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Via: https://cara.fs2c.usda.gov/Public/CommentInput?project=63176

Please accept the following comments on the Dry Riverside Project on behalf of Friends of the Wild Swan. We incorporate by reference the comments submitted by Swan View Coalition, Alliance for the Wild Rockies, Native Ecosystem Council and WildEarth Guardians. We refer you to our scoping comments because they were not addressed in the Environmental Assessment.

• The Environmental Assessment fails to analyze the impacts of twelve regeneration units and two burn units adjacent to, and seven roads through, old-growth forest habitat on:

Old-growth associated wildlife
Weed spread
Connectivity between old-growth stands

The old growth patch sizes are already small at an average of 64 acres. Seedtree and shelterwood logging on 277 acres adjacent to these small old growth patches diminishes their function as habitat for old growth dependent wildlife. Seven roads (that are not identified) through old growth are basically dismissed for impacts because six of them are on existing templates, however, they have grown in and currently function as part of the old growth stands. You propose to bulldoze them open to spread weeds and further fragment these stands.

The EA is totally devoid of any analysis of the impacts to wildlife that are dependent on old growth habitat. How large should old growth patch sizes be to maintain viability? How much edge is too much?

Corridors of interior forest habitat between old growth habitat with a minimum width of >100 meters have been recommended by scientists. All corridor habitat in the project area should be mapped and both current and long-term objectives defined for maintaining these corridors over time. This was not done so the EA is inadequate in analyzing the impacts to wildlife connectivity.

Equally dismissive is the four sentences on blowdown, such as, "if substantial blowdown were to occur in these units and the old growth classification was altered because of decreased trees per acre >21" DBH, the stand would still function as late seral habitat. That's not the point! You are degrading old growth habitat which directly impacts birds, wildlife, native plants, mychorizal fungi and other attributes that are necessary to these species survival.

Soil disturbance on 6,850 acres will spread weeds. "The risk of persistence would be high in areas proposed for regeneration harvest, road activities and other areas with high canopy cover removal". Precisely the logging that will take place adjacent to old growth stands. Weeds replace native plants that provide food/forage for wildlife. Weeds degrade old growth habitat. Yet there is no analysis of these impacts.

• The Flathead has no plan for retaining old-growth forest habitat on the landscape and allowing stands to develop into old growth. Instead this project will fragment old growth, create abrupt edges from roads and cutting units adjacent to it, and degrade the habitat quality for old growth associated birds and wildlife.

Pfister, Baker, Fiedler and Thomas lay out considerations for designing old growth networks:

> "Interior" old growth habitat (>100 meters from edge of an opening or stand of lesser age or a road) is the most important component of old-growth habitat (Baker and Knight 200). I.e., in general, larger stands are more effective as habitat than smaller stands. Fragmentation of existing patches of old growth by roads, timber harvesting, or other created openings will decrease effectiveness of the patch as habitat due to the reduction in amount of interior old-growth conditions (Baker and Knight 200). I.e, in general, non-fragmented stands are more effective as habitat than smaller stands. To decrease or avoid fragmentation, roads can be designed to avoid large patches, harvest units can be placed on or near existing roads, and roads can be closed where no longer needed.
>
> Stands of old-growth forests will function best as habitat when they are connected to other stands. Connectivity can thus be achieved by corridors of actual old growth or by suitable closed-canopy or mature condition of the matrix between old-growth stands (Thomas and others 1990, Bennett 1999). Stands designated as future old growth that are presently mature may be suitable. Linkages should, when possible, contain a large fraction of interior forest (i.e., >100 meters from high contrast edge) (Bennett 1999).
>
> When designating old-growth patches (whether extant or planned) it is important to span a representative cross-section of sites, rather than to concentrate them in streamside areas or on poorer sites.
>
> Place longer-rotation or less intensive uses adjacent to designated old growth, so that a lower intensity managed zone serves as a buffer for old-growth system (Noss and Cooperrider 1994). Avoid placing high intensity land uses (e.g., clearcuts, roads) next to designated old growth.
>
> Don't worry about the appropriate mix of stand structures and compositions within old growth, because the science has not yet provided that kind of resolution.

> Other things being equal, big old-growth reserves are better than small ones, unfragmented reserves are better than fragmented, reserves closer together are better than reserves far apart, reserves connected to others are better than those not connected.
>
> Integrate future replacement old growth into the network. Where otherwise equivalent replacement stands exist, choose those adjacent to designated old growth as future old growth.
>
> Designate the existing old growth and future old growth and place them on maps.

The Flathead must develop an old growth network to ensure viability of old-growth associated wildlife.

• The EA does not analyze the impacts from reduced thermal cover for ungulates. Dense forest canopy limits snow depth allowing animals to move through deep snow in the winter. In winter and summer dense forest canopy provides thermal regulation, it is warmer under the canopy in the winter and cooler under the canopy in the summer. The additional stress of logging off thermal cover was not evaluated in the EA. Nor does the Forest Plan contain standards for ungulate cover.

• The EA does not analyze the impacts to Region 1 Sensitive Species such as bald eagle, black-backed woodpecker, common loon, harlequin duck, bighorn sheep, fisher, wolf, bats and toads. Since sensitive species are designated because population viability is a concern on National Forest lands it is imperative that impacts to them be analyzed to ensure that numbers and population distribution are adequate so they are not extirpated on Forest Service land.

• The EA is confusing because it uses the term multi story which is not the NRLMD/Forest Plan's "multi story mature or late successional forest" in VEG-S6. There is no definition of multi story and how it differs from multi story mature habitat. Furthermore, the EA essentially ignores the large openings that will be created. There is no analysis of lynx avoiding these large openings, there is no analysis of roads running through or adjacent to old-growth forest habitat, there is no analysis of logging in or adjacent to late successional forest and there is no analysis of lynx being displaced from key habitat.

• No roads should be built or logging conducted in grizzly bear secure core, especially not roads that will be added to the system.

• The EA's assumptions about regeneration fail to consider climate change and the possibility that the logged forest will not regrow in the future as it may have in the past. It also fails to factor in the inevitable fires that still will occur and are additive to the logging that is proposed.

• The project results in openings greater than 40 acres in size. Regional Forester policy (FSM 2471.1) directs the size of harvest openings created by even-aged silvicultural practices (e.g. seed tree, shelterwood, and clearcut harvest prescriptions) would be normally 40 acres or less. The National Forest Management Act at 219.27(d)(2)(ii): Size limits exceeding those established in paragraphs (d)(2) and (d)(2)(i) of this section are permitted on an individual timber sale basis after 60 days public notice and review by the Regional Forester.

The EA does not analyze the impacts to wildlife of exceeding the opening size, it instead tiers to a generic Forest Plan standard that states that exceptions "may" occur. The impacts to wildlife must be analyzed on a site specific level and not rely on *aspirational* desired conditions.

• The Dry Riverside project coupled with the previous Betty Baptiste project, that logging has not been completed on, will result in at least 15 years of perpetual industrial activity and wildlife displacement. Yet the impacts to wildlife are virtually non-existent except for wolverine, lynx, grizzly bears and big game -- and even that analysis does not meet the hard look required by the National Environmental Policy Act.

• The entire project will detrimentally impact soil condition and function. While not reaching the 15% threshold many of the logging units and temporary roads will have measurably increased detrimental soil condition. The EA fails to analyze how this impacts mychorrizal and other fungi that are necessary to healthy forest conditions.

• The EA failed to fully analyze the impacts of increased sediment on stream habitat and fish foraging.

Hungry Horse reservoir is bull trout foraging and rearing critical habitat. Tributary streams to the reservoir contain westslope cutthroat trout. The EIS must identify the westslope cutthroat trout streams in the project area along with their population status.

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).

The EA failed to take a hard look at the impacts from increased sedimentation to fish, fish habitat and water quality.

• 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 EA failed to analyze the economic impacts or answer the questions in our scoping letter. How will the Flathead maintain the proposed new bloated road system in the project area? What is the road budget? How is enlarging the road system a wise use of taxpayer money? Why are culvert removals dependent on funding yet road construction is a blank check?

• The EA fails to consider a reasonable range of alternatives in violation of the National Environmental Policy Act. It's either all logging or none. Select the No Action alternative.

/s/Arlene Montgomery
Program Director