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Comments: Please accept this comment for the Oak Knoll Range EA.

Thank you for the opportunity to comment on the Oak Knoll Range Project Environmental Assessment. Our organizations have numerous concerns regarding the project, agency analysis in the EA, the NEPA process and the Purpose and Need. It is our position that the current NEPA analysis for this project is incomplete, faulty, and fails to address or even consider many relevant issues. The Purpose and Need is biased, pre-decisional, and demonstrates that a wide variety of multiple use values are not being considered. We also believe that the current NEPA process failed to include a scoping comment period and the current Oak Knoll EA should be withdrawn.

Please consider initiating a new NEPA process and scoping comment period for the Oak Knoll Range Project. This scoping period should be followed by development of a full Environmental Impacts Statement (EIS) to analyze relevant social and biologic concerns.

We believe that the no-action alternative would best meet the desired conditions identified in the KNF Forest Plan for upland sites, wet meadows and riparian areas. Vegetative and hydrological restoration could be facilitated most effectively if cattle grazing was discontinued. Native plant vigor would increase, riparian areas would benefit, water quality would improve, noxious weed spread would be reduced, and forage values for wildlife would increase. As organizations we support the no-action alternative.

If grazing is to be authorized, all analysis must be compared to the restorative effects of the no-action alternative and significant alterations to the proposed action are needed to provide even minimal protection for important resource values and compliance with the LRMP.

Please consider our comments below. They identify many relevant issues either not analyzed or inadequately analyzed in the Oak Knoll Range EA. Please consider development of a full EIS to address the issues identified in this and other public comments.

1) The Purpose and Need for the Oak Knoll Range EA is too narrow and ignores both land use allocations and resource needs within the planning area.

The purpose and need are so narrowly defined in the Oak Knoll Range EA that alternatives development is limited and decision space is oppressively small. The interpretation of the proposed and need ignored Land Use Allocations such as designated Botanical Areas, the unique values of the Siskiyou Crest region and other responsibilities to regulate use and maintain a variety of natural resource and multiple use values beyond livestock grazing.

Currently the EA identifies the following Purpose and Need:

"The purpose of the proposed action is to provide for continued livestock grazing in the East Beaver, Hornbrook, and Ash Creek Allotments on the Klamath National Forest. The agency is directed to meet multiple-use objectives, including managing forage producing National Forest lands for livestock grazing (36 CFR 222.2(c)). There is a public demand from qualified livestock operators for continued livestock grazing in these allotments. Further, the allotments were determined by the

Klamath National Forest Plan (Forest Plan) (1995, as amended) to be suitable for commercial livestock grazing (p. 4-56). The need to continue authorized commercial livestock grazing must be met in a manner that is consistent with agency direction and policy." (USDA. 2020 P.3)

Notice that the Purpose and Need acknowledges no values except commercial livestock grazing. This oppressively narrowly Purpose and Need leads to only one outcome, limit alternative development and ignores the mandates of Land Use Allocations in the area such as designated Botanical Areas, multiple use recreational values, botanical diversity, and the desired conditions identified in the KNF Forest Plan. The stated purpose to "continue livestock grazing" is pre- decisional. It demonstrates that the no action alternative is not being considered. It also makes nearly all mitigation measures proposed to protect public resources outside the scope of project activities.

As the purpose and need is currently identified only a re-authorization of livestock grazing would meet the purpose of the project, making analysis, alternative development and the final decision a forgone conclusion rather than an objective question for NEPA analysis.

We recommend a Purpose and Need statement that acknowledges public land grazing as a valid multiple use, but also acknowledges those other uses relevant to the planning area. Language should be included to address resource concerns beyond range resources. We propose the following Purpose and Need:

The purpose of the proposed action is to meet management objectives identified in the Forest Plan for the Oak Knoll Planning Area; this includes a need to provide for continued livestock grazing in the East Beaver, Hornbrook, and Ash Creek Allotments on the Klamath National Forest, as well as the protection of botanical resources in designated Botanical Areas, recreational values along the Pacific Crest Trail, coho salmon habitat on Beaver Creek and the maintenance or restoration of ecosystem values identified as desired conditions in the KNF Forest Plan. The agency is directed to meet multiple-use objectives, including a wide variety of resource values and user groups. There is a need to consider the reauthorization commercial livestock values in a manner that is consistent with agency direction and policy in the planning area, while maintaining, restoring or protecting other multiple use values.

2) The EA failed to adequately disclose or analyze on the unique biological diversity, habitat connectivity and ecological function of the Siskiyou Crest.

The major mountain ranges of the West Coast, including the Coast Ranges, Cascade Range and Sierra Nevada, are largely north to south tending mountain ranges. These mountain ranges provide north to south connectivity corridors, allowing dispersal for a variety of species in the Pacific Northwest and California. Movement between these major north- south tending ranges is limited by the region's geography and the patterns of human development (e.g. valleys and settled land).

The Siskiyou Crest is a transverse range, running east to west across a landscape of north- south tending mountains. The Siskiyou Crest connectivity corridor connects the north- south tending Cascade and Sierra Nevada Mountains with the Coastal Ranges of California and Oregon. The Siskiyou Crest is the geographical link between these ecosystems and a major regional connectivity corridor, affecting migration and dispersal patterns for long periods of time and across vast landscapes.

The particular function the Siskiyou Crest plays in sustaining regional biodiversity is unique and irreplaceable. The area maintains a biological connection between major mountain ranges on the West Coast. The region is, in fact, the center of biodiversity on the West Coast. It is also the conduit

through which biodiversity flows and likely one of the most important connectivity corridors in western North America. Currently, this conduit is relatively functional and provides important habitat through which species can disperse and find refuge. The biodiversity of the Siskiyou Crest and the connectivity it provides is of regional significance and global importance (Stritholt et al., 1999).

The importance of the Siskiyou Crest as a connectivity corridor and climate refugia is well documented. Multiple scientific papers supporting this assertion have been submitted for consideration. Further evidence and acknowledgement of the unique natural values provided by the Siskiyou Crest is demonstrated by the designation of the Cascade-Siskiyou Ecological Emphasis Area and Cascade-Siskiyou National Monument on nearby BLM lands. The Siskiyou Crest feeds the Cascade-Siskiyou National Monument with biodiversity and provides, a now widely acknowledged function in species dispersal.

The Siskiyou Crest has long provided connectivity and climate refugia for a diverse assemblage of species. It is the Noah's Ark of biodiversity and has been for millions of years. The geographic location of the region, the transitional climate, the geologic complexity, complex environmental gradients, steep topographical relief and heavily dissected terrain, all combine to create unusually high levels of biodiversity. More than anything else the Siskiyou Crest is known for this incredible biodiversity.

Species from the California coast, the Oregon coast, the Sierra Nevada, the Cascades, California's Central Valley, the Great Basin, and even the Rocky Mountains blend together to create diversity unmatched in the American West. Species assemblages in the Siskiyou Mountains are often unique, unusually diverse and transitional, creating a jumbled mosaic that represents much of the floral diversity in the West.

The Klamath-Siskiyou has long been acknowledged for its globally important biodiversity and conservation value.

"The Klamath-Siskiyou ecoregion of southwest Oregon and northwest California has long been recognized for its global biological significance and is considered an Area of Global Botanical Significance by the World Conservation Union, a global Centre of Plant Diversity, and has been proposed as a possible World Heritage Site. More recently, World Wildlife Fund US scored the Klamath-Siskiyou as one of their Global 200 sites reaffirming its global importance from the standpoint of biodiversity."

- Stritholt J.R., R. F. Noss, P. A. Frost, K. Van-Borland, C. Carroll, G. Heilman, Jr. 1999. A conservation assessment and science based plan for the Klamath-Siskiyou.

Other research by Theobald (2011) demonstrates that the Klamath Mountains Ecoregion is one of the most important forested ecosystems in the West from the stand point of connectivity. This is due to relatively large patch sizes of intact forest habitats and excellent connectivity between patches of intact habitat.

A recent paper published in 2012 by the Natural Areas Journal, by Olson et al., identifies the Siskiyou Crest as a key micro-refugia and meso-refugia in the Klamath-Siskiyou region. The paper also identifies the removal of non-climate related stressors such as grazing as an important step towards maintaining connectivity, complexity and resilience on the landscape scale.

In a 2009 study, led by Klamath Center for Conservation Research, scientist Carlos Carroll examined

"how the regional system of reserves can be made more resilient to climate change." He came to a similar conclusion. They identified the Siskiyou Crest region as one of the Pacific Northwest's highest conservation-priority areas for the enhancement of resilience in the regional reserve network. The Klamath Siskiyou was particularly noted for its importance for species dispersal (Carroll. 2009).

-Carroll et al 2009-Optimizing resiliency of reserve networks to climate change: multispecies conservation planning in the Pacific Northwest, USA.

On a Province wide scale, The California Essential Habitat Connectivity Project (CHEC) published by the California Department of Transportation and California Fish and Game (CDFW), was developed with an interdisciplinary team of over 250 resource specialists from over 60 organizations and agencies across California. The CHEC identifies large portions of the Siskiyou Crest as a Natural Landscape Block and other portions as Essential Habitat Connectivity (Spencer. 2010).

Natural Landscape Blocks were identified as key habitats for the protection of intact habitats and wildland character. Natural Landscape Blocks are anchor points on the landscape supporting intact habitats, minimal fragmentation and wildland character. They should be managed to reduce stressors, protect intact, wildland habitats and serve as sources of biodiversity.

Essential Habitat Connectivity was identified for restoration and connectivity. These habitats were deemed essential for the movement of species between more intact habitats (Spencer. 2010).

It is important to note that these studies have also demonstrated that well-watered, cool, moist habitats, particularly at higher elevations and in riparian corridors are vital for species dispersal, connectivity and climate resilience. These are also the locations most heavily utilized and most heavily degraded by public land grazing on the Oak Knoll Range Project Planning Area.

The Forest Service has also acknowledged the area for its biodiversity and has designated numerous Botanical Areas across the Siskiyou Crest extending from Mt. Ashland to Elk Hole in the Siskiyou Wilderness Area. On the Klamath National Forest, Rogue-River Siskiyou National Forest and Six Rivers National Forest, 17 Botanical Areas have been designated on the Siskiyou Crest. This is perhaps the largest concentration of designated Botanical Areas in the West Coast. This includes botanical areas such as the Observation Peak Botanical Area, Big Red Mountain Botanical Area and Mt. Ashland/Siskiyou Peak Botanical Area which are located within the planning area and will be impacted by project activities. Numerous designated Botanical Areas are also located in the "drift" area on Rogue River-Siskiyou National Forest lands, these include the Observation Peak Botanical Area, the Dutchman's Peak Botanical Area, the Big Red Mountain Botanical Area and the Mt. Ashland Botanical Area.

Of particular importance to this planning effort is management of the globally significant biodiversity in the Siskiyou Crest region. The Siskiyou Crest is considered one of the most diverse plant assemblages in California (Roof, 1975). It is revered for its intact botanical values. Botanists from across the country and across the world come to the region to enjoy its biodiversity, intact botanical habitats and scenic qualities. On numerous occasions, we have seen or even organized large college classes, botany and ecology based field courses and native plant society field trips exploring the area, including the Botanical Areas, the Pacific Crest Trail and the surrounding roadside habitats.

It is our contention that connectivity and biodiversity should be maintained on the Siskiyou Crest

by managing for watershed and biodiversity values. This may require additional limitations, enclosures or the elimination of livestock grazing on public lands in the Siskiyou Crest region. These options respond directly to relevant issues, but were not considered in the EA analysis.

The KNF demonstrated in the response to comments for the Horse Creek Community Protection and Restoration Project (proposed just a few miles to the west) that connectivity and the species diversity of the Siskiyou Crest are vitally important, stating that they agree with the importance of "providing for species diversity and the role that refugia play in maintaining diversity." The Oak Knoll Range Project and in particular the East Beaver Allotment impact the many important biological values of the Siskiyou Crest and the region's many designated Botanical Areas. We ask the agency to again embrace these values and manage livestock grazing in a way that provides species diversity and maintains the role that refugia plays in that diversity. The Siskiyou Crest maintains incredible species diversity and important refugia habitat not considered in the Oak Knoll Range EA.

3) The EA failed to adequately disclose or analyze the adverse effects associated with public land grazing in the Siskiyou Crest Connectivity Corridor and on the East Beaver Allotment.

As described above, the Siskiyou Crest is a unique, irreplaceable and disproportionately important landscape from the stand point of connectivity and biodiversity. As the climax of biodiversity on the West Coast and the conduit for genetic dispersal, the conservation values of the Siskiyou Crest are immense. The Siskiyou Crest represents one of the most important connectivity corridors and climate refugia in western North America. The biodiversity of the Siskiyou Crest and the connectivity it provides is of regional significance and global importance (Stritholt et al., 1999). Connectivity and climate refugia values on the Siskiyou Crest are particularly important for not only wildlife, but also plant species as they respond to a changing climate and migrate across the landscape. Intact plant populations and plant habitats will be important in maintaining connectivity and climate resilience. Likewise the maintenance of healthy wetlands, streams and riparian areas is particularly important for connectivity and climate refugia. These habitats are also disproportionately impacted by livestock grazing in the East Beaver Allotment.

The Oak Knoll Range Project lies within an important habitat linkage in the eastern Siskiyou Mountains. The project area includes three designated Botanical Areas and a Late Successional Reserve. The biological values in the area are particularly high and the Oak Knoll Range Project threatens to degrade habitat values in this unique and important pinch point for connectivity. The Beaver Creek Watershed contains a checkerboard of private industrial forest land, high road density and heavily degraded habitat conditions. The private land checkerboard makes public lands that much more important from the stand point of connectivity, biologic diversity and ecosystem functionality. The Siskiyou Crest provides a corridor of public land at the headwaters of Beaver Creek and in this specific pinch point for connectivity. The impact of livestock grazing to regional and localized connectivity was not adequately analyzed in the Oak Knoll Range EA. Olson 2012, Theobald 2011, Spencer 2010 and Carroll 2009 demonstrate that connectivity values and climate resilience values are extremely high within the planning area, yet the KNF failed to analyze or consider these values.

Public land grazing in the East Beaver Allotment will also introduce or maintain stressors to currently intact habitats. These impacts include noxious weed spread, soil compaction, sedimentation, riparian impacts, degraded water tables, vegetation loss, etc. These impacts will reduce connectivity for a variety of species and reduce habitat quality for others. According to the KNF Forest Plan:

During project planning, consider the impacts to biological diversity parameters and the stand and landscape level. The applicable aspects of composition, structure and function should be considered within each environmental analysis. Assess the potential changes to the following parameters that represent Forest diversity:

a. The capability of species to move through and around an area (distribution opportunities, habitat linkages and population connectivity). Identify opportunities to maintain or restore migration routes and the connectivity of the landscape to allow for species dispersal.

-Klamath National Forest Plan Standard and Guideline 6-14 page 4-23.

The Oak Knoll Grazing Project fails to meet these standards and guidelines or to demonstrate how the proposed activities will "maintain or restore migration routes and the connectivity of the landscape to allow for species dispersal."

NEPA analysis must address the unique regional connectivity values provided by the Siskiyou Crest and the impact of public land grazing on the important ecological attributes of the Siskiyou Crest, the climate refugia it provides and the cumulative impacts of long term livestock use. Cattle grazing will impact connectivity, dispersal pathways, and refugia habitats by altering species composition, increasing weed infestations, impacting wildlife movement, habitat and forage, degrading stream corridors, hydrologic values, and riparian areas.

The analysis in the Oak Knoll Range EA is insufficient and inadequate. The actual values at risk were not disclosed and the actual impacts were not analyzed using the best available science. We specifically requested that the agency's NEPA analysis address the locally and regionally significant issues regarding management of this unique resource discussed in:

Strittholt J.R., R. F. Noss, P. A Frost, K. Van-Borland, C. Carroll, G. Heilman, Jr. 1999. A conservation assessment and science based plan for the Klamath-Siskiyou.

USDA. 1996. Rogue River National Forest, Klamath National Forest. 1996. Late-Successional Reserve Assessment; Mt. Ashland Late Successional Reserve Assessment (#RO-284).

Olson, d., DellaSala, D., Noss, R., Strittholt, J.R., Kass, J., Koopman, M.E., Allnutt, T.F., 2012 "Climate Change Refugia for Biodiversity in the Klamath-Siskiyou Ecoregion." *Natural Areas Journal* 32 (1) 65-74

Theobald, D. M., Crooks, K. R., & Norman, J. B., 2011. Assessing effects of land use on landscape connectivity: loss and fragmentation of western US forests. *Ecological Applications*, 21(7), 2445-2458.

Theobald, D.M., Reed, S.E., Fields, K., Soule, M. 2012. Connecting natural landscapes using a landscape permeability model to prioritize conservation activities in the United States. *Conservation Letters* 5 (2012) 123-133.

Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

The EA failed to analyze or consider the unique biological values of the Siskiyou Crest. The east-

west orientation of the Siskiyou Crest provides important habitat connectivity between the Coast Range and the Cascade Mountains. As the only high elevation ridge system connecting the major mountains ranges of the Pacific Northwest, it is arguably the most important connectivity corridor in the Pacific Northwest and certainly the most important corridor for species dispersal in NW California. Significant research demonstrates that the area is important for connectivity, including research into potential connectivity pathways in both Oregon and California (Cite).

4) The EA failed to disclose or analyze the role the Siskiyou Crest plays in species dispersal in light of climate change. The EA also failed to disclose and analyze the impact of livestock grazing on climate refugia on the Siskiyou Crest.

The Klamath Siskiyou Mountains were identified by Theobald (2011) as one of four major forested connectivity corridors in the West and the Siskiyou Crest is its most important sub- range from the stand point of biodiversity and connectivity. The Siskiyou Crest connects the region to other major ecoregions found on the West Coast of North America. The connectivity provided by the Siskiyou Crest, linking major mountain ranges and ecosystems across the region will become increasingly important as the effects of climate change becomes more prominent and pronounced. It will once again be that pathway for plants and animals to migrate and respond to change.

Researchers studying connectivity and biodiversity identify the lack of protection and the potential loss of major connectivity corridors due to incompatible land management. Theobald (2012) warns land managers that large blocks of connectivity habitat are not adequately protected and that land use could render these habitats unsuitable for the dispersal of many species.

"The potential for ecosystems to adapt to climate change will be largely contingent on the ability of species and ecological processes to move across broad landscapes. Roughly 15% of the locations most important for land- scape connectivity for biota and ecological processes (or flow routes) are currently secured by protected lands, whereas 28% of these occur on public lands that permit resource extraction, and the remaining 57% are unprotected. This information can help to identify places where management policies should be reviewed and where future development should be minimized or to anticipate the need for mitigation of negative effects (Theobald, 2012)."

Species requiring "cool, moist" habitats will utilize high elevation corridors such as the Siskiyou Crest for dispersal to new habitats. Species requiring isolation from human impacts such as the wolverine, marten, Pacific fisher, wolf, and Roosevelt elk will also disproportionately utilize the Siskiyou Crest for dispersal and migration between the Coast Range, the Klamath Mountains, the Sierra Nevada and the Cascade Mountains. The Siskiyou Crest is one of the only geographic features in the region that allows species to migrate from mountain range to mountain range without encountering large low elevation barriers to species dispersal or extensive human development. It is also one of the only locations that species can migrate in relatively undisturbed habitat from east to west or vice versa. These important features have and will continue to be significantly impacted by public land grazing on the Siskiyou Crest and were not adequately address in the Oak Knoll Range EA.

Olson et al 2012 identifies "non-climate" related stressors as potential impacts to connectivity. These stressors include livestock grazing, but these effects were not adequately analyzed in the EA. Livestock grazing has and will continue to impact water tables, lead to stream erosion, sedimentation and downcutting. It will also continue to degrade native plant communities, spread noxious or non-native weeds and impact wildlife movement, dispersal, and forage values across the Siskiyou Crest.

The EA contains a total of three short paragraphs to describe the unique values of the Siskiyou Crest and the impact of grazing to these values (USDA. 2020 P. 47-48). Certainly this does not constitute adequate analysis. Yet, the EA does acknowledge that the Siskiyou Crest contains unique and important characteristics and values. It also acknowledges that some of these unique values "may be impacted." Yet, the EA completely fails to disclose which of the unique values would be impacted, to what degree they would be impacted, what the cumulative impacts might be or any specifics as to the scope, scale and intensity of those impacts. Without any supporting information or evidence the agency claims these impacts would be "minor and not significant." (USDA. 2020 P. 47).

Unsupported assumptions regarding the significance of these impacts do not fulfill the agency's obligation under NEPA to analyze and disclose potential site specific effects. If the agency identifies impacts in NEPA analysis, these impacts must be in some way scientifically analyzed and publicly disclosed. The agency failed to both adequately analyze and adequately disclose the impacts of grazing to the unique values of the Siskiyou Crest. No mitigation measures or Project Design Features were identified to address the acknowledged impacts or to support the claim that they would be "minor and not significant."

Impacts associated to the areas connectivity, botanical diversity, climate refugia, and wildlife dispersal corridors must be fully analyzed in an EIS.

5) The EA failed to disclose and analyze the historic grazing impacts and their effect on natural resource values. The EA also failed to consider the relationship between historic impacts and contemporary grazing impacts in inhibiting vegetative and hydrological recovery.

The EA currently fails to disclose the extent and severity of historic grazing impacts and the relationship between historic impacts and contemporary grazing impacts in inhibiting vegetative and hydrological recovery. The EA considers the 1940s to be a reference condition, utilizing aerial imagery from 1940 as evidence that the extent of willow wetlands are not declining from grazing impacts. Yet, as demonstrated below, 1940 is not a valid reference condition. In fact, it represents a heavily degraded habitat condition associated with dramatic and ongoing impacts from cattle, sheep, horses and other livestock. Contemporary grazing although much more regulated than historic grazing on the Siskiyou Crest has a tendency to reinforce those impacts and inhibit vegetative and hydrological recovery by concentrating use on already degraded ecosystems. Utilizing 1940 as a reference condition is an example of a shifting baseline, where the agency's interpretation of ecosystem health, does not reflect a true reference condition.

To make this point, we will explore the impact of livestock grazing on the Siskiyou Crest, demonstrate a departure from natural conditions and identify how contemporary grazing effects compound existing impacts and hinder ecosystem recovery. Much of the information is taken from RRSNF documents, yet represents conditions throughout the allotments on the KNF and drift areas on the RRSNF. This is especially true because early grazing was so unregulated and took place on both sides of the Siskiyou Crest without regard for jurisdictional boundaries. Yet at the same time, contemporary grazing management has shown little to no ability to limit use to pastures within the East Beaver Allotment. Drift continues to affect ecosystems on both the RRSNF and KNF. The effects described in the historic era and the lack of recovery since that time, can be directly attributed to grazing on the KNF and at least partially to drifting onto the RRSNF. The extent of these impacts and the lack of recovery are common across the eastern Siskiyou Crest where public land grazing is still active. Yet in other portions of the Siskiyou Mountains where livestock grazing no longer occurs vegetation and hydrological impacts have begun the process of recovery.

Historic & Contemporary Grazing Impacts:

Historically, before the advent of the United States Forest Service, livestock grazing was entirely unregulated and drastic, long-term negative impacts were sustained across the Siskiyou Crest. The impacts were widespread across the Siskiyou Mountains, leading to drastic declines in preferred forage species such as green fescue, dry land bunchgrasses and mountain sedges. For example, in 1903, 103,000 sheep and 7,500 cattle grazed the Siskiyou Crest between Siskiyou Summit and the Highway 199 corridor (Frank, 1995). Unregulated livestock grazing led to massive impacts to soil resources, fisheries habitat, wildlife habitat, watershed values, fuel

loading, native plant communities, rare plant communities and innumerable other important ecosystem services. It is also believed that livestock grazing on the Siskiyou Crest was never effectively controlled in the years between the turn of the century and WWII (Frank, 1995).

In the years following establishment of the National Forest, livestock numbers remained extremely high in the area. By 1910, Forest Service Grazing Reports document heavy impacts by livestock grazing with range resources in a "very poor" condition and declining (Crater N.F., 1916 & 1917). For instance, in 1918 the Rogue River National Forest (then known as Crater National Forest) permitted 15,100 head of cattle and horses along with 14,400 sheep. 12,000 head of sheep were permitted in the area between Studhorse Creek and Donomore Meadows and 2,000 more sheep were known to be trespassing in the area. According to Forest Service documents " at the end of the season the whole area was a dust bed." (Brown, 1971).

Grazing had denuded large section of the Siskiyou Crest by the turn of the century, the areas first Forest Ranger, John Gribble described the entire sheep range as "badly overgrazed" with "exceptionally poor" feed and areas "totally bare" of vegetation. The result was large areas of bare, compacted soil, susceptible to rill and gully erosion during summer thunderstorms (Crater N.F., 1916 & 1917). Aerial photos taken in 1939 show rill and gully erosion in denuded areas across the Siskiyou Crest (USDA, 2005).

By the early 1900s many areas on the Siskiyou Crest including Silver Fork Basin were heavily impacted. Starting in the late 1800s and into at least the 1960s, Silver Fork Basin was chronically impacted by extremely heavy grazing pressure. According to early herbarium specimens, exotic, disturbance oriented plant species had invaded the Silver Fork Basin by 1910 (USDA, 2005). To this day, Silver Fork Basin is a location of frequent cattle drift from the KNF.

Former Forest Service employee Robert Webb reported "No feed at Silver Fork." He remembered the Forest Service replanting "the area time after time" trying to get grass to grow in the damaged basin. In 1965, the Forest Service put in an irrigation system to cultivate 2.5 acres of grass (Frank, 1995). Finally in the late 1960s the upper basin was terraced with bulldozers to mitigate the impacts of grazing and the erosion it produced (Frank, 1995).

Contemporary cattle numbers, passive season long grazing, drift from the KNF and a lack of management (e.g. herding) has compounded these impacts and hindered recovery of native plant communities.

Many areas on the Siskiyou Crest have been severely impacted by historic unregulated grazing and contemporary grazing practices. Whole plant communities have been impacted by type conversions associated with livestock grazing; these areas are the "cattle or sheep barrens" of the Siskiyou Crest. Now known as a distinct plant community created by overgrazing, these degraded systems were areas were likely once dominated by green fescue, other bunchgrasses and flowering plants. The soil and vegetation damage was so severe in these locations that to this day very little grows on these

sites beyond sparse populations of pussy paws (*Calyptidium umbellatum*).

Wet meadows were similarly impacted across the Siskiyou Crest facilitating a type conversion from palatable species to unpalatable species such as corn lily. Other areas on the Siskiyou Crest documented to have been heavily impacted are; upper Butte Fork, Steve Fork Meadows, Copper Butte, Alex Creek, Studhorse Creek, the Condrey Mountain area, Observation Peak and Donomore Meadows (Lalande, 1980). Cow Creek Glade, the headwaters of Grouse Creek, Horse Creek and the Dry Lake Area were heavily impacted on the KNF. If recovery is possible, these areas are in need of rest and restoration, not further degradation from cattle grazing.

Although now distant, the impact of historic grazing remains with us today, in many cases, due to the influence of contemporary grazing impacts. To demonstrate this point, one can observe re-vegetation patterns in vacant allotments or unused portions of allotments. In these areas where cattle have been removed or their influence minimized; plant communities have begun to respond and recover.

Dry Bunchgrass Sites:

The KNF claims that damage in cattle and sheep barrens on the Siskiyou Crest is permanent and will not recover. Yet, evidence in ungrazed or lightly grazed areas demonstrates that recovery is possible. This recovery may be dependent on long periods of rest and in some areas perhaps some level of active restoration. Given the evidence we have seen in ungrazed portions of the Siskiyou Crest livestock grazing must be eliminated if bunchgrass communities are to return.

For example, the barrens surrounding Slaughterhouse Flat and Lowden Meadows are beginning to re-vegetate with healthy bunchgrass populations after at least ten years without significant cattle use. Bunchgrass communities have become much more dense and are spreading in from the edges, even on sensitive schist soils. Adjacent schist barrens in the active Dry Lake and East Beaver Allotments do not demonstrate this same level of recovery due to ongoing livestock use. The sensitivity of these sites and their soils means that even minimal use can have significant impacts on vegetative recovery.

Relatively un-grazed portions of Observation Peak (on the northslope, below the summit) also show increased cover and vigor in bunchgrass species including green fescue. Portions of the northern slope between Kettle Lake and Observation Gap contain dry bunchgrass clearings that support very little grazing activity, these sites in comparison with nearby barrens in the East Beaver Allotment show significant differences in species composition, structure and cover.

Numerous locations in the retired Big Grayback Allotment in the adjacent RRSNF, including Bigelow Lakes, Elkhorn Prairie and the meadows at the headwaters of Sturgis Creek also demonstrate significant recovery since grazing was discontinued. Portions of the Red Buttes Wilderness have also long been ungrazed. These areas include the dry meadows at the headwaters of Butte Fork between Lonesome Lake and Azalea Lake. The recovery of these sites can be associated with a lack of active grazing and demonstrates that barren habitats and dry bunchgrass clearings can recover from the impacts of historic grazing, but only if contemporary grazing is discontinued, minimized or far more actively managed.

In the East Beaver Allotment, most barrens have not recovered due to continued use. They remain dominated by sparse non-palatable species, yet do receive some cattle use. Cattle often travel across these areas doing damage to the already collapsed and highly sensitive soils. Cattle also graze down any grass or sedge that finds a foothold. Repeated grazing of a young bunchgrass can impact vigor and even create mortality. This is especially true in freshly established bunchgrass

or sedge populations before extensive energy is stored in their enormous root systems.

We have witnessed this process in the areas at the headwaters of Beaver Creek near Wards Fork Gap, Donomore Meadows and the southern face of Observation Peak. In many of these locations, soil disturbance and over utilization is leading to further declines and the reinforcement of historic grazing impacts. Whatever palatable species that do establish themselves in these areas are automatically subjected to repeated grazing and high levels of grazing pressure.

Monitoring is required to establish basic information in regard to barren habitats, their ecology and their potential vegetative recovery. To identify trends in recovery and the impact of livestock grazing, barren habitats could be fenced or excluded from authorized grazing for long periods of time. Vegetative recovery and soil conditions could be monitored and tracked to provide detailed information for land managers regarding their potential restoration. This comparison of currently grazed and ungrazed habitats would provide important data for analysis and adaptive management.

This failure to recover or even try to recover ecosystem function in these "sheep or cattle barrens" is a violation of the KNF Forest Plan. Desired conditions described in the Forest Plan for upland habitats includes "1. Maintain or promote a mosaic of cover and forage habitat (shrubs, browse, and herbaceous). 2. Maintain or promote a mixture of grasses and forbs providing summer and spring game forage." (USDA. 2020 P. 4) The Forest Plan claims that the "composition and structure of forest, rangeland, and aquatic ecosystem will be within the range of variability" (USDA. 2020. P.4) Yet, compositional and structural conditions in barrens on the Siskiyou Crest area acknowledged to have been created by grazing livestock and are to this day widely acknowledged to be outside the range of variability.

The EA completely fails to analyze the impacts of contemporary cattle grazing on barren habitats and the process of vegetative recovery in these heavily disturbed sites.

Wet Meadows:

Numerous wet meadows on the Siskiyou Crest have also begun to show signs of recovery from either a lack of grazing or minimal use. These meadows include the wet meadows between Lonesome Lake and Azalea Lake, Frog Pond, Cameron Meadows, upper Hello Canyon, Echo Lake, Elk Meadows, Steve Fork Meadows, the Hinkle Lake Basin, Green Valley, Grayback Meadows, the wet meadows on upper Sturgis Creek, Onion Flat, the meadows between Black and White Mountain and at the headwaters of Ashland Creek. More specifically on the KNF, Bee Camp and Kangaroo Springs have recovered significantly in recent years due to a lack of grazing. Areas such as Grouse Basin on the southern face of Mt. Ashland where historically badly over grazed, now without the effects of intensive contemporary grazing they show far higher levels of recovery when compared to surrounding habitats such as the West Fork of Grouse Creek, Cow Creek Glade and other currently grazed habitats.

These recovering habitats prove that rest or retirement can trigger a natural recovery process. The rest period will need to be sufficiently long to allow re-vegetation and to begin reestablishing natural hydrological patterns. It is expected that soil productivity and water holding capacity will positively influence recovery processes in response to livestock removal. The recovery process could take many decades, especially on schist soils, which have been specifically and dramatically impacted.

The meadows between Black and White Mountain at the headwaters of Dutch Creek although minimally grazed for many years have not been as heavily impacted by cattle grazing as surrounding wet meadow habitats. Elk Meadows on Cook and Green Butte is likely the most intact meadow system on the Siskiyou Crest. These meadows could help to define hydrologic function and species composition in

serpentine and non-serpentine meadow habitats. They are the best remaining reference habitats on this portion of Siskiyou Crest. Further east, very little meadow habitat has been protected from contemporary grazing pressure either by the Forest Service or by natural barriers.

According to the KNF Forest Plan desired conditions for wet meadows include the maintenance or restoration of "water table levels within existing wet meadows." Meanwhile grazing is significantly impacting water tables by creating bank erosion, incised streambeds and accelerating snow-melt runoff. (USDA. 2020. P. 4) This failure to "maintain or restore" water tables is a violation of the KNF Forest Plan. The Forest Plan also directs the agency to "reduce the level of management activity-related soil erosion," again the agency fails to demonstrate how they are achieving their desired conditions for soil erosion in the Oak Knoll Range EA.

Riparian Areas:

Riparian areas and headwater streams have been heavily impacted by both historic and contemporary livestock grazing. Livestock grazing has led to a loss of riparian vegetation, streambank erosion, downcutting, impacts to water tables, sedimentation rates, bank stability, changes in species composition, and direct water quality impacts. The Forest Plan requires the agency to "Maintain and restore the physical integrity of the aquatic system including shorelines, banks, and bottom configurations." The Forest Plan also directs the KNF to "Maintain or restore the species composition and structural diversity of plant communities in riparian areas and wetlands." (USDA. 2020. P. 4) Again, the EA provides no credible information regarding the restorative effects of livestock grazing on species composition, structural diversity and stream banks in the Oak Knoll Range EA planning area.

6) The EA failed to adequately analyze the impact of grazing on designated Botanical Areas. The Observation Peak, Big Red Mountain and Mt. Ashland/Siskiyou Peak Botanical Areas are located within the East Beaver Allotment on the KNF. On the RRSNF, three Botanical Areas including Observation Peak, Dutchman's Peak and Big Red Mountain Botanical Areas are located within the identified "drift" area, the EA failed to adequately analyze or disclose the potential impacts from livestock grazing on these important land use allocations.

On the RRSNF, the stated goal of Botanical Areas in the LRMP is to "Protect and enhance exceptional botanical values" and "Encourage compatible scientific, educational, and recreational use." Livestock grazing, especially unauthorized grazing "drift" from the KNF does not represent a "compatible scientific, educational and recreational use," nor does it serve to "protect and enhance the exceptional botanical values." In fact, it serves to disproportionately degrade the botanical resource and impact the "scientific, educational and recreational use" of these important Special Interest Areas.

It is important to note that the RRSNF Forest Plan directed the agency to produce site specific management plans for all designated Botanical Areas. By and large, these plans were never produced, except for the Dutchman's Peak Botanical Area. Because the required management plans were never produced on a site by site basis as directed, the Dutchman's Peak Botanical Area Management Plan should be utilized to identify management direction and activities appropriate for Botanical Areas on the Siskiyou Crest. The Dutchman's Peak Botanical Area Management Plan states, "Livestock grazing will be controlled in order to benefit or maintain the botanical resource. This control can range from limited or no livestock grazing to seasonal adjustments to benefit the target species. Forage utilization standards will be based on this direction. Range improvements and vegetation manipulation will not be permitted unless they benefit the botanical resource. No exotic species will be seeded or placed in a Botanical Area. Provide fences and stock control devices when necessary to protect floral resources" (USDA. 2005).

Despite this very clear direction for Botanical Areas on the RRSNF, nothing in the Oak Knoll Range EA provides management direction specific to Botanical Areas that would control livestock for the benefit of botanical resources, identify forage utilization standards appropriate for Botanical Areas, or provide fences or stock control devices that would protect floral resources. Essentially, nothing in the EA acknowledges a need for specific management protocol based on the Standards and Guidelines for Botanical Areas. This is a violation of the Forest Plan and is inconsistent with Botanical Area management.

The issue is particularly troubling because the KNF Forest Plan states "Special Interest Areas on the Siskiyou Crest will be managed jointly with the Rogue River National Forest." Despite this requirement, the KNF is allowing cattle drift onto the RRSNF that is inconsistent with applicable Standards and Guidelines for Botanical Areas. The KNF is also failing to manage their own Botanical Areas in consistency with the KNF Forest Plan.

The current action alternatives in the Oak Knoll Range EA fail to identify management activities that will effectively limit or reduce drift in the future. The EA also fails to identify how the KNF intends to manage grazing in designated Botanical Areas for the benefit of botanical resources or in a manner consistent with standards and guidelines in the RRSNF or KNF Land & Resource Management Plan.

On the KNF, Botanical Areas were established specifically for botanical conservation and to protect intact or unusual plant populations and plant communities. The Forest Plan requires management to be "compatible with the goals and objectives of the Special Interest Area." Based on actual effects, passive, season long grazing fails to demonstrate compatibility. In fact, both the current management and the proposed management identified in the Oak Knoll Range EA disproportionately impacts the very botanical resources designated for protection.

Both the KNF and RRSNF Forest Plans require management activities in Botanical Areas to benefit the botanical resource. The Forest Plans envision site specific management within Botanical Areas, yet the Oak Knoll Range EA provides absolutely no specific management direction for Botanical Areas and completely fails to disclose how management activities proposed in the Oak Knoll Range EA will benefit the botanical resource.

The currently proposed Oak Knoll Range EA violates the RRSNF and KNF Forest Plans and fails to demonstrate compatibility with designated Botanical Areas.

7) The EA failed to consider the impacts of livestock grazing on sensitive species.

The EA failed to consider the effects of continued livestock grazing on sensitive plant species. Numerous rare and unusual plant species are found in the area, including within designated Botanical Areas specifically designed to protect botanical values. In many cases, the Botanical Areas are currently falling short, due to livestock grazing and in some cases unauthorized off-road vehicle use.

Many sensitive plant species are claimed to grow in locations that do not support livestock grazing (rock outcrops, barrens, serpentine sites, etc.), but this assumption is both an over-generalization and unsupported by agency monitoring data. The agency is simply assuming that these areas do not support significant livestock use, the agency is also assuming that short term use of the area does not impact sensitive species. Again without supporting evidence or monitoring information.

In the drift area, in the Silver Fork Basin the only population of *Calochortus nudus* (shasta star tulip) in Oregon was potentially extirpated by grazing impacts. *Carex pseudoscirpodiea* was also historically found in the area, but is presumed extirpated or nearly extirpated due to cattle impacts. These impacts are particularly important because the species were found in the upper basin inside a designated Botanical Area and adjacent to the KNF where cattle drift often occurs.

8) The EA failed to adequately consider the compounding effects of climate change and livestock grazing in the East Beaver Allotment on plant communities and watershed values.

The EA failed to adequately consider the compounding impact of climate change and public land grazing in the East Beaver Allotment on plant communities and watershed values.

Obviously climate change will be adding additional stress to already challenged ecosystems. Over 150 years of resource extraction including historic and contemporary grazing impacts have altered plant communities, bunchgrass communities, wetlands, meadows and riparian areas on the Siskiyou Crest. These impacts are now compounding the effects of climate change which is already altering stream flows, hydrologic patterns, weather events, snow loads and plant communities.

Under the realities of a changing climate, the management of wetlands, riparian areas and headwater streams will be increasingly important. As stream flows are diminished from a loss of rainfall and snowpack, the impacts of cattle grazing on riparian areas, hydrologic values, stream flows, water quality, and cool, moist climate refugia will become more pronounced.

9) The EA failed to adequately disclose or analyze compliance with AOIs by permittees on the East Beaver Allotment. Early and late season use.

Documentation in Monitoring Reports from the Grazing Reform Project demonstrate that compliance with AOIs on the East Beaver Allotment has been sporadic and irregular. They also demonstrate that no fines or other consequences are enforced on permittees if they fail to abide by Annual Operating Instructions and management plans. Cattle routinely enter the high country too early and stay too late, repeated drift occurs and herding to balance utilization simply does not happen as envisioned in KNF management plans. The KNF needs to clearly identify mounting consequences to permittees who routinely violate season use restrictions on the Siskiyou Crest and where/when drift occurs. These measures must be outlined in the EA and strongly enforced. Consequences such as a loss of grazing privileges should be identified for repeat offenders.

10) The EA fails to adequately analyze the scope, scale, intensity and frequency of cattle drift onto the Rogue River-Siskiyou National Forest.

The Oak Knoll Range EA failed to adequately consider the scope, scale, frequency and impact of cattle "drift" onto the Rogue River Siskiyou National Forest. The chart on page 23 of the EA documents roughly 10 instances of cattle drift between 2011 and 2019. This is a gross under estimation based on faulty and incomplete monitoring data. Cattle regularly drift from the KNF into the Donomore Meadows area, the Grouse Creek Basin, McDonald Basin and into the Silver Fork Basin. In some cases they drift back and forth throughout the day, making verification of reported "drift" impossible. Our volunteer monitors have spent many nights on the Siskiyou Crest during the summer months. It is not uncommon to hear KNF cattle bells cresting the ridge, grazing in north facing wetlands on the RRSNF during the evening and into the night, only to head back onto the south facing slopes and wetlands at the headwaters of the East Beaver Allotment during the daylight hours. We have observed this phenomena across the Siskiyou Crest both in and outside the East Beaver Allotment from Condrey Mountain to Wrangle Gap.

Cattle drift is far more frequent and abundant than analyzed in the EA. The impacts are also far more pronounced and drift is often under-report due to the remote, rugged location of grazing

allotments, a lack of herding, a lack of staffing, a lack of monitoring and the difficulty verifying cattle ownership. Absolutely no physical barriers or fences preclude or discourage drift onto the RRSNF and natural conditions associated with exposure encourage cattle to congregate on more moist, north facing slopes with larger, more productive meadow systems. By late August every season, cattle are drawn towards the greener "pastures" and more abundant water on the north facing slopes of the RRSNF.

Drift is also facilitated by natural forage conditions that concentrate forage areas near the Siskiyou Crest and the boundary of both the RRSNF and the adjacent grazing allotments. Because the most productive forage on the East Beaver Allotment is located on or near the Siskiyou Crest (USDA. 2020. P. 23), cattle are often drawn to the edge of the East Beaver Allotment during the summer and fall. The minimal forage and its concentration near the Siskiyou Crest on the East Beaver Allotment, as well as a lack of even utilization or herding often leads to over-utilization and low stubble height in important "pasture" areas on the East Beaver Allotment. This in turn leads cattle to head north into the RRSNF looking for productive forage.

Finally, poor management and out of season grazing also leads to over-utilization in the high country of the Siskiyou Crest. Cattle from the East Beaver Allotment are not allowed on the Siskiyou Crest before July 15, but no drift fences or exclosures exist to keep cattle out of the high country. Without barriers and without effective management cattle from the East Beaver Allotment regularly reach the Siskiyou Crest before the July 15 start date (Pace. 2015 & Pace. 2016). Cattle from the East Beaver Allotment also regularly graze on the Siskiyou Crest later than the October 31 off date (Pace. 2019). This out of season grazing also encourages over utilization and drift by allowing cattle from the East Beaver Allotment to overgraze preferred habitats near the Siskiyou Crest and move north to more available forage on the RRSNF.

The reality is that drift is not occasional, it is typical to find cattle from the East Beaver Allotments, Dry Lake Allotments, and Horse Creek Allotments on the RRSNF. The EA fails to adequately analyze the scope, scale, intensity and frequency of cattle drift onto the RRSNF. The EA fails to provide any physical disruption to cattle movement in the form of drift fences. If not feasible on the Siskiyou Crest itself, fencing could be utilized at lower elevations to ensure cattle are not reaching the Siskiyou Crest before July 15. Obviously, the longer cattle congregate and the more heavily they utilize forage areas on the KNF side of the Siskiyou Crest, the more likely they are to enter and significantly utilize RRSNF lands.

At a minimum lower elevation drift fences, along with more active herding, range riding, monitoring for cattle drift and immediate removal of KNF cows from RRSNF allotments is necessary, but was not adequately considered in the EA. These 5 Project Design Features, 1) Low elevation drift fences, 2) active herding, 3) range riding, 4) monitoring for drift and 5) immediate removal of drift cows should be included in an action alternative and analyzed in a full EIS.

The most effective way to reduce cattle impacts associated with drift and unseasonal use would be to choose the no-action alternative or an alternative eliminating grazing on the Siskiyou Crest above 4,500' in elevation.

11) Cattle drift across the Siskiyou Crest will continue to degrade wildlife habitat, plant communities, riparian areas, water quality and range resources under the proposed action alternatives.

The Oak Knoll Range EA provides no Project Design Features or mitigation measures that will ensure livestock grazing will be limited to the East Beaver Allotment. The major issue in this EA is

cattle drift, yet the EA provides no assurance that drift will be eliminated or minimize. The agency would require additional monitoring of drift under adaptive management measures in the EA, but without reporting and documentation requirements these monitoring efforts are likely not to be implemented effectively. While the proposed action alternative would have minimal effect on cattle drift, other unanalyzed or under-analyzed alternatives could more effectively reduce impacts associated with cattle drift onto the RRSNF. This could include the no-action alternative, eliminating grazing on the Siskiyou Crest, and managing the Siskiyou Crest as a joint KNF and RRSNF allotment. Shortening the grazing season in the high country would also have some effect. Because significant drift occurs late in the season and has also been documented early in the season at Donomore Meadows and other areas, the grazing season could be reduced including an August 1 to October 1 grazing season above 4,500' in elevation.

12) The frequency of proposed cattle drift monitoring proposed by the Oak Knoll Range EA must occur and be documented by permittees.

According to the Oak Knoll Range EA permittees are managing and attending to their cattle every seven days on the Siskiyou Crest to prevent drift onto the RRSNF (USDA. 2020. P.29). yet the agency provided no evidence or documentation to support these claims. If grazing is reauthorized, all range management activities conducted by the permittee must be documented with photographic documentation in addition to an annual log recording monitoring and management activities.

The log should include the following information:

- 1) the date and location of all monitoring and management activities,
- 2) the specific management activities undertaken and location in which they were taken,
- 3) the location of cattle in the allotment and the number of cattle in each specific location where cattle are seen,
- 4) documentation of cattle drift onto the RRSNF and management actions taken to correct this unauthorized use of RRSNF resources,
- 5) at least three photographs must be take on each trip to the range. These photographs should document the location of cattle and the management actions implemented. They should also be time and date stamped and include GPS coordinates to provide specific evidence that management activities approved in the Oak Knoll Range EA are being implemented.

All logs and photographs should be submitted to Forest Service range specialists on the allotment "off date" with evidence that cattle have been fully removed from the allotment. Failure to submit logs and photographs, as well as failure to adequately remove cattle by the off-date should be addressed with fines and other corrective measures. Logs should be analyzed by Forest Service range specialists to ensure adequate monitoring and management is occurring. These logs could also provide further information for range specialists regarding management, utilization levels, herding efforts, drift onto the RRSNF, and the location of cattle throughout the grazing season. This information can then be used to identify Annual Operating Instructions, adjust cattle numbers, identify grazing rotations, exclude areas in need of recovery and monitor for adherence to Annual Operating Instructions.

Without this documentation the provisions in the EA requiring monitoring and active management by KNF permittees will most realistically not be met. Furthermore, even if they were met, it could not be sufficiently documented or effectively used to inform future adaptive management unless documentation is required. Range management and monitoring information must be implemented in a manner that is transparent, provides evidence to analyze compliance, the effectiveness of permittee management activities and creates more solid data surrounding cattle utilization, potential rotation cycles, and drift onto the RRSNF.

13) The EA failed to adequately analyze the impact of livestock grazing in the East Beaver Allotment on Willow Flycatcher habitat.

The EA failed to adequately analyze the impact of public land livestock grazing on the Willow flycatcher habitat. The Willow flycatcher is a sensitive species on both the KNF and RRSNF. Its primary nesting habitat consists of large, dense willow thickets. Nesting requirements include high willow density and low variability in willow patch size or bush height (Sedgwick. 1992).

Often nests are found 1.5 to 2 meter from the ground in dense willow thickets and are located near standing water (Harris 1987., Stafford 1985., Flett 1987., Taylor 1986.). Livestock grazing can significantly impact this habitat by browsing on willow species. Cattle also push through dense willow thickets creating mechanical damage in search of water and forage. This impacts the structure of willow thickets, dividing them into smaller areas with less interior habitat and less willow flycatcher nesting habitat. Cattle trailing in willow thickets divides large patches of habitat into smaller and smaller blocks of habitat, reduces habitat quality, provides more access for predators, and facilitates nest damage as trampling cattle knock nests to the ground. The combined result is a loss in nesting habitat, a reduction in habitat quality, and lower levels of reproductive success (Taylor. 1986., Taylor. 1986a., Valentine 1987., Flett. 1987., Pace. 2015. & Pace. 2016.).

Ungrazed areas on the Siskiyou Crest do not support the fragmented willow habitats found on the Eastern Siskiyou Crest where contemporary grazing is present. Instead habitats in the Red Buttes Wilderness, the Siskiyou Wilderness and on Grayback Range in SW Oregon that do not receive ongoing grazing impacts support larger, denser, more contiguous willow thickets without the trailing and abundant mechanical damage evident in the East Beaver Allotment and other active allotments on the Siskiyou Crest.

According to the Wildlife Biological Opinion for the Oak Knoll Range EA cattle grazing has been found to reduce habitat for willow flycatchers (Taylor 1986 and Valentine 1987), yet other studies cited in this comment also demonstrate the impact of grazing on willow flycatcher habitat. Impacts to willow flycatcher habitat area apparent in headwater basins, in wet meadows, moist meadows, riparian areas and adjacent to headwater springs throughout the East Beaver Allotment. Of particular concern is Cow Creek Glade where willow habitat is significantly degraded, heavily fragmented and in some places has become subjected to unnatural levels of mortality from cattle associated impacts. In the drift areas Silver Fork Basin contains heavily fragmented and degraded Willow Flycatcher habitat.

The EA also identifies the headwaters of Cow Creek as the location of the largest expanses of suitable willow flycatcher habitat. The BiOp claims that the basin contains "some evidence of grazing damage to individual willows and contains a few cattle trails in which willows are reduced to a few broken off plants. While this damage is evident on only a small percentage of the willow community in that area, it is presumed that such cattle use may result in possible nest failure of individual nesting pairs. (USDA. 2020a. P. 38)." These impacts are significantly understated, the photo above demonstrate that far more than a few cattle trails are impacting willow habitat. The EA completely fails to accurately identify existing conditions for willow habitat in the Cow Creek Basin.

The BiOp claims that, "There is no evidence that over 100 years of grazing has measurably reduced the coverage of willows or resulted in the total loss of the willow cover type in the project area. Aerial photos from the 1940s show no difference between historic and current willow coverage, except where tree cover (from fire suppression) has encroached onto wet meadow/shrub communities. Since grazing stocking rates have declined significantly from historic periods, it is presumed that the risk of losing willow communities to grazing is minimal (USDA. 2020a. P. 38)." These statements

are extremely misleading because conditions in the 1940s were severely overgrazed and had been for 60-80 years. Historic era grazing impacts associated with tens of thousands of sheep, horses and cattle certainly reduced the extent of willow wetland habitats through trampling, browsing, mechanical damage, hydrological impacts, downcutting and impacts to water tables. Research has also shown that tree establishment attributed in the BiOp could very well have been associated with historic and contemporary grazing impacts (Belsky. 1997.) Additional grazing into the 1940s and portrayed in 1940 aerial imagery likely reinforced the historic impacts and hindered recovery, while continuing impacts from contemporary grazing reduces willow extent to this day.

Historic grazing in the early 1900s severely impacted vegetation in wetlands and meadows supporting willow habitat, identifying 1940 conditions as a "reference" is disingenuous given the level of historic impacts associated with grazing activity on the Siskiyou Crest at that time. If the extent of willow habitat has not significantly changed in the planning area since the 1940s, this may demonstrate a lack of vegetative recovery in willow stands rather than evidence of stability or that grazing is not affecting this plant community. This lack of recovery is largely due to contemporary and continuing passive, season long grazing in the East Beaver Allotment and on adjacent RRSNF lands.

These 1940 aerial images also fail to account for the quality of habitat conditions, which is currently declining in nearly all locations where willow wetlands are grazed. Although the extent of willow habitat may or may not be in decline and this may or may not demonstrate stability, the quality of Willow flycatcher habitat is heavily degraded throughout large parts of the Siskiyou Crest. The degradation of willow habitat is largely associated with public land grazing and will not be minimized with the currently identified adaptive management measures in the EA.

Significant damage to willow habitat occurs late in the grazing season when cattle have utilized foraging resources and focus instead on riparian habitats. During late season grazing significant top browsing occurs on willow shrubs. This impact could be mitigated by reducing cattle numbers or by eliminating late season grazing and pulling cattle off the Siskiyou Crest by October 1.

The Klamath National Forest Plan also requires breeding surveys for the willow flycatcher, yet these surveys have not been adequately conducted. Breeding surveys should be implemented throughout the Oak Knoll Grazing Allotments in the summer of 2020, with special emphasis on the East Beaver Allotment. Willow flycatcher surveys should be conducted in heavily grazed and ungrazed portions of the planning area as part of annual range management surveys. By surveying both grazed and intensively grazed areas, the effects of public land grazing could be documented. If surveys demonstrate that grazing is negatively affecting breeding success for this sensitive species, cattle exclosures must be erected to protect high quality willow flycatcher habitats. Surveys should be conducted annually during breeding season to identify the location, extent, and success of willow flycatcher in both grazed and ungrazed habitats.

Please review this 2016 Video demonstrating impacts to willow wetlands and willow flycatcher habitat in Cow Creek Glade: https://www.youtube.com/watch?v=_buG9CT2its

14) The EA failed to consider the impact of livestock grazing on quaking aspen habitat, which is rare on the Siskiyou Crest and especially rare on the Klamath River side of the ridge. Quaking aspen is rare on the Siskiyou Crest and can be found in only 9 populations from Bigelow Lakes to Mt. Ashland. The vast majority of this population is found between Condrey Mountain and Mt. Ashland including populations in Cow Creek Glade and Grouse Creek on the KNF.

Despite the rarity of quaking aspen on the Siskiyou Crest, impacts associated with grazing on

quaking aspen habitat were not considered in the EA. In fact, quaking aspen is not even mentioned in the EA.

Quaking aspen habitat tends to support abundant herbaceous forage species and is often associated with seeps, springs and riparian areas. Cattle tend to congregate and bed down under aspen trees compacting soils, destroying vegetation, altering hydrology, impacting water tables, stripping mature trees of bark and browsing vegetative reproduction within the stands.

Aspen is not effectively regenerating throughout most of the Eastern Siskiyou Mountains. This appears largely due to consistent overgrazing by livestock, who eat down aspen sprouts each fall when foraging resources are diminished. Being a relatively short lived tree species, the lack of viable reproduction is particularly troublesome, could lead to localized extinctions and was not considered in the EA. Impacts to quaking aspen habitat are particularly severe in Cow Creek Glade where the population is threatened by the effects of cattle grazing. The continuing downward trend in aspen viability could lead to the extirpation of quaking aspen within the East Beaver Allotment.

The EA provides absolutely no guidance for aspen management and completely fails to consider this relevant issue. No mitigation measures or monitoring thresholds have been identified to ensure aspen viability and localized extinction is possible. Public land grazing is the most pronounced and damaging impact to aspen in the Siskiyou Mountains. In a manner very similar to willow habitat, the majority of the impacts are sustained late in the grazing season when cattle augment diminished foraging resources with browse on willow, aspen and other sprouting hardwood species. Although unlike willow established aspen trees provide shade during the summer months encouraging cattle to bed down and congregate beneath aspen groves. This denudes herbaceous vegetation, damages aspen regeneration, creates significant soil compaction, soil loss and other impacts to both aspen regeneration and the health of existing trees.

The most effective strategy to protect quaking aspen would be to authorize the no-action alternative or to eliminate cattle grazing from the high elevation habitats on the Siskiyou Crest. If cattle grazing is approved efforts to monitor and sustain quaking aspen in the Oak Knoll Range EA planning area should be required in the EA. Monitoring should consist of the following strategy:

- 1) Create a permanent cattle exclosure consisting of half the existing aspen population in Cow Creek Glade,
- 2) Monitor reproduction rates and sapling growth in existing populations both inside and outside the exclosure,
- 3) Monitor the effects of cattle and native ungulate browse on aspen regeneration both inside and outside the exclosure,
- 4) Specifically monitor utilization levels within aspen exclosures and outside aspen exclosures to document the extent of cattle use in aspen groves and the effects of that use on herbaceous communities,
- 5) If quaking aspen habitat and reproduction is being impacted cattle exclosures should be erected around entire existing quaking aspen habitats, ensuring population viability and reproductive success.

15) The EA failed to adequately analyze the effects of livestock grazing on water quality. The EA failed to adequately consider the effects of livestock grazing on water quality. Not only do livestock directly contaminate water sources with fecal matter, but they can also lead to a loss of riparian vegetation, down cutting stream banks, diminished water tables, compaction and accelerated bank erosion, affecting stream temperatures, stream flows, and sedimentation rates. Long term livestock damage

can also reduce stream flows by damaging water tables. This can be particularly troublesome in headwater basins where grazing is often concentrated.

According to fecal analysis conducted in the nearby Cascade-Siskiyou National Monument, cattle heavily utilize riparian resources. Fecal analysis shows that cattle utilized mostly riparian species, while native ungulates naturally utilized a wide variety of habitats and food sources, including many non-riparian species (Hosten. 2007.). This demonstrates that unless actively herded, cattle will congregate in riparian areas and moist to wet meadow systems, damaging stream banks, riparian vegetation, stream shade, compacting soils and impacting water tables. Water quality and quantity tend to be negatively affected by cattle grazing, especially without active range riding and herding to reduce over-utilization.

The effects of cattle grazing on stream function and water quality were not adequately addressed in the Oak Knoll Range EA. Impacts to riparian areas were ignored or down played rather than receiving an accurate analysis of impacts. Cattle behavior and preferences have historically dictated utilization more than management in the Oak Knoll Range EA planning area, allowing cattle to do significant damage to water quality and water ways. Given the analysis by Hosten and others in 2007, it is clear that cattle foraging preferences disproportionately impact riparian areas and wetlands.

The Oak Knoll Range EA failed to adequately consider these impacts to water quality and riparian areas. Future authorization of grazing activities in the Oak Knoll Range EA should contain specific monitoring protocol for water quality and mitigation measures if water quality standards are not met. The agency must document that the mandates of the Clean Water Act are fully implemented and water quality impacts associated with grazing are mitigated through robust monitoring efforts. Efforts should focus not only on Beaver Creek and its tributary streams on the KNF, but also in drift areas on the RRSNF.

Of particular concern on the KNF is Beaver Creek, which supports important habitat for anadromous fisheries including coho salmon. Water quality monitoring should be conducted during the summer and fall in the Beaver Creek Watershed. Monitoring should take place in headwater stream reaches within high elevation meadows and below those areas most actively grazed. If water quality monitoring shows a downward trend, corrective measures such as a reduction in cattle numbers, cattle exclosures and other mitigation measures must be considered.

16) Public land grazing is impacting coho salmon habitats in the Oak Knoll Range EA planning area. Public land grazing in the East Beaver Allotment is impacting coho salmon habitat in the Beaver Creek watershed and its tributary streams including Janyes Canyon, Dead Cow Creek and Cow Creek (USDA. 2020 P.32). More specifically impacts to critical habitat have been documented in Lower Cow Creek when cattle are driven from the high country in the fall.

Coho habitats are most directly affected by cattle grazing in the spring months when low elevation portions of the allotment are in use and during the fall months when snows or herding brings cattle back into lower elevation areas for round up. Impacts can be direct trampling, damage to vegetation, damage to redds, sedimentation, and bank erosion.

According to the EA 4 corrals are located within Riparian Reserves in the Beaver Creek watershed creating direct impacts to coho habitat. These corrals include Beaver Creek, Hungry Creek, Long John (Camp 22) and Sterling Corrals (USDA. 2020. p. 16). These corrals should be relocated to upland areas with less direct impacts to coho habitat, water quality and stream function. Riparian Reserves are simply not the place to corral, hold and concentrate cattle use.

Impacts can also be indirect and are associated with water quality, water table and riparian function higher in the watershed where intensive summer grazing occurs such as Cow Creek Glade. Cattle impacts are severe in some headwater basins degrading water quality, reducing summer flows, increasing runoff rates, creating turbidity and degrading stream function at the highest points in the watershed.

The EA should consider the relocation of existing corrals in Riparian Reserves and create a monitoring protocol specific to coho impacts. These newly developed upland corrals should be authorized for gathering in the fall and dropping off cows in the spring.

Efforts should also be made to keep cattle from impacting coho habitats during spring grazing and fall round up.

Finally, monitoring protocol should have clear thresholds that require adaptive management to mitigate cattle related coho habitat impacts in Beaver Creek.

17) The proposal to exclude the northern portion of the East Beaver Allotment should have been fully analyzed as an action alternative.

Given the long history of cattle drift onto the RRSNF an action alternative excluding the northern half of the allotment should have been fully analyzed. This alternative has the potential to meet the purpose and need, while reducing impacts associated with high elevation grazing impacts, impacts to designated Botanical Areas and cattle drift. This alternative could also be utilized to solve the problem of grazing the high country too early in the season before habitats are ready and too late in the season when impacts to streams, riparian areas, willow wetlands, and aspen groves are at their peak.

This alternative could also provide the Siskiyou Crest region with a significant rest from livestock grazing which would allow trampled wet meadows, streams, springs and wetlands time to heal. Bunchgrasses could begin their return to Siskiyou Crest barren habitats, aspen could regenerate, fragmented willow wetlands and willow flycatcher habitat could recover from cattle impacts. These objectives are consistent with Land Use Allocations such as Botanical Areas as well as desired conditions in the KNF LRMP for these specific habitats. This alternative would also far more effectively protect habitats currently closed to grazing than any other alternative except the no action alternative.

The decision to eliminate this action alternative from further consideration was arbitrary and capricious. The proposal to is a rational, responsible, scientifically supported, and responsive to relevant issues. The alternative would also have clear benefits to water quality, wildlife, sensitive species, botanical values, and numerous regionally important habitats. To eliminate this alternative without sufficient analysis was irresponsible and demonstrates bias towards the status quo, rather than a real attempt at using the NEPA process to solve management problems and facilitate more effective, ecologically appropriate land management. This potentially viable action alternative contains many beneficial outcomes and justifies further analysis in an EIS.

18) The proposal to create common allotments on the Siskiyou Crest should have been analyzed as an action alternative.

The proposal to create common allotments on the Siskiyou Crest is a viable action alternative with numerous beneficial outcomes and potentially more effective management of natural resources on the Siskiyou Crest.

Current management on both the RRSNF and KNF is difficult to regulate due to cattle drift and

additional, unauthorized cattle grazing north of the Siskiyou Crest. This means that in critical periods both early and late in the grazing season impacts are compounded by additional livestock in preferred locations such as Silver Fork Basin, Glade Creek and Donomore Meadows. It also means that even utilization on the KNF is difficult to achieve because cattle tend to drift north onto the RRSNF. Every season unauthorized cattle beyond the numbers approved on the RRSNF are grazing in the meadows at the headwaters of the Applegate River. This creates additional pressure on streams, forage resources, Botanical Areas, native plant communities, and high elevation meadow systems.

Seasonality of use could also be made more consistent with KNF and RRSNF cows able to access the high country at the same time each year based on range readiness. Likewise "off dates" could be made consistent, enabling land managers to mitigate some of the more intensive impacts of late season and early season grazing. If a common allotments were created appropriate numbers of cattle could be permitted based on available forage throughout the Siskiyou Crest region rather than on just the north or south slope. Likewise joint AOIs could guarantee consistent management across the Siskiyou Crest.

In its rejection of this proposal, the agency claims they could not implement this alternative because the RRSNF planning schedule does not coincide with the KNF and it would not reduce drift. These statements are untrue, the RRSNF is also in need of re-authorization for the adjacent allotments in the Applegate Grazing Complex. In fact, planning began two years ago and was cancelled due to a lack of funding for NEPA analysis. It would have been and still could be effective and efficient to analyze joint allotments. It is also untrue to say it would not reduce drift, on the contrary drift would no longer occur if this alternative was implemented because it would all be common range. This would allow land managers to manage the Siskiyou Crest collaboratively and as one block where utilization and other impacts could be considered and analyzed without the unknowns surrounding drift.

19) The agency should have analyzed a modern range management alternative with rest- rotation grazing, active herding.

The EA analysis mentions deferred and rest-rotation grazing only once in the entire text, as a potential mitigation measure if woody or herbaceous utilization standards are not being met. The EA essentially identified passive, season-long grazing as the grazing strategy and recommends herding only if drift occurs or utilization standards are not being met. Without drift fences, herding, and/or range riders being utilized in the allotments; long standing problems associated with cattle drift, impacts to riparian areas, willow wetlands, aspen groves, bunchgrass sites, Botanical Areas and other sensitive sites will continue. Relevant issues, environmental impacts and a failure of many plant communities to recover from historic grazing impacts could be addressed with the elimination of grazing on the Siskiyou Crest, the authorization of the No-Action Alternative, or through the implementation of a more modern, science based management approach to public land grazing. This would include responsible rest-rotation or deferred rotation management as a preventative and mitigative measure, rather than only as a response to inappropriate levels of impact.

A modern rotational grazing alternative should be the only action alternative considered. The EA proposes passive, season long grazing with modified monitoring requirements. Unfortunately these monitoring requirements do not appear to include documentation standards that verify such monitoring and management activities are occurring.

20) The EA failed to provide an adequate range of alternatives.

The Oak Knoll Range Project EA failed to provide a range of alternatives for analysis. Only one action alternative and a no action alternative were considered in analysis in the EA. This limited

range of analysis to only two real options status quo renewal or the no action alternative. This would serve only to limit and predetermine the potential project outcomes and minimize environmental analysis. Adequate NEPA analysis would have considered a range of alternatives wide enough to:

- A) Be responsive to the relevant issues and concerns identified in public comment periods.
- B) Adequately compare action alternatives and outcomes.
- C) Meet the agency's legal obligation to the public under NEPA

Currently analysis only considers a no action alternative and a slightly modified version of the status quo; passive, season long grazing. This form of grazing consists of largely allowing the cattle manage themselves. Passive, season-long grazing often leads to severe impacts at favored sites where cattle congregate. Cattle drift, and damage to resources, especially riparian areas, moist meadows and wetland habitats will also continue to expand in scope, scale and intensity under the proposed action alternative. These impacts in turn affect bank stability, water quality, water temperature, and the depth of the water table.

The failure to consider a range of alternatives means that these impacts will only become worse over time, especially in favored sites, such as Cow Creek Glade, Trapper Meadows, and numerous of the frequent cattle drift areas such as Silver Fork Basin and Donomore Meadow.

Alternatives could have been identified to address the mounting impacts of season-long, passive grazing methods. The failure to consider a range of alternatives excluded many scientifically credible and practical management options from further analysis; inappropriately limiting the analysis, the outcome and the Decision Record. Items 1 to 28 in this comment identify a few of the alternatives that should have been fully analyzed.

21) The agency failed to provide a Scoping Comment Period in preparation of the Oak Knoll Range EA. The KNF failed to provide a scoping comment period in preparation of the Oak Knoll Range EA. Scoping must be used in the NEPA process to provide adequate opportunities for public comment. Scoping is generally used to inform the agency process and to allow the public some level of influence on both the identification of relevant issues and the development of a range of alternatives for further NEPA analysis. In this instance, KNF managers failed to provide a scoping period and scoping comment period and instead immediately developed an EA. The analysis in the EA reflects the agency's lack of public process and fails to adequately analyze many important and relevant issues. The Oak Knoll Range EA should be withdrawn and a new scoping period initiated for the project and the planning area.

22) Create management opportunities to reduce the potential for cattle drift into high elevations too early in the grazing season.

According to monitoring reports and documentation submitted by the Campaign to Reform Public Land Grazing in Northern California cattle are routinely grazing on the Siskiyou Crest before the July 15 date set for high elevation grazing in the East Beaver Allotment. Volunteers for our organizations often report early season grazing on the Siskiyou Crest in the vicinity of the East Beaver Allotment. Although the EA acknowledges this problem, it fails to identify a single Project Design Features to avoid such unauthorized early season high elevation grazing.

We recommend either authorizing the no action alternative, eliminating grazing on the Siskiyou Crest or limiting cattle movement northward from the Klamath River through a combination of drift fencing, range riding, active herding and rotational grazing at elevations below roughly 4,500' in elevation. Efforts could also be made to reduce cattle use at high elevations below August 1 and

after October 1. By reducing the length of the grazing season in high elevation basins on the KNF, drift could be reduced.

23) PCT Management

The PCT is an increasingly popular and important national resource. Hikers from across the globe come to the West Coast of North America to experience the PCT and the backcountry experience it provides. Cattle grazing can often be in conflict with the backcountry recreation values of the PCT. This often includes damage to scenery, damage to meadows, riparian areas, vegetation, campsites and perhaps most importantly impacts to water quality and water sources along the PCT.

The EA completely failed to consider the impacts of cattle grazing on PCT users. The PCT experience in our region is currently impacted by inappropriate, largely unmanaged livestock grazing. Grazing cattle can impact campsites regularly utilized by PCT users, churning sensitive soils to dust, defecating throughout favor campsites, presenting trampling risks and both trampling and defecating in important water sources necessary for PCT hikers. It is likely that most of the flowing water sources on the PCT would be high quality drinking water without the influence of cattle. Some effort should be made to maintain the world-class recreational experience of the PCT within the East Beaver Allotment and adjacent drift areas. Even if cattle grazing is an authorized use, active management could be utilized to reduce impacts to important PCT campsites and watersources.

Some of the impacts to the PCT are associated with drift areas where both RRSNF and KNF are currently grazing and compounding impacts to trail and recreation resources. In other locations, the PCT is located on the south side of the Siskiyou Crest on KNF lands. In particular, the EA mentions cattle use in the area around Sheep Camp Spring which is a particularly important water source and campsite. Areas within the drift area including Donomore Meadows and Silver Fork Basin are also often heavily impacted by drift cattle. The KNF should require both drift areas and high use PCT areas to be monitored by permittees. These areas should be identified as avoidance areas where permittees are required to herd cattle away from to discourage use.

24) Elk Competition

Ample evidence exists throughout the planning area of overgrazing, damage to vegetation, damage to streambanks and impacts to water quality. Many of these impacts are being compounded by a rise in elk populations without making adjustments to cattle numbers to compensate.

The EA failed to adequately consider the significant increase in elk populations within the planning area over the past 10-15 years. Elk have begun to re-inhabit the Siskiyou Crest region moving in from the south as their populations grow in the Klamath River canyon. Elk are once again a significant influence in the Siskiyou Crest region, utilizing forage resources in dry bunchgrass clearings, moist meadows, wet meadows, willow wetlands and other habitats in the planning area. In many locations the increase in elk populations in combination with domestic livestock grazing is creating significant impacts to vegetation, creates unacceptable levels of trampling in wetlands and riparian areas and impacts to water quality. Bank stabilization along streams can also suffer if grazing pressure from both native ungulates and domestic livestock is having a compounding effect. In these circumstances, land managers must either reduce cattle numbers on range allotments or create exclosures to reduce unacceptable impacts. Cattle numbers can and should be reduced to encourage the re-establishment of health elk populations.

Despite objectives in the KNF Forest Plan to "provide forage for big game objectives," current management is creating a conflict between cattle and elk for favor sites, forage resources, and

browse resources.

In particular, late season cattle grazing impacts many of the woody species also utilized by browsing elk. For example, in many places willow populations are declining. Heavily fragmented, overbrowsed and divided into cattle trails these formerly dense stands of willow are declining in health and vigor due to compounding cattle and elk impacts. Similar declines in health, vigor and reproduction are occurring in aspen stands. These impacts could be mitigated by reducing cattle numbers as elk populations increase. Other alternatives could also mitigate these impacts in headwater basins by either authorizing the no action alternative eliminating cattle from the Siskiyou Crest or at least altering seasonal grazing patterns by creating a new "off date" of October 1 at the latest.

25) The EA failed to consider the impact of livestock grazing on pollinator populations. The EA completely failed to adequately consider or analyze the impact of livestock grazing on pollinator species or disclose national Best Management Practices (BMPs) for pollinator health.

Pollinator habitat is degraded by livestock grazing in a variety of ways from impacts to host plants or nectar plants to nesting habitats. Many species, especially butterflies in larval or chrysalis form can be consumed or trampled to death by grazing cattle, ground nesting sites for native bees can be damaged by trampling and the habitat for all pollinators is impacted by grazing nectar or pollen producing species, limiting flower set, seed set, overall plant vigor and reproduction. In many cases, native bumble bees utilize the roots of native bunchgrasses for nesting habitat, as these species continue to decline, nesting habitat becomes more rare.

Some pollinators utilize native bunchgrass as a host plant including the woodland skipper, wood nymph, California ringlet (*Coenonympha tullia californica*), Sylvan wood nymph (*Cercyonis sthenele silvestris*), Juba skipper (*Hesperia juba*), Rural skipper (*Ochlodes agricola*), Woodland skipper (*Ochlodes sylvanoides*), and Great arctic (*Oeneis nevadensis*). Others use willow such as the Morning Cloak and Lorquin Admiral butterflies. Quaking aspen is a host for the western tiger swallowtail. Aspen, willow and bunchgrass habitats are specifically and dramatically impacted by cattle in the Oak Knoll Range EA planning area.

The Klamath-Siskiyou is renowned for its butterfly diversity. The region hosts over 141 species and is one of the richest habitats for butterflies in the west. The botanical diversity directly influences the region's pollinator diversity, the two are intimately connected.

The NEPA analysis for the Oak Knoll Range EA must consider the impact of grazing on native pollinators including butterflies, bees, flies, beetles, and hummingbirds.

In particular the following species are of concern. Arrowhead Arctic Blue
The Arrowhead, Sierra Arctic Blue or Grey Blue is endemic to the Sierra Nevada and Klamath Siskiyou Mountains. According to Nature Serve at the link provided below, the species is considered vulnerable and of conservation concern. The habitat for the Arrowhead Arctic Blue is wet subalpine meadows. The species utilizes *Primula* Sp. or Shooting Stars as a host plant. Caterpillars eat the leaves of Shooting Star and adults have been documented to nectar on yellow composites.

The lifecycle of the Arrowhead Arctic Blue is complex. Each season includes one flight of adult butterflies from June (low elevations) to September (high elevations). It is thought that larvae overwinter and continue feeding and pupating in the next flowering season. This means they need protection from grazing throughout the summer season and into the fall. According to Nature Serve,

the largest overall threat to this sensitive species is trampling by grazing livestock.

The species has been identified by local lepidopterist Linda Kappen in the Kettle Belly Glade/Silver Fork area. Surveys should be conducted to identify additional populations and habitat in the planning area. Significant habitat exists for both this species and its host plant throughout the planning area, but very little is known about its population viability or habitat function. The KNF has provided no information on the effects of grazing on this species, yet given the habitat utilized and the life cycle described above they are particularly vulnerable to grazing impacts. The failure to consider these impacts is a violation of NEPA and constitutes inadequate scientific analysis.

<http://explorer.natureserve.org/servlet/NatureServe?searchName=Plebejus+podarce>

Franklin's Bumble Bee & Western Bumble Bee

The Franklin's Bumble Bee is endemic to the Klamath-Siskiyou Mountains. In fact, it was thought to have the most limited distribution of any bumble bee in North America and perhaps the world. The species was commonly seen into the 1990's, but was subjected to precipitous declines and was last seen in 2006 near Mt. Ashland and McDonald Basin. It is thought to nest underground. Nesting habitat can be impacted by grazing livestock and floral resources are clearly impacted by grazing pressure.

Western Bumble Bee has been relatively recently found in the East Beaver Allotment. This species is becoming increasingly rare and its lifecycle is particularly vulnerable to cattle impacts. The species nests underground and needs a variety of streamside habitats, meadows and a diverse variety of flowering species.

Both species could be particularly impacted due to the trampling of underground nesting and overwintering habitats, as well as grazing on preferred species for bee foraging. The agency also claims benefits to these species in the BiOp (USDA. 2020a. P.50) yet provide no data or scientific information to support these claims. The idea is that light cattle grazing in wet and moist meadow habitat will favor a mixed grass/forb habitat. Yet the Siskiyou Mountains are already highly diverse and contain habitats with an abundant mixture of species. It is also unclear if cattle grazing which favors species unpalatable to cattle will create a productive species composition for native Bumble Bees. This simply is not the limiting factor in Western or Franklin's Bumble Bee habitat and the EA analysis is simply not supported by scientific information or monitoring data..

Trampling impacts to overwinter sites were not quantified in any meaningful way and likely creates more damage than the assumed and unverified benefits. .

The impact of livestock grazing to the Franklin's and Western Bumble Bee must be more adequately assessed in upcoming NEPA documentation.

We also incorporate the science and information provided in the following document titled Best Management Practices for Pollinators on Western Rangelands into this comment. The document provides scientific information and recommendations by the Xerces Society. Please consider these BMPs in upcoming NEPA analysis.

https://xerces.org/sites/default/files/2019-09/18-015_BMPs%20for%20Polls%20on%20Western%20Rangelands_sml_9-12-2019%20%281%29.pdf

BMPs for Pollinators

Recently the government published a presidential memorandum of federal Best Management Practices (BMPs) for Pollinators. In this publication the government outlines the following explanation and guidelines to implementing these BMPs. These BMPs should be implemented in the Oak Knoll Range EA to protect pollinator species.

Explanation: Livestock grazing alters the structure, diversity, and growth pattern of vegetation, which affects the associated insect community. Grazing during a time when flowers are already scarce may result in insufficient forage for pollinators. Grazing when butterfly larvae are active on host plants can result in larval mortality and high intensity grazing can cause local loss of forb abundance and diversity.

Implementation: The following actions should be considered in rangelands when livestock grazing is present:

- [bull] Determine which types of pollinators and which pollinator habitat elements are affected by grazing livestock.

- [bull] Assess if grazing is compatible with the specific needs of target pollinator species on site, including targeted butterfly species.

- [bull] Prevent trampling ground-nesting sites by implementing practices to minimize hoof action of grazing animals, which causes soil compaction or erosion in pollinator nesting and shelter patches.

- [bull] Minimize livestock concentrations in one area by rotating livestock grazing timing and location to help maintain open, herbaceous plant communities that are capable of supporting a wide diversity of butterflies and other pollinators.

- [bull] Protect the current season's growth in grazed areas by striving to retain at least 50% of the annual vegetative growth on all plants.

- [bull] Enhance the growth of forbs to ensure their ability to reproduce and to provide nectar and pollen throughout the growing season by setting grazing levels to allow forbs to flower and set seed.

- [bull] Leave nearby ungrazed areas to provide reserves for pollinator populations.

- [bull] Prevent grazing during periods when flowers are already scarce (e.g., midsummer) to maintain forage for pollinators, especially for bumble bee species.

- [bull] In important butterfly areas, avoid grazing when butterfly eggs, larvae, and in some cases pupae are on host plants.

- [bull] Consider the needs of pollinators when placing range improvements and structures on the landscape.

- [bull] Ensure that fencing is adequate and well maintained.

- [bull] Include protection of pollinator species in grazing management plans.

The Oak Knoll Range EA failed to consider the recommendation in the national BMPs for pollinators. Additional mitigation measures must be identified to encourage management consistent with pollinator conservation.

26) The EA failed to adequately analyze the threat of noxious weed spread and the historic role of livestock grazing in spreading noxious weeds.

The EA failed to consider the role of livestock in spreading noxious weeds and the incredible potential of noxious weeds spread associated with authorization of grazing in the Oak Knoll Range EA. The Noxious Weed Assessment identifies a moderate risk of noxious weed spread, but the actual risk is very high.

The spread of *Cynoglossom officinale* in the planning area is highly likely due to infestation of the western boundary, where cattle are actively spreading the weed throughout the Dry Lake and Horse Creek Allotments and into the East Beaver Allotment. According to the Noxious Weed Assessment cattle are actively spreading this weed both inside and outside the East Beaver Allotment. Cattle and logging activities tend to be the biggest contributors to the spread of this weed on the Siskiyou Crest. Much of the impact associated with logging is associated with private land harvest, but spread associated with cattle grazing is attributed to Forest Service activities that could be stopped to reduce potential impacts. The potential for this particular weed to be spread and transported by cattle is very high. The potential for cattle to also create soil disturbance that promotes noxious weed spread is also high and will be very widespread throughout the planning area.

It is also likely that Dyer's Woad will be spread by grazing cattle. Two infestations already occur in heavily utilized sites. Cattle can and will transport seeds and will also create the soil disturbance needed to facilitate spread. The EA also failed to consider the potential cumulative effects of extensive post-fire logging conducted by the Fruit Growers Supply in the Beaver Creek Watershed and public land grazing in spreading Dyer's Woad throughout vast tracts of public land.

Analysis in the EA also fails to consider the potential for noxious weed spread from permittee home ranches on onto National Forest lands. Transporting cattle from private range lands to public lands has a high potential for noxious weed spread and the introduction of new noxious or problematic species. Current analysis claiming a moderate risk of weed spread is inaccurate, a high risk rating would be far more reflectively reflect the myriad of ways weeds and weed seeds can be transported via public land grazing.

27) Alter livestock removal dates to reduce impacts to riparian areas, willow wetlands and water quality late in the grazing season.

We recommend either eliminating cattle from the Siskiyou Crest region, managing with long term rest-rotation for the Siskiyou Crest or at least, limiting the seasonality of livestock grazing both in the spring and fall. Cattle are routinely grazing on the Siskiyou Crest before range readiness and the July 15 date set for utilization of high elevation range. Cattle are also routinely grazing on the East Beaver Allotment after the official "off-date" compounding impacts to riparian areas, willow wetlands and water quality. The impact of grazing on riparian areas, water quality and woody riparian species such as willow and aspen are particularly pronounced in the fall due to a lack of available water. In the fall, when moist meadows have dried out, headwater streams and wetlands are heavily grazed. Also due to unsustainable cattle numbers, a failure to adequately herd animals and allowances for late season grazing, forage capacity has been diminished, preferred sites are often over-utilized and both forage resources and available water limit grazing to wetlands and riparian areas.

At a very minimum, cattle should be excluded above 4,500' in elevation on the Siskiyou Crest from August 1 to October 1.

28) The analysis of relevant issues was limited and inadequate.

The analysis of relevant issues in the Oak Knoll Range EA was limited and inadequate. The limitation of analysis was arbitrary and capricious. The 28 relevant issues identified as either unanalyzed or under-analyzed; demonstrate that analysis in the EA is incomplete. It also demonstrates the failure to use an appropriate scoping process to help identify relevant issues and inform alternative development.

Thank you for the opportunity to comment,