Friends of the Wild Swan
PO Box 103
Bigfork, MT 59911

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Rob Davies, District Ranger Hungry Horse Ranger District
Adam Ladell, District Ranger Spotted Bear Ranger District
PO Box 190340
Hungry Horse, MT 59919
Via: https://cara.fs2c.usda.gov/Public/CommentInput?project=67436

District Rangers:

Please accept the following comments on the proposed West Reservoir Project on behalf of Friends of the Wild Swan. We incorporate by reference the comments submitted by Swan View Coalition.

An Environmental Impact Statement is required to fully analyze the impacts to recommended wilderness (15,887 acres) and proposed Wild and Scenic rivers (4,200 acres) in the project area. There is also logging in riparian management zones, burning the grizzly bear secure core and 2,752 acres of burning and 873 acres of logging in Inventoried Roadless Areas. There are four seedtree units over 40 acres. Reconstructing 1.6 miles of road and 3.1 miles of new road construction added to the road system does not maintain the 2011 baseline.

The EIS must also analyze impacts to old-growth dependent wildlife, region 1 sensitive species in addition to threatened and endangered species.

• Old-growth forests provides important habitat for many wildlife, plants, saprophytes, soil fungi and more. It is increasingly rare and cannot be "created" by logging. Attributes such as large old trees, downed woody material, snags and dead trees are key characteristics of old growth forest habitat. Canopy closure provides snow intercept to facilitate movement of wildlife and thermal regulation for big game in summer and winter.

How much old-growth forest habitat is there in the project area? Where is it? What is next to it? How connected is it? Where are mature stands that can be recruited as replacement old growth? What old-growth dependent wildlife are using it? Will this project log in old-growth forest habitat? If so, why? It does not improve habitat for wildlife, plants and other organisms.

Is the old growth habitat fragmented? Does it have abrupt edges and have forested connections between patches been narrowed? How big are the old growth patches? Are they sufficient to meet the needs of old growth dependent wildlife? We believe there should be an effort by the Flathead to connect rather than fragment old-growth forest habitat. Please explain and provide the science to justify how logging will increase the quantity, patch size and connectivity of old growth forests.

Is old growth forest habitat slated for commercial thinning, fuels reduction and/or burning? Logging removes the habitat attributes that are necessary for old-growth associated wildlife and birds. The EIS must disclose (preferably with an aerial photograph map) where existing old-growth forest habitat is located, where recruitment old-growth is located and where the proposed cutting units are located. Since 21% of the project area burned in 2022/2023 how large are the existing openings? How much has already been salvaged logged? The EIS must analyze what the effects of logging will be on existing and recruitment old growth forest habitat both in terms of blowdown and other effects on the forest itself as well as on old-growth dependent wildlife.

• Are sufficient snags and down woody material in the project area? Please explain how logging will restore these attributes.

• The EIS needs to fully evaluate the effects to wildlife including old-growth associated wildlife (which has been missing in other environmental analysis on the Flathead but is essential to determine the impacts). Is the project area currently meeting the needs of old-growth associated species? Will the proposed action impact old-growth forests by either building roads in or adjacent to old-growth forest and/or placing cutting units adjacent to old-growth forest? If so, please provide the best available science to determine whether fuels reduction can be done in or adjacent to old growth and not impact the use of this scarce habitat by old-growth associated wildlife.

• For all wildlife the Flathead needs to quantify what current habitat availability, local population monitoring, and current status of the species indicate about current population health in this project landscape, or in other words, <u>is the current habitat enough?</u> If it is, how much more can you take and still not trigger significant population impacts? If there currently isn't enough habitat, how can you justify taking more?

• All the wildlife species in the project area require corridors to move for foraging, denning, nesting and seasonal habitats. The EIS must analyze and disclose: Where are these corridors? What is the habitat quality in them? What size are they? Are they wide enough to protect from edge effects and provide security? Are they fragmented by roads or past logging units? How much canopy cover, thermal cover or hiding cover is in them? How much down woody debris and snags are in them? What type of habitat is considered suitable?

Corridors of interior forest habitat between old growth habitat with a minimum width of >100 meters have been recommended by scientists. Does the Flathead have any actual width criteria you are using to define corridors in the project area? All corridor habitat in the project area should be mapped and both current and long-term objectives defined for maintaining these corridors over time.

• How is this project moving the Flathead towards or away from the goal to maintain and recruit old growth forests? How does this project sequester carbon from old trees?

• The EIS must analyze the blowdown effects to old-growth forests, riparian areas, wetlands or other forest habitats. It must also disclose whether blowdown will be salvage logged.

• Where is the current lynx foraging and denning habitat located? How will it be maintained, how will it be improved, how is it connected? How will it be impacted by this project? What are the effects to critical habitat for lynx? Will it be adversely modified? Lynx avoid clearcuts, are proposed seedtree units adjacent to other openings? Winter foraging habitat is limited – how much is there? Where is it?

• The main criteria for lynx foraging habitat is the presence of snowshoe hares. Where is the important hare habitat in this project area, and what is the estimated population density (low, medium, high)? Where is current hare habitat in the cumulative effects area? Where is current red squirrel habitat in the project and cumulative effects area? How will the foraging habitat be affected by this project as well as previous logging and roads?

• Will logging take place in mature multi-story habitat? If so, why? How does this project comply with Veg-S6?

• How much big game thermal cover is there? Where is it? How is it connected? How much hiding cover is there? Where is it? How is it connected?

• Guidelines for elk security are a minimum of 250 acres for providing security under favorable conditions; under less favorable conditions the minimum must be >250 acres. Effective security areas may consist of several cover-types if the block is relatively unfragmented. Among security areas of the same size, one with the least amount of edge and the greatest width generally will be the most effective. Wallows, springs and saddles may require more cover than other habitats.

• Generally, elk security areas become more effective the farther they are from an open road. The minimum distance between a security area and an open road should be one half mile. The function of this ≥ one half mile "buffer" is to reduce and disperse hunting pressure and harvest that is concentrated along open roads. Failure to accomplish this function will reduce the effective size of the security area and may render it ineffective. When cover is poor and terrain is gentle, it may require more than one half mile from open roads before security is effective. (Hillis et al, 1991)

• Roads may be closed to motorized travel to provide elk security and a buffer between security areas and open roads. However, the minimum distance between open roads and security areas increases as closed-road densities increase within both the security area and buffer. (Id.)

• To be biologically meaningful, analysis unit boundaries should be defined by the elk herd home-range, and more specifically by the local herd home-range during hunting season. Elk vulnerability increases when less than 30% of analysis unit is comprised of security area. (Id.)

• These guidelines represent minimums and do not necessarily justify reducing elk security to meet these levels (i.e., if 50% of an analysis unit is security, do not assume that 20% of the unit is excess security). (Id.)

• What is the current total and open motorized route density? How much grizzly bear core area is there in each subunit? Why are new roads being built and added to the system? Why aren't any roads being decommissioned? How does this project favor the needs of the grizzly bear? How does this project maintain the 2011 on the ground baseline conditions for grizzly bears? Please explain why the Flathead is moving forward with this project without a Biological Opinion for the Forest Plan.

• Grizzly bear habitat requirements such as low route densities and security core protect a suite of other species such as elk, moose, mule deer, etc.

• How will this project maintain viability of sensitive species? How can that be measured when there are no conservation strategies or Forest Plan standards for sensitive species? The EIS must analyze impacts to Region 1 sensitive species.

• Wolverine have been given Endangered Species Act protection, the Flathead must consult with the US Fish and Wildlife Service over the impacts to wolverine. Scientific studies are emerging about landscape effects from logging and other human activities so assumptions about habitat usage, prey availability and motorized use might change.

For example, Fisher, et al Wolverines (Gulo gulo luscus) on the Rocky Mountain slopes: natural heterogeneity and landscape alteration as predictors of distribution found: Wolverines were more abundant in rugged areas protected from anthropogenic development. Wolverines were less likely to occur at sites with oil and gas exploration, forest harvest, or burned areas, even after accounting for the effect of topography.

Wolverines elsewhere avoid human-disturbed areas (Carroll et al. 2001; Rowland et al. 2003; May et al. 2006) and recreational and industrial activity (Krebs et al. 2007). Human activities such as trapping, poaching, and road mortality have accounted for 46% (North America; Krebs et al. 2004) to 52% (Scandinavia; Persson et al. 2009) of known-cause wolverine mortalities across their range.

Wolverines avoid roads and other human development in British Columbia (Krebs et al. 2007), Norway (May et al. 2008), Idaho (Copeland et al. 2007), Montana (Carroll et al. 2001), and throughout the northwestern United States (Rowland et al. 2003).

Wolverine occurrence also increases with topographic ruggedness, where there is a combination of low- and high-elevation habitats. Bighorn sheep (Ovis canadensis Shaw, 1804) (Festa-Bianchet 1988), mule deer (Odocoileus hemionus (Rafinesque, 1817)) (D'Eon and Serrouya 2005), and other ungulates winter at lower elevations; in Scandinavia, wolverines showed significant selection for lower elevation habitats during winter months (Landa et al. 1998). It is possible that wolverines require lower elevations for foraging and higher elevations for predation refuge. Persistent spring snow cover has been hypothesized as important (Schwartz et al. 2009; Copeland et al. 2010) but is not a good predictor at this scale, since spring snow cover was sufficiently persistent across our study landscape to prevent modelling but wolverine occurrence still varied.

Southwest Crown of the Continent monitoring detected wolverines at elevations ranging from 3,346-7,567 feet.

How will this project impact wolverine habitat, denning, foraging or displacement?

• Habitat fragmentation is generally defined as the process of subdividing a continuous habitat type into smaller patches, which results in the loss of original habitat, reduction in patch size, and increasing isolation of patches. (Heilman et al. 2002)

Habitat fragmentation is considered to be one of the single most important factors leading to loss of native species (especially in forested landscapes) and one of the primary causes of the present extinction crisis. **Although it is true that natural disturbances such as fire and disease fragment native forests, human activities are by far the most extensive agents of forest fragmentation.** For example, during a 20-year period in the Klamath–Siskiyou ecoregion, fire was responsible for 6% of forest loss, while clear-cut logging was responsible for 94% (emphasis added) (Id.)

Depending on the severity of the fragmentation process and sensitivity of the ecosystems affected, native plants, animals, and many natural ecosystem processes (e.g., nutrient cycling, pollination, predator–prey interactions, and natural disturbance regimes) are compromised or fundamentally altered. For many species, migration between suitable habitat patches becomes more difficult, leading to smaller population sizes, decreased gene flow, and possible local extinctions. (Id.)

As native forests become increasingly fragmented, ecosystem dynamics switch from being predominantly internally driven to being predominantly externally driven. Simultaneously, remnant patches become altered by changes within the patches themselves as the remnants become more and more isolated, thereby resulting in further ecological degradation across the landscape. Declines in forest species as a result of fragmentation have been documented for numerous taxa, including neotropical migrant songbirds, small mammals and invertebrates Forest fragmentation has also been associated with increased susceptibility to exotic invasion (Id.)

Among the common changes in forests over the past two centuries are loss of old forests, simplification of forest structure, decreasing size of forest patches, increasing isolation of patches, disruption of natural fire regimes, and increased road building, all of which have had negative effects on native biodiversity. These trends can be reversed, or at least slowed, through better management. (Noss 1999)

This project must reduce fragmentation and edge effects and increase patch size and core areas. Past management through even-aged silvicultural prescriptions have contributed to the fragmentation of forest habitat to the detriment of many bird and wildlife species. Large and small openings should be allowed to be created through natural processes rather than clearcut logging.

• What monitoring will be done for wildlife? fish? old-growth dependent wildlife? sensitive plants? other? What past monitoring has been done to determine whether the proposed treatments actually achieve the desired results?

• The Forest Plan states: "Monitoring information should enable the Forest to determine whether a change in plan components or other plan management guidance may be needed, forming a basis for continual improvement and adaptive management." However, the Flathead Forest Plan monitoring report 2019 - 2020 has not been finalized since 2022. What steps will be taken to ensure that the required monitoring will be completed in a timely manner and distributed to the public? When will the Flathead Forest Plan monitoring report be finalized?

• How will logging in RMZs affect native fish? What is the current condition in the riparian areas? How will this project protect rather than adversely impact fish habitat and water quality? No logging or road building should be done in riparian areas.

• There should not be any stream crossings which will negatively impact fish habitat and water quality. Roads should be decommissioned and removed, not upgraded and rebuilt.

• The scoping notice identified a culvert replacement for fish passage on Clayton Creek on road NFSR 1633 but it is subject to funding. The adverse impacts on water quality and fish habitat of leaving a failing or undersized culvert must be fully analyzed and disclosed in the EIS, which is a likely scenario since there is no funding for it.

• Hauer, et al. (1999) found that bull trout streams in wilderness habitats had consistent ratios of large to small and attached to unattached large woody debris. However, bull trout streams in watersheds with logging activity had substantial variation in these ratios. They identified logging as creating the most substantive change in stream habitats.

> "The implications of this study for forest managers are twofold: (i) with riparian logging comes increased unpredictability in the frequency of size, attachment, and stability of the LWD and (ii) maintaining the appropriate ratios of size frequency, orientation, and bank attachment, as well as rate of delivery, storage, and transport of LWD to streams, is essential to maintaining historic LWD characteristics and dynamics. Our data suggest that exclusion of logging from riparian zones may be necessary to maintain natural stream morphology and habitat features. Likewise, careful upland management is also necessary to prevent cumulative effects that result in altered water flow regimes and sediment delivery regimes. While not specifically evaluated in this study, in general, it appears that patterns of upland logging space and time may have cumulative effects that could additionally alter the balance of LWD delivery, storage, and transport in fluvial systems. These issues will be critical for forest managers attempting to prevent future detrimental environmental change or setting restoration goals for degraded bull trout spawning streams."

Muhlfeld, et al. (2009) evaluated the association of local habitat features (width, gradient, and elevation), watershed characteristics (mean and maximum summer water temperatures, the number of road crossings, and road density), and biotic factors (the distance to the source of hybridization and trout density) with the spread of hybridization between native westslope cutthroat trout *Oncorhynchus clarkii lewisi* and introduced rainbow trout *O. mykiss* in the upper Flathead River system in Montana and British Columbia.

They found that hybridization was positively associated with mean summer water temperature and the number of upstream road crossings and negatively associated with the distance to the main source of hybridization. Their results suggest that hybridization is more likely to occur and spread in streams with warm water temperatures, increased land use disturbance, and proximity to the main source of hybridization.

The EIS must use the best available science to analyze how logging riparian habitat will impact native fish and water quality.

• Quintonkin creek is a bull trout spawning stream and critical habitat, redd counts have been variable over the years.

The EIS must fully and completely analyze the impacts to bull trout critical habitat and westslope cutthroat trout habitat. There is no standard for sediment, temperature, pool frequency and bank stability in the Forest Plan. Sediment is one of the key factors impacting water quality and fish habitat. [*See* USFWS 2010]

> The introduction of sediment in excess of natural amounts can have multiple adverse effects on bull trout and their habitat (Rhodes et al. 1994, pp. 16-21; Berry, Rubinstein, Melzian, and Hill 2003, p. 7). The effect of sediment beyond natural background conditions can be fatal at high levels. Embryo survival and subsequent fry emergence success have been highly correlated to percentage of fine material within the streambed (Shepard et al. 1984, pp. 146, 152). Low levels of sediment may result in sublethal and behavioral effects such as increased activity, stress, and emigration rates; loss or reduction of foraging capability; reduced growth and resistance to disease; physical abrasion; clogging of gills; and interference with orientation in homing and migration (McLeay et al. 1987a, p. 671; Newcombe and MacDonald 1991, pp. 72, 76, 77; Barrett, Grossman, and Rosenfeld 1992, p. 437;Lake and Hinch 1999, p. 865; Bash et al. 2001n, p. 9; Watts et al. 2003, p. 551; Vondracek et al. 2003, p. 1005; Berry, Rubinstein, Melzian, and Hill 2003, p. 33). The effects of increased suspended sediments can cause changes in the abundance and/or type of food organisms, alterations in fish habitat, and long-term impacts to fish populations (Anderson et al. 1996, pp. 1, 9, 12, 14, 15; Reid and Anderson 1999, pp. 1, 7-15). No threshold has been determined in which fine-sediment addition to a stream is harmless (Suttle et al. 2004, p. 973). Even at low concentrations, fine-sediment deposition can decrease growth and survival of juvenile salmonids.
>
> Aquatic systems are complex interactive systems, and isolating the effects of sediment to fish is difficult (Castro and Reckendorf 1995d, pp. 2-3). The effects of sediment on receiving water ecosystems are complex and multi-dimensional, and further compounded by the fact that sediment flux is a natural and vital process for aquatic systems (Berry, Rubinstein, Melzian, and Hill 2003, p. 4). Environmental factors that affect the magnitude of sediment impacts on salmonids include duration of exposure, frequency of exposure, toxicity, temperature, life stage of fish, angularity and size of particle,

severity/magnitude of pulse, time of occurrence, general condition of biota, and availability of and access to refugia (Bash et al. 2001m, p. 11). Potential impacts caused by excessive suspended sediments are varied and complex and are often masked by other concurrent activities (Newcombe 2003, p. 530). The difficulty in determining which environmental variables act as limiting factors has made it difficult to establish the specific effects of sediment impacts on fish (Chapman 1988, p. 2). For example, excess fines in spawning gravels may not lead to smaller populations of adults if the amount of juvenile winter habitat limits the number of juveniles that reach adulthood. Often there are multiple independent variables with complex inter-relationships that can influence population size.

The ecological dominance of a given species is often determined by environmental variables. A chronic input of sediment could tip the ecological balance in favor of one species in mixed salmonid populations or in species communities composed of salmonids and nonsalmonids (Everest et al. 1987, p. 120). Bull trout have more spatially restrictive biological requirements at the individual and population levels than other salmonids (USFWS (U.S. Fish and Wildlife Service) 1998, p. 5). Therefore, they are especially vulnerable to environmental changes such as sediment deposition.

Aquatic Impacts

• Classify and analyze the level of impacts to bull trout and westslope cutthroat trout in streams, rivers and lakes from sediment and other habitat alterations:

Lethal: Direct mortality to any life stage, reduction in egg-to-fry survival, and loss of spawning or rearing habitat. These effects damage the capacity of the bull trout to produce fish and sustain populations.

Sublethal: Reduction in feeding and growth rates, decrease in habitat quality, reduced tolerance to disease and toxicants, respiratory impairment, and physiological stress. While not leading to immediate death, may produce mortalities and population decline over time.

Behavioral: Avoidance and distribution, homing and migration, and foraging and predation. Behavioral effects change the activity patterns or alter the kinds of activity usually associated with an unperturbed environment. Behavior effects may lead to immediate death or population decline or mortality over time.

Direct effects:

Gill Trauma - High levels of suspended sediment and turbidity can result in direct mortality of fish by damaging and clogging gills (Curry and MacNeill 2004, p. 140).

Spawning, redds, eggs - The effects of suspended sediment, deposited in a redd and potentially reducing water flow and smothering eggs or alevins or impeding fry emergence, are related to sediment particle sizes of the spawning habitat (Bjornn and Reiser 1991, p. 98).

Indirect effects:

Macroinvertebrates - Sedimentation can have an effect on bull trout and fish populations through impacts or alterations to the macroinvertebrate communities or populations (Anderson, Taylor, and Balch 1996, pp. 14-15).

Feeding behavior - Increased turbidity and suspended sediment can affect a number of factors related to feeding for salmonids, including feeding rates, reaction distance, prey selection, and prey abundance (Barrett, Grossman, and Rosenfeld 1992, pp. 437, 440; Henley, Patterson, Neves, and Lemly 2000, p. 133; Bash et al. 2001d, p. 21).

Habitat effects - All life history stages are associated with complex forms of cover including large woody debris, undercut banks, boulders, and pools. Other habitat characteristic important to bull trout include channel and hydrologic stability, substrate composition, temperature, and the presence of migration corridors (Rieman and McIntyre 1993, p. 5).

Physiological effects - Sublethal levels of suspended sediment may cause undue physiological stress on fish, which may reduce the ability of the fish to perform vital functions (Cederholm and Reid 1987, p. 388, 390).

Behavioral effects - These behavioral changes include avoidance of habitat, reduction in feeding, increased activity, redistribution and migration to other habitats and locations, disruption of territoriality, and altered homing (Anderson, Taylor, and Balch 1996, p. 6; Bash et al. 2001t, pp. 19-25; Suttle, Power, Levine, and McNeely 2004, p. 971).

• Native fish evolved with fire, they did not evolve with roads and logging.

> "Although wildfires may create important changes in watershed processes often considered harmful for fish or fish habitats, the spatial and temporal nature of disturbance is important. Fire and the associated hydrologic effects can be characterized as "pulsed" disturbances (*sensu* Yount and Niemi 1990) as opposed to the more chronic or "press" effects linked to permanent road networks. Species such as bull trout and redband trout appear to have been well adapted to such pulsed disturbance. The population characteristics that provide for resilience in the face of such events, however, likely depend on large, well-connected, and spatially complex habitats that can be lost through chronic effects of other management. Critical elements to resilience and persistence of many populations for these and similar species will be maintaining and restoring complex habitats across a network of streams and watersheds. Intensive land management could make that a difficult job." (Rieman and Clayton 1997)

• The project relies on BMPs to protect water quality and fish habitat. First, there is no evidence that application of BMPs actually protects fish habitat and water quality. Second, BMPs are only maintained on a small percentage of roads or when there is a logging project. What is the life expectancy for Best Management Practices? How often will they need to be re-applied and what is the expectation for securing funding to keep these roads maintained given the Forest Service's road budget?

BMPs fail to protect and improve water quality because of the allowance for "naturally occurring degradation." In Montana, "naturally-occurring degradation" is defined in ARM 16.20.603(11) as that which occurs after application of "all reasonable land, soil and water conservation practices have been applied." In other words, damage caused directly by sediment (and other pollution) is acceptable as long as BMPs are applied. The result is a never-ending, downward spiral for water quality and native fish.

Here's how it works:
• Timber sale #1 generates sediment damage to a bull trout stream, which is "acceptable" as long as BMPs are applied to project activities.

• “Natural” is then redefined as the stream condition after sediment damage caused by Timber Sale #1.
• Timber sale #2 – in the same watershed – sediment damage would be acceptable if BMPs are applied again – same as was done before.
• “Natural” is again redefined as the stream condition after sediment damage caused by Timber Sale #2.

The downward spiral continues with disastrous cumulative effects on bull trout, westslope cutthroat trout and most aquatic life.

BMPs are not “reasonable.” Clearly, beneficial uses are not being protected. In Montana, state water quality policy is not being followed. § 75-5-101 et seq. and ARM 16.20.701 et seq.

• The EIS must disclose the costs to continually apply BMPs to the already bloated road network when the Flathead's entire road budget can only pay to maintain a fraction of the roads on whole forest.

• The project area contains recommended wilderness (15,887 acres) and proposed Wild and Scenic rivers (4,200 acres) although they are not identified by name. The Forest Plan Suitability MA 1B Suit contains limitations on activities in recommended wilderness:

> 02 Recommended wilderness areas are not suitable for timber production; timber harvest is not allowed.
> 03 Recommended wilderness areas are suitable for restoration activities where the outcomes will protect the wilderness characteristics of the areas, as long as the ecological and social characteristics that provide the basis for wilderness recommendation are maintained and protected.
> 04 Recommended wilderness areas are not suitable for road construction or reconstruction.
> 06 Mechanized transport and motorized use are not suitable in recommended wilderness areas.
> 07 The Jewel Basin hiking area is not suitable for motorized use, mechanized transport, and stock use.

The EIS must evaluate any activities taking place in recommended wilderness for compliance with the Forest Plan and the Wilderness Act to ensure that they retain their wilderness characteristics.

Similarly, proposed Wild and Scenic rivers must undergo evaluation for compliance with the Forest Plan and the Wild and Scenic River Act to protect the free-flowing condition, water quality and outstandingly remarkable values that made them eligible for such future designation.

• How will climate change impact your assumptions about this project?

• The Flathead must fully analyze the impacts of climate change. Published scientific reports indicate that climate change will be exacerbated by logging, that climate change will lead to increased wildfire severity (including drier and warmer conditions that may render obsolete the proposed effects of the project) and stream flows will be altered with reduced water in the summer and/or peak flows/flood events outside of historical norms. The Forest Service must candidly disclose, consider, and fully analyze the published scientific papers addressing climate change in these contexts. [See the Montana Climate Assessment at montanaclimate.org]

• Controlling weeds and preventing their spread is a huge issue that the Flathead does not have a grip on. Current methods are obviously not working, weeds spread on forest roads, in cutting units, landings, burn piles, and on to private property. The best way to prevent weeds from spreading out of control is not to disturb the native vegetation. Please do not attempt to dupe the public into believing that the same past failed mitigation measures to control weeds will somehow miraculously work in this project. This project will spread weeds, not reduce them adding another impact that will reduce forage for wildlife and increase competition with native plants.

We expect our comments be given full consideration. Please keep us informed.

/s/Arlene Montgomery
Program Director

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