

Appendix L

AQUATIC CONSERVATION STRATEGY OBJECTIVES

All the alternatives would be consistent with the Aquatic Conservation Strategy Objectives. .
The rationale for this determination is as follows:

- 1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.**

At individual site scales, stock animals can modify features in the riparian areas and in upland areas. Within riparian areas associated with campsites and where trails cross streams, animals can reduce riparian vegetation and destabilize stream banks. However, these areas are not contiguous and are less than 1% of riparian areas across the landscape. The few impacts would be unnoticeable at the project and 5th field watershed scale. Therefore, re-issuing the permits for another 10 years would not prevent maintaining or restoring the distribution, diversity, and complexity of watershed and landscape-scale features sufficient for a healthy ecosystem.

- 2. Maintain and restore spatial and temporal connectivity within and between watersheds.**

No part of the project effects would change the existing connectivity between watersheds. The very small fraction of effects at the site scale would not prevent riparian or aquatic dependant species from making normal migration patterns. This objective would be maintained.

- 3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.**

Stream bank vegetation across the analysis area consists of conifers, alders, willows, dogwoods, and coarse substrates. These species and the rock material provide excellent bank protection. Since nearly all the area is in either wilderness or areas without many roads, stream bank stability is excellent.

The only areas where outfitter-guide activity, specifically pack animals and clients, would disturb shorelines, banks, and bottom configurations are at lakes and streams adjacent to campsites and day use areas and stream crossings on trails. Some bank trampling and negative impacts are anticipated in these areas; however it would be minimal and represents a small portion of the resources across the project area. There are eleven campsites within the Riparian Reserves boundary of lakes and ten campsites between the reserve boundary and 500 feet of lakes. There are 319 lakes in or bordering the analysis area. Based on a GIS analysis, analysis area lakes have a combined lake shore distance of 78 miles. Based on a disturbed distance of lake shore for camps in reserves of 100 feet and 50 feet of disturbed shore distance within 500 feet

of the reserve boundary, this amounts to a combined distance of 0.3 miles or less than 0.001% of the total.

There are 21 camps within Riparian Reserves and 30 camps between the buffers and 500 feet of streams. There is an estimated 2,609 miles of streams in the analysis area under jurisdiction of the Northwest Forest Plan. Based on a distance of 100 feet of disturbed stream banks from camps within riparian buffers and 50 feet from camps outside of buffers but within 500 feet of streams, this amounts to a distance of about 0.7 miles total or less than 0.001% of disturbed stream banks associated with camps.

Based on a GIS analysis there are 674 stream crossings on trails in the Northwest Forest Plan portion of the analysis area. Based on 10 feet of channel disturbance per stream crossing, this amounts to about 1.3 miles total of bank disturbance out of the 2,609 miles total or less than 0.001% disturbance. Furthermore, these sites would be dispersed across the project area and the pack and saddle stock outfitter-guides do not use all trails, so the effect would be even less.

Based on the small proportion of lake shores and stream banks impacted by outfitter-guide activity in the past, anticipated impacts at the project, 6th field, and 5th field watershed scales would be inconsequential. Impacts would remain the same with no increase in use. Therefore, re-issuing the permits for another 10 years would not prevent maintaining or restoring the physical integrity of lake and stream channel features sufficient for a healthy ecosystem.

4. Maintain and restore water quality necessary to support healthy riparian, aquatic and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.

The project proposes to issue permits to outfitter-guides that use a combined area of 880,000 acres in the portion of the analysis area under the jurisdiction of the Northwest Forest Plan. Travel would be in groups not exceeding 12 persons or 18 head of stock. No part of the proposed activities would create openings over streams or lakes; therefore, the project would have no effect to water temperature.

In areas where pack stock cross streams and drink, fecal contamination may occur. This could lead to increased nutrient levels at the site scale, but it would be quickly diluted and not detectable. Stock would be loose-herd grazed, not concentrated. Stock would only enter water to drink and when crossing streams on trails. Otherwise, stock would graze in the uplands so the amount of time in water would be minimal. All camps are located at least 200 feet from lake shores. Outfitter-guides will also review and practice minimum-impact travel and camping practices with clients, including those at drop camps. The following pamphlets will be used as the standard: "Rocky Mountain Leave No Trace Skills and Ethics", "North American Leave No Trace Skills and Ethics", and "Horse Use Leave No Trace Skills and Ethics". These measures would reduce the effect of any change in nutrient levels to negligible levels and would be quickly diluted at the site scale. Some increase in nutrient level may occur at the site scale but would be

quickly diluted and have no effect on aquatic resources. There would be no effects at the 6th and 5th field watershed scales.

Fecal coliform levels at lakes and streams may be elevated where livestock drink, cross streams, and during snowmelt and rainstorms as horse manure is washed down the trail and into the stream at the site scale. The loading would be spread over the entire project area and only a small amount of bacteria would get into surface water and any point of contact. Fresh water would quickly dilute the bacteria as water is constantly flowing down streams, through wetlands, and circulating in lakes. There are no known detrimental fecal coliform bacterial levels for the project area. There are no water bodies in the project area listed on the 2004 Washington State 303(d) list for fecal coliform. Based on the minimal effects at the site scale, there would be no effects to natural fecal coliform levels at the 6th and 5th field watershed scales.

In summary, there would be no effects to temperature and insignificant effects to nutrient and fecal coliform levels at the site scale. No changes to nutrients and fecal coliform would occur at the 6th or 5th field watershed scales. Therefore, re-issuing outfitter-guide permits for 10 years would not prevent maintaining or restoring water quality.

5. Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.

The primary source of sediment from outfitter-guide activity is bank trampling when pack animals drink and to a lesser degree at stream crossings. From these disturbances sediment delivery to lakes and streams would be insignificant. At stream crossings, pack animals may move off trail to access a creek but more likely will drink from the trail resulting in little sediment generation. The only time livestock would access lake shores and stream banks is to water. All other times, outfitters either loose-graze stock in the uplands, or keep stock confined by tethering to a highline, hobbling, or corralling. Therefore, the amount of time spent at any water body would be short and the associated disturbance and sediment delivery minimal. Based on these factors, the amount of sediment generated when pack animals drink or cross streams would be inconsequential.

The small effects to sediment at the site scale would not translate to any effect at the 6th or 5th field watershed scale. Since most streams are in either wilderness or areas with few roads, wood levels are most likely excellent and capable of trapping and sorting any small increase in sediment resulting in no effects downstream. Therefore, re-issuing the permits for another 10 years would not prevent maintaining or restoring the sediment regime of lake and stream channel features sufficient for a healthy ecosystem.

6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing.

Instream flows are unlikely to be affected by the out-fitter guide project. There would be no effects to stream flow from this project. Please see the Hydrology report for details.

7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.

No outfitter-guide activity would create open areas that would result in increased snow-depth and rapid melt-off. Therefore, the proposed project would not result in any changes to stream flows.

Water tables in wetlands may be impacted at a few areas on trails and when animals loose herd graze. When outfitter-guides and clients use trails that cross wetlands, they would likely avoid the wettest areas, creating other user-made trails that increase the impact area on the wetlands. Users may also widen and deepen impacted areas. Water may begin to flow as a stream through the wetland, where the water eventually infiltrated into the soil. The net effect is that water leaves the wetland faster than before. Since these wetlands contribute to late season flows in down slope streams, the change in the wetland may reduce late season flows in nearby downstream locations. However, the relative impact on the wetlands in all the areas would be low because the affected wetlands are a small portion of the total wetlands. Across the analysis area, previous and current pack stock accessed only a small fraction of all the wetlands. By following these measures, effects to water tables would be minimal at the site scale and would have no effects at the 6th and 5th field watershed scales.

8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.

Minor impacts to riparian vegetation will occur when pack stock access water to drink and at stream crossings on occasion. Impacts to riparian vegetation would be limited to areas near camps, day use areas, and along trails at stream crossings; this would be a small proportion of all riparian resources across the analysis area.

Outfitter-guide pack and saddle stock will be allowed to open graze in the analysis area, including in wetlands. This dispersed grazing technique minimizes concentrated effects to wetlands. Some soil compaction and displacement occurs, but the relatively small number of stock in any given group (maximum party size is 18 head of stock) and the short amount of time pack and saddle stock outfitter-guides are operating (typically early July through mid-October), minimizes impact to soil and plant communities in the wetlands that are grazed. In addition, the vast majority of wetlands in the analysis area (approximately 98.6%) are over 500 feet from established campsites, and the wetlands are spread across the 1.1 million-acre analysis area. This results in most wetlands never being affected by pack and saddle stock grazing, and existing in a pristine condition.

The few impacts to riparian dependant vegetation would have a slight negative effect to bank stability but not to the extent that surface and bank erosion and channel migration would change. Because much of the area is in wilderness and areas with few roads, the riparian forest has more than enough trees to supply large wood to streams. The proposed outfitter-guide activity would not change conditions at any spatial scale. Therefore, the existing activity and proposed continuation would not prevent

maintaining or restoring species composition and structural diversity of plants capable of providing the above protection and complexity at the site, 6th field, or 5th field watershed scales.

9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.

At the site scale, pack stock are have some negative impacts to riparian vegetation and habitat associated with lakes and streams when drinking water. The few areas along streams and lakes impacted when pack stock access water is only a fraction of all water bodies across the project area. There are 74 lakes and 2,609 miles of streams in the analysis area covered by the Northwest Forest Plan and there are only eleven camps within the Riparian Reserves of lakes and 21 camps in Riparian Reserves of streams. The impacted area would represent less than 0.001% of all lake shores and stream bank miles. Therefore, the area of riparian habitat impacted currently and the impacts from a continuation for 10 years, with the associated mitigation measures, would be inconsequential at the site scale and no effects at the 6th field or 5th field scales.