Western Watersheds Project

Boise Office
[redacted]

Working to protect and restore Western Watersheds and Wildlife

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Charles A. Mark
Forest Supervisor
Salmon-Challis National Forest
1206 S. Challis Street
Salmon, ID 83467

VIA EMAIL: scnf_plan_rev@fs.fed.us

Re: SCNF LRMP Revision; Draft Assessment Report and Preliminary Need for Change Statement

Dear Mr. Mark:

Thank you for this opportunity to comment on the Salmon-Challis National Forest (SCNF or Forest) plan revision, specifically the Draft Assessment Report and Need for Change document. Please consider the following comments, and keep Western Watersheds Project (WWP) informed throughout the forest plan revision process.

WWP's staff and members are concerned with the management of national forests and public lands throughout Idaho, including the SCNF. We work throughout the West, advocating for watersheds, wildlife, and ecological integrity. The ongoing plan revision process affects our interest in the health and integrity of the sagebrush steppe, high desert, and forest environments of south-central Idaho. Our staff and members regularly visit the SCNF and enjoy the outstanding wildlife, wilderness, and recreational values the Forest provides.

WWP is especially concerned with the impacts of livestock grazing on ecological integrity, wildlife, fisheries, and recreation. Across public lands and national forests in the West, grazing is ubiquitous, and it remains one of the primary commercial uses of the Salmon-Challis National Forest. Too often, however, land mangers do not adequately consider the environmental impacts of this widespread and highly extractive use; nor have federal land management agencies considered whether the environmental costs of public lands grazing outweigh the relatively insignificant economic benefits.

The Forest must therefore apply the best available scientific information, 36 C.F.R. § 219.3, to determine which areas of the Forest are suitable for livestock grazing, and

which are not. 36 C.F.R. § 219.7(e)(1)(v). We are aware that your Forest has performed some preliminary assessments on this score and found that many allotments are severely overstocked. These findings must be followed up with reduced stocking levels as an alternative.

Several active grazing allotments throughout the Forest have proven essentially unmanageable, with serious and unmitigated livestock impacts occurring annually to native fish, wildlife, water quality, and other important Forest resources. These highly problematic allotments include: Pass Creek, Sawmill Creek, Mill Creek, Wildhorse, Boone Creek, Copper Basin, Antelope Creek, Alder Creek, Leadbelt Creek, Pahsimeroi, Upper Pahsimeroi, Wino Basin, Sulphur Creek, Lawson Creek, Morgan Creek, and Camas Creek. The final assessment and forest plan EIS should consider the relative costs and benefits—both ecological and economic—of retiring grazing on these allotments. In addition, the EIS should include at least one alternative closing all lands above 7500 feet to livestock grazing. These high-elevation areas have a very short growing season, and many have shallow clay soils that are easily compacted and eroded by livestock.

The Forest must also use the information gathered through the assessment process to develop forest-wide objectives and standards that minimize the adverse effects of grazing wherever it is authorized. 36 C.F.R. § 219.7(e)(1). The Forest's management prescriptions must acknowledge the connection between grazing and other ecological stressors such as invasive plants, erosion, desertification, and wildfire. Without substantial changes in grazing management, imperiled ecosystems and sensitive species across the Forest will remain at risk.

I. Terrestrial Ecosystems

The Draft Assessment explains that some of the primary stressors on terrestrial ecosystems within the Forest are wildfire, insects, disease, invasive species, and climate change. Draft Assessment at 5. The Assessment also identifies "management activities, such as timber harvest and livestock grazing," as "significant drivers of and stressors to" terrestrial ecosystems. *Id*. We agree that these and other human activities put a significant amount of stress on native ecosystems. But the Draft Assessment does not adequately consider the causal relationship between "management activities" and other primary stressors. For instance, while the Assessment correctly identifies the synergistic relationship between invasive plants and wildfire as one of the main threats to grassland and sagebrush steppe ecosystems in the Forest, it does not examine how livestock grazing enables and accelerates the spread of invasives like cheatgrass (*Bromus tectorum*).

According to 36 C.F.R. § 219.8, the forest plan must "include plan components … to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore structure, function, composition, and connectivity." The plan must also "maintain the diversity of plant and animal communities and support the persistence of most native species in the plan area." 36 C.F.R. § 219.9. The Forest cannot design plan components to maintain or

restore ecological integrity if it does not understand the mechanisms through which ecological integrity is threatened. Unfortunately, the Draft Assessment does not adequately discuss or analyze one of the primary drivers of invasive plant infestation and wildfire in arid and semi-arid environments — livestock grazing.

The Draft Assessment explains that "[w]ith European settlement of southeastern Idaho, livestock began to use additional forage. This addition of grazers to the landscape resulted in some shift in vegetation communities on the landscape based on the type of livestock, the intensity of grazing, and the duration of use." Draft Assessment at 13. But the remainder of the analysis ignores the fact that this conversion of native plant communities by livestock grazing continues to occur. As Knick (1999) observes, "most [sagebrush steppe] lands never supported heavy grazing pressure." Steven T. Knick, *Requiem for a Sagebrush Ecosystem?*, NORTHWEST SCIENCE vol. 73 (Nw. Scientific Ass'n 1999). Nevertheless, "we continue to accommodate large domestic ungulates in our management and restoration plans." *Id*. Accommodating such heavy livestock use while ignoring its effects renders ineffective any Forest-wide strategy for managing invasive plants and wildfire.

Livestock grazing facilitates incursion of nonnative, invasive species by disturbing soils, and by changing the structure and composition of vegetative communities. As the Forest Service's own research has shown:

> The sudden introduction of concentrations of large herbivores to the sagebrush (*Artemisia*) bunchgrass ranges of the Intermountain area dramatically changed the balance between herbaceous understory and woody overstory species. The near biological vacuum created by overutilization of understory species was rapidly filled by the introduction of a host of alien annual species. Cheatgrass (*Bromus tectorum*) dominates many of these alien communities and truncates succession. Seedling establishment of perennials, especially herbaceous perennials, is limited by cheatgrass competition for soil moisture.

James A. Young, *History and Use of Semiarid Plant Communities — Changes in Vegetation*, USDA FOREST SERVICE GENERAL TECHNICAL REPORT INT-GTR-313 5-8 (1994). And, while historical grazing practices are often cited as a cause of degraded ecological conditions, more recent research has shown that current grazing maintains historical trends.

Zier and Baker (2006) found that "the ecological impacts of livestock grazing" include "a visible trend towards the loss of native bunchgrasses and increases in less palatable species." James L. Zier & William L. Baker, *A Century of Vegetation Change in the San Juan Mountains, Colorado: An Analysis Using Repeat Photography*, 228.1 FOREST ECOLOGY & MANAGEMENT 251-62 (2006). A literature review by Jones (2000) "revealed significant detrimental effects of cattle grazing, suggesting that cattle can have a negative impact on North American xeric ecosystems. Soil-related variables were most

negatively impacted by grazing (3 of 4 categories tested were significantly impacted), followed by litter cover and biomass (2 of 2 categories tested), and rodent diversity and richness (2 of 2 categories tested)." Allison Jones, *Effects of Cattle Grazing on North American Arid Ecosystems: A Quantitative Review*, 60 WESTERN NORTH AMERICAN NATURALIST 155-64 (2000).

Conversely, research has shown that rest from grazing produces substantial ecological benefits. Areas at the Idaho National Engineering Laboratory site, rested from grazing since 1950, have improved considerably from historical post-settlement conditions. Jay E. Anderson & Karl E. Holte, *Vegetation Development Over 25 Years Without Grazing on Sagebrush-Dominated Rangeland in Southeastern Idaho*, 34 JOURNAL OF RANGE MANAGEMENT 25-29 (1981). Over a period of 25 years, shrub cover increased 154 percent, and perennial grass cover increased from 0.28 percent to 5.8 percent (a 26-fold increase). *Id*. *See also* Jonathan L. Batchelor et al., *Restoration of Riparian Areas Following the Removal of Cattle in the Northwestern Great Basin*, ENVT'L MGMT. (Feb. 2015) (concluding that "the removal of cattle can result in dramatic changes in riparian vegetation, even in semi-arid landscapes and without replanting or other active restoration efforts.").

In sum, livestock grazing reduces the cover and diversity of native bunchgrasses, leaving grazed areas vulnerable to invasive nonnative species like *B. tectorum*. *See, e.g.*, Michael D. Reisner, et al., *Conditions Favoring Bromus Tectorum Dominance of Endangered Sagebrush Steppe Ecosystems*, JOURNAL OF APPLIED ECOLOGY (2013). Domestic livestock also encourage and enable invasive species by trampling biological soil crusts. *Id*.

Often overlooked in discussions of invasive species management, biological soil crusts stabilize soils in arid environments and provide essential nutrients like nitrogen and carbon. S.D. Warren & D.J. Eldridge, *Biological Soil Crusts and Livestock in Arid Regions: Are They Compatible?*, in BIOLOGICAL SOIL CRUSTS: STRUCTURE, MANAGEMENT AND FUNCTION, J. BEKNAP & O. LANGE, eds., 401-16 (Springer-Verlag 2001). Domestic cattle and sheep trample biological crusts, exposing the soil beneath to wind and water erosion. *Id*. This, in turn, depletes the soil of nutrients and increases the amount of bare ground in grazed areas. *Id*. "Even light grazing pressure can reduce carbon input"—a measure of crust integrity—"by almost half." *Id*. Through these direct impacts on biological crusts, livestock grazing "affects both plant cover and soil fertility with potential long-term implications for the sustainability of grazing operations" in arid and semi-arid landscapes. Daniel P. Fernandez et al., *Biogeochemical and Ecological Impacts of Livestock Grazing in Semi-Arid Southwestern Utah, USA*, 72.5 JOURNAL OF ARID ENVIRONMENTS 777-791 (2008).

Intact soil crusts inhibit *B. tectorum* germination and root penetration, and thereby arrest the spread of this highly invasive species. Lynell Deines, et al., *Germination and Seedling Establishment of Two Annual Grasses on Lichen-Dominated Biological Soil Crusts*, 295 PLANT & SOIL 23-35 (2007). Ponzetti et al. (2007) found that "[b]iotic crust species richness and cover were inversely related to cover of the invasive annual,

cheatgrass (*Bromus tectorum*), and positively related to cover of native bunchgrasses." Jeanne M. Ponzetti, et al., *Biotic Soil Crusts in Relation to Topography, Cheatgrass, and Fire in the Columbia Basin, Washington*, 110.4 THE BRYOLOGIST 706-22 (2007). They also found that "integrity of the biotic crust was more strongly related to cheatgrass than to fire," and noted that "an extensive series of wildfires" in the study area had "not resulted in an explosion of the cheatgrass population, perhaps because of the historically low levels of livestock grazing." *Id*.

Forest Service research has shown that rest from grazing can lead to "substantial recovery" of biological crusts. J.H. Kaltenecker, et al., *Biological Soil Crusts in Three Sagebrush Communities Recovering From a Century of Livestock Trampling*, SHRUBLAND ECOTONES, RMRS-P-11 222-226 (USDA Forest Service, Rocky Mountain Research Station, Ogden, Utah 1999). Reisner et al. (2013) likewise conclude that "[p]assive restoration by reducing cumulative cattle grazing may be one of the most effective means" of protecting and restoring sagebrush steppe ecosystems. Reisner et al., *supra*.

The Draft Assessment states that "[i]nvasive plants have been identified as a major threat to the biological diversity and ecological integrity within and around the [Forest]," and estimates that "106,955 acres, or 23 percent, of greater sage-grouse habitat on the Forest is probably infested or at risk from invasion with cheatgrass." Draft Assessment at 13-14. However, the Draft Assessment does not address one of the major vectors by which cheatgrass spreads — livestock grazing. The Forest must consider the role of livestock grazing in spreading invasive species, which in turn increase the frequency and severity of wildfires. Without substantial changes to grazing management, the Forest risks losing large areas of sagebrush steppe to invasive annual grasses and catastrophic fires. The revised forest plan should therefore incorporate forest-wide livestock use thresholds, including a four-inch minimum stubble height at all times in mesic meadows, and no more than 35% livestock utilization (by weight) of upland native bunchgrasses. *See generally*, U.S. Forest Service, Greater Sage-Grouse Records of Decision for Idaho, Southwestern Montana, Nevada & Utah (Sept. 2015). Grazing should be discontinued wherever it exceeds these standards.

The Forest should also examine the impacts of livestock grazing on unique terrestrial ecosystems, like the Forest's rare and iconic aspen groves. As the Draft Assessment notes, "aspen forests support the highest biodiversity in the intermountain west," and "[c]attle grazing the aspen understory has been a primary consumptive use of aspen on the [Forest]." Draft Assessment at 30. Grazing pressure on aspen has led to "reduced vigor," as annual grazing inhibits vital regeneration. Earnst et al. (2012) found that rest from grazing allowed aspen to regenerate, "increased densities of riparian forbs and shrubs, and increased avian abundances." Susan L. Earnst et al., *Changes in Avian and Plant Communities of Aspen Woodlands Over 12 Years After Livestock Removal in the Northwestern Great Basin*, 26.5 CONSERVATION BIOLOGY 862-72 (2012). The Forest should consider the adverse impacts of grazing on aspen, as well as the benefits of rest, in its final assessment. And, the revised forest plan should include plan components specifically designed to protect aspen groves from domestic livestock.

And finally, the Forest should reconsider the "Need for Change" document's emphasis on vegetation treatments and "fuels management," especially in non-forest environments. In 1999 Steven T. Knick observed that "[t]he philosophy of 'fuels management,' and a strategy for prescribed fire is rapidly invading rangeland management from forestry dogma." Knick, *Requiem*, *supra*. More than 10 years later, the U.S. Fish and Wildlife Service cautioned that the same "fuels management" techniques, many of which involve severe ground disturbance through prescribed fire and heavy equipment use, showed little promise as a tool for sagebrush habitat conservation. The Service noted that "land managers [were] using prescribed fire as well as mechanical and chemical treatments to obtain desired management objectives for a variety of wildlife species and domestic ungulates in sagebrush habitats throughout the range of the greater sage-grouse." U.S. Fish & Wildlife Serv., 12-Month Findings for Petitions to List the Greater Sage-Grouse (*Centrocercus urophasianus*) as Threatened or Endangered, 75 Fed. Reg. 13910, 13933 (March 23, 2010).

In addition to prescribed fire, mechanical alterations, and herbicide application, these treatments often include intensive, short-duration, or "targeted" livestock grazing. Justification for these treatments have included the need to increase resiliency of sagebrush-grassland habitats to wildfire, increase forage for livestock, diversify age-structure of sagebrush, reduce "decadent" stands of big sagebrush, and enhance sage-grouse habitat. *See, e.g.*, Wyoming Interagency Vegetation Committee, *Wyoming Guidelines for Managing Sagebrush Communities with an Emphasis on Fire Management* (2002). However, "the efficacy of treatments in sagebrush habitats to enhance sage-grouse populations is questionable, … [A]s with wildland fire, an immediate and potentially long-term result is the loss of habitat. … [I]n light of the significant habitat loss due to wildfire, and the preponderance of evidence that suggests these treatments are not beneficial to sage-grouse, the rationale for using such treatments to improve sage-grouse habitat deserves further scrutiny." U.S. Fish & Wildlife Serv., 12-Month Findings for Petitions to List the Greater Sage-Grouse (*Centrocercus urophasianus*) as Threatened or Endangered, 75 Fed. Reg. 13910, 13933 (March 23, 2010).

In this particular case, the Forest should re-examine its reliance on ecological site descriptions and state and transition models. While these can be informative tools for helping understand ecological processes in rangelands, they may also overemphasize the need for treatments in sage grouse habitat, while minimizing the inherent stability and ecological importance of undisturbed sagebrush steppe habitat types.

II. Aquatic Ecosystems

According to the Draft Assessment, "[l]ivestock grazing and roads appear to be the primary stressors [on aquatic ecosystems] on the Forest." Draft Assessment at 72. Livestock grazing, in particular, was found to be directly affecting surface and groundwater fluctuations, water quality, channel and floodplain dynamics, spring runout channel dynamics, and composition of groundwater-dependent ecosystems. *Id*. at 43. Grazing also affects aquatic ecosystems indirectly, through diversions and dam

construction, road construction and maintenance, stream crossings, invasive plants, and wildfire.

As noted, the forest plan must "include plan components … to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore structure, function, composition, and connectivity." 36 C.F.R. § 219.8. The plan must also "maintain the diversity of plant and animal communities and support the persistence of most native species in the plan area." 36 C.F.R. § 219.9. The Draft Assessment shows that the Forest will not meet these obligations without significant changes to grazing management.

Riparian areas are among the most ecologically important habitats within the forest. As the Draft Assessment explains, "The unique vegetation communities of riparian ecosystems provide physical, hydrological, and biotic services across forest landscapes." These "services" include flood abatement, soil stabilization, and water storage. Riparian areas also provide crucial habitat for resident and anadromous fish, as well as terrestrial wildlife. Riparian-dependent species on the Forest include several ESA-listed fish, as well as the greater sage grouse.

Overall, riparian vegetation on the Forest is in poor condition. The Draft Assessment explains that out of a total 6,367 miles of perennial stream, 72 percent showed a large or significant departure from the natural range of variation, 22 percent were outside the natural range but showing a positive trend, and only 6 percent were within. Out of 7,813 miles of intermittent stream, 83 percent showed a significant or large departure.

Channel and floodplain dynamics fare little better, with only 33 percent of the forest within the natural range of variation. In addition, PIBO effectiveness monitoring data shows that "there is a significant downward trend in the physical habitat integrity index over the last 20 years," with important watersheds like the Little Lost River, Big Lost River, and Upper Middle Fork trending downward. This is extremely troubling. In the Little Lost and Big Lost, livestock grazing is by far the most ubiquitous and damaging activity; thus this finding indicates that dramatic reductions in livestock grazing are needed.

Finally, water quality on the Forest is generally poor, with only 41 percent of the Forest within the natural range of variation. "In total, there are 638 miles of streams on the Salmon-Challis that do not meet water quality standards" due to excessive nutrient levels, excessive sediment levels, and high water temperatures. The Upper Salmon, Lemhi, and Pashimeroi rivers contain concerning levels of *E. coli* and fecal coliform bacteria.

The Draft Assessment's presentation of water quality, stream channel, and riparian vegetation data is misleading, as it implies that "trending toward" the natural range of variation is a satisfactory condition, when it fact it is an unsatisfactory condition exhibiting some signs of recovery which could be limited. The Forest should adopt a more straightforward presentation in the final assessment. For example, recovery should be required to be occurring at a "near natural" rate, as is currently the case under INFISH and PACFISH.

The Draft Assessment generally acknowledges that livestock grazing is a primary stressor on riparian vegetation, stream channel and floodplain dynamics, and water quality throughout the Forest, but it fails to adequately consider the mechanisms through which domestic livestock alter and degrade riparian and aquatic ecosystems. Consequently, the Assessment does not provide the information necessary to develop Forest Plan components designed to maintain and restore native ecosystems. *See* 36 C.F.R. § 219.8.

For example, the Draft Assessment frankly acknowledges the presently deteriorated state of riparian areas on the Forest, but is less clear about the causes of this deterioration. It states, "potentially natural forms of departure were conifer encroachment, and replacement by barren land. Anthropogenic forms involved conversions to crops and hay, developed land, and introduced vegetation." Draft Assessment at 67. By characterizing conifer encroachment and desertification as "natural," however, the draft assessment implies that the Forest need not address these threats through changes in management, when in fact these phenomena suggest a simplified riparian vegetation structure and a lowered water table resulting from excessive livestock use.

Ubiquitous, constant grazing is one of the most potent causes of desertification in the United States. D. Sheridan, DESERTIFICATION OF THE UNITED STATES, 121 (Council on Environmental Quality 1981). In the sagebrush steppe and forest environments of the Intermountain West, grazing compacts soils and alters riparian vegetation. These effects, in turn, increase runoff, reduce water infiltration, and increase erosion. WWP has documented these effects in several locations on the Forest, including the Copper Basin area and the Pass Creek allotment.

The Forest should take into account the considerable scientific evidence showing that current levels of livestock use is incompatible with the long-term maintenance of riparian and aquatic habitats in the intermountain West. Belsky et al. (1999) found that "[l]ivestock grazing … negatively affect[s] water quality and seasonal quantity, stream channel morphology, hydrology, riparian zone soils, instream and streambank vegetation, and aquatic and riparian wildlife." A.J. Belsky, et al., *Survey of Livestock Influences on Stream and Riparian Ecosystems in the Western United States*, 54.1 JOURNAL OF SOIL AND WATER CONSERVATION 419-31 (1999). The same study found "no positive environmental effects" from livestock grazing. *Id*. Grazing has also been shown to negatively impact water quality. Derlet et al. (2010) found that "summer cattle grazing on federal lands affects … overall water quality … as cattle manure is washed into … lakes and streams or directly deposited into these bodies of water." Robert W. Derlet et al., *Reducing the Impact of Summer Cattle Grazing on Water Quality in the Sierra Nevada Mountains of California: A Proposal*, 8.2 JOURNAL OF WATER & HEALTH 326-33 (2010). The same study found that "the societal costs from [this] non-point pollution exceed the benefits," as "eutrophication of otherwise naturally oligotrophic mountain lakes and streams" disrupts natural ecological processes and makes it more difficult for downstream municipal districts to filter and disinfect drinking water. *Id*.

Other studies have shown that long-term removal of livestock benefits riparian vegetation, in-stream habitat, and water quality. Kauffman et al. (2004) found that "[l]ivestock removal was found to be an effective approach to ecological restoration,

resulting in significant changes in soil, hydrological, and vegetation properties that, at landscape scales, would likely have great effects on stream channel structure, water quality, and the aquatic biota." J. Boone Kauffman, et al., *Livestock Exclusion and Belowground Ecosystem Responses in Riparian Meadows of Eastern Oregon*, 14.6 ECOLOGICAL APPLICATIONS 1671-79 (2004). Herbst et al. (2012) reported that "macroinvertebrate richness metrics" — a measure of water quality — "were significantly lower in grazed areas," while bank angle, water temperature, fine sediments, and erosion were higher. David B. Herbst et al., *Effects of Livestock Exclusion on In-Stream Habitat and Benthic Invertebrate Assemblages in Montane Streams*, 57.1 FRESHWATER BIOLOGY 204-17 (2012). The authors also noted that "small-scale grazing exclosures showed no improvements for in-stream communities and only moderate positive effects on riparian vegetation." *Id*. Consequently, they recommended livestock removal at the "larger, allotment meadow spatial scale." *Id*. More recently, Nusslé et al. (2015) reported that riverbank vegetation and water temperatures improved in ungrazed areas, and that "predicted temperatures under different global warming scenarios were likely to be higher in the presence of livestock grazing." S. Nusslé, et al., *Mediating Water Temperature Increases Due to Livestock and Global Change in High Elevation Meadow Streams of the Golden Trout Wilderness*, 10 PLOS ONE (2015).

As the Draft Assessment indirectly acknowledges, many streams, springs, and riparian areas on the Forest have been severely damaged by over a century of inappropriate livestock use. Despite these documented impacts, and despite the scientific evidence showing that livestock grazing negatively affects aquatic habitats, riparian vegetation, and water quality, the Forest has not adjusted grazing management to adequately ensure the continued longevity of these ecologically critical areas. The Forest should therefore thoroughly consider the impacts of livestock grazing in its final assessment, and utilize the information gathered at the assessment phase to develop clear and enforceable forest plan standards and objectives for livestock management.

The Forest should use the best available scientific resources to select management thresholds that adequately protect riparian areas and aquatic habitats. For instance, the new forest plan should include a forest-wide streambank alteration standard. According to the Forest Service's own research, "bank alteration by trampling, shearing and exposure of bare soil can be an important source of stream channel and riparian degradation." Ronna Simon, STREAMBANK ALTERATION MEASUREMENT AND IMPLEMENTATION (USDA Forest Service, Bridger-Teton National Forest, November 2008). "Some researchers have concluded that bank alteration, taking natural channel stability into account, is the most important factor to consider in evaluating physical stream channel conditions and impacts from land use." *Id*. In addition, "degradation from [channel] alteration may occur before utilization or stubble height requirements are met," and "channel recovery is often slower than vegetative recovery." *Id*. The Forest should consider this, and other important information about the impacts of livestock grazing, in developing management thresholds that adequately maintain and restore native aquatic ecosystems.

The Forest should develop strong enforceable standards, along with robust monitoring and assessment protocols, to revise and update the Pacific anadromous fish strategy (PACFISH) and the inland native fish conservation strategy (INFISH). At public meetings following the release of the Draft Assessment, the Forest stated that PACFISH and INFISH — especially the PACFISH/INFISH riparian management objectives (RMOs) — were inappropriate for many streams on the Forest. Forest staff also implied that the PACFISH/INFISH standards would be repealed.

Riparian standards may be revised (as indeed PACFISH and INFISH provided for), but should not be repealed. They must comprehensively protect and recover important native fish species, including bull trout, Chinook salmon, Snake River steelhead, and Big Lost River mountain whitefish. These species have continued to decline in population range and abundance since PACFISH and INFISH were adopted, and consequently Forest should not retreat from its prior conservation commitments. According to SCNF's own data, bull trout populations throughout the forest are at risk from habitat degradation and hybridization with non-native brook trout. At the same time, Big Lost River mountain whitefish are absent from a significant portion of their historical range, largely due to habitat modification by livestock grazing and livestock-related water diversions. The final assessment should include detailed information about current populations of anadromous and inland native fish throughout the Forest, and the factors responsible for these species' reduced abundance.

To develop appropriate forest plan standards and guidelines, the Forest Service should consult its own guidance materials on managing livestock impacts to riparian areas and streams, which explain that "livestock grazing must result in riparian restoration at a minimum of 'near natural' rates." U.S. Forest Service, PACFISH Grazing Guidelines (Enclosure B) at 1 (1995). Put differently, adverse effects from livestock grazing cannot "carry through to the next year." *Id*.; *see also* Bart L. Gammett et al., A Strategy for Managing Livestock Grazing Within Stream Riparian Communities on the Salmon-Challis National Forest (Riparian Strategy) (2008). To ensure that grazing impacts do not impede riparian recovery or contribute to a degraded condition, the Forest must adopt forest-wide livestock use indicators consistent with this guidance, including: 5 percent (or less) bank alteration; 30 percent (or less) woody vegetation utilization; and 6 inches (or more) of post-grazing riparian stubble height wherever ecological status is "mid-seral" or "late seral." *See, e.g*. Enclosure B at 4-5. For areas in "early seral" condition, the revised forest plan should require rest from grazing until the area fully recovers. *Id*. Finally, the revised forest plan should permit no more than 30 percent surface and depth fine sediments in native fish spawning habitat. Indicators should be monitored and reported annually in all pastures, *id*., and grazing should be discontinued wherever it exceeds forest plan standards. *See also* W.P. Clary & B.F. Webster, *Managing Grazing of Riparian Areas in the Intermountain Region*, U.S. FOREST SERVICE GEN. TECH. REP. INT-263 (1989).

III. At-Risk Species

The Salmon-Challis National Forest is home to a multitude of important and iconic wildlife and fish species, including grizzly bears, wolves, greater sage-grouse, and Pacific

salmon and steelhead. Most of these species, perhaps even all of them, have been harmed by human activities on Forest lands, including livestock grazing, timber production, and road construction. The Forest Service must, when revising a forest plan, ensure "the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area." 36 C.F.R. 219.9(b)(1). The final assessment should therefore examine the impact of grazing, logging, and associated infrastructure on each ESA-listed and candidate species. The Forest must also use the best scientific information available to select appropriate species of conservation concern. 36 C.F.R. 219.9(c).

A. Listed Species

ESA-listed species on the Forest include grizzly bears, bull trout, whitebark pine, Chinook salmon, sockeye salmon, and steelhead. All of these species are at risk throughout their ranges, so the Forest should consider the effects of its management on these populations at a regional scale.

For instance, the Forest should consider the importance of the Forest as a grizzly bear habitat corridor, in light of the recent attempt by the U.S. Fish and Wildlife Service (Service) to de-list the greater Yellowstone grizzly population. In its 1993 Grizzly Bear Recovery Plan, the Service acknowledged that grizzly bear presence in all six grizzly bear recovery zones is necessary to the species' survival. The Service also observed that bear migration between ecosystems is necessary to maintain adequate genetic diversity. Connecting Greater Yellowstone grizzlies to other grizzly populations is vital for the genetic health of Greater Yellowstone bears, which have lost a considerable amount of their genetic diversity in 100 years of isolation. The Forest should therefore consider, throughout the remainder of its planning process, its importance in connecting grizzly bear recovery zones.

The Forest should likewise consider the best available science on resident and anadromous salmonids, including bull trout, Chinook salmon, sockeye salmon, and steelhead. As discussed in detail above, salmonid habitats across the forest have been modified by human activities, such that many streams are no longer capable of supporting a viable native salmonid population. By the Forest's own estimates, 72 percent of perennial streams are showing a large or significant departure from the natural range of variation for riparian vegetation; 67 percent are outside the natural range for channel and floodplain dynamics; and 59 percent are outside the natural range for water quality. Both resident and migratory salmonids require cold, clean water, low sediment levels, and healthy riparian plant communities to shade streams and stabilize banks. Unfortunately, years of irresponsible livestock management has substantially altered riparian areas, stream banks, and water quality across the Forest; the Forest Service's own data shows a downward trend in aquatic habitat indicators. The final assessment and forest plan should therefore consider thoroughly the impacts of livestock on important salmonid habitat. In order to fulfill its obligations under NFMA and the ESA, the Forest must reduce or suspend grazing where it threatens the recovery of these imperiled species.

B. Species of Conservation Concern

The Forest must select species of conservation concern based on the "best available scientific information," and choose species for which this information "indicates substantial concern about the species' capability to persist over the long-term in the plan area." 36 C.F.R. 219.9(c). The SCNF contains several key species whose survival over the long term across the plan area is uncertain. These include: the greater sage-grouse, Rocky Mountain bighorn sheep, gray wolf, pygmy rabbit, Columbia spotted frog, and Big Lost River mountain whitefish. The forest plan should include all of these species as species of conservation concern, and the should contain clear, measurable objectives and standards to protect and restore these species across the Forest.

1. Greater Sage Grouse

Greater sage grouse depend on large areas of contiguous sagebrush with healthy, native understories. U.S. Fish & Wildlife Serv., 12-Month Findings for Petitions to List the Greater Sage-Grouse (*Centrocercus urophasianus*) as Threatened or Endangered, 75 Fed. Reg. 13910, 13916-17 (March 23, 2010). Although sage-steppe is the most widespread vegetation community in the intermountain lowlands of the United States, it is considered one of the most imperiled ecosystems in North America. *Id*. at 13916. Very little sagebrush is undisturbed or unaltered from its condition prior to EuroAmerican settlement, *id*. at 13917, and much of that disturbance came in the form of intensive livestock grazing. In addition, sagebrush ecosystems are difficult, if not impossible to restore after disturbance or fire. Most sagebrush species are killed by fire, and historic fire-return intervals in sagebrush habitat were as long as 350 years. *Id*. at 13917. Processes to restore sagebrush ecology are relatively unknown, and active restoration efforts are often limited by lack of resources or political motivation. *Id*.

Disturbance from livestock grazing disrupts sagebrush communities by breaking down individual plants and opening up interstitial spaces. In particular, grazing breaks down shrub cover and disturbs soil, leading to loss of native grasses and forbs and invasions of exotic annual species like cheatgrass. Reisner et al. (2013) found that "[g]razing exacerbates [cheatgrass] dominance in one of North America's most endangered ecosystems by adversely impacting key mechanisms mediating resistance to invasion." Reisner et al., *supra*. Invasions of exotic annuals, in turn, accelerate the transformation of sagebrush habitat types by reducing fire-return intervals to as little as 3 to 5 years. Coates et al. conclude that the spread of cheatgrass into sagebrush steppe habitats "has resulted in a cheatgrass–fire cycle with no analog for comparison in ecological time." P.S. Coates et al., *Wildfire, Climate, and Invasive Grass Interactions Negatively Impact and Indicator Species by Reshaping Sagebrush Ecosystems*, PNAS EARLY EDITION (2016).

Extensive scientific literature has confirmed that livestock grazing adversely affects sagebrush ecosystems. Daubenmire (1970) described the lower resilience of sagebrush plant communities to grazing. R. Daubenmire, Steppe Vegetation of Washington. Washington Agricultural Experiment Station Technical Bulletin (1970). In addition,

Mack and Thompson (1982) discuss the myriad harmful effects of livestock grazing to intermountain and Great Basin sagebrush communities that evolved without large herds of hooved mammals. R.N. Mack & J.N. Thompson, *Evolution in Sagebrush Steppe With Very Few Large, Hoofed Mammals*, 119 AMERICAN NATURALIST 757-73 (182). Fleischner (1994) and Belsky et al. (2000) review the many harmful impacts of livestock grazing to arid western lands, including alteration of plant community composition and structure. T. Fleischner, *Ecological Costs of Livestock Grazing in Western North America*, 8 CONSERVATION BIOLOGY 629-644 (1994); Belsky et al., *supra*. Finally, Anderson and Holte (1981) describe significant increases in perennial grass and shrub cover after grazing was removed from sagebrush lands in southeastern Idaho—perennial grass cover increased exponentially and shrub cover was 154 percent greater. Anderson & Holte, *supra*.

The Forest should consider the importance of grass height to greater sage grouse survival. BLM's Sage-Grouse National Technical Team (NTT) recommended "[m]anaging livestock grazing to maintain residual cover of herbaceous vegetation so as to reduce predation during nesting." U.S. Department of the Interior, Sage-Grouse National Technical Team, A Report on National Sage-Grouse Conservation Measures 14 (Dec. 2011). In fact the NTT stated that maintaining residual grass cover may be the "most beneficial" rangeland management strategy for sage grouse populations. *Id*. Subsequent research has confirmed this. Doherty et al. (2014) found that grass height was a key factor in sage grouse nest success, Kevin E. Doherty et al., *Linking Conservation Actions to Demography: Grass Height Explains Variation in Greater Sage-Grouse Nest Survival*, 20 WILDLIFE BIOLOGY 320 (2014), while Coates et al. (2016) warned that ravens — a major predator of sage grouse — tended to select areas where livestock were present. Peter S. Coates, et al., *Landscape Characteristics and Livestock Presence Influence Common Ravens: Relevance to Greater Sage-Grouse Conservation*, 7(2) ECOSHPERE (Feb. 2016). Specifically, the odds of raven occurrence increased 45.8 percent in the presence of livestock. The authors therefore recommended "spatially segregating livestock from sage-grouse breeding areas would likely reduce exposure of predatory ravens to sage-grouse nests and chicks." *Id*.

The Forest should consider this information throughout the planning process. Greater sage grouse narrowly avoided a "threatened" listing under the ESA because federal agencies, including the Forest Service, committed to protecting and enhancing sage grouse habitat. *See* U.S. Fish & Wildlife Serv., 12-Month Finding on a Petition To List Greater Sage-Grouse (*Centrocercus urophasianus*) as an Endangered or Threatened Species, 80 Fed. Reg. 59858 (Oct. 2, 2015). The U.S. Fish and Wildlife Service is due to review its "not warranted" decision in 2020. In order to avoid a future listing, the Forest Service must take its habitat conservation commitment seriously. The new forest plan should designate greater sage grouse as a species of conservation concern, and include grass height standards adequate to protect sage grouse in both uplands and riparian areas. As noted, this requires at minimum a four-inch stubble height standard for mesic meadows, a six-inch minimum greenline stubble height standard, and 35% maximum utilization (by weight) of upland native bunchgrasses. The plan should also require exclusion of livestock from key sage grouse habitat areas, along with rest from grazing

during the spring and winter. *See generally*, U.S. Forest Service, Greater Sage-Grouse Records of Decision for Idaho, Southwestern Montana, Nevada & Utah (Sept. 2015).

And finally, as discussed above, the Forest should consider the efficacy of prescribed fire, short-term intensive grazing, and other so-called vegetation "treatments" in sage grouse habitat. These techniques have not proven effective in restoring habitat, and in many cases they may exacerbate existing threats, including cheatgrass invasion and soil erosion. U.S. Fish & Wildlife Serv., 12-Month Findings for Petitions to List the Greater Sage-Grouse (*Centrocercus urophasianus*) as Threatened or Endangered, 75 Fed. Reg. 13910, 13933 (March 23, 2010).

2. Rocky Mountain Bighorn Sheep

Rocky mountain bighorn sheep were extirpated from most of their natural range in the early 1900s. Although they have been reintroduced to many of their former habitats — including areas on the SCNF — population growth has been slower than expected, and many bighorn populations remain too small to be considered viable. A primary cause of this slow-to-nonexistent population growth has been domestic sheep grazing in and around bighorn habitat.

Bighorn sheep experts and wildlife managers uniformly agree that domestic sheep can transmit pathogens to bighorn sheep, which usually results in pneumonic disease die-offs in bighorn herds. The Forest Service described the risk of disease transmission from domestic sheep to bighorn sheep in a 2010 environmental impact statement (EIS) assessing the use of domestic sheep allotments on the Payette National Forest. U.S. Forest Service, Southwest Idaho Ecogroup Land and Resource Management Plans, Final Supplemental Environmental Impact Statement (2010) at xx, 3-6 to 3-12.1 The Payette EIS explained that domestic sheep can carry pathogens to which they are naturally immune, and transfer those pathogens to bighorn sheep if the species make contact. *Id*. at xx, 3-6 to 3-8. Bighorn are not immune to the pathogens, which cause in pneumonia in the bighorn. *Id*. The bighorn then transmit the pathogens to other members of the herd, resulting in partial or complete die-offs of bighorn populations. *Id*. If bighorn ewes survive the die-off, they pass the disease to their unborn lambs, which then die within weeks of birth. *Id*. at 3-7. Poor lamb recruitment can last for several years, preventing the bighorn population from recovering. *Id*.

The Payette analysis concluded that, although there were gaps in knowledge about the exact mechanism of disease transmission and die-offs, the evidence strongly supported keeping domestic sheep and bighorn sheep separate to prevent disease transmission, particularly given the devastating impacts of disease and the lack of any science showing that bighorns can be grazed with domestic sheep without concern about disease transmission. *Id*. at xxii, 3-14. In light of that risk, the Forest Service decided to close almost 70 percent of the Payette National Forest to domestic sheep grazing by 2013 to protect the nearby bighorn sheep populations. U.S. Forest Service, Record of Decision for the Final EIS and Forest Plan Amendment Identifying Suitable Rangeland for Domestic Sheep and Goat Grazing to Maintain Habitat for Viable Bighorn Sheep Populations

(2010) (Payette ROD) at 9-16. The rationale for closing allotments included the need to provide habitat to support a viable population of bighorn sheep and eliminating overlap of domestic sheep allotments with bighorn sheep core herd home ranges. *Id*. at 13.

Since the Payette analysis, studies have identified *Mycoplasma ovipneumoniae* as the primary pathogen transferred from domestic sheep to bighorn sheep that triggers pneumonia in the bighorns. Additionally, studies identified various strains of *Movi*. Bighorn herds that have been infected with one strain can be re-infected with a different strain that can cause further disease and die-offs.

Wherever domestic sheep and bighorn sheep graze the same range, the two species will, in all likelihood, come in contact. The two species are in the same genus, and both are gregarious. Thus they are attracted to each other and will seek each other out if in the same vicinity. In addition, bighorn sheep make long exploratory movements, called forays, traveling up to twenty miles or more from their home ranges to explore new habitat or find mates for breeding. Young rams in particular make long movements in the fall during the rut to look for mates. The presence of domestic ewes on the range during the bighorn rut makes contact between the species even more likely. And finally, domestic sheep often stray from their band, sometimes traveling many miles from the allotment, and can remain on the landscape, unattended, for weeks or months. The steep rugged terrain used by both bighorn sheep and domestic sheep make it hard to spot bighorns or find stray domestics, and therefore it is unlikely contact would be observed before a disease outbreak. For all of these reasons, bighorn sheep experts agree that large spatial separation between domestic and bighorn sheep is necessary to prevent disease transmission.

The Forest should also consider the possibility of negative interactions between bighorn sheep and cattle. As a literature review by Krausman et al. (2011) states, "Bighorn sheep do not do well when they share ranges with cattle." P.R. Krausman et al., AN ASSESSMENT OF RANGELAND ACTIVITIES ON WILDLIFE POPULATIONS AND HABITATS (2011). The authors note that bighorn sheep have not recovered as quickly as other native ungulates, and that they are less tolerant than other North American ungulates to poor range conditions, intraspecific competition, and habitat alteration. *Id*. In addition, Garrison et al. (2015) reported that cattle grazing forced bighorn sheep to increase foraging effort by feeding only in areas where adequate forage remains. K.R. Garrison et al., *Sypatric Cattle Grazing and Desert Bighorn Sheep Foraging*, THE JOURNAL OF WILDLIFE MANAGEMENT (2015).

Bighorn sheep exhibit social intolerance of cattle. Consequently, grazing can fragment bighorn sheep habitat, leading to population declines. Bissonette and Steinkamp (1996) report that bighorn sheep tend to avoid cattle. J.A. Bissonette & M.J. Steinkamp, *Bighorn Sheep Response to Ephemeral Habitat Fragmentation by Cattle*, 56 GREAT BASIN NATURALIST 319-25 (1996). Steinkamp (1990) demonstrated that as cattle moved into core areas used by bighorn sheep, the sheep moved away. M.E. Steinkamp, The Effect of Seasonal Cattle Grazing on California Bighorn Sheep Habitat Use (thesis), Utah State University, Logan, UT (1990). Moreover, the closer cattle grazed to bighorns, the closer the sheep stayed to cover. *Id*. Livestock grazing, even seasonally, appears to fragment

bighorn sheep habitat by excluding sheep from otherwise acceptable habitat. Krausman et al., *supra*.

Finally, there is some evidence that cattle can transmit diseases to bighorn sheep. Krausman et al. (2011) note that "in 1988–1989, the bighorn sheep population in Aravaipa Canyon, Arizona, was reduced by 52 percent." *Id*. The causes of mortality were found to be "probably the result of livestock related viral diseases compounded by nutritional stress." Similarly, as Wolfe et al. (2010) report: "Field and laboratory observations suggest[] that pneumonia in . . . bighorns may have been caused by a combination of pathogens . . . one likely of cattle origin and one likely of bighorn origin—with infections in some cases perhaps exacerbated by other respiratory pathogens and severe weather conditions." The researchers recommend that "intimate interactions between wild sheep and cattle . . . be discouraged." L.L. Wolfe et al., *A Bighorn Sheep Die-off in Southwestern Colorado Involving a Pasteurellaceae Strain that May Have Originated from Synoptic Cattle*, 46 Journal of Wildlife Diseases 1262-68 (2010).

The Forest must "maintain a viable population of each species of conservation concern within the plan area." 36 C.F.R. § 219.9. A "viable population" is "[a] population of a species that continues to persist over the long term with sufficient distribution to be resilient and adaptable to stressors and likely future environments." 36 C.F.R. § 219.19. With stressors on bighorn sheep — primarily domestic sheep and cattle grazing — slowing population growth and inhibiting recovery, the Forest needs to take affirmative steps throughout the planning process to analyze and address the imperiled state of this iconic species. Bighorn sheep should be selected as a species of conservation concern. The final assessment should include a detailed study of bighorn sheep abundance, population trends, and stressors. And, the final forest plan must include standards and objectives designed to maintain a viable population of bighorn sheep throughout the Forest.

3. Gray Wolf

Since gray wolves were delisted in 2011, they have faced continued threats to their long-term survival from state wildlife management agencies. Increasingly, wolf populations are being managed by the states in ways that exclusively benefit private livestock interests and commercial hunters. This so-called "management" often disregards the latest and best scientific information, which shows that wolves and other apex predators play a crucial role in maintaining healthy ecosystems by, among other things, influencing native ungulate populations and behavior.

For instance, wolves can help reduce the prevalence of disease, including chronic wasting disease and brucellosis, in deer and elk populations. Modeling conducted by Wild et al. (2011), indicate that wolves may be useful in suppressing emergence of chronic wasting disease (CWD) in deer. Wild, et al., *The Role of Predation in Disease Control: A Comparison of Selective and Nonselective Removal on Prion Disease Dynamics in Deer*, 47 J. Wildlife Disease 78 (2011). But, as Dr. Bruce Smith suggests in his recent book "Where Elk Roam" 2011, "there may be too few wolves to keep pace with recent disease epizootics." BRUCE L. SMITH, WHERE ELK ROAM: CONSERVATION AND BIOPOLITICS OF

OUR NATIONAL ELK HERD (Globe Pequot/Lyons Press 2011). The so-called "sanitation effect" operates when wolves selectively prey on disease-infected individuals which may be more vulnerable to predation, thus removing them from the population and reducing their ability to infect other animals.

Moreover, wolves, like other charismatic megafauna, may benefit local communities economically. Travellers seeking to view and photograph wolves in the wild already bring millions of dollars in revenue to places like Yellowstone and Denali National Parks. The Forest should not ignore the potential benefits — both ecological and economic — of maintaining a healthy population of wolves on the Forest, and the final forest plan should acknowledge these benefits by including wolves as a species of conservation concern.

In addition, the Forest should consider taking a more active role in wolf management within its boundaries. Federal agencies often delegate wildlife management to the states, claiming that "the states manage wildlife and federal land agencies only manage wildlife habitat." But recent scholarship has shown that this worn maxim has little basis in law and even less in science. The Forest should consult the recent report, "Fish and Wildlife Management on Federal Lands: Debunking State Supremacy," by Martin Nie, Christopher Barns, Jonathan Haber, Julie Lurman Joly, Kenneth Pitt and Sandra B. Zellmer. The report, researched and written in part by Forest Service employees and contractors, concludes that "Federal land management agencies have an obligation, and not just the discretion, to manage and conserve fish and wildlife on federal lands." Nie et al., *Fish and Wildlife Management on Federal Lands: Debunking State Supremacy*, 47 ENVIRONMENTAL LAW no.4 (2017).

4. Big Lost River Mountain Whitefish

The Big Lost River watershed is home to a unique, native population of mountain whitefish. Bart L. Gammett, *An Overview of Mountain Whitefish in the Lost Streams of Idaho* 1 (Sept. 8, 2009). Due to its isolation from other watersheds, it is an unusual fish with a "long, complex, and unusual history" that has been "able to persist in an isolated desert environment for thousands of years." *Id*. A 2009 SCNF report concluded that "the loss of these fish would be a loss to both the aquatic community to which they belong and to the species as a whole." *Id*.

Unfortunately, Big Lost River mountain whitefish have "declined substantially" from their historical range and abundance. Bart L. Gammett, Dan Garren, & Jim Fredericks, *The Status of Mountain Whitefish in the Big Lost River Basin, Idaho (2002-2005)* at 1 (Sept. 5, 2009). Abundance fluctuates based on water flows, but remains well below historical levels. According to a different SCNF report from 2009, Big Lost River mountain whitefish currently occupy 39% of their historical range and "maintain an abundance of 7% of historical numbers." Dan Garren, Bart L. Gammett & Jim Fredericks, *The Current Status of Mountain Whitefish in the Big Lost River Basin, Idaho (2007-2009)* at 1 (Sept. 2009).

The precarious status of mountain whitefish in the Big Lost River basin should compel the Forest Service to include this unique fish as a species of conservation concern in the

forthcoming forest plan. Agency managers should continue efforts to recover this species, and address outstanding threats, including water diversions for irrigation, low water flows, and livestock grazing.

5. Pygmy Rabbit

Like the greater sage grouse, pygmy rabbits are sagebrush obligates. Consequently, pygmy rabbits face many of the same threats as sage grouse, including extensive habitat modification due to livestock grazing. Because grazing on the Forest is widespread, there is "substantial concern about the species' capability to persist over the long-term in the plan area." 36 C.F.R. § 219.9. The Forest should therefore commit to maintaining a viable population of this rare and important indicator species. *See* 36 C.F.R. § 219.9.

Livestock grazing has been shown to adversely affect pygmy rabbits in several ways. For instance, there is considerable evidence that livestock trample and destroy pygmy rabbit burrows. Pygmy rabbits dig simple shallow burrows in relatively deep, loose soils. U.S. Fish & Wildlife Serv., Final Rule to List the Columbia Basin Distinct Population Segment of the Pygmy Rabbit (*Brachylagus idahoensis*) as Endangered, 68 Fed. Reg. 10388, 10400 (2003). Entrances to burrows may be concealed at the base of sagebrush plants. *Id*. Consequently, cattle can directly damage pygmy rabbit borrows through trampling. Austin (2002) documented cattle trampling of active burrows on public lands in southern Idaho. M. Austin, An Inventory of *Brachlylagus idahoensis* Within Selected Study Areas of the Shoshone BLM Field Office. (Red Willow Research, 2002). The burrows were subsequently abandoned. It is extremely likely the same phenomenon is occurring on the Forest, and such impacts must be analyzed.

Livestock can also alter the structure of the sagebrush habitats on which pygmy rabbits depend. Direct impacts include: structural damage to dense stands of sagebrush by livestock, removal of current herbaceous growth or residual cover of native grasses and forbs, and increases in the density and distribution of various invasive weed species. In general, grazing removes vegetative cover, including shrub cover, which leaves pygmy rabbits vulnerable to both areal and ground predators. U.S. Fish & Wildlife Serv. (2003), *supra* at 10400.

Cattle also compete directly with pygmy rabbits for forage. Male pygmy rabbits tend travel longer distances in recently grazed areas, where the nutritional value of preferred native grasses and forbs tends to be less. In addition, pygmy rabbits in recently grazed areas tend to make greater use of sagebrush for summer forage than their counterparts in ungrazed areas. *Id*. at 10388.

As noted, livestock use is ubiquitous across the sagebrush lands within the Forest. Because the impacts of livestock grazing directly influence pygmy rabbit habitat and population abundance, the forest should designate the pygmy rabbit as a species of conservation concern, and develop forest plan standards and objectives to limit livestock impacts to sagebrush ecosystems.

6. Columbia Spotted Frog

As noted, riparian and stream ecosystems are among the most threatened in the intermountain West, and livestock grazing has been identified as the greatest threat to stream integrity in arid regions. The U.S. Fish and Wildlife Service has therefore concluded that grazing is detrimental to Columbia spotted frog habitat. Grazing changes the hydrologic function of springs and streams, lowering the water table and causing streamside habitats to shift from wet meadow vegetative communities to upland vegetative communities. Isolated populations of amphibians are particularly susceptible to habitat modification, and fragmentation of habitat may be one of the most significant barriers to Columbia spotted frog recovery and persistence. In addition, livestock congregation, especially and developed sites, can facilitate the spread of invasive plants, which in turn change ecological processes and degrade riparian habitats.

Given these threats, along with the impacts of climate change, there is "substantial concern" about native amphibians' "capability to persist over the long-term in the plan area." 36 C.F.R. § 219.9. The Forest should therefore designate the Columbia spotted frog as a species of conservation concern, and commit to protecting and restoring riparian habitats that have been severely damaged by decades of ecologically inappropriate livestock grazing.

IV. Vacant Grazing Allotments & Retired Grazing Permits

Thirty grazing allotments on the Forest are currently vacant. The revised forest plan must address the status and disposition of these allotments, as well as those that become vacant in the future. Where grazing permittees have voluntarily relinquished grazing privileges, the corresponding allotments should be permanently closed in order the achieve forest plan goals and objectives for native fish and wildlife. Many of the now-vacant allotments presented insurmountable management difficulties for both the permittees and the Forest Service. For example, in many cases neither the permittees nor the Forest Service could adequately manage domestic sheep within or near bighorn sheep habitat. And, due to the rugged terrain found in many allotments, as well as their relative remoteness, it is no longer feasible to conduct commercial livestock operations on the lands in question.

The planning process needs to assess the value of closing these allotments permanently in order to ensure that native ecosystems and wildlife continue to recover. Special attention should be paid to the 45,000 acre Salmon River Breaks allotment, which has been vacant and ungrazed since 1999, as well as the 85,000 acre Cape Horn allotment, the permit for which was voluntarily waived back to the Forest Service without preference for another permittee, and for which the former permittee was generously compensated.

In addition, the revised forest plan should address the future relinquishment of grazing privileges. It should provide that "grazing privileges that are lost, relinquished, canceled, or have base property sold without transfer shall have attached head-months held for

watershed protection and wildlife habitat." The Caribou-Targhee National Forest and the Challis BLM field office have already incorporated similar language into their respective management plans. Such a provision will ensure that where grazing is no longer desired or economically sustainable, the land can be restored for the benefit of native ecosystems and wildlife.

V. Social and Economic Conditions

The final assessment must include a more complete analysis of social and economic conditions, particularly with respect to the relative contribution of public lands ranching to the regional economy and local communities. According to Dr. Thomas Power of the University of Montana, "grazing on federal lands contributes only a tiny sliver of economic activity to the local economies—usually a small fraction of 1 percent of total income and employment, and rarely more than 1 percent." Dr. Power further notes that "[d]uring the 1990s, local economies in the West grew by this amount every few weeks." In Idaho, public lands grazing provides only 0.29 percent of total income and 0.41 percent of jobs. Dr. Power also debunks the commonly-held belief that local communities depend on income from public lands grazing. In reality, ranchers often depend on non-agricultural sources of income. In other words "[a]griculture is a subsidiary activity supported by the vitality of the nonagricultural economy." In Custer County, the home of many SCNF grazing permittees, livestock production made up just 2.6 percent of total employment in 2016.[1] The forage contribution of public lands grazing is, in turn, a fraction of this figure.

The draft assessment impliedly acknowledges the limited economic contributions of public lands ranching, claiming that "ranching cannot be entirely understood through a commercial agriculture lens because it provides non-market benefits, such as support for tradition and heritage." This view of ranching — as a means of government-supported cultural preservation — overlooks the ubiquity of commercial ranching as a land use across the Forest, as well as the diversity of cultures and historical backgrounds throughout the West. The "non-market" benefits of ranching, such as "support for tradition and heritage," do not justify the Forest in dedicating nearly all of the non-forested land within its boundaries to this single use. Nor does the importance of ranching to "tradition and heritage" justify the persistently high number of head-months authorized year after year. In fact, the Forest often authorizes grazing in unsuitable habitats at the expense of other uses, including fishing, hunting, non-motorized recreation, wildlife conservation, and watershed protection. Each of these uses is equally, if not more important to our common Western heritage as ranching. Indeed, free-roaming wildlife, open spaces, freedom of movement, clean air, and clean water define

[1] County-by-county economic analyses are available online from Headwaters Economics. *See* https://headwaterseconomics.org/.

Western culture every bit as much as the conversion of publicly-owned grass into beef and mutton.

Furthermore, the Forest's emphasis on ranching "tradition and heritage" neglects the importance of other traditions that have been displaced to make room for commercial livestock production. These traditions include, first and foremost, the those of native peoples who inhabited Forest lands for centuries before EuroAmerican settlement. The Forest also takes an inaccurately narrow view of the history of settlement. The West was not settled exclusively by, and for the benefit of, livestock producers. Yet the Forest manages many lands for the exclusive benefit of this one group, permitting other, equally important uses only to the extent that they do not interfere with livestock permittees' operations or require reductions in head-months. The Forest should take a longer, more inclusive view of local and regional history in the final assessment, and it should consider whether the centrality of public lands grazing to its management practices is consistent or compatible with historical, economic, and ecological reality.

VI. Conclusion

Thank you again for this opportunity to submit comments on the Draft Assessment and Need for Change document. Please keep WWP informed of any new developments in the SCNF Forest Plan revision process. If you have questions or would like to discuss any of these issues further, please contact me at [redacted] or [redacted].

Sincerely,

/s/ Scott Lake

Scott Lake
Idaho Director
Western Watersheds Project
[redacted]

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