species often become established on disturbed land.[155] Oil and gas development often results in land disturbance from building wellpads, roads, pipelines, and associate facilities. Therefore, the impact of invasive species on the habitat of lynx and their prey must be considered in the decision on what lands to make available for leasing.

5. Impacts of Roads on Lynx

There are five primary concerns associated with roads built to access oil and gas lease sites. The first is habitat destruction. Construction of roads may reduce lynx habitat by removing forest cover.[156] The second is increased predator access in winter months as a result of snow compaction, as discussed earlier.[157] The third is potential increase in invasive species that has been associated with road construction, as discussed earlier.[158] The fourth is the impact of human activity near den sites. Roads will facilitate access by

[152] Exhibit 4, at 35; Exhibit 7, at 32.
[153] Exhibit 4, at 35.
[154] Martin W. Doyle, Emily H. Stanley, David G. Havlick, Mark J. Kaiser, George Steinbach,
William L. Graf, Gerald E. Galloway, J. Adam Riggsbee, Aging Infrastructure and Ecosystem Restoration, 319 Science 286, 286 (2008) (attached as Exhibit 14); Franz Ingelfinger & Stanley Anderson, Passerine Response to Roads Associated with Natural Gas Extraction in a Sagebrush Steppe Habitat, 64 Western North American Naturalist 385, 392 (2004) (attached as Exhibit 15).
[155] Erich Haber, Impact of Invasive Plants on Species and Habitats at Risk in Canada 3 (1998) (attached as Exhibit 16); Joseph M. DiTomaso, Invasive Weeds in Rangelands: Species, impacts, and Management, 48 Weed Science 255, 261 (2000) (attached as Exhibit 17).
[156] Exhibit 4, at 23.
[157] Exhibit 1, at 58; Exhibit 3, at 31; Exhibit 4, at 22; Exhibit 7, at 36.
[158] Exhibit 14, at 286; Exhibit 15, at 392.

humans and vehicles into lynx habitat. The use of roads that run through denning habitat may have negative effects if lynx are forced to move kittens because of associated human disturbance.[159] The fifth concern is improved human access to areas of lynx habitat by recreationists and hunters. In winter, roads could facilitate snowmobilers and cross country skiers, which would increase snow compaction and potentially disturb lynx.[160] Although most recreation occurs during daylight hours, and probably would not have that harmful of an impact, nighttime activities and overnight trips are becoming more commonplace, which increases the potential for disturbance during a time when lynx were traditionally secure.[161] Roads could also facilitate access to hunters and trappers, who may illegally poach lynx or accidentally shoot them.[162] This will be discussed further in the section on hunting and trapping. The various impacts that roads have on lynx should be taken into account when deciding what lands to make available for leasing.

6. The Impacts of Hunters and Poachers on Lynx

Shooting and trapping both present risks to lynx. In Colorado, deaths from gunshot wounds was the highest known cause of death, with 16 deaths known to have been caused by a gunshot wound, and five more deaths suspected to have been caused by a gunshot wound.[163] These deaths could have either been as a result of legal hunter mistakenly shooting lynx or by poachers illegally shooting lynx.[164] Shooting is significantly decreased in areas that are not developed and provide limited access to humans.[165] Roads that are built to allow access for oil and gas activities could also facilitate access by hunters and poachers to lynx habitat.[166] The Forest Service should carefully evaluate whether to lease isolated parcels that would require the building of an extensive road network because of the access this network could provide to hunters and poachers.

7. Noise Impacts on Lynx

Auditory disturbance from oil and gas development deter lynx from using particular areas.[167] This could result in further habitat fragmentation and decrease the chances of lynx locating each other for breeding and finding suitable denning locations for young.[168] To combat the issue of noise, the Biological Assessment for the Vail Pass Winter Recreation Area placed a 400 meter buffer on motorized roads and a 150 meter buffer on non-motorized roads.[169] We urge the Forest Service to place similar stipulations on leased

[159] Exhibit 4, at 26.
[160] Exhibit 4, at 26.
[161] Exhibit 4, at 26.
[162] Exhibit 1, at 39; Exhibit 4, at 30.
[163] Exhibit 13, at 1.
[164] Exhibit 4, at 30.
[165] Exhibit 1, at 39.
[166] Exhibit 1, at 39; Exhibit 4, at 30.
[167] Exhibit 3, at 28.
[168] Exhibit 3, at 28.
[169] Exhibit 3, at 21.

parcels.

8. The Impacts of Climate Change on Lynx and Lynx Habitat

The White River National Forest and surrounding public lands in Colorado, particularly those with relatively high elevation and significant snow cover, may become increasingly important to the lynx population as the climate warms. The Forest Service must consider this important aspect of the WRNF and how it may be impacted by oil and gas development.

The dependence of *Lynx canadensis* (Canada Lynx) on winter snow and boreal forest renders it especially vulnerable to climate change. Climate change has occurred within the range of the Canada Lynx and this has caused, and will cause in the future, a reduction of habitat available to the Canada lynx. The Fish and Wildlife Service described the adverse impacts of climate change on the Canada lynx and its habitat in its 2005 Lynx Recovery Outline (p. 11):

> Scientific evidence has demonstrated that globally the climate has been warming as evidenced by changes in the amount of snow cover, among other indicators (Intergovernmental Panel on Climate Change 2001). Continued warming temperatures are likely to negatively affect the cold climatic conditions that create and maintain the boreal forest ecosystem for which lynx are highly adapted. As a result, we anticipate that continued warming trends may eventually cause the boreal forests in the contiguous United States to recede north and/or recede to higher, colder elevations, which would likely result in adverse effects to the contiguous United States population of lynx.

FWS also acknowledged the adverse impacts of climate change on the Canada lynx and its habitat in its Final Rule designating critical habitat:

> [N]ew information on regional climate changes and potential effects to lynx habitat has been developed (e.g., Gonzalez et al. 2007, entire; Knowles et al. 2006, pp. 4545-4559; Danby and Hick [sic] 2007, pp. 358-359), and this new information suggests that climate change may be an issue of concern for the future conservation of lynx because lynx distribution and habitat is likely to shift upward in elevation within its currently occupied range as temperatures increase (Gonzalez et al. 2007, pp. 7, 13-14, 19). 74 FR at 8617.

Areas of lynx habitat that may prove increasingly important in the face of climate change include those that retain high levels of snowfall under various climate change scenarios. The Southern Rockies may be particularly important due to their higher elevation. Lynx occurrences in the southern Rockies are, in general, at higher elevations (1,250 to over 3,750 meters (4,100-12,300 feet)) than other areas in the contiguous United States. This is especially true compared to areas outside of the western United States. The

existence of such higher elevation habitat may be important in the lynx's ability to respond to ongoing and future climate warming. The Southern Rockies region may also serve as a refugium for the contiguous United States population of the Canada lynx in the face of climate warming. Such information must be considered before the Forest Service commits vast areas of the WRNF to oil and gas leasing.

D. The Forest Service Should Delay any Leasing Decisions until FWS Completes its Revised Critical Habitat Determination

As set forth above, FWS designated critical habitat for the lynx in 2009, but a subsequent court decision found that FWS's exclusion of all habitat in the Southern Rockies was arbitrary and capricious. FWS is revising the critical habitat designation. A draft rule is due on September 1, 2013, and a final rule due on September 1, 2014. Because areas of the WRNF qualify for critical habitat designation, the Forest Service should delay any leasing decisions until after the critical habitat determination is complete.

Critical habitat designation must include: "(i) the specific areas within the geographic area occupied by the species, at the time it is listed. . ., on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection." 16 U.S.C. § 1532(5)(A)(i).

Areas of Colorado and the WRNF in particular meet the criteria for critical habitat. First, Colorado was one of "the specific areas within the geographic area occupied by the species, at the time it is listed." Areas of Colorado were occupied at the time the lynx was listed on March 24, 2000. 65 FR 16059. The LCAS recounts the history of naturally occurring lynx occupancy in Colorado from the early 1900s through 1999. It stated in 2000 that although rare, "*evidence indicates lynx have persisted to the present*." Exhibit 4 at 52 (emphasis added). The LCAS also describes the re-introduction of lynx by CDOW that began in 1999. *Id*. at 14.

Second, many sources establish that Colorado contains "those physical or biological features [I] essential to the conservation of the species." Colorado contains boreal forest landscapes supporting a mosaic of differing successional forest stages, snowshoe hares and other prey, winter snow conditions, sites for denning and matrix habitat that lynx are likely to travel through. LCAS, Exhibit 4, at 53-56; Recovery Outline, Exhibit 21; Southern Rockies Lynx Amendment FEIS, Exhibit 18, at 67–78).

The Colorado habitat is so important that it is designated a "provisional core area" by the Lynx Recovery Outline. That means it contains all of the attributes of a "core area" such as "persistent verified records of lynx occurrence over time and recent evidence of reproduction." Exhibit 21, at 4.

The U.S. Forest Service's Feb. 28, 2006 comments on the critical habitat designation are also instructive: "There are also national forests throughout western Colorado that provide critical habitat for the reintroduced lynx population.".

In the Southern Rockies FEIS, the Forest Service found, after ESA §7 consultation with the FWS, that Alternative B, which was developed from the LCAS, "provides management direction that would likely result in maintenance of sufficient habitat quantity, quality, distribution and conditions to allow the species to maintain breeding populations within most historic habitats." Exhibit 18 at 105. The Forest Service found the chosen Alternative F will "maintain viable populations" and "is expected to maintain habitat quality and connectivity, and will provide for persistence of the lynx population in the Southern Rockies over the long-term." Exhibit 19 at 27.

Finally, Colorado lynx habitat requires "special management considerations or protections." LCAS; Lynx Recovery Outline; Forest Service comments; the Lynx Amendment ROD.

E. The Forest Service Should Prohibit Oil and Gas Development in Thompson Divide

The Thompson Divide area of the WRNF in particular contains vast areas of high-quality lynx habitat, as demonstrated in the following map. *See also* Section D, supra. As such, the Forest Service should not allow any new oil and gas development in this area.

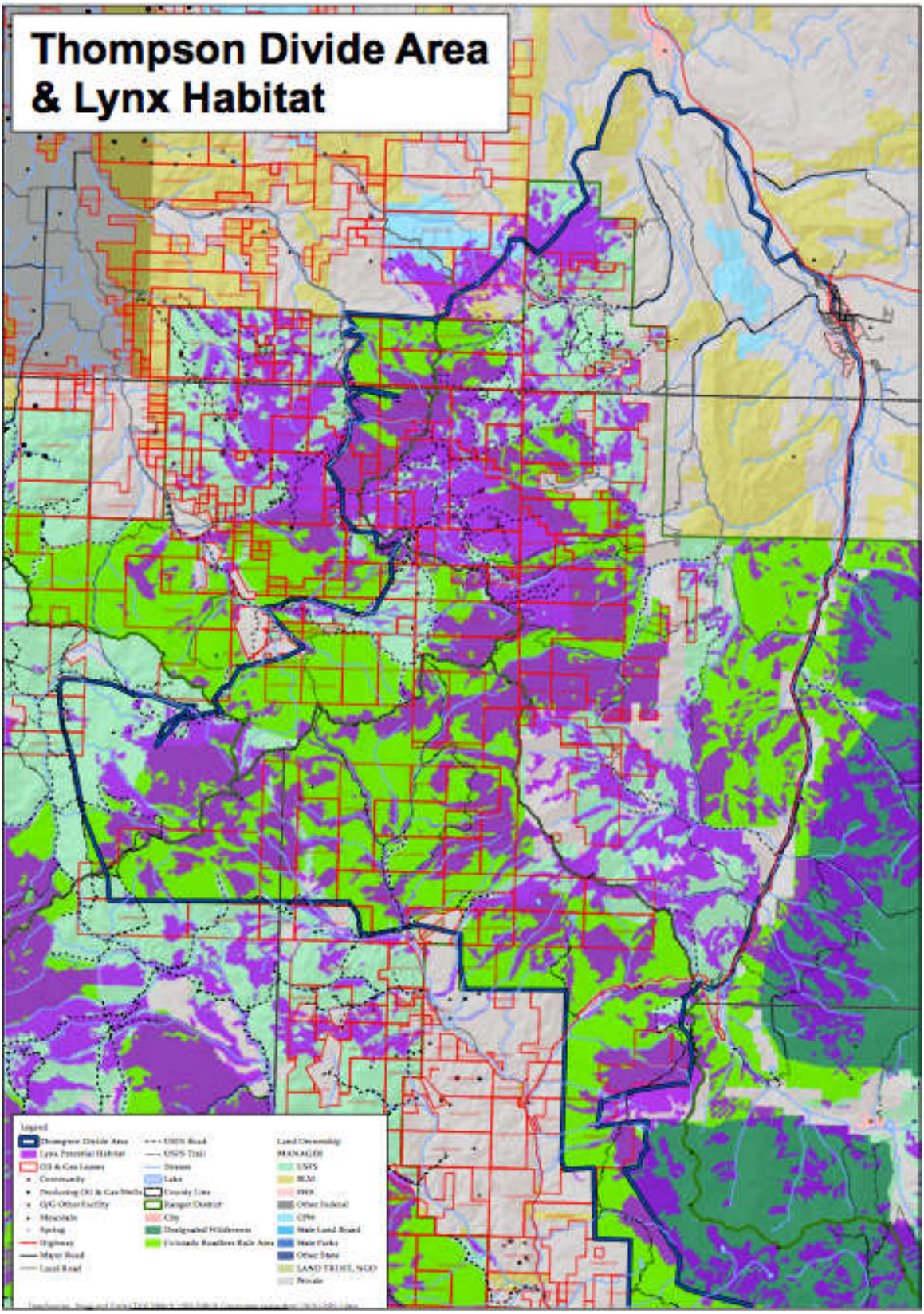

Figure 3: Map showing lynx habitat in the Thompson Divide Area.

Conclusion

Thank you for your consideration of our comments. We look forward to working with the Forest Service to protect lynx in Colorado.

Sincerely,

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EXHIBIT LIST

Exhibit 1: United States Fish and Wildlife Service, Biological Opinion on the Effects of the Southern Rocky Mountains Lynx Amendment (SRLA) on the Distinct Population Segment (DPS) of Canada Lynx (*Lynx canadensis*) in the Contiguous United States (2008).

Exhibit 2: Tanya Shenk, General Locations of Lynx (*Lynx canadensis*) Reintroduced to Southwestern Colorado from February 4, 1999 through February 1, 2005 (2005).

Exhibit 3: Elizabeth Roberts, Biological Assessment for Federally Listed Threatened, Endangered, and Proposed Species for Additional Outfitter Guide User Days within Vail Pass Winter Recreation Area, Holy Cross and Dillon Ranger Districts, White River National Forest, Eagle & Summit Counties, Colorado (2007).

Exhibit 4: Bill Ruediger, Jim Claar, Steve Gniadek, Bryon Holt, Lyle Lewis, Steve Mighton, Bob Naney, Gary Patton, Tony Rinaldi, Joel Trick, Anne Vandehey, Fred Wahl, Nancy Warren, Dick Wenger & Al Williamson, Canada Lynx Conservation Assessment and Strategy (2000).

Exhibit 5: J. Randal Hickenbottom, Bob Summerfield, Jeff Aardahl, George Halekas, Mark Hilliard, Lynn Jackson, David Prevedel & John Rupe, Biological Assessment of the Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Land Use Plans on Canada Lynx (1999).

Exhibit 6: Colorado Division of Wildlife, Lynx Kittens Found in Spring Survey (2009).

Exhibit 7: United States Fish and Wildlife Service, Biological Opinion, Implementing Current Forest Plans and Conservation Agreements (Oct. 2000).

Exhibit 8: United States Fish and Wildlife Service, Environmental Assessment, Designation of Critical Habitat for the Contiguous United States Distinct Population Segment of the Canada Lynx (2009).

Exhibit 9: J.J. Claar, N. Anderson, D. Boyd, M. Cherry, B. Conrad, R. Hompesch, S. Miller, G. Olson, H. Ihsle Pac, J. Waller, T. Wittinger, and H. Youmans, Carnivores, in Effects of Recreation on Rocky Mountain Wildlife: A review for Montana (G. Joslin & H. Youmans eds. 1999).

Exhibit 10: Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Contiguous United States Distinct Population Segment of the Canada Lynx, 74 Fed. Reg. 8616 (Feb. 28, 2009).

Exhibit 11: Colorado Division of Wildlife, Colorado Lynx Recovery Project 2000 Progress Report to the U.S. Fish and Wildlife Service (2000).

Exhibit 12: United States Department of Agriculture, Northern Rockies Lynx Management Direction Record of Decision: National Forests in Montana, and parts of Idaho, Wyoming and Utah (2007).

Exhibit 13: Tanya Shenk, Lynx Update: May 25, 2009 (2009).

Exhibit 14: Martin W. Doyle, Emily H. Stanley, David G. Havlick, Mark J. Kaiser, George Steinbach, William L. Graf, Gerald E. Galloway, J. Adam Riggsbee, Aging Infrastructure and Ecosystem Restoration, 319 Science 286 (2008).

Exhibit 15: Franz Ingelfinger & Stanley Anderson, Passerine Response to Roads Associated with Natural Gas Extraction in a Sagebrush Steppe Habitat, 64 Western North American Naturalist 385 (2004).

Exhibit 16: Erich Haber, Impact of Invasive Plants on Species and Habitats at Risk in Canada (1998).

Exhibit 17: Joseph M. DiTomaso, Invasive Weeds in Rangelands: Species, impacts, and Management, 48 Weed Science 255 (2000).

Exhibit 18: USDA, Forest Service, Southern Rockies Lynx Management Direction, Final Environmental Impact Statement Volume I (October 2008).

Exhibit 19: USDA, Forest Service, Southern Rockies Lynx Management Direction, Record of Decision (October 2008).

Exhibit 20: United States Forest Service, Southern Rockies Lynx Habitat Map

Exhibit 21: United States Fish and Wildlife Service, Lynx Recovery Outline (2005)

Exhibit 22: Jake Ivan, Mindy Rice, Tanya Shenk, Dave Theobald, Eric Odell, Predictive Map of Canada Lynx Habitat Use in Colorado

Exhibit 23: Dave Theobald, Tanya Shenk, Areas of high habitat use from 1999-2010 for radio-collared Canada lynx reintroduced to Colorado.

Exhibit 24: Wildlife Research Report (2011).

Exhibit 25: Colorado Lynx Reintroduction Assessment (September 7, 2010).