Arizona Office
738 N 5th Ave, Suite 206
Tucson, AZ 85705
tel: (520) 623-1878
fax: (208) 475-4702
email: arizona@westernwatersheds.org
web site: www.westernwatersheds.org

Working to protect and restore Western Watersheds and Wildlife

December 1, 2020

Travis Moseley, Forest Supervisor
c/o Peggy Luensmann
Lincoln National Forest Supervisor's Office
3463 Las Palomas Road
Alamogordo, NM 88310

Comments submitted electronically this date via the project website:
https://www.fs.usda.gov/project/?project=31150

RE: Draft Environmental Impact Statement for the Integrated Non-native Invasive Plant Management Project across the Lincoln National Forest in New Mexico

Dear Mr. Moseley and Ms. Luensmann,

These comments are submitted on behalf of Western Watersheds Project, a non-profit conservation group working to protect and conserve the public lands, wilderness, wildlife, and natural resources of the West through education, scientific study, public policy initiatives, and litigation. Our staff, board and members care deeply about the natural resources located within the Lincoln National Forest (LNF). We outline our concerns about the project below and note that we would support an alternative that does not include "controlled" or targeted livestock grazing, the use of herbicides, nor the use of mechanized or motorized equipment in Wilderness areas. We strongly encourage the Forest Service to revise the Draft Environmental Impact Statement (DEIS) to include such an alternative and to remedy the additional shortcomings we identify below.

National Environmental Policy Act (NEPA) Concerns

The DEIS lacks the necessary site-specific detail to comply with NEPA. Despite its great length, the DEIS does not sufficiently disclose the locations of proposed Non-native Invasive Plant (NNIP) treatments, baseline conditions are not adequately disclosed, impacts to species are ignored, and the DEIS fails to disclose meaningful cumulative impacts of proposed NNIP treatments on wildlife and watersheds.

NEPA's review obligations are more stringent and detailed at the project level, or "*implementation stage*," given the nature of "*individual site specific projects*."[1] "[G]*eneral statements about possible effects and some risk do not constitute a hard look, absent a justification regarding why more definitive information could not be provided*."[2]

Analyzing and disclosing site-specific impacts is critical because where, when, and how activities occur on a landscape strongly determines that nature of the impact. As the Tenth Circuit Court of Appeals has explained, the actual "*location of development greatly influences the likelihood and extent of habitat preservation. Disturbances on the same total surface area may produce wildly different impacts on plants and wildlife depending on the amount of contiguous habitat between them*."[3] The Court used the example of "*building a dirt road along the edge of an ecosystem*" versus "*building a four-lane highway straight down the middle*" to explain how those activities may have similar types of impacts, but the extent of those impacts – in particular on habitat disturbance – is different.[4] Indeed, "*location, not merely total surface disturbance, affects habitat fragmentation*,"[5] and therefore location data is critical to the site-specific analysis NEPA requires.

NEPA further mandates that the agency provide the public *"'the underlying environmental data' from which the Forest Service develop[ed] its opinions and arrive[d] at its decisions*."[6] "*The agency must explain the conclusions it has drawn from its chosen methodology, and the reasons it considered the underlying evidence to be reliable*."[7] In the end, "*vague and conclusory statements, without any supporting data, do not constitute a 'hard look' at the environmental consequences of the action as required by NEPA*."[8]

CEQ's regulations establish specific ways agencies must analyze proposed actions, including project-level decisions and including a detailed discussion of direct, indirect, and cumulative

---

[1] *Ecology Ctr., Inc. v. United States Forest Serv*., 192 F.3d 922, 923 n.2 (9th Cir. 1999); *see also Friends of Yosemite Valley v. Norton*, 348 F.3d 789, 800-01 (9th Cir. 2003); *New Mexico ex rel Richardson v. Bureau of Land Management*, 565 F.3d 683, 718-19 (10th Cir. 2009) (requiring site-specific NEPA analysis when no future NEPA process would occur); *Colo. Envtl. Coal. v. Ofc. of Legacy Mgmt*., 819 F. Supp. 2d 1193, 1209-10 (D. Colo. 2011) (requiring site-specific NEPA analysis even when future NEPA would occur because "environmental impacts were reasonably foreseeable").

[2] *Or. Natural Res. Council Fund v. Brong*, 492 F.3d 1120, 1134 (9th Cir. 2007) (citation omitted); *see also Or. Natural Res. Council Fund v. Goodman*, 505 F.3d 884, 892 (9th Cir. 2007) (holding the Forest Service's failure to discuss the importance of maintaining a biological corridor violated NEPA, explaining that "[m]erely disclosing the existence of a biological corridor is inadequate" and that the agency must "meaningfully substantiate [its] finding").
[3] *New Mexico ex rel Richardson*, 565 F.3d at 706.
[4] *Id*. at 707.
[5] *Id*.
[6] *WildEarth Guardians v. Mont. Snowmobile Ass'n*, 790 F.3d 920, 925 (9th Cir. 2015).
[7] *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1075 (9th Cir. 2011) (citation omitted).
[8] *Great Basin Mine Watch v. Hankins*, 456 F.3d 955, 973 (9th Cir. 2006).

impacts and their significance; and an analysis of reasonable alternatives to the proposed action. Such analysis is required for both environmental assessments and EISs.

The Forest Service has not analyzed this project in light of the South Sacramento Restoration Project DEIS (2019), nor the Smokey Bear Habitat Restoration Project (2019). WWP and others commented on these projects and we incorporate WWP's comments here as Appendix A.

The Range of Alternatives is inadequate, as the Forest Service acknowledges at page 230 of the DEIS: "Alternative B is the only alternative that would effectively contain and control NNIP. All other alternatives would result in expanded areas of infestation of certain species and corresponding degrading effects…"

The Forest Service should consider an alternative that would reduce livestock grazing or retire livestock grazing on allotments to reduce spread of NNIPs. We also recommend the Forest Service consider an alternative that utilizes nature fire ignitions and prescribed fire, along with deferred grazing or permit retirement, as a tool to manage NNIPs. Fire in the absence of livestock results in the natural postfire recovery of native flora and fauna.[9]

WWP is deeply concerned about the proposed use of livestock ("controlled grazing" or "targeted grazing") as a biological treatment and the lack of adequate NEPA analysis. This untested, unstudied method is unsuitable for the purpose and need and indeed, is likely to contribute to the continued spread of NNIP, rather than reduce NNIP populations. We are especially concerned with the use of sheep or goats because of the impacts to bighorn sheep populations and address this issue more fully below. Here, we note simply that the impacts to bighorn sheep have not been addressed at all in the DEIS.

For this project, the Forest Service has deferred the actual analysis of impacts caused by controlled or targeted grazing until some future point in time and it is unclear if the public will ever have an opportunity to participate in that future impacts analysis process. The "analysis" provides only vague, unspecific, generalized and speculative information of impacts:

> Controlled grazing as a control method has mixed impacts on native plant communities depending upon how the grazing treatment is applied, the nature of the infestation and the intermingled native plants. It is not a tool to be used where effects to non-target plants cannot be tolerated as there is nothing to keep the animal from grazing a non-target plant. Grazing can produce temporary negative effects to native plants through heavy grazing and trampling. However, studies on grazing of leafy spurge (Hanson 1994) have shown no negative effects on native species diversity after five seasons of controlled grazing. Where native woody plants are present, negative effects could be more long-term, particularly when goats are used for invasive plant control. Browsing by goats may remove several years' worth of accumulated annual twig growth. Timing, stocking rate,

[9] Reis, S.A., Ellsworth, L.M., Kauffman, J.B., and Wrobleski, D. 2019. Long-Term Effects of Fire on Vegetation Structure and Predicted Fire Behavior in Wyoming Big Sagebrush Ecosystems. Ecosystems 22(2): 257–265; Wroblesky, D.W. and J.B. Kauffman 2003. Initial effects of prescribed fire on morphology, abundance, and phenology of forbs in big sagebrush communities in southeastern Oregon. Restoration Ecology. 11:82-90.

> and duration of the grazing treatment are critical to achieve control without long-lasting negative effects to native vegetation. ***The proposed action includes the need for a site-specific project operation plan if controlled grazing is to be used, that plan would include the timing, stocking rate, and duration of the grazing treatment.***
>
> Appropriate grazing by animals preferring NNIP species can shift the plant community toward desired plant species. Conversely, grazing can selectively reduce competitiveness of native plants, shifting the community in favor of NNIP (Vallentine and Stevens 1994, Kimball and Schiffman 2003). Most NNIP species are well adapted to invade heavily grazed areas, thereby allowing competitive advantage; and some NNIP species have chemical or physical defenses (spines) that prevent them from being utilized by livestock.

2020 DEIS at 91, emphasis added.[10] And for Alternative B's impacts to woody species, the DEIS similarly fails to include actual analysis of impacts and instead discusses impacts generally:

> Grazing as a tool to treat non-native invasive plants has the potential to cause temporary reduction of natural regeneration of tree species, and reduction of plant cover of woody shrubs, particularly if grazing/browsing animals are left on infestation sites after target species are depleted. Negative effects could be more long-term, particularly when goats are used. Browsing by goats may remove several years' worth of accumulated annual twig growth. Timing, stocking rate, and duration of the grazing treatment are critical to achieve control without long-lasting negative effects to native vegetation. Mature deciduous and coniferous trees would experience little or no direct or indirect effects from grazing or browsing treatments. Planted tree regeneration sites should not use grazing or browsing as a non-native invasive plant treatment. The proposed action includes the need for a site-specific project operation plan if controlled grazing is to be used, that plan would include the timing, stocking rate and duration of the grazing treatment.

2020 DEIS at 93. This generalized analysis is inadequate and to proceed to a decision on the basis of the information in the DEIS would be a violation of NEPA.

As noted in the DEIS, the goals for this project are *containment and prevention* of NNIP spread. "Containment" can be efficiently and economically accomplished through a prohibition on livestock grazing in any and all areas where NNIP are known to be located. "Prevention" can also be accomplished by eliminating livestock grazing in the LNF because prohibiting livestock from consuming NNIP and trampling areas where NNIPs are located and then moving to non-infested areas would prevent the livestock from defecating NNIP seeds and parts and would also keep seeds and plant parts stuck to hooves and fur from being transported to new locations.

As evidenced by the lack of scientific citations supporting the use of targeted livestock grazing in this DEIS and as the Forest Service must be aware, there is little literature that addresses the effectiveness of cattle for use in targeted grazing. Most of the literature regarding targeted grazing examines the impacts using sheep and goats, but even this information is lacking in this

[10] Kimball, S. and P. M. Schiffman. 2003. Differing effects of cattle grazing on native and alien plants. Conservation Biology: 17(6): 1681-1693.

DEIS. This is major concern with the DEIS and, as we note in the section on bighorn sheep, the impacts of targeted grazing should be analyzed in detail and the decisions should be based upon a review of the best available scientific information.

To quote from Reisner *et al*. (2013): "If the goal is to conserve and restore resistance of these systems, managers should consider maintaining or restoring: (i) high bunchgrass cover and structure characterized by spatially dispersed bunchgrasses and small gaps between them; (ii) a diverse assemblage of bunchgrass species to maximize competitive interactions with *B. tectorum* (cheatgrass) in time and space; and (iii) biological soil crusts to limit *B. tectorum* establishment. Passive restoration by reducing cumulative cattle grazing may be ***one of the most effective means of achieving these three goals.***" (Emphasis added.)

While the Forest Service states that the use of livestock would be a "minor, incidental treatment method" there are no actual restrictions on when or where it could be used and the impacts have not been adequately described. USFS 2020 DEIS at 21. The literature the Forest Service cites in support of its inclusion of controlled grazing in the tool box for addressing the NNIP problem indicates that *grazing management generally* is key to preventing or delaying encroachment of NNIP (such as cheatgrass, *see* Vallentine and Stevens 1994, cited in the DEIS) and that "grazing is concluded not to be an effective general tool for cheatgrass control." *Id.,* citing Vallentine and Stevens 1994. Furthering the argument *against* controlled or targeted livestock grazing to manage NNIP species such as cheatgrass is the fact that cheatgrass is most valuable as a spring forage (meaning the time when livestock are also most likely to eat it), which coincides with the time of year perennial cool-season grasses are most susceptible to damage by grazing. *Id*. Hoof action that accompanies livestock grazing enhances cheatgrass seed germination and emergence and the seeds are incompletely digested and thus spread by livestock droppings. *Id*. It is also critical for the Forest Service to acknowledge that grazing at a level that will control cheatgrass is also likely to significantly increase soil erosion and is harder on perennials than it is on NNIP. *Id*.

To effectively treat NNIP, livestock would be expected to preferentially graze the native bunchgrasses rather than cheatgrass, medusahead, or other NNIP.[11] As noted by Diamond (2009), "[t]he use of this grazing treatment should therefore be limited to degraded rangeland with little or no native perennial plant cover."[12] The allotments where NNIP are identified are ***not*** described as having little to no native plant cover and therefore it appears that livestock should ***not*** be included as a tool to control NNIP in the LNF. Furthermore, targeted or controlled grazing would likely occur during the native perennial vegetation growing season. It is improper to use targeted or controlled grazing during the growing season of perennial native plants because of the well-known harms to bunchgrasses and other native plants. Besides the disparate

[11] Hempy-Mayer, K. and Pyke, D.A. 2008. Defoliation Effects on Bromus tectorum Seed Production: Implications for Grazing, 61 Rangeland Ecology & Management 116-123 (2008); Belsky, A.J. and Gelbard, J.L. 2000. Livestock Grazing and Weed Invasions in the Arid West Oregon Natural Desert Association: Portland, OR. April. 31 pp.

[12] Diamond, J.M., Call, C.C., and Devoe, N.. 2009. Effects of targeted cattle grazing on fire behavior of cheatgrass dominated rangeland in the northern Great Basin, USA. International Journal of Wildland Fire, 18: 944–950.

impact to native vegetation from preferential grazing, impacts to native bunchgrasses from grazing are most severe during the critical growth period for those species.[13]

Another concern is that often targeted livestock grazing is implemented to manage species such as cheatgrass well *after* cheatgrass (*Bromus tectorum*) has started to dry up and has already dropped its seeds. Livestock then trample the dried grass pushing seed into the soil, improving the seed germination of cheatgrass, creating an impact that is the opposite of the professed purpose and need for this project. On rangelands in good condition, the annual cheatgrass typically cannot outcompete the native grasses. One of the factors that protects native grasses is soil crusts. These crusts cover the soil surface in the spaces between the native bunchgrasses. They make it difficult for cheatgrass seeds to become established. However, when the soil crust is broken and disturbed by livestock across large areas of the landscape, it provides an empty niche for cheatgrass to become established. Again, the use of livestock for "managing" NNIP would appear to be contraindicated to satisfy the purpose and need for this project.

Unfortunately, where cheatgrass has gained dominance, controlled or prescribed grazing is an ineffective method of control. *Id*. Kimball and Schiffman (2003), cited by the Forest Service in the DEIS state plainly that "the strategy of livestock grazing for restoration is counterproductive. It harms native species and promotes alien plant growth."

In the 2016 scoping notice for this project targeted grazing is proposed as a minor, incidental treatment method and that a site specific project operating plan would be developed for any treatment areas. EIS No. 20200195, Draft, USFS, NM, Integrated Non-Native Invasive Plant Management at pp. 5-6. WWP has noticed that in Arizona both the Bureau of Land Management and Forest Service both tier vegetation management and livestock grazing authorizations to programmatic EISs (PEIS) for invasive species then fail to do any site specific analysis on the impacts of those vegetation management projects or grazing reauthorizations, citing the PEIS, which doesn't include any site specific analysis. We note here that a similar problems is likely – the current DEIS does not include sufficient site-specific analysis and promises future analyses will occur. Based on the reality and example of past projects, the Forest Service should take the time now to do the analysis necessary to fully understand the impacts of its propose NNIP management.

The Forest Service's own DEIS argues against the use of livestock to manage NNIPs and we encourage the Forest Service to eliminate this particular tool from the management toolbox. The Forest Service must also provide additional information to ensure compliance with NEPA.

Proposed Changes to the Forest Plan are Inappropriate

[13] Karl, M.G, "Sherm" and Chambers, J.C. 2019. Livestock Grazing Management, U.S. Forest Service, Rocky Mountain Research Station, in Crist et al., General Technical Report No. 389 (2019)), at 145; Cagney, J., Bainter, E., Budd, B., Christiansen, T., Herren, V., Holloran, M., Rashford, B., Smith, M., and Williams, J. 2010. Grazing influence, objective development, and management in Wyoming's Greater sage-grouse habitat, with emphasis on nesting and early brood rearing. Extension Bulletin B-1203. Laramie, WY: University of Wyoming, Cooperative Extension Service; Anderson, Loren D. 1991. Bluebunch wheatgrass defoliation: effects and recovery a review. BLM, Salmon, Idaho. BLM-ID-PT-91-010-4350.

WWP strongly recommends the LNF retain the Forest Plan provision that biological controls are only applied where the biological agent can be contained within the project area. *See* USFS 2020 DEIS Table 4, page 26, modifying the Management Prescriptions Applicable to All Areas, Soil and Water (Pages 40-41) for the LNF 1986 Forest Plan. There is considerable information available on the disastrous use of tamarisk beetles in Utah and Colorado to control tamarisk (a NNIP), which resulted in the widespread invasion of tamarisk beetles well beyond the anticipated range of this introduced invasive species into Arizona. The impacts of the distribution of the tamarisk beetle are still being discovered and studied, but it is well known that the unanticipated distribution of the beetle from Utah to Arizona has had significant negative impacts on the Southwestern willow flycatcher, a species protected by the Endangered Species Act.

WWP is also concerned about the proposal to change the Forest Plan provisions for Fire and Protection (page 55), All Species (page 205 and 206), Mexican Spotted Owl (page 206A), Peregrine Falcon (page 207) because these proposed changes will have significant negative impacts to wildlife, are not a necessary aspect of the proposed action, and are unnecessarily broad in their gutting of protections currently found in the Forest Plan. USFS 2020 DEIS at pp. 27-28.

Impacts to Bighorn Sheep Were Not Considered

Decades after they were extirpated from the Sacramento Mountains and surrounding areas, bighorn sheep were restored to the LNF through a 2018 New Mexico Department and Fish and Game (NMDFG) translocation effort. Following more than five years of planning, approximately 40 bighorn sheep captured from the nearby White Sands Missile Range and the San Andreas National Wildlife Refuge were released east of Alamogordo, into the Sacramento foothills. An additional release in October of 2020 increased the population to 55-65. Bighorn sheep observations have been recorded from near the Sunspot Solar Observatory in the south to La Luz Creek in the north.

The NMDFG biologists expect the herd to grow and disperse in the near future, and have stated that future releases of bighorn sheep to bolster the population are possible. The presence of additional tracts of suitable bighorn sheep habitat in the Northern Sacramento and Guadalupe ranges indicates that bighorn sheep could be restored to portions of the Smokey Bear and Guadalupe Ranger Districts through natural dispersal or artificial translocation during the life of this project.

Domestic sheep and goats carry several pathogens that may be transmitted to bighorn sheep when the two species interact or occur in close proximity. The most significant of these pathogens is *Mycoplasma ovipneumoniae*, a bacteria that acts as a coagent in fatal pneumonia outbreaks. Other bacteria involved in pneumonia-induced die-offs include *Pasteurella multocida*, *Mannheimia haemolytica*, and *Bibersteinia trehalosi*. *Parapox* virus, which causes contagious ecthyma, and *Mycoplasma conjunctivae*, which causes keratoconjunctivitis, may also be transmitted from domestic sheep and goats to bighorn sheep.

Pneumonia in bighorn sheep has been extensively studied, including by the Forest Service, the NMDFG, and the Western Association of Fish and Wildlife Agencies (WAFWA), and there is no scientific controversy surrounding the transmissibility of fatal pathogens from domestic to wild Caprinae. Transmission of pneumonia-inducing bacteria from domestic sheep and goats to bighorn sheep has been demonstrated in laboratory and field conditions, and bacteria implicated in outbreaks where commingling was not directly observed have been traced back to domestic species known to be in the area of affected bighorn sheep.

Pneumonia is the greatest limiting factor to the recovery of bighorn sheep, and maintaining spatial and temporal separation between domestic sheep and goats and wild sheep is broadly acknowledged as the only effective way to prevent pneumonia outbreaks in bighorn herds. Pneumonia outbreaks can kill up to 90% of a bighorn sheep population, and can force wildlife managers to intervene to kill remaining members of a herd in order to prevent the further spread of the disease, leading to the local extirpation of the species. When outbreaks are less than fully fatal to the adult bighorn population, prolonged periods of poor lamb survival often occur. These periods may last years or decades, and may lead to the slow decline of the population as adults die off and are not replaced. The presence of aoudad sheep that could act as intermediate hosts for livestock pathogens increases the risk to bighorn sheep from domestic animals.

While targeted grazing by domestic sheep and goats could occur under the two action alternatives detailed in the DEIS, there is no mention of bighorn sheep or the disease risk posed to extant or potential bighorn populations by domestic sheep and goats used for targeted grazing actions anywhere in the document. The DEIS does state that a "site-specific project operation plan would be developed for the treatment area[,]" but effects to wildlife are not included in the factors that would be considered during plan development. Details of how grazing would actually occur are generally lacking throughout the DEIS, and are presumably deferred to the site-specific plans, however there is no commitment to release future project operation plans to the public for review and comment or to coordinate with NMDFG to minimize the risk to bighorn sheep during the site-specific planning process. The DEIS must be amended to address each of these issues.

The DEIS must include an analysis of the project alternatives on the nascent Sacramento Mountains bighorn sheep herd, and must consider the potential for population expansion, dispersal, and translocation to other parts of the Forest throughout the duration of the project. The DEIS must include an analysis of the potential for aoudad to act as an intermediate disease vector.

The Forest Service should consult with NMDFG regarding bighorn sheep at least annually, and should notify the agency prior to initiating any project that would include the use of sheep or goats. The Forest Service should obtain the most recent data on bighorn distribution, review the best available science, and conduct a risk assessment before releasing sheep or goats onto public lands. Specific protocols to minimize the risk to bighorn sheep from domestic sheep and goats should be developed and disclosed in the EIS.

Domestic sheep and goats should not be used for targeted grazing in areas where they pose a risk to bighorn sheep. The presence of a potential wildlife reservoir for livestock pathogens, the

exotic aoudad, increases the threat of disease outbreaks and likely renders much greater portions of the range unsuitable for domestic sheep and goat grazing.

We are providing the following references relevant to the management of bighorn sheep and the impacts associated with domestic sheep and goats. We ask the Forest Service to review these important references and incorporate this information into the analysis for this project.[14]

Besser, T. E., Cassirer, E. F., Highland, M. A., Wolff, P., Justice-Allen, A., Mansfield, K., Davis, M. A., and Foreyt, W. (2013). Bighorn sheep pneumonia: Sorting out the cause of a polymicrobial disease. *Preventive Veterinary Medicine,108*(2-3), 85-93. doi:10.1016/j.prevetmed.2012.11.018

Cassirer, E. F., Manlove, K. R., Plowright, R. K., & Besser, T. E. (2016). Evidence for strain-specific immunity to pneumonia in bighorn sheep. *The Journal of Wildlife Management, 81*(1), 133-143. doi:10.1002/jwmg.21172

Cassirer, F. (2018). Pneumonia in Bighorn Sheep: Risk and Resilience. *Journal of Wildlife Management, 82*(1), 32-45. doi:10.1002/jwmg.21309

Dassanayake, R. P., Shanthalingam, S., Subramaniam, R., Herndon, C. N., Bavananthasivam, J., Haldorson, G. J., Foreyt, W.J., Evermann, J. F., Herrmann-Hoesing, L. M., Knowles, D. P., and Srikumaran, S. (2013). Role of Bibersteinia trehalosi, respiratory syncytial virus, and parainfluenza-3 virus in bighorn sheep pneumonia. *Veterinary Microbiology, 162*(1), 166-172. doi:10.1016/j.vetmic.2012.08.029

Henry, A. (2019, February 27). Desert bighorn return to the Sacramento Mountains. Retrieved from http://magazine.wildlife.state.nm.us/desert-bighorn-return-to-the-sacramento-mountains/

Jansen, B. D. (2006). Infectious Keratoconjunctivitis in Bighorn Sheep, Silver BellMountains, Arizona, USA. *Journal of Wildlife Diseases, 42(2) : 407-411, 42*(2), 407-411.
Observations. (2020). Retrieved from https://www.inaturalist.org/observations?nelat=33.23008707155579

Samuel, W. M., Chalmers, G. A., Stelfox, J. G., Loewen, A., & Thomsen, J. J. (1975). Contagious Ecthyma In Bighorn Sheep And Mountain Goat In Western Canada. *Journal of Wildlife Diseases, 11*(1), 26-31. doi:10.7589/0090-3558-11.1.26

USFS. (2015). *Bighorn Sheep Risk of Contact Tool v2 User Guide*.
WAFWA, W. (2012). *Recommendations for Domestic Sheep and Goat Management in Wild Sheep Habitat*(Rep.).

[14] (all references below are attached and sent with these comments)

Miscellaneous Concerns

WWP strongly objects to the aerial application of any herbicides. Aerial application does not target specific species, is indiscriminate in where it actually lands and is very likely to damage non-target species. Drift, runoff, and overspray are extremely likely with aerial application.

The DEIS does not indicate whether or how permittees would be billed for the "extra" AUMs utilized via any targeted or controlled grazing system. Please explain how billing will occur. Even in instances where federal land managers charges fees for grazing, they do not come close to recouping expenditures by those land managers to administer the grazing program, and do not internalize the actual cost use of the public lands for grazing by private corporations, which likely approaches a billion dollars a year.[15] Allowing those same private corporations to use the public lands for free simply increases the loss to the public and moves further from a market rate for livestock grazing. For example, in Idaho, implementing a targeted grazing proposal has cost taxpayers approximately $20,000 state tax dollars to haul water to support the grazing projects. The Forest Service must disclose if and where water to support its proposed targeted grazing projects will come from, and whether permittees will pay for any costs of hauling water or if they will be borne by the public via either state or federal funding.

The maps (starting on page 8) are difficult to use. The color coding in the legend has similar shades of red/blue/yellow/green for various species of plants which makes the key less helpful. For example, is the green color found in the Smokey Bear Ranger District Dalmation toadflax or Malta starthistle? Is the Sacramento Ranger District infested with African rue, common burdock, or teasle, or all three? Charts with this information would be extremely helpful.

If prescribed burning is utilized as NNIP management tool (or if natural ignitions are allowed to burn) WWP recommends that no livestock grazing be authorized for a period of ten years in these areas to reduce the chances of continuing disturbance that can lead to cheatgrass and other NNIP invasions.

Restoration should only include the use of native grasses, forbs, and shrubs. If possible, native seed sources should be collected locally to the restoration project to preserve local genetic integrity.

WWP recommends the Forest Service continue to exclude native juniper (*Juniperus spp.)* or pinyon pine (*Pinus monophylla*) as species targeted for removal or "management" as part of this project because these native species are not invasive nor in need of treatments, except to facilitate the conversion of natural landscapes to forage for commercial livestock interests.

Please ensure that all monitoring activities taking place during adaptive management phases are made available to the public on Forest Service project websites, so that interested parties may participate in the adaptive management process and offer input.

[15] Glaser, C., Romaniello, C., and Moskowitz, K. 2015. Costs and Consequences: The Real Price of Livestock Grazing on America's Public Lands. Center for Biological Diversity (2015). 44pp. Available at https://www.biologicaldiversity.org/programs/public_lands/grazing/pdfs/CostsAndConsequences_01-2015.pdf (last visited December 1, 2020).

The adaptive management strategy should consider the permanent retirement or closure of livestock allotments within the LNF as an effective and efficient method of reducing the spread of NNIP.

WWP strongly objects to the adaptive management strategy of approving the use of new (and currently unknown and undescribed) technologies and methods for NNIP management that does not comply with NEPA requirements for public notice, review and comment. USFS 2020 DEIS at 29.

As the Forest Service is well aware, livestock and wildlife grazing can modify plant community composition and structure, and overabundant populations negatively impact rangeland–watershed function and wildlife habitats.[16] Negative effects on wildlife may include avoidance of water sources by wildlife, forage loss and altered plant communities, altered bird communities, and impacts to soils and insects. *Id*. For this project, the Forest Service must fully analyze and disclose how the presence, number, and grazing intensity of livestock when used as a NNIP control will impact the native and nonnative plant communities and how the presence and authorization of livestock grazing will further the purposes of this restoration project (if at all). This is especially important for summer months when cattle tend to exhibit more intensive foraging over extensive movements and can therefore forage in place longer than native ungulates.[17]

The Forest Service must analyze the impacts of livestock grazing in light of the known impacts livestock grazing in xeroriparian has on riparian areas. Levick *et al*. (2008) provide a comprehensive review of the ecological and hydrological importance of such systems, which provide important habitat also for many plant species (not just riparian-dependent species), refugia for plants and animals in times of drought (and climate change), a source of water for upland wildlife, and migration/dispersal corridors.[18] Further, the relationship to the riparian and xeroriparian areas to the uplands are a critical component of wildlife habitat in the project area. Upland vegetation is directly related to winter species richness and abundance of avian species.[19] Overgrazing and destruction of grasslands are leading causes of bird imperilment in the

[16] Danvir, Rick E. 2018. *Multiple-use Management of Western U.S. Rangelands: Wild Horses, Wildlife, and Livestock*. Human–Wildlife Interactions: Vol. 12 : Iss. 1 , Article 4.
Available at: https://digitalcommons.usu.edu/hwi/vol12/iss1/4.
[17] Clark, P.E., Johnson, D.E., Ganskopp, D.C., MartinVarva, Cook, J.G., Cook, R.C., Pierson, F.B., and Hardegree, S.P. 2017. *Contrasting Daily and Seasonal Activity and Movement of Sympatric Elk and Cattle*. Rangeland Ecology & Management Vol. 70:2, March 2017. Pp. 183-191. https://doi.org/10.1016/j.rama.2016.09.003.
[18] Levick, L., Fonseca, J., Goodrich, D., Hernandez, M., Semmens, D., Stromberg, J., Leidy, R., Scianni, M., Guertin, D.P., Tluczek, M., and Kepner, W. 2008. The Ecological and Hydrological Significance of Ephemeral and Intermittent Streams in the Arid and Semi-arid American Southwest. U.S. Environmental Protection Agency and USDA/ARS Southwest Watershed Research Center, EPA/600/R-08/134, ARS/233046, 116 pp.
[19] Strong, T.R. and Bock, C.E. 1990. Bird species distribution patterns in riparian habitats in southeastern Arizona. The Condor 92:866-885.

southwest.[20] Livestock grazing has numerous known impacts to uplands, including the effects of range developments on habitat integrity.[21]

Trespass livestock is an additional concern regarding riparian impacts and impacts to vegetation more generally. The Forest Service must adequately disclose, analyze and address trespass livestock issues and how that trespass (or unauthorized use) exacerbates habitat problems in the project area.

In the table below, we note that several of the NNIP that are considered for treatment as part of this project are either not located where targeted or controlled livestock grazing is an available tool, or targeted/controlled grazing is not an effective treatment for the species identified as a NNIP.

Adapted from the Table 1 found in the 2020 DEIS at 5.

Table 1. New Mexico state-listed noxious weeds known to occur on the Lincoln National Forest.

Common name	Scientific name	New Mexico State Class
African rue	*Peganum harmala*	B Targeted grazing ineffective (EIS at 87).
black henbane	*Hyoscyamus niger*	A Targeted grazing ineffective (EIS at 87).
bull thistle	*Cirsium vulgare*	B
Canada thistle	*Cirsium arvense*	A
cheatgrass	*Bromus tectorum*	C See Field Guide for Managing Cheatgrass in the Southwest, USDA, June 2017, TP-R3-16-04: "heavy grazing may promote infestation" (p. 3) Cheatgrass does not compete well with established perennial grasses, therefore, encouraging perennial grasses will aid in cheatgrass suppression. (p. 4) Requires grazing twice a year (spring and fall) for two consecutive years with close management of livestock to *reduce* seed production, but not eliminate it. The LNF 2020 EIS for this project states that "grazing can selectively reduce competitiveness of native plants, shifting the community in favor of NNIP (Vallentine and Stevens 1994, Kimball and Schiffman 2003). Most NNIP species are well adapted to invade heavily grazed areas, thereby allowing competitive advantage; and some NNIP

[20] Finch, C. *Ed*. 2005. Assessment of grassland ecosystem conditions in the southwestern United States: Wildlife and fish. Volume 2. USDA RMRS-GTR-135-vol.2.

[21] Fleischner, T.L. 1994. Ecological Costs of Livestock Grazing in Western North America. Conservation Biology 8:629-644.

		species have chemical or physical defenses (spines) that prevent them from being utilized by livestock." 2020 EIS at 91. Grazing is not an effective general tool for cheatgrass control. Vallentine and Stevens 1994.
Dalmatian toadflax	*Linaria dalmatica*	A
hoary cress	*Cardaria spp.*	A
jointed goatgrass	*Aegilops cylindrica*	C
leafy spurge	*Euphorbia esula*	A
Malta starthistle	*Centaurea melitensis*	B
musk thistle	*Carduus nutans*	C
perennial pepperweed	*Lepidium latifolium*	B
poison hemlock	*Conium maculatum*	B
Russian knapweed	*Acroptilon repens*	B
Scotch thistle	*Onopordum acanthium*	A
Siberian elm	*Ulmus pumila*	C Not treated with targeted grazing
spiny cocklebur	*Xanthium spinosum*	B Targeted grazing ineffective (EIS at 87).
spotted knapweed	*Centaurea maculosa*	A
tamarisk/saltcedar	*Tamarix spp.*	C Not treated with targeted grazing
teasel	*Dipsacus fullonum*	B
yellow starthistle	*Centaurea solstitialis*	A
yellow toadflax	*Linaria vulgaris*	A
Russian Olive		Not treated with targeted grazing

Musk thistle and teasle are the most common NNIP on livestock allotments (52 and 30 allotments, respectively and with some overlap, and out of 120 allotments total on the LNF). 2020 DEIS at 215. Because the Forest Service seems to have specific location information regarding where NNIP species are located, at least by allotment, and controlled or targeted grazing is supposed to be used only where livestock are already authorized, the analysis of impacts from targeted grazing should have included site specific analysis. Unfortunately, there are no maps of the allotments that have known NNIP infestations and there is no description of where controlled or targeted livestock grazing will occur.

The Forest Service should also consider the following information regarding the use of livestock for NNIP management:

- Reisner et al. (2013)[22] stated that: "[o]ur results provide strong support for some *a priori* hypothesized mechanisms (i.e., cattle trampling reduces bunchgrass and [Biological Soil Crust] abundance) and no support for others (i.e., cattle reduce invasions by grazing *B. tectorum*)." They concluded that: "[o]ur findings raise serious concerns regarding proposals to use cattle grazing to control *B. tectorum* in these systems where remnant bunchgrass communities persist (Vallentine & Stevens 1994). In contrast, our findings support recent guidance for passively restoring resistance of these systems by reducing grazing levels (Pyke 2011)."
- Williamson et al. (2019)[23] found that grazing corresponds with increased cheatgrass occurrence and prevalence regardless of variation in climate, topography, or community composition, and provide no support for the notion that contemporary grazing regimes or grazing in conjunction with fire can suppress cheatgrass.

- Root et al. (2019)[24] sampled random sites and measured biocrust communities and vegetation across low, medium, and high grazing intensities. They found biocrust cover and species richness negatively related to grazing intensity, with plots with the lowest grazing intensity having the highest biocrust diversity and cover. Additionally, they found that exotic annual grasses were substantially more abundant in plots with higher grazing intensity. Their results indicated that reduction of biocrust cover and richness favored exotic annual grasses and disfavored perennial grasses, highlighting the importance of biocrust cover in maintaining site resistance to invasion by exotic annual grasses.

- Condon and Pyke (2018)[25] summarized that "Evidence of grazing was more pronounced on burned sites and was positively correlated with the cover of B. tectorum, indicating an interaction between fire and grazing that decreases site resistance." However, even "[i]ndependent of fire, grazing impacts resulted in reduced site resistance to B. tectorum,

[22] Reisner, M.D., Grace, J.B., Pyke, D.A. and Doescher, P.S. 2013. Conditions favouring *Bromus tectorum* dominance of endangered sagebrush steppe ecosystems. Journal of Applied Ecology, 50(4): 1039-1049. doi: 10.1111/1365-2664.12097

[23] Williamson, M.A., Fleishman, E., MacNally, R.C., Chambers, J.C., Bradley, B.A., Dobkin, D.S., Board, D.I., Fogarty, F.A., Horning, N., Leu, M., and Wohlfeil Zillig, M. 2019. Fire, livestock grazing, topography, and precipitation affect occurrence and prevalence of cheatgrass (Bromus tectorum) in the central Great Basin, USA. Biological Invasions. Springer Nature Switzerland. https://doi.org/10.1007/s10530-019-02120-8 (WWP submitted this as a supplemental submission to our scoping comments on 2/28/20 during the reopened comment period).

[24] Root, H., Miller, J., and Rosentreter, R. 2019. Grazing disturbance promotes exotic annual grasses by degrading soil biocrust communities. Ecological Applications, 0,(0), 2019, e02016.https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/eap.2016

[25] Condon, L.A. and Pyke, D.A. Fire and Grazing Influence Site Resistance to *Bromus tectorum* Through Their Effects on Shrub, Bunchgrass and Biocrust Communities in the Great Basin (USA). Ecosystems (2018) 21: 1416

suggesting that grazing management that enhances plant and biocrust communities will also enhance site resistance.

- Bruegger et al. (2016)[26] found that targeted grazing reduced fire behavior only under "moderate" fire conditions, e.g., winds <8 kmh^-1. Strand et al. (2014)[27] stated that extreme fire weather conditions, characterized by low fuel moisture and relative humidity, and high temperature and wind speed, affect wildland fires more than do fuel characteristics, and the potential role of grazing to alter fire behavior is limited.

- Livestock are a key part of the feedback loop of invasive annual grasses and fire. Courts have also recognized the clear role of livestock in the cheatgrass problem. *see W. Watersheds Proj. v. Dyer*, Nos. 4-cv-181, 2-cv-521, 2009 WL 484438, at *7, *10–11 (D. Idaho Feb. 26, 2009) (finding that livestock grazing promotes cheatgrass, which has contributed to dramatic increase in fires affecting sagebrush habitat); *W. Watersheds Proj. v. Salazar*, No. 4:08-cv- 516-BLW, 2011 WL 4526746, at *8 (D. Idaho Sept. 28, 2011) ("cheatgrass is highly flammable [and] [t]he spread of cheatgrass is exacerbated when the native perennial grass and forb community is weakened as a result of heavy livestock grazing").

The DEIS is not sufficiently complete to allow public review and comment

We note that the DEIS section on Range Management appears to be in a more "draft" form than much of the rest of the EIS. At page 216 of the DEIS there is a heading "Resource Indicators and Measures for Alternative A" which is followed by a sub-heading "Alternative B – Proposed Action" but there is no information regarding Alternative A. We would like an opportunity to review and comment upon the completed DEIS when this section has been completed.

Additionally, the DEIS states that "[i]f controlled (targeted" grazing is used as a biological control method a site-specific project operation plan would be developed." 2020 DEIS at 217. This is confusing because controlled or targeted livestock grazing is a part of this proposed action, it can only occur on grazing allotments where NNIPs are known to occur, so WWP and the public generally must assume that controlled or targeted livestock grazing *will in fact* occur and we do not understand why the analysis of the impacts of this NNIP management tool was not completed as part of this DEIS, nor why the specific locations (or even allotment locations) were not disclosed. Please explain.

The analysis if the impacts of each alternative for all issues (from Table 8, DEIS at 40-42) fails to adequately or accurately identify, disclose, or analyze the impacts of livestock grazing across alternatives. The analysis of Alternative C acknowledges the limitations of controlled grazing as a tool for NNIP control ("the effectiveness of…controlled grazing is more limited than chemical controls…so preventing the spread of non-native invasive plants…would be more difficult.") but

[26] Bruegger, R.A., Varelas, L.A., Howery, L.D., Torell, L.A., Stephenson, M.B., Bailey, D.W. 2016. *Targeted Grazing in Southern Arizona: Using Cattle to Reduce Fine Fuel Loads*, 69.1 Rangeland Ecology & Management 43 (2016).

[27] Strand, E., Launchbaugh, K.L., Limb, R., Torell, L.A. 2014. Livestock Grazing Effects on Fuel Loads for Wildland Fire in Sagebrush Dominated Ecosystems. J Rangeland Applications. 1:35-57.

is not disclosed as a limitation or constraint for this same use in Alternative B. This oversight is repeated in the description of alternatives at pages 72-74.

Other concerns

The DEIS states that leafy spurge is controlled by targeted grazing by sheep or goats. 2020 EIS at 87. Unfortunately, the Forest Service has failed to analyze the impacts of targeted grazing by sheep or goats on bighorn sheep.

How will controlled or targeted grazing, in the uplands, impact water quality in nearby streams? Will *E. coli* levels increase? Has the Forest Service analyzed the possible impacts from increased livestock presence in watersheds with *E. coli* impairment? How will increased livestock presence impact soil runoff?

Wilderness

In 1964, Congress passed the Wilderness Act "to secure for the American people of present and future generations the benefits of an enduring resource of wilderness." The law provided statutory protections for wilderness areas and established the National Wilderness Preservation System. The Act, among other things, mandated that wilderness areas be administered in a manner that will leave them "unimpaired for future use and enjoyment as wilderness" and that will provide for "the protection of these areas" and "the preservation of their wilderness character."

The Wilderness Act defines "wilderness" in part: "A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are *untrammeled by man*, where man himself is a visitor who does not remain." Wilderness is "land retaining its *primeval character and influence*, without permanent improvements or human habitation, which is protected and managed so as to *preserve its natural conditions*…"[28] In addition, wilderness should be "*affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable*."

WWP strongly opposes any alternative that allows any grubbing, masticating, tilling, mowing, or any use of power tools or mechanized equipment within designated Wilderness Areas or Wilderness Study Areas.

There are several grazing allotments located within designated Wilderness areas:

- three in the White Mountains Wilderness area (Finely, Diamond Peak, and Church Mountains), while portions of four other allotments overlap with the area (though the EIS lists only three: Dry Gulch, Lower Bonito and Loma Grande)
- portions of four grazing allotments occur in the Capitan Mountain Wilderness area (Latham, Baca, Block, Arroyo Seco, and Arabella)

[28] 16 U.S.C. 1131(c) (emphasis added).

The Forest Service plans to use helicopters within Wilderness areas for aerial spraying to control NNIP. This would be a violation of the Wilderness Act due to the trammeling and nonconforming and unnecessary use of motorized equipment in Wilderness. The Forest Service has misleadingly characterized the impacts of NNIP in Wilderness as more significant than helicopters and has falsely characterized crews pulling NNIPs by hand as more of an impact on recreational visitors than aerial spraying via helicopters. The impacts of helicopter use will be analyzed at a later date via a Minimum Requirements Decision Guide, Minimum Requirements Analysis or Minimum Tool Analysis. However, this provides the public with no opportunity at this time to review or comment upon the site-specific impacts and there is no assurance that the public will be notified of the development of the MRDG, MRA, or MRT.

The presence of crews using hand tools for a period of several days at a time is not more impactful to Wilderness than the noise of helicopters dropping herbicides over vast areas of the landscape to control an undisclosed and perhaps small number of NNIP that are described as on the perimeter of fire scars. The Forest Service admits the scope of trammeling under Alternative B would be greatest, but attempts to minimize the impacts because they will be a bit shorter in time.

The impacts from controlled or targeted livestock grazing are inaccurately and inadequately described in the DEIS. The impacts are described as creating a "pastoral" or "rural" scenic character. 2020 DEIS at 237. This ignores the fact that in order for controlled or targeted livestock grazing to be effective as a tool to control NNIP, the livestock must remove all or nearly all of the vegetation targeted, which creates a scenic character that is far from "pastoral" or rural, and more like a rural parking lot or dustbowl. Furthermore, targeted grazing will remove native vegetation as well as NNIP, further trammeling the Wilderness qualities and impacting visual quality, recreational experiences, and water quality.

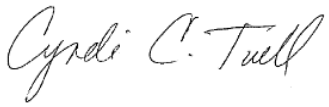
New Information

Finally, there is new information the Forest Service must incorporate into the analysis for this project. On November 24, 2020, the Environmental Protection Agency released a Draft National Level Species Biological Evaluation for Glyphosate. (available at https://www.epa.gov/endangered-species/draft-national-level-listed-species-biological-evaluation-glyphosate#executive-summary) In this evaluation the EPA found that glyphosate is likely to injure or kill 93% of the plants and animals protected under the Endangered Species Act and that that glyphosate adversely modifies critical habitat for 759 endangered species, or 96% of all species for which critical habitat has been designated.

Conclusion

For all of the foregoing reasons Western Watersheds Project encourages the Forest Service to revise the existing DEIS to correct the deficiencies we have identified above. We look forward to reviewing the next step in this NEPA process for this project.

Sincerely,



Cyndi Tuell
Arizona and New Mexico Director
Western Watersheds Project