

Recreation Report

In support of the

Diamond Lake Restoration Project

Prepared by: _____

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Prologue

The environment, people's preferences and expectations, and recreation use, have a bearing on recreation management and decisions affecting national forest lands. Following are Regional and Umpqua National Forest visitor survey results and studies regarding the social aspect of recreation and natural resource management.

A Regional Perspective

Based on research conducted by Burchfield, Miller and Anderson on Recreation in the Pacific Northwest, "participation in recreational use of National Forests in the Pacific Northwest reflects national trends" (Burchfield et. al., 2002):

"Viewing activities, such as sightseeing, wildlife viewing, or visiting scenic and historical sites have the highest level of participation. Water-based activities, such as swimming, boating and fishing, are second in participation after viewing activities. Camping is important in the Pacific Northwest, and outdoor adventure activities, such as hiking, backpacking, mountain climbing, and off-road driving, receive more use in the western states than other locations" (Burchfield et al., 2002).

Regarding recreational opportunities and the ability of people to participate, they went on to say, "The supply of recreation opportunities provided by National Forests is affected by several characteristics: land designations; the recreation infrastructure; planning-based classifications, such as the Recreation Opportunity Spectrum; recreational capacity and facilities maintenance" (Burchfield et al., 2002).

Special places were identified as important to people, as well as historic sites that offer connections to the past:

"Many special places have been identified as important to the people of the Pacific Northwest. Wilderness areas...high mountain areas, and late successional reserves were all identified as possessing important aesthetic properties. Fragile areas and rural communities are also special places for the functions that they provide to ecosystems and to the visiting public while cultural and historic sites offer irreplaceable connections to our past. Many areas on National Forests that allow people to experience solitude - even if access to this solitude is attained by motorized use - remain important to people in the region" (Burchfield et al., 2002).

Many of these attributes are available or accessible in the Diamond Lake area and are reasons why people visit.

The researchers recognize our increasing need to understand effects on resources due to recreation use:

"Our understanding of human impacts on the environment grows every year, yet we are only beginning to discover the types of effects that recreation can have on vegetation, wildlife, and water quality" (Burchfield et al., 2002).

The issue of water quality at Diamond Lake is a primary reason for completing this Environmental Impact Statement.

There is also recognition of increased recreational demand and the future financial investments that will be necessary to meet demand and protect resources:

“With increases in demand and the potential for high levels of impacts, recreation management will require much higher levels of financial support than it has received in the past. An aging and deteriorating recreation infrastructure requires considerable investments” (Burchfield et al., 2002).

Travel and Tourism Characteristics for Oregon and Washington: The landscape of the Pacific Northwest continues to bring visitors from out-of-state:

“Long distance travel to the states of Oregon and Washington will continue to be a source of potential recreational markets. This type of travel is important for a large share of American households. The regional character of the Pacific Northwest, with its variety of recreational experiences, and the close proximity of ocean, cities, mountains, forests, and deserts, will continue to attract long distance travelers to Oregon and Washington” (Burchfield et al., 2002).

Then they went on to add: “Washington, California and Idaho are the most popular origin states for travelers to Oregon.”

Specifically for Oregon, some findings of potential significance to the Diamond Lake area are:

“The average Oregon pleasure trip lasted 6.1 nights. This is longer than the national average for pleasure travel (U.S. average is 4.9 nights). However, the number of nights that were spent outside of Oregon during the travel was higher than the national average (1.7, Oregon and 0.9 for the U.S. average). For many pleasure travelers, a visit to Oregon is likely to be one element of a longer travel experience.

Pleasure travelers in Oregon reveal a strong emphasis on outdoor recreation and experience of nature.

Oregon travelers had a somewhat higher proportion than the national average of spousal traveling partners, and were more likely to be traveling with children. This could suggest a more family or intergenerational approach to the marketing of recreational opportunities in Oregon (Haas, 2003).

Informal sources of information (personal experience and advice from friends and relatives) are the most utilized sources for trip planning. Oregon visitors appear to be slightly above the national average in the use of the Internet for travel planning. A rapid increase in the use of the Internet suggests that “the relative importance of on-line information is likely to increase” (Haas, 2003)

Recreation participation characteristics in the Pacific Northwest cited by Burchfield, Miller and Anderson (2002) are all directly relevant to the recreational activities available at Diamond Lake, as reflected in a national survey in 1994-95:

“The four single activities with the highest level of national participation are walking, viewing a beach or waterside, family gatherings outdoors, and sightseeing. Any or all of these activities may occur in National Forests. Additional activities of importance to the Forest Service include visiting a nature or visitor center, visiting a historic site, camping and hiking.”

Popular outdoor recreation activities are “relatively low-cost, can be pursued without a great deal of physical exertion and do not require special equipment or skills (Cordell, 1999). Some examples of these activities include viewing and learning oriented activities, trail activities, picnicking, and swimming (Burchfield et al., 2002).

Although some activities have relatively lower overall levels of participation, the actual significance of these activities might be obscured, since people engaging in these activities do so repeatedly. For example, activities such as wildlife viewing, fishing, surfing, bird watching and horseback riding show a high number of activity days per year by each participant (Burchfield et al., 2002).

The widespread popularity of swimming, boating, and fishing demonstrates the attraction of water-based activities, and the need to focus management so that the quality of these activities may be sustained (Burchfield et al., 2002).

For physical activities requiring some skill, equipment, and level of exertion, such as hiking, off-road driving, hunting, fishing, camping, and snow and ice activities, participation begins to decline after age 50. For activities requiring little physical exertion, such as viewing and learning activities, there is little variation in participation rates for those between the ages of 16 and 49. The percentage of those participating drops off slightly after age 50 and significantly after age 60” (Burchfield et al., 2002).

When the researchers were conducting focus groups, the issue of place attachment and the meanings associated with certain locations...and the significance of National Forests supplying those places was raised, “other physical spaces cannot account for these values and any attempts to substitute new places for old will result in failure.” Specifically, a citizen was quoted as saying, “There is no place to substitute for a place that you have been going for 25 years, even if it looks like a lot of other places...you have lost part of your identity. You have lost part of who you are” (Burchfield et al., 2002).

Relative to fishing at Diamond Lake, there may have been a shift in use and even a displacement of anglers due to recent declines in the available fishery, but there is a certain level of opportunity that is consistent with the biological capability of Diamond Lake to address long-term held values and expectations that people have carried from generation to generation.

An Umpqua National Forest Perspective:

In 2001, a survey of user characteristics, behaviors and attitudes was conducted of recreationists on the Umpqua National Forest by Burns, Graefe and Robinson. Specific questions were asked to address reasons for visitation to Diamond Lake, the primary activities of participation and satisfactions levels of their trip, as well as future intentions to revisit. A stand-alone survey was conducted in the Diamond Lake area in addition to the Forest-wide survey using face-to-face interviews with visitors at recreation areas with a total of 649 interviews. About 29% of the respondents were 41-50 years of age. Consistent with Douglas County demographics, 97% of Diamond Lake visitors interviewed were White (Burns et al., 2002).

Following are the highlights of the survey results:

Regarding the trip characteristics, there was a tendency to have repeat visitors, 74% of Diamond Lake visitors came 1 to 10 times in a typical year and over half of the respondents stayed at the lake 3-5 days. Two-thirds of the visitors said the lake was their primary destination and of the remaining third, 43% of those reported that Crater Lake was their primary destination (Burns et al., 2002).

The vast majority of visitors (93%) were in groups of family and friends (Burns et al., 2002).

Generally, there was participation at Diamond Lake in many different activities. Most likely participation was in relaxing/hanging out (46%), viewing natural features (40%), camping (37%) and hiking/walking (36%). About one-fifth used resorts, cabins or other accommodations on national forest lands and one-third (33%) reported participating in fishing. Other popular activities included picnicking (29%) and bicycling (26%) (Burns et al., 2002).

When asked about primary activity undertaken, while at Diamond Lake, the top three were (1) camping in developed sites (23%), general relaxing/hanging out (21%) and fishing (18%) (Burns et al., 2002).

Most survey questions solicited a visitor response on a scale of 1 (awful) to 5 (excellent). Customer satisfaction of the recreation setting at Diamond Lake rated a 4.6 followed by responsiveness of staff at 4.2. Health and cleanliness rated lower at 3.8 and it was noted "This may be related to the lake health issues encountered in the summer 2001 recreation season" (Burns et al., 2002). The customer satisfaction indicator at Diamond Lake on fishing received a particularly low score (2.6) although health and safety related indicators (drinking water, clean toilets, etc) rated higher from 3.7 to 4.1. The rating value for "the lake/river and its surrounding area in good condition" was lower at 3.7 and there was general agreement of 4.2 that "fishing at Diamond Lake is not what it used to be."

The most important reasons for visiting Diamond Lake were to be outdoors for relaxation and to get away from the regular routine (4.6). Respondents indicated that "This place means a lot to me (4.2); they were very likely to recommend the area to others (4.3) and showed a strong intention to revisit (4.5). Overall, there was a high level of satisfaction among Diamond Lake visitors about their trip with 86% of visitors rating their experience 8 or higher on a 10-point satisfaction scale.

New Survey Data for the Diamond Lake Area:

In 2003, Burns, Graefe and Robinson were asked by the Umpqua National Forest to conduct additional visitor-surveys at Diamond Lake during the ongoing water quality fluctuations during the course of the summer recreation season. A total of 475 surveys were completed covering time periods (a) prior to the lake closure, (b) during the closure, and (c) after the lake opened to swimming and boating. The results of this survey showed some differences from the 2001 survey and clarified preferences that people identified related to the issues driving this environmental impact statement such as water quality and fishery restoration.

Following are preliminary results of the surveys:

Diamond Lake visitors are loyal, often repeat visitors whose primary destination is Diamond Lake. Primary recreation activities of general recreating/hanging out and viewing natural features doubled from 2001 to 2003 (from 28% to 46% and 40% to 82% respectively). Of visitors surveyed in 2003 who reported camping in developed sites, 66% responded as compared to 29% in 2001. A decline in the number of visitors pursuing fishing as a primary activity went from 18% in 2001 to just 8% in 2003.

One of the primary findings in this preliminary analysis¹ is that, among visitors who were polled, there is a greater concern for water quality than for quality of recreational fisheries at Diamond Lake.

¹Burns, Graefe and Robinson, Recreation at Diamond Lake: A Preliminary Examination of User Characteristics, Behaviors and Attitudes, University of Florida and The Pennsylvania State University, October 2003

Current visitors are not likely to stop visiting Diamond Lake due to water quality or recreational fisheries issues. However, if water quality improves, many are likely to visit more often in the future. Also, Diamond Lake visitors indicated that they visit the lake to pursue a relaxing experience rather than to achieve a physical gain. This finding may explain why the water quality is of higher importance than recreational fisheries. It is also worth noting that many of the recreationists who historically fished Diamond Lake have stopped visiting, and thus, may not have been represented in the survey. Also, over one-quarter of responses were neutral for the water quality and fishing improvement questions.

Almost two-thirds of the respondents were over 40 years old in both 2001 and 2003, but there was a 4% increase in non-Caucasian respondents at Diamond Lake in 2003.

First-time visitors increased at Diamond Lake from 9% in 2001 to 33% in 2003. There was a decline in repeat visitors in the same period from 91% to 67%. An average of eight days was spent at Diamond Lake by visitors in 2003 and the majority of respondents (87%) stayed overnight.



Diamond Lake Lodge – full-service recreation resort.

AFFECTED ENVIRONMENT

Surrounding the Diamond Lake Area is a range of outdoor recreation opportunities that occurs in outdoor recreation settings that encompass “rural” to “primitive” types of experiences. These opportunities allow a person “to participate in a particular recreational activity in a specific setting to realize a preferred type of experience and subsequent benefits” (Burchfield et al., 2002).

A recreation experience is “a composite of multiple experiential dimensions (e.g. challenge, freedom, physical exercise, escapement from everyday stresses) that involve multiple senses (e.g. sight, sound, smell).” (Burchfield, Miller and Anderson, 2002).

The concept of "Sense of Place" is predicated on a connectedness between (1) recreation activities, (2) settings, (3) experiences and (4) benefits. When one or more of these elements change, it can have a direct effect on a person's perception of "sense of place."

Sense of Place

In spring of 2003, a team of eight Forest Service personnel with a recreation and wildlife background from the District, the Supervisor's Office and the Regional Office convened on the Forest to map "Sense of Place" for the Diamond Lake Area and develop a Geographic Place Inventory for Developed Camping at Diamond Lake. Inventories were later developed for all "places" within and adjacent to the project area.

Within the Diamond Lake Geographic Area, there are eighteen distinct land or water areas that have a specific geographic place name. These areas are mapped in Figure 01. The map is called Diamond Lake "Sense of Place." The Diamond Lake Project Area lies considerably within this Diamond Lake Geographic Area, but because "connectedness" is important to an individual's "sense of place" it is important to illustrate the surrounding area for context. Each of the SOP units has a Geographic Place Inventory sheet completed and attached in the Appendix, Item No. 3.

Traditional Recreation Use: The earliest consistent recreation use at Diamond Lake coincides with the stocking of the lake with fish in 1910. There were some US Forest Service camps in the area before 1920 and in 1922 a US Forest Service special use permit was issued to the Diamond Lake Improvement Company to construct a resort at the north end of the lake (Diamond Lake RD, 1998). This involved a few tents, a store and a lodge. Around the same time, special use permits were issued for Recreation Cabins along the west shore. Primary access to the area was via the south from Medford and Klamath Falls. The US Forest Service estimated 1,500 persons visited Diamond Lake in 1921. Over the next thirty years, improvements were made to public campground facilities, the Resort, and additional cabins were built in the Summer Home tract. By the 1960's, development was at a level similar to what exists today. In 1962, paving of State Highway 138 significantly improved access from the Roseburg and Bend population areas. The historic use patterns continue and the length of stay at Diamond Lake (average of eight days) is considerably longer than the national average for a recreation trip (4.9 days) and longer than an average Oregon recreation trip (6.1 days) due to the destination nature of Diamond Lake for camping. The traditional use over nearly 100 years has shaped and influenced how people view the Diamond Lake Area and the "widespread popularity of swimming, boating and fishing" which Burchfield et al. (2002), points out, "need to focus management so that the quality of these activities may be sustained."

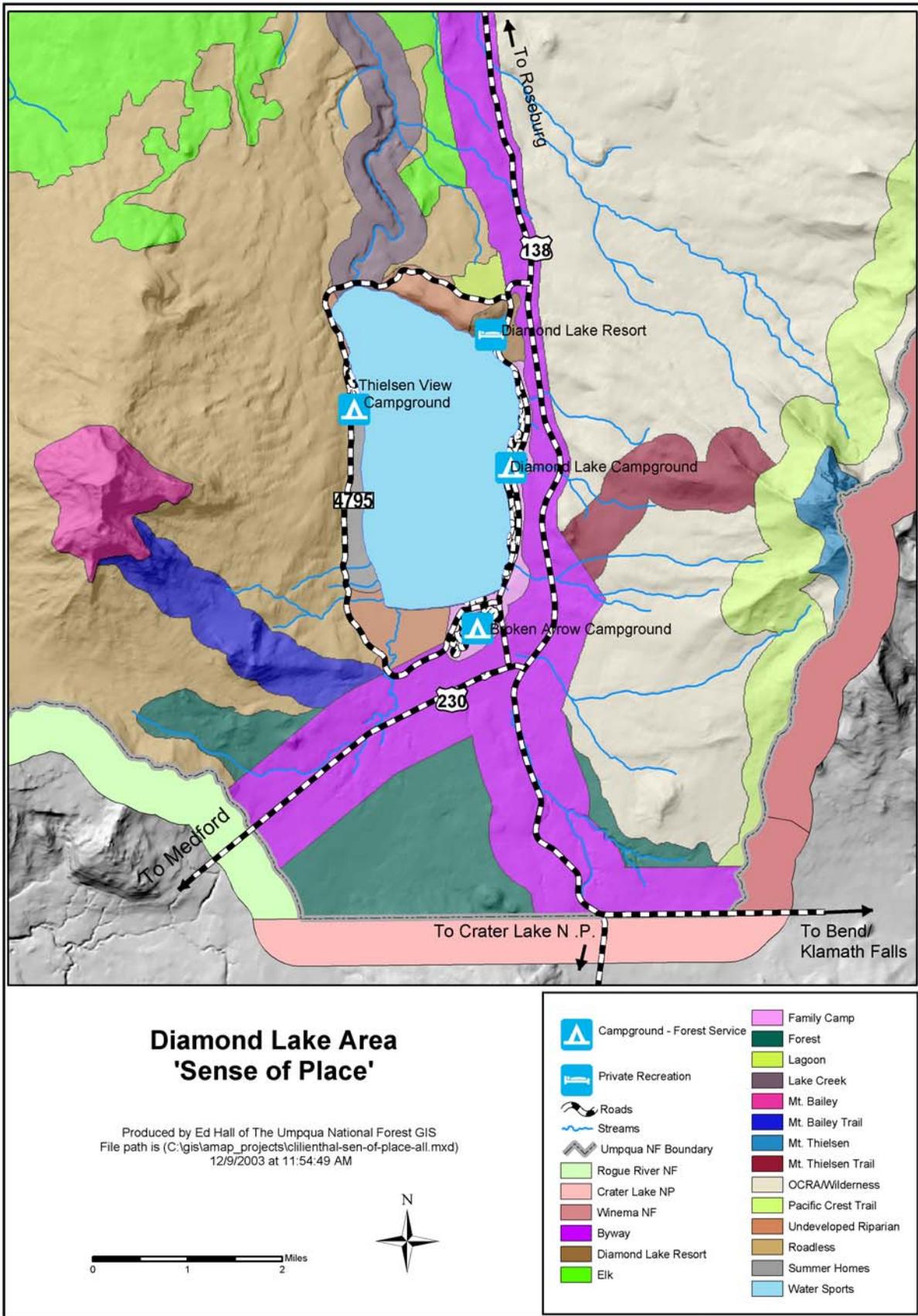


Figure 01 – Diamond Lake “Sense of Place”

Following is a list of the eighteen “Sense of Place” units and their corresponding “niche” or purpose for differentiation. The most affected units will be discussed in detail in this report as they lie within the Diamond Lake Project boundary.

- (1) Byways: A primary, paved transportation route over and through the Cascade Mountains that accesses a broad range of recreation opportunities, provides diverse scenic views year-round, connects Diamond Lake to Crater Lake National Park and surrounding communities, and serves as a conduit for economic activity. Following are the issues related to this unit:
 - (a) How do we reduce wildfire risk in the area?
 - (b) How do we orient visitors to the recreation facilities in the area?
 - (c) How do we maintain acceptable air quality?
 - (d) How do we inform visitors about safety and security information?
 - (e) How do we direct visitors to where they want to go?
 - (f) How can recreation, tourism and byways help diversify the economy?
 - (g) How do we balance nature with human needs to support economics?
 - (h) How can management and information help disperse recreation users?
 - (i) How do we provide the right information at the right time in the right way?
 - (j) How do we accommodate needs for staging and orientation while dispersing use?
 - (k) How can we make the desired links with the nearby Volcanic Legacy All-American Road and the proposed extension of the West Cascades National Scenic Byway?

- (2) Diamond Lake Resort: A year-round, high-mountain, destination with a full-service, lakeside resort serving “Joe and Jane” citizen and multi-generational families. Located near many outdoor recreation opportunities, Diamond Lake Resort has options, also, for extensive social experiences, including major events and festivals. Following are the issues related to this unit:
 - (a) How do we manage for healthy forest and soils with high populations of people and facility development?
 - (b) How do we protect the vegetation in the developed resort area?
 - (c) How do we improve water quality?
 - (d) How do we improve the fishery?
 - (e) How do we manage for acceptable levels of air quality in the Diamond Lake viewscape?
 - (f) How do we support the private owner in making facility improvements for an aging population?
 - (g) How do we encourage enhanced visitor services in a remote location?
 - (h) How do we protect natural resources while supporting changing needs and uses?
 - (i) How do we support year-round operations in a remote location while balancing diverse visitor expectations and resource protection?
 - (j) How do we support visitor needs and expectations while supporting permittee need for income?
 - (k) How do we support events and group activities that leave high visitor satisfaction levels and result in repeat visits?

- (3) Family Camp: High-capacity, highly developed day-use, camping and boating facilities on a 3,000-acre mountain lake in a High Cascade forest, anchored by volcanic peaks, that supports multi-generational families and groups during summer and fall seasons. Following are the issues related to this unit:
 - (a) How do we reduce the risk of forest fire?
 - (b) How do we manage to provide wildlife habitat and water-based recreation along the shoreline?

- (c) How do we manage water resources and facilities to maintain high quality recreation experiences?
 - (d) How do we manage for acceptable levels of air quality in the Diamond Lake viewshed?
 - (e) How do we provide adequate security and safe experiences?
 - (f) How do we improve water quality (key condition) for health and safety? What is the impact of Diamond Lake water quality on economics and revenues?
 - (g) How do we support the infrastructure to continue providing a quality recreation experience?
 - (h) How do we continue to support education conservation as part of the camping experience?
- (4) Lagoon: Supporting extensive recreation development near a major mountain lake, this sewage treatment facility creates a “defacto” wildlife area in an “out-of-the-way” place in the mountains and provides necessary storage areas for administrative purpose. Following are the issues related to this unit:
- (a) How do we manage for this purposeful deviation in the natural environment?
 - (b) How do we manage the vegetation to soften the appearance of the lagoons environment?
 - (c) How do we manage for people attracted by the “watchable wildlife” considering limited access and the aesthetic condition?
 - (d) How to manage for acceptable air quality?
 - (e) How do we manage the sewage lagoons considering recreation demand to watch wildlife?
 - (f) How do we manage for a safe, but useful facility, and allow recreation?
- (5) Lake Creek: This meandering, linear, riparian feature contains Lake Creek waterway and provides unique fish, wildlife and plant habitat, as well as downstream water supplies. Following are the issues related to this unit:
- (a) How do we restore the stream course to proper functioning condition?
 - (b) How do we appropriately acknowledge the historical significance of the canal?
 - (c) How do we manage the stream so that undesirable fish species do not migrate downstream?
 - (d) How do we maintain water flows appropriate to downstream user needs?
- (6) Mt. Bailey Trail: A pedestrian access connector between Diamond Lake and the top of 8300-foot Mt. Bailey where expansive views, challenges to the climber, access to nature study or spiritual connections can be obtained. Following are the issues related to this unit:
- (a) How can we make this trail more interesting to hikers?
 - (b) How do we manage for acceptable air quality for good visibility?
 - (c) How do we manage recreation use to minimize user conflicts?
 - (d) How do we support open communications among user groups?
 - (e) How do we balance development potential with the biological condition and ecological needs?
 - (f) How do we support security and safety for trail users?
- (7) Undeveloped Riparian: A lush, vegetated area with standing or sub-grade water levels that support wildlife habitat areas attractive to dispersed recreaters such as birdwatchers and photographers. Following are the issues related to this unit:
- (a) How do we provide access for people while protecting wildlife habitat?
 - (b) How do we limit access to humans while protecting the riparian area?

- (c) How do we direct people around riparian areas to link between other site areas?
 - (d) How do we manage for mosquitoes in adjacent developed recreation areas?
 - (e) How do we maintain riparian areas with high recreation populations in the vicinity?
 - (f) How do we manage the area to maintain effective wildlife habitat?
- (8) Roadless: A High Cascade natural area, free of roads, supporting dispersed recreation and spiritual activities in a high-elevation forested environment, culminating to a volcanic high point. Following are the issues related to this unit:
- (a) How do we maintain healthy vegetation and the scenic backdrop of Mt. Bailey?
 - (b) How do we manage smoke from fires, whether planned or unplanned?
 - (c) How do we protect historic values or values important to indigenous people?
 - (d) How do we manage for diverse user expectations?
 - (e) How do we measure market values, social values, and intrinsic values?
 - (f) How do we manage for recreation activities to minimize user conflicts and protect the natural resources?
 - (g) How do we manage for appropriate levels of winter and summer recreation?
- (9) Summer Homes: Multi-generational, single-family recreation residences, under special-use permit, for seasonal use along the shoreline of 3,000-acre Diamond Lake. Following are the issues related to this unit:
- (a) How do we manage for limited public access to the western shore of the lake?
 - (b) How do we manage the vegetation to minimize risk of wildfire and insects and disease?
 - (c) How do we manage for recreation use while protecting the natural resources?
 - (d) How do we manage for an acceptable level of air quality?
 - (e) How do we manage for access during the summer and winter seasons?
 - (f) How do we support improvements to the private recreation residences?
 - (g) How do we manage for shoreline use while protecting the resources?
- (10) Watersports: A 3,000-acre water magnet, in an intact mountain setting, that supports seasonal outdoor recreation use for passive and active water-based pursuits in a remote, but social environment which contributes substantially to the local economy. Following are the issues related to this unit:
- (a) How do we get the over population of tui chub fish under control?
 - (b) How do we maintain safe water quality and avoid shutdown of water contact sports?
 - (c) How do we manage for acceptable air quality conditions?
 - (d) How do we incorporate long-term family knowledge into the decision-space for management of the natural resources?
 - (e) How can we meet customer expectations while protecting the resources?
 - (f) How do we balance competing or regulating interests?
 - (g) How do we maintain an appropriate level of fisheries?
 - (h) How do we disperse use?
 - (i) How do we accommodate large numbers of people during events?



Mt. Bailey as viewed from Diamond Lake Resort

- (11) **Mt. Bailey:** A distinctive volcanic peak which attracts summer and winter outdoor recreation enthusiasts for challenge, isolation and spiritual connection purposes. Following is the issue related to this unit:
- (a) How do we manage for the diverse interests of the user groups?
- (12) **Forest:** Flat to rolling, rather common, forested landscapes which support general motorized and non-motorized dispersed recreation opportunities for people as well as wildlife habitats. Following are the issues related to this unit:
- (a) How do we maintain a healthy forest close to Crater Lake National Park, the Wilderness areas and the Semi-Primitive environments?
 - (b) How do we supply goods to the market place to support local economies?
 - (c) How do we manage Off-Road Vehicle use to prevent trespass into adjacent lands with prohibited access and protect the natural resources?
- (13) **Elk:** Forested slopes and basins of mixed conifer and lodgepole pine trees with intermittent springs, seeps and wetland areas that support big game and popular dispersed recreation opportunities such as hunting, camping and off-road vehicle use. Following are the issues for this unit:
- (a) How do we manage for a healthy forest within the ecological capability?
 - (b) How do we manage for air quality during seasonal forest fires?
 - (c) How do we manage for safety and security of people during hunting season with the concentration of hunters?
- (14) **Oregon Cascade Recreation Area/Mt. Thielsen Wilderness:** Semi-primitive and Primitive high country, strung with volcanic peaks and ridges of the Cascades, supports unique high-elevation habitats for plants and animals while providing opportunities for people to

experience solitude, adventure and natural beauty. Following are the issues related to this unit:

- (a) How do we disperse recreation use to protect the natural resources?
 - (b) How do we manage for a clean airshed to ensure visibility of natural features?
- (15) Mt. Thielsen Trail: Trail connector for people extending from Diamond Lake Recreation Area to the challenging and distinctive mountain volcano, Mt. Thielsen, in south central Oregon. Following is the issue related to this unit:
- (a) How do we maintain the trail and support facilities to meet user needs while protecting the natural resources?
- (16) Mt. Thielsen: A towering high-point feature on the horizon, this volcanic eruptive center is a visual focal point for miles around and attracts outdoor enthusiasts looking for challenge, climbing opportunities and incredible views. Following are the issues related to this unit:
- (a) How do we manage the recreation use to protect the fragile high-elevation environments?
 - (b) How do we manage for a clean airshed to ensure visibility of natural features?
- (17) Pacific Crest Trail: A nationally significant West Coast “Pacific Crest” trail in a high mountain environment, this connector ties Canada to Mexico linking with tributary trails that extends to local attractions and places. This trail provides opportunities for people to frequently experience solitude and self-reliance. Following are the issues related to this unit:
- (a) How do we manage for a clean airshed along the Pacific Crest Trail?
 - (b) How do we maintain the trail to serve national visitation?
 - (c) How do we encourage volunteer sign and trail maintenance?
- (18) Crater Lake National Park: Crater Lake, gem of the Cascades, holds world record standing for water clarity, is the central feature to Crater Lake National Park, and a main attraction to Oregon and the West Coast. Contributing significantly to local economies through employment and visitation, Crater Lake National Park provides a variety of developed recreation and educational activities, including the seasonal, full-service Crater Lake Historic Lodge, the Civilian Conservation Corps Era William Steele Visitor Center and seasonal guided boat tours inside the caldera. Following are the issues related to this unit:
- (a) How do we manage for a clean airshed?
 - (b) How do we manage adjacent national forest lands considering the diverse user groups?
 - (c) How do we fund and maintain facilities to support high visitation in the area with a quality experience?
 - (d) How do we manage activities and support events while protecting natural resources and providing a safe environment for people?

Analysis of the Issues in the “Sense of Place” Units

The issues that are of concern in the “Sense of Place” (SOP) units include several that are easily mitigated through identified recommended actions or management practices in the area. An example is the overarching concern in most of the units about clean air and high visibility. Many of the issues identified in the units, do not relate to the primary concerns being addressed in this document which focus on water quality and fisheries. However, there are some units and issues that will be affected directly or indirectly through implementation of an alternative as a result of this environmental impact statement. These issues mostly focus on four units, which include the Diamond Lake Resort,

Family Camp, Undeveloped Riparian and Watersports SOP units. This report will focus discussions on those units and the consequences of any potential effect due to implementation of an alternative. The identified issues of concern revolve predominately around the following:

- How do we improve water quality (key condition) for health and safety?
- How do we maintain safe water quality and avoid shutdown of water contact sports?
- How do we improve the fishery?
- How do we get the over-population of Tui Chub under control?
- How do we balance competing or regulating interests?
- How do we maintain an appropriate level of fisheries?
- How do we meet visitor expectations while protecting the natural resources?
- How do we support events and group activities that leave high visitor satisfaction levels and result in repeat visits?
- How do we manage to provide wildlife habitat and water-based recreation along the shoreline?
- How do we manage water resources and facilities to maintain high quality recreation experiences?
- How do we provide access for people while protecting wildlife habitat?
- How do we direct people around riparian areas to link between other site areas?
- How do we manage for riparian areas with high recreation populations in the vicinity?
- How do we manage for access during the summer and winter seasons?
- How do we disperse use?
- How do we accommodate large numbers of people during events?

Diamond Lake Recreation Area

The Diamond Lake Project Area, which is 7,861 acres, contains the most concentrated developed recreation facilities within the watershed. Following is an overview of the developed recreation area:

The recreation area lies predominantly in the Diamond Lake Composite (03) sub-watershed and partly in Lake Creek (01) and Bailey (02) sub-watersheds. The Diamond Lake Project Area is centered around the lake, with Mt. Bailey on the western side (8,363 feet in elevation), Mt. Thielsen to the east (9,182 feet in elevation), and Crater Lake National Park to the south. Diamond Lake is at an elevation of 5,191 feet, over 3,000 acres in size, and approximately 3.5 miles long by 1.5 miles wide. Forest Service Road 4795 surrounds the lake and is the main access route to the recreation facilities, including the 102 summer home residences.

Traditionally, the lake was managed as a fishing lake by the Oregon Department of Fish and Wildlife (ODF&W) with a maximum speed limit on the lake of 10 mph. (Diamond Lake Ranger District, 1998, page 82). In 1999, as a direct result of the downturn in the fishery, the Oregon State Marine Board increased the speed limit on Diamond Lake to 45 mph as per House Bill 2536. Oregon Department of Fish & Wildlife explained in a letter dated April 6, 2001, "The Legislature set an upper limit of 45 mph, maintained the 10-mph limit between the hours of 6 p.m. and 9 a.m., and maintained the 10 mph limit within 200 yards of certain specific populated areas of the lake. Furthermore, the Legislature directed the State Marine Board revert the speed restriction back to 10 mph when the State Fish and Wildlife Director determines that the health of Diamond Lake is restored and the lake can be restocked for fishing."



Diamond Lake Resort mooring facilities.

Diamond Lake is a high use destination recreation area² and has traditionally been recognized as a regionally renowned trout fishery with an average of over 100,000 angler days annually, during its peak. The area is easily accessible via Oregon State Highways 138, 230 and 97 and is 82 to 92 miles from the equidistant population centers of Bend, Klamath Falls, Medford and Roseburg. Diamond Lake is identified in the Umpqua National Forest Land and Resource Management Plan (1990) as a special management area (MA 2) and is to be administered for concentrated developed recreation under Prescription A4-1³. In order to meet the recreational demand, the Diamond Lake Recreation Area contains extensive Forest Service and private developments under special-use permits.

In addition to the permitted summer homes and Diamond Lake Resort, and the private Recreational Vehicle Park, there are currently Forest Service facilities that provide a capacity of 3,274 persons at one time. The Forest Service facilities include three developed campgrounds, group reservation areas and day use sites. There are 36 flush-type restroom buildings, three shower buildings, two dump stations, 417 campsites, three fish cleaning stations, five boat ramps, one pavilion, one amphitheater, 9.5 miles of sewer line, 100 waste water sumps, 12 miles of water line, 140 water hydrants, 4 oxidation lagoons (20 acres), and two deep-water wells.

² According to the June 1998 Diamond Lake/Lemolo Lake Watershed Analysis, at the time of its writing, Diamond Lake supported approximately 700,000 Recreation Visitor Days (RVD's) per year.

³ Prescription A4-1 refers to Concentrated Developed Recreation. "It applies to groups or clusters of developed recreation sites, (public and private at ...Diamond Lake) and the undeveloped land areas between them. Good access is provided to the areas via paved roads. The area is associated with high recreational-use water bodies. Recreational management will favor activities such as resort use, camping, picnicking, visitor information services, boating, fishing, interpretation, and developed and dispersed winter sports. "Concentrated Developed Recreation" emphasizes management of developed recreation sites as a complementary group (UNF-LRMP, page 152, 1990).

The classification of the Diamond Lake Recreation Area is generally “rural” by the Recreation Opportunity Spectrum⁴ (ROS) and the associated visual quality objective for the area is “retention” with the exception that facilities can be modified to meet ROS goals. Retention means that management activities are not evident to the casual Forest visitor.

Classification within “Sense of Place” Units

Specific to the Diamond Lake Project Area (7,862 acres), ten “Sense of Place” units have been further defined by their place in the Recreation Opportunity Spectrum from Urban to Primitive in the type of setting that is provided, and the Visual Quality Objectives identified for the physical environment from “ecological changes only” to a “heavily modified” condition. A summary showing the ROS classification and visual quality objectives of six SOP units most affected by a proposed treatment alternative within the project area is located in Table 01. A map of these units is contained in Figure 02.

The Diamond Lake area provides a wide variety of year round recreational opportunities including: fishing, swimming, boating, camping, hiking, viewing scenery, birding, mountain biking, horseback riding, hunting, cross-country skiing, snowmobiling and other snow play.

Table 01 -- Summary information for SOP units within the Diamond Lake Restoration Project Area.

SOP Unit	Summary Description	ROS Classification	Visual Quality Objectives
Water Sports	A 3,031 acre water magnet, in an intact mountain setting that supports outdoor recreation use for passive and active water-based pursuits in a remote, but social environment which contributes substantially to the local economy.	Rural Rural (existing developed recreation)	Foreground Retention
Family Camp	High-capacity, highly developed day-use, camping and boating facilities on a mountain lake in a High Cascade forest, anchored by volcanic peaks, that supports multi-generational families and groups during summer and fall seasons.	Rural Rural (existing developed recreation) Rural (potential developed site)	Foreground Retention Foreground Partial Retention

⁴Recreation Opportunity Spectrum: A framework in which to categorize the range of recreation experiences that can be provided on Forest land. The classes range from primitive, or Wilderness, recreation to urban park settings. Recreation opportunities are determined on national forest land by “(a) physical criteria such as remoteness and existing disturbances to the natural character of the land, (b) the kind and number of recreation users, and (c) current and planned management, law and policy” (Spjut and Marsh, page 1, 1981)

SOP Unit	Summary Description	ROS Classification	Visual Quality Objectives
Diamond Lake Resort	A year-round, high mountain destination with a full service, lakeside resort serving "Joe and Jane" citizen and multi-generational families. Located close to many outdoor recreation opportunities. Diamond Lake Resort also has options for extensive social experiences, including major events and festivals.	Rural	Foreground Retention
Summer Homes	Multi-generational, single-family recreation residences, under special-use permit for seasonal use along the shoreline of Diamond Lake. Area includes 102 summer residences.	Rural Rural (existing developed recreation)	Foreground Retention
Undeveloped Riparian	A lush, vegetated area with standing or sub-grade water levels that support wildlife habitat areas attractive to dispersed recreationists such as birdwatchers and photographers.	Rural Rural (existing developed recreation) Rural (potential developed site)	Foreground Retention Foreground Partial Retention
Lake Creek	This meandering, linear, riparian feature contains the Lake Creek waterway and provides dispersed recreation opportunities, fish and wildlife habitat, as well as downstream water supplies.	Roaded natural (sensitivity level 1) Roaded natural (sensitivity level 2) Rural Rural (potential developed site)	Foreground Retention Foreground Partial Retention Modification

Visual Quality Objectives⁵

Retention - Management activities are not visually evident.

Partial Retention - Management activities remain visually subordinate to the characteristic landscape.

Modification - Management activities may visually dominate the original characteristic landscape.

Maximum Modification - Management activities of vegetative and landform alterations may dominate the characteristic landscape.

Distance Zones

Foreground - The limit of the zone is based upon the distances at which details can be perceived. Normally, in foreground views the individual boughs of trees form texture. It will usually be limited to areas within ¼ to ½ mile of the observer, but is determined on a case-by-case basis.

Middleground - This zone extends from the foreground zone to 3 to 5 miles from the observer. Texture normally is characterized by the masses of trees in the stands of uniform tree cover. Individual tree forms are usually only discernable in very open or sparse stands.

Background - This zone extends from the middle ground to infinity. Texture in stands of uniform tree cover is generally very weak or non-existent. In very open or sparse timber stands, texture is seen as groups or patterns of trees.

Sensitivity Levels

Highest sensitivity - sensitivity level 1 includes all seen areas from primary travel routes, use areas and water bodies where, as a minimum, at least one-fourth of the Forest visitors have a major concern for scenic qualities.

Average sensitivity - sensitivity level 2 includes all seen areas from primary travel routes, use areas, and water bodies where less than one-fourth of the Forest visitors have a major concern for scenic qualities.

Lowest sensitivity - sensitivity level 3 includes all seen areas from secondary travel routes, use areas, and water bodies where less than one-fourth of the Forest visitors have a major concern for scenic qualities.

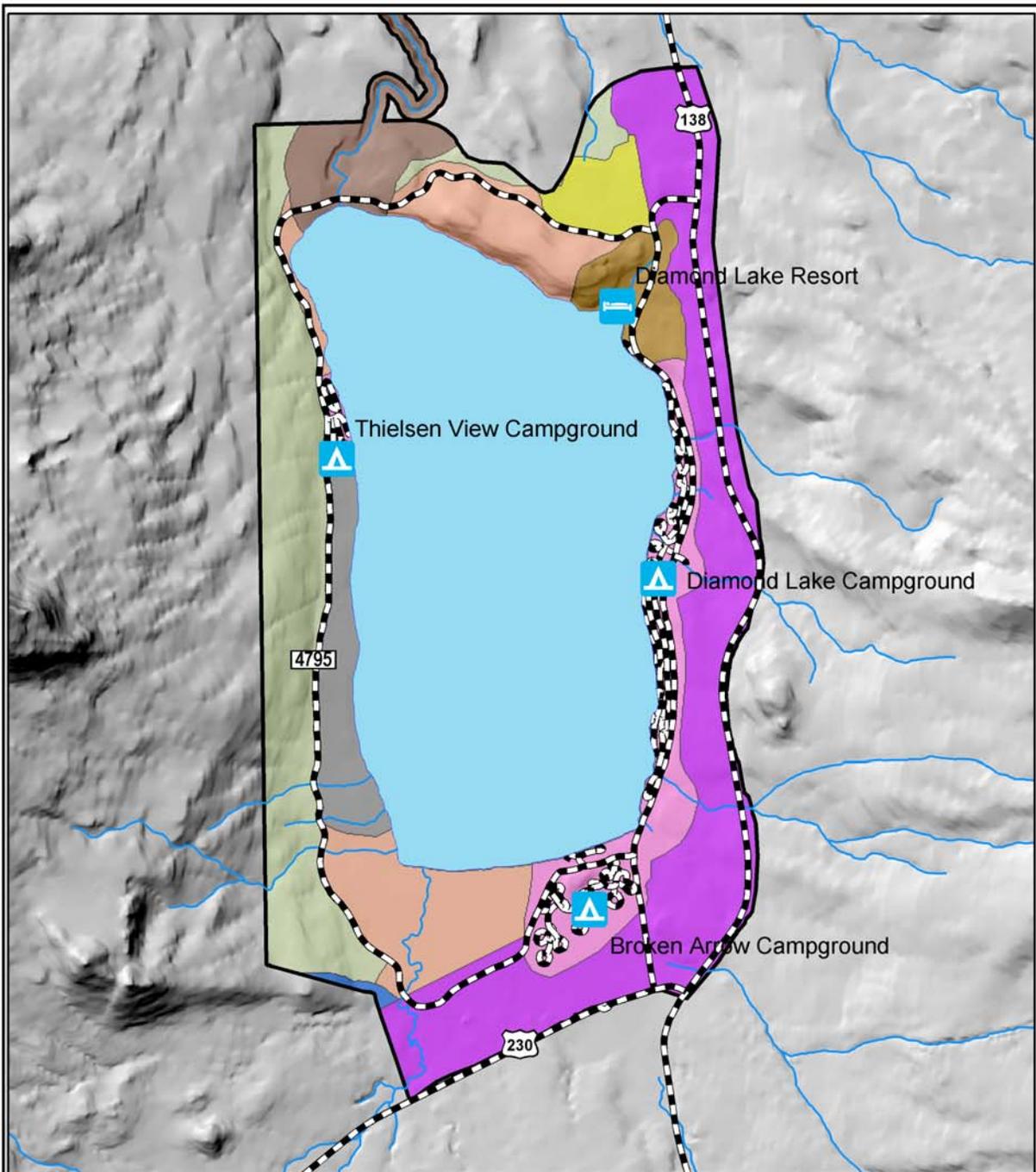
Recreation Opportunity Spectrum (ROS)⁶

Roaded Natural – Area characterized by predominantly natural-appearing environments with moderate evidence of the sights and sounds of people. Such evidences usually harmonize with the natural environment.

Rural – Area characterized by substantially modified natural environment, with sights and sounds of humans readily evident and interaction between users often moderate to high.

⁵ Umpqua National Forest Land and Resource Management Plan

⁶ Ibid



Diamond Lake Area 'Sense of Place'



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Figure 02 -- Sense of Place Units within the Diamond Lake Restoration Project Area.

Existing Capacity at Developed Facilities in "Sense of Place" Units

There are three Sense of Place units where developed recreation facilities are located and the maximum capacity for use is determined. These are in the Diamond Lake Resort, Family Camp, and Summer Home units. Table 02 shows a breakdown of these units with associated facilities, daily persons at one time (PAOT), the managed use season and PAOT days derived from 2003 Infrastructure Records.

Table 02 --Existing Capacity at Developed Facilities			
Sense of Place Unit with Site Listings	Daily PAOT	Season Days	PAOT Days
Family Camp SOP:			
• Diamond Lake Campground	1,408	190	267,520
• Broken Arrow Campground	1,013	106	107,378
• Thielsen View Campground	370	111	41,070
• South Shore Picnic Area	372	186	69,192
• North Shore Boat Ramp	161	185	29,785
• Medford Overflow	250	5	1,250
• Diamond Lake RV Park	550	152	83,600
		Subtotal =	599,795
Diamond Lake Resort:			
• Howlock Mountain Trailhead	70	186	13,020
• Howlock Horse Camp	10	185	1,850
• Diamond Lake Horse Corrals	20	190	3,800
• Diamond Lake Resort	2,162	365	789,130
		Subtotal =	826,470
Summer Homes:			
• Noble Fir Picnic Area	10	156	1,560
• Diamond Lake Rec. Residences	1,020	365	372,300
		Subtotal =	373,860
		Total =	1,800,125 PAOT Days

The total "Persons at One Time" capacity for the Family Camp, Diamond Lake Resort and Summer Homes units is 1,800,125 for the full seasons of use. To manage for an optimum recreation experience without overusing sites, creating crowded conditions, or trampling vegetation, the theoretical capacity would be about 40% of total capacity on the average over the course of the year. This equates to about 720,050 PAOT for the season.

Capacity at Diamond Lake for Boats

It was recognized by Evans and Associates in their 1998 study that there are "242 boats possible on the lake at one time" of which "75% are assumed to be angler boats. ODF&W assumes 2.8 people/boat = one angler trip for 2-3 hours (Loomis, personal communication, 2003). It is not the size of the lake which constrains the capacity of boat use, but "the ability of boaters to launch and pull off the lake." With present facilities at Diamond Lake, it would take 8 hours (Evans and Associates, 1998, page 58) to launch the theoretical maximum of 242 boats under ideal conditions.

The practical capacity of Diamond Lake is higher based on parking, marina and dock capacity at Diamond Lake Resort and the Summer Homes. This totals 478 boats (Evans, 1998). If 75% of those are angler boats, that is 358 boats. Using the ODF&W figure (2.8 people/boat for 2-3 hours), that would mean a practical capacity of about 180,400 angler visits over a 180-day period.



Diamond Lake Resort Marina

Recreation Visitation

Documented use figures over the years have occurred primarily at the developed recreation campgrounds of Diamond Lake, Broken Arrow and Thielsen View in the family camp "Sense of Place" unit. Table 03 documents annual occupancy at these popular campgrounds during 1989-2003.

A downward trend in use with the high year being 1992 and a gradual percentage drop to 2003 was evident for all three campgrounds. Depending on the site, there was a 37% to 60% decline in visitor use from the high year of 1992. There may be other contributors to the downturn in use, but the primary influencing factors appear to be the reduced fishery opportunity and the declining water quality in Diamond Lake. According to a Forest Service visitor use survey conducted in 1996, "camping and fishing are the two primary reasons people visited Diamond Lake, with bicycling, hiking and sightseeing being other popular reasons" (Diamond Lake Ranger District, 1998). Recent visitor surveys are showing a shift in the primary reasons people visit Diamond Lake.

Table 03 -- Annual Occupancy at Diamond Lake Campgrounds from 1989-2003.

Year	Diamond Lake	Thielsen View	Broken Arrow
1989	64,600	16,100	10,800
1990	65,800	18,700	12,700
1991	70,100	22,500	13,800
1992	70,600	24,200	16,800
1993	62,400	23,400	15,800
1994	65,400	17,400	15,100
1995	62,800	14,700	15,900
1996	57,900	9,300	11,400
1997	49,500	9,000	9,000
1998	45,045	7,583	12,986
1999	No data	No data	7,946
2000	No data	No data	8,593
2001	50,113	8,164	8,411
2002	47,754	7,709	7,537
2003	44,855	5,511	6,732

One of the most dramatic changes in recreational use of Diamond Lake in recent years has been the decline in angler use associated with the declining rainbow trout fishery (Diamond Lake Ranger District 1998). The Oregon Department of Fish and Wildlife have records for annual angler days to Diamond Lake that span a fifty year time period. Table 04 displays data on angler-days from 1952-2002 (ODFW, 2003). Although information on angler trips was not collected for most of the 1980's and early 1990's, the declining trend in the recreational fishery over time is still evident (Table 04 and Figure 03).

Table 04 -- Annual Angler-Trips at Diamond Lake⁷

Year	Angler Days
1952	5,100
1953	5,900
1954	1,000
1955	0 (Fish were not stocked in the year following rotenone treatment)
1956	34,700
1957	52,600
1958	43,000
1959	27,800
1960	37,400
1961	39,300
1962	70,600
1963	93,300
1964	115,500
1965	139,500
1966	133,700
1967	131,900
1968	105,900
1969	122,900
1970	117,000
1971	96,200
1972	86,600
1973	112,300
1974	102,800
1975	106,600
1976	90,900
1977	102,000
1978	138,700
1979-1988	(Data was not collected)
1989	82,400
1990-1993	(Data was not collected)
1994	54,300
1995	(Data was not collected)
1996	35,500
1997	28,000
1998	10,000
1999	6,000
2000	14,100 (Experimental stocking)
2001	20,000 (Experimental stocking)
2002	19,800 (Experimental stocking)

⁷ The overall average of angler trips during the 35 years that data has been collected is about 67,000 per year.

The recreational fishery was re-established at Diamond Lake in the late 1950's following a lake-wide rotenone treatment to remove the tui chub. Use in the area rose following the paving of State Highway 138 in 1962. From 1963-1978, Diamond Lake supported an average of 112,238 annual angler days with high use years in 1965 (139,500 angler days) and 1978 (138,700 angler days). Although angler day data is not available for most of the 1980's, according to the Diamond Lake Watershed Analysis (1998), angler use decreased during this decade, in part due to increased fuel prices and the state of the economy in general. In 1989, annual angler days had declined by nearly 30,000 from the average during the 1960's and 1970's.

In 1992, the tui chub was found in Diamond Lake again. As the tui chub population increased over the next decade, the trout fishery declined and thus fishing success also decreased. Angler trips started to severely decline from 82,400 angler visits in 1989, to 35,000 in 1996, down to a low of 6,000 angler visits in 1999. In 2000, ODFW began an experimental fish stocking program to support a minimal recreational fishery and determine if any native fish species could effectively compete with or prey on the tui chub. Figure 03 illustrates the decline in angler days associated with overpopulation of the lake by tui chub.

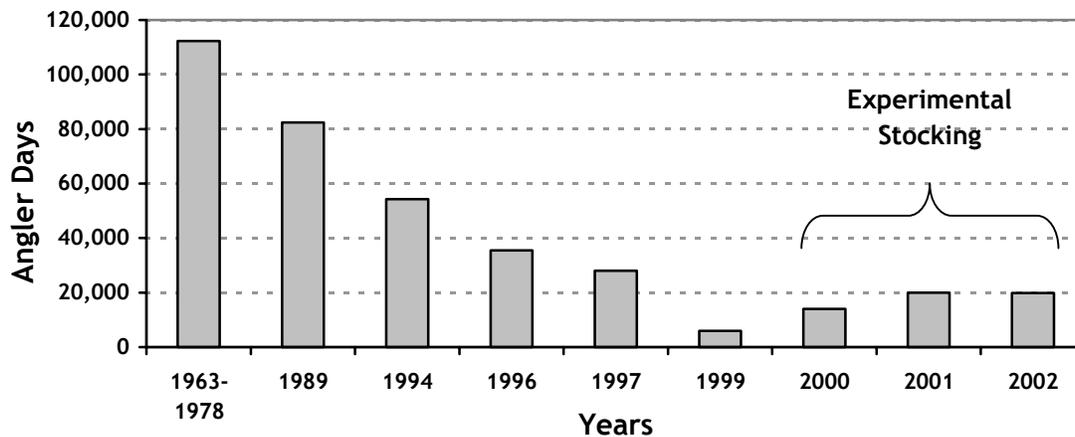


Figure 03 -- Declining Angler-Days at Diamond Lake

As previously mentioned, campground occupancy also declined dramatically during the 1990's primarily in response to the diminished recreational fishery. This conclusion is supported by the fact that campground use declined during the shoulder seasons when fishing was traditionally the best and summer use remained steady even with the declining fishery (Diamond Lake Ranger District, 1998). The authors of the Recreation Assessment and Analysis for Diamond Lake and Lemolo Lake Watersheds (1998), describe that "the demand for camping at the Forest Service Campgrounds at Diamond Lake has been on a steady decline since 1992, when the decline in the demand for fishing was first observed." They went on to say, "It is obvious that most of the decline in demand for overnight use is a direct result of the decline in the fishery, but other forces have changed the demand for camping and other activities in the area." With a discussion of the changing economy, they said, "This downturn in the economy of the region contributed to the decrease in camping and other recreation activities at Diamond Lake. As these lost jobs are replaced by new industries and retirees it is often with new people with different lifestyles."

Displacement of Visitors

Several times during the past several years, the water quality in Diamond Lake became degraded, due to algae blooms, to the level where a closure was placed on swimming and all water contact. This specifically occurred August 10-30, 2001, July 23-August 7, 2002 and July 1-August 12, 2003 (Mikeal Jones, Personal Communication, 2003). This was 21 days in 2001, 16 days in 2002 and 43 days in 2003, for a total of 80 days of closure to swimming and all water contact. These closures were disruptive to the recreation season and resulted in displacement of visitors and cancellation of events, including a triathlon scheduled by Diamond lake Resort (Rick Rockholt, Personal Communication, 2003).

It was pointed out by Evans and Associates (1998) that, "The 1996 Oregon State Marine Board "Oregon Recreational Boating Survey" states that Diamond Lake dropped from its 1992 ranking as the 12th most popular boating water body in Oregon to the rank of 24th in 1996, a drop of over 50% in boater user days...Tahkenitch Lake (located in Douglas County) showed a 38% increase in boater user days over the same period (Shuyler, 1996). This drop in Diamond Lake's popularity is very likely due to the decrease in success which anglers are experiencing at the lake, as a result of the tui chub situation. Tahkenitch Lake's rise in ranking could be partially due to former Diamond Lake anglers switching to a new water body."

ENVIRONMENTAL EFFECTS

Direct Effects:

Alternative 1

Alternative 1 would have no effect on any of the "Sense of Place" (SOP) units in terms of a change to the existing environment since there would be no canal reconstruction, no draw down of the lake, no mechanical fish harvest or fish carcass removal. There would be no chemical treatment and no need to refill the lake. The water quality would remain poor and there would be continued closure potential to water contact activities due to toxic algae blooms. Visitors would continue to have unmet expectations because their concern for water quality, as indicated on recent visitor surveys (Burns, et. al. 2002) is higher than even concern for the fisheries. There would be traditional user displacement because of the uncertainty of water quality. People may postpone or schedule vacations elsewhere. An important customer expectation of water-based activities would be compromised, indefinitely. The scenic resources and the recreation opportunity spectrum setting would continue as they presently exist, which includes a substantial change in the visual nature of the lake when it turns from blue to green during summer algae blooms.

Table 05 summarizes the expected changes in the recreational fishery over a six-year timeframe estimated for this project (ODFW, 2004). Alternative 1 would result in continued depressed fishing opportunities as fish quantities would be significantly lower than past levels. From 2005-2010, 24,000 legal-sized fish would be stocked annually resulting in a projected 20,000 angler trips the first year and 10,000 each year thereafter. This "put and take" fishery would yield a higher success rate than the recent past, but less than historic levels.

**Table 05 - Alternative 1: Expected Changes in the Diamond Lake Recreational Fishery
from 2005-2010 (ODFW, 2004)**

Year	Angler Trips	Catch
2005	20,000	20,000
2006	10,000	10,000
2007	10,000	10,000
2008	10,000	10,000
2009	10,000	10,000
2010	10,000	10,000

A continued reduction in recreation use during the “shoulder” seasons of spring and fall is expected. Continued “displacement” of traditional visitors to alternative recreation locations, such as Lemolo Lake and other fishing lakes within a 2 hour drive of population centers, is also expected.

Indirect Effects:

Alternative 1

More recreation use may continue to occur at nearby (within 20 miles) recreation sites and water-based destinations such as Poole Creek Campground and Lemolo Lake. Other Douglas County waters may attract boaters and fishermen from the Roseburg and Eugene area. Adjacent Counties may retain additional local recreation use from people who have historically preferred to camp and fish at Diamond Lake. There is expected to be little effect on visitors hunting in the surrounding areas, on people using off-road vehicles, or on forest management activities beyond the immediate vicinity of Diamond Lake.

Cumulative Effects:

Alternative 1

Management activities that led to the development of recreational facilities and opportunities in the past and present (i.e. campground, Resort, boat ramp and trail construction; fish stocking; etc.,) are the primary contributors to a cumulative effect of management on the recreation resource in the project area (See Cumulative Effects tables for details). For many visitors, these improvements over time represent a beneficial contribution. Similarly, reasonably foreseeable activities such as boat ramp and campground improvements are also considered to be a positive contribution to the cumulative effect of management on recreation opportunities. However, improvements to these facilities are not expected to compensate for negative affects on recreation perpetuated under Alternative 1.

There would be no contingency plan associated with the no action alternative. Angler trips would remain at approximately 10,000/year over time. The following forecast is made about this alternative in order to facilitate alternative comparison: from 2005-2016 the recreational fishery would support about 130,000 total angler trips.

According to the 2003 visitor survey (Burns et. al. 2004), up to 25% of the respondents indicated they may not return to Diamond Lake if the water quality does not improve. There may also be a continued

shift in the type of activities visitors engage in at Diamond Lake in the future (i.e. less fishing and water contact activities).

Because of uncertainty of water quality conditions, there may be a reluctance on the part of groups to plan events at Diamond Lake during the high recreation use period of July and August which would continue to depress visitor use figures and could potentially affect the ability of the Forest Service over time to acquire funds to maintain present facilities. This would affect the Diamond Lake Resort and Family Camp "Sense of Place" units to a greater extent than some of the other units in the project area because the attraction for water-based activities and safe, family camping would continue to be uncertain over the long-term.

Direct Effects:

Alternative 2 and 5

Alternatives 2 and 5 would not significantly effect several of the "Sense of Place" units including: Lagoon, Mt. Bailey Trail, Roadless, Mt. Bailey, Forest, Elk, Oregon Cascade Recreation Area/Mt. Thielsen Wilderness, Mt. Thielsen Trail, Mt. Thielsen, the Pacific Crest Trail and Crater Lake National Park.

The most direct effects would be on the following units: Diamond Lake Resort, family camp, Lake Creek, undeveloped riparian, summer homes and watersports (See Figure 02).

There are no meaningful differences between these two alternatives with regards to the recreation resource. There are slight differences in the fish stocking strategies, but the predicted effects to the recreational fishery are the same.

Scenic Quality

Scenic quality would be impacted by the draw down of the lake of up to eight feet below the normal lake level for a period of about 18 months. This would affect the Diamond Lake Resort, family camp, Lake Creek, undeveloped riparian, and summer homes units. Diamond Lake would look more like a reservoir than a natural mountain lake. The visual quality level of retention would be impacted in the short term such that management activities would be evident, but the surrounding landscape would continue to visually dominate unless the point of view is directly on the shore. There would be odor expected with the draw down from the smell of rotting vegetation and creatures not normally exposed to air and sun. Dead fish, as a result of the rotenone treatment, would wash up on the shores and add to the odor until they could be collected for disposal. This would be expected to attract more carrion-eating shorebirds such as gulls, ravens and bald eagles.

If an on-site fish emulsification processor is determined to be the most efficient way to utilize fish carcasses during the mechanical fish harvest activities before and after the rotenone treatment, both the structure and operation of this system would further degrade the scenic quality of the lake temporarily. Wetland and riparian areas near Silent Creek and the northwest portion of the lake would be dewatered with resulting die-off of vegetation and browning of formerly green vegetation. Mud flats would be exposed and likely support weed growth from the changed conditions as well as crack from drying. The use area of the lakeshore along the Diamond Lake Resort, family camp and summer homes areas, where the shore use is heaviest, would be limited. Dock extensions would be necessary to access the watersports unit and would result in additional visual distraction to the area.

The visual quality during the construction period would be heavily impacted as management activities would dominate at this time. During the reconstruction of the canal on the north end of the lake, about 300 feet of area extending between Road 4795 and the lake would be under construction for

four to six weeks while the canal is reconstructed to its original dimensions. A floating dredge would also deepen the existing canal in the lake to its original dimensions (about 700 feet long, 18 feet wide and 8 feet deep). Dredge material would be stockpiled inside a silt fence (permeable plastic barrier and T-posts) on the northwest corner of the lake to expand the existing wetland. Dredge material is expected to be about one foot to eighteen inches deep, consisting of about 900 cubic yards of material. The silt fence would remain in place for about two months before removal. The visual quality level during the construction period is expected to meet maximum modification. With mitigations planned for the site following project completion and after reconstruction of the bicycle trail and road surface, the visual quality objective of modification should be met the first year and partial retention is expected to be met the second year in the watersports, undeveloped riparian and Lake Creek SOP units.

General Recreation

Alternatives 2 and 5 would have a direct affect on recreation activity in the project area. There would be an 18-month limited use period during the lake drawn down, chemical application, mechanical fish removal, and lake refill, that would directly affect boating, fishing, watersports in general, and usual access to summer homes, Theilsen View Campground, the bike trail around the lake and dispersed recreation use in the vicinity of Lake Creek. People who access the north end of the lake to fish from the shore, at the beach area and rock promontory, would not be able to use the area during the draw down and reconstruction of the canal, as well as wetland expansion. During the reconstruction of the canal, one-lane of traffic would be permitted, with controls, on Road 4795, and while the bike trail was temporarily removed, bicycle traffic would be rerouted onto the one-lane road.

During the draw down period, but prior to chemical treatment, there may a temporary increase in fishing use if catch limits are lifted, to encourage people to utilize existing fish stock in the lake before the fish kill with rotenone. Otherwise, there would be no fish stocking and little need to fish on Diamond Lake, which would affect the number of boats on the lake. There would be some camping at Diamond Lake expected and some of the proposed activities might even attract viewers due to the novelty of the action. But the initial interest is likely to pass quickly until the conditions improved so that people could safely and comfortably access the water and participate in their favorite activities again. There is a risk of permanent loss of some traditional visitors as they find new alternative locations to recreate that meet their expectations for recreation setting and enjoyment.

Recreational Fishery

Substantial changes in the recreational fishery would occur under Alternatives 2 and 5, which would result in improved angler opportunities at Diamond Lake (Table 06, ODFW 2004). These are estimates based on existing knowledge; ecological indices and water quality responses would determine actual fish stocking levels and associated angler trips under all action alternatives.

Table 06 - Alternatives 2 and 5: Expected Changes in the Diamond Lake Recreational Fishery from 2005-2010 (ODFW 2004)

Year	Angler Trips	Catch
2005	20,000	20,000
2006	5,000	5,000
2007	25,000	30,000
2008	60,000	100,000
2009	80,000	200,000
2010	100,000	200,000

As illustrated in the above table, in 2005 (or year one), 20,000 angler trips are predicted in the year of the lake draw down. In 2006, about 5,000 angler trips would be expected for the spring prior to rotenone application. In the first spring following the rotenone treatment (2007), if the ecological indices are favorable to allow stocking, a small number of fish would be stocked in the spring resulting in potentially about 25,000 angler trips. The angler trips would steadily increase in subsequent years under Alternatives 2 and 5 as the put-grow and take fishery expands with stocking in the absence of tui chub.

Fish stocking strategies would be used to accomplish these angler trips and vary slightly between Alternatives 2 and 5, but only in that Alternative 5 includes somewhat broader ranges for the numbers of fish that might be stocked. For example, under Alternative 2 for year 2008, ODFW would stock 100,000 rainbow fingerlings and 10,000 catchable-size predacious trout. However, in 2008, under Alternative 5, ODFW describes that they would stock 100,000 - 200,000 rainbow fingerlings and 10,000 - 25,000 catchable-size predacious trout (see Appendix D, August 19, 2004 ODFW Memo, Preliminary Stocking Plans for Diamond Lake FEIS Alternatives for details). These differences can not be meaningfully analyzed and thus, potential effects of these alternatives are considered to be identical.

Connected Actions

There are several connected actions proposed by the Diamond Lake Resort that would result in direct effects on the recreation resource. During the lake draw down, the Resort would take advantage of access to conduct a dock clean-up near the South Shore Store. The Resort would also conduct a clean-up around the Diamond Lake Marina including relocation of sediment accumulation. These activities would be expected to achieve a maximum modification visual quality level during the expected two-week period of the clean-up. When the sediments are shaped and blended naturally with the terrain and converted to areas of landscaping, in the long-term, it would enhance the present condition and move the visual quality level toward retention which is the existing visual quality objective around the structures at the Resort (within the Diamond Lake Resort SOP unit). Clean up would also potentially result in a safer environment for boaters by eliminating underwater hazards.

Indirect Effects

Alternative 2 and 5

Implementation of Alternatives 2 and 5 are expected to result in improvement in the water quality which would indirectly effect recreation. Within 3 years of implementation, there may be some increase in water quality as evidenced by clearer water during the summer, even though there may still be natural algae blooms in spring and fall. Water quality is expected to continue to improve every year and thus, would potentially attract visitors back who have been deterred by recent algae blooms and lake closures.

There would also be indirect effects on recreation because of the information needed to direct people and manage use during the implementation period of the alternative, as well as into the future. There would be an increased need for safety and security patrols of both recreation users and operational equipment used during alternative implementation. There would be increased need for signs, brochures, and interpretive material to inform the public about the operations. Active dialogue with visitors may be necessary to assist visitors in adaptation and compliance with boat inspection and angler stamp rules that may be needed to manage the fish population and reduce the probability of tui chub reintroduction.

Some of the activities proposed under Alternative 2 would affect recreation outside the immediate vicinity of Diamond Lake. ODFW would not be able to “store” water in Diamond Lake under their water right during the year of a rotenone treatment. If precipitation was low during that year and there was not adequate water available to satisfy water rights for downstream users, the Rock Creek Fish Hatchery could be negatively affected. Water stored in Diamond Lake was released to supply the hatchery with water three times in the past thirteen years due to drought conditions. Under these conditions, if the hatchery was unable to obtain water, they would have to turn their fish stock loose early which would reduce the attraction at the hatchery for visitors and result in less visitation. However, ODFW is currently in consultation with Pacific Corp and the USFS through the Lemolo Reservoir Management Plan adopted in March 2004, to discuss feasible options for augmenting flows into the North Umpqua River during the 2006 fall period to ensure minimum stream flows are met so Rock Creek hatchery would have sufficient water to maintain full production.

During the cleaning and reconditioning of the old canal, there would be a need to pile and burn the slash build-up within the canal. This is expected to take two to three days and the resulting smoke may affect air quality in many of the SOP units around the lake as well as the adjacent SOP units where people expect and desire clean, high quality air.

Cumulative Effects

Alternatives 2 and 5

Past, present and reasonably foreseeable management activities that contribute to a cumulative effect on recreation are the same as described for Alternative 1. In general, these management activities have resulted/or will result in a positive influence on recreational opportunities in the project area. As described above, Alternative 2 would result in a reduction in recreation visitor use at Diamond Lake over the first 18-month period of implementation. However, during the remaining lifetime of the project and in the future, this alternative is expected to result in enhanced recreational opportunities due to improvements in the water quality and recreation fishery in the lake.

The greatly improved fishery under these alternatives would likely increase recreational camping and overnight stays at Diamond Lake Resort and other camping facilities in the area. The increase in water quality, beginning within 3 years of treatment, would be expected to restore people’s desire to use the lake for water-based activities and likely increase visitor use. Thus, when added to past, present, and future management activities, this alternative represents a beneficial cumulative effect on the recreation resource.

However, if/when tui chub recur in Diamond Lake and implementation of the contingency plan is necessary, a gradual decline in the recreational fishery would be expected due to changes in stocking strategies and disruptions associated with annual mechanical tui chub removal. Table 07A reflects forecasted changes in angler trips over a five-year period of contingency plan implementation and also summarizes angler trips for the twelve-year time period from 2005 - 2016.

Table 07A -- Alternative 2 and 5: Forecasted Changes in the Diamond lake Recreational Fishery Associated with Contingency Plan (ODFW 2004).

Year	Angler Trips
2012	100,000
2013	90,000
2014	80,000
2015	68,000
2016	55,000
Total 2012 - 2016: 393,000 Angler Trips	
Total 2005 - 2016: 783,000 Angler Trips	

It is assumed that if/when tui chub are reintroduced, the likelihood of sustaining improvements in the water quality and recreational fishery over time would be substantially increased with annual implementation of the described contingency plan. However is acknowledged that if contingency plans fail, adverse impacts to the recreational resources similar to the current situation would be expected to recur.

During the project lifetime, the scenic quality is expected to be restored within one to two years following activities, with mitigation measures (described in Chapter 2), and there would be some enhancements resulting from improvements to the marina and dock clean-up completed during the draw-down.

With implementation of the contingency plan, there would be temporary negative effects on scenic quality every year for about one month during tui chub removal activity in the form of equipment operation and warning signs posted around the lake. The development of two boat-washing stations in the vicinity of Diamond Lake in the future (see Appendix BB) may add to the modified appearance of service facilities in the recreation area and potentially reduce existing vegetated areas. This potential impact is expected to be limited and no long-term negative cumulative effects on scenic quality are anticipated.

Direct and Indirect Effects

Alternative 3

The direct and indirect effects on recreation from Alternative 3 would be the same as Alternative 2 except for the proposed fish stocking strategy. Fish stocking under Alternative 3 would be a “put and take fishery”, meaning that 12-inch, legal-sized, fish would be stocked and harvested in the same year every year. This fish stocking strategy was designed to minimize impacts to the food chain, and ultimately water quality, by stocking domestic trout that tend not to eat any of the natural food items in the lake (zooplankton and benthic invertebrates).

Alternative 3 would result in an improved recreational fishery over Alternative 1 for the lifetime of the project (See Table 07, ODFW 2004).

Table 07 - Alternative 3: Expected Changes in the Diamond Lake Recreational Fishery from 2005 - 2010 (ODFW 2004)

Year	Angler Trips	Catch
2005	20,000	20,000
2006	5,000	5,000
2007	30,000	40,000
2008	60,000	80,000
2009	70,000	120,000
2010	80,000	160,000

In 2005 (or year one), 20,000 angler-days would be provided with a reduction to 5000 angler trips in 2006 (year two) due to lake treatment. The angler trips will increase to 30,000 in 2007 with 40,000 fish caught. As the word gets out, in 2008, 60,000 angler trips will catch 80,000 fish, 2009 will result in 70,000 angler trips with a catch of 120,000, and in 2010, 80,000 angler trips will creel 160,000 fish.

Lower angler trips and catch numbers are predicted in the out-years under Alternative 3 (Table 07) compared to Alternative 2 and 5 (Table 06) due to the put and take strategy used in Alternative 3. Under Alternative 3, 12-inch domestic rainbow trout would be stocked rather than fingerlings, but these domestic fish are not expected to survive the winter to become part of the fishery in subsequent years. The fingerlings used in the put and take fishery under Alternatives 2 and 5, would survive the winter to be available in the fishery as progressively larger fish each year they escape being caught.

Anticipated differences in water quality improvement between Alternatives 2 and 3 are not expected to be substantial enough to result in meaningful differences in their affects on the recreation resource (See Limnologist Report for details).

Cumulative Effects

Alternative 3

Cumulative effects under this alternative would be the same as described for Alternative 2 except for the changes in the recreational fishery. Generally the long-term effect of this alternative would be a marked improvement in the fishery from the present. Under Alternative 3, angler trips would be expected to approach historic levels in about 2009. However, the fish caught by anglers would likely be substantially smaller than the historic 3 or 4-pounders. Over time, this fish stocking strategy would provide a positive family attraction. However, traditional anglers looking for a trophy fish would likely go elsewhere to satisfy their desire to catch bigger fish.

If/when tui chub recur in Diamond Lake and implementation of the contingency plan is necessary, a gradual decline in the recreational fishery would be expected due to changes in stocking strategies and disruptions associated with annual mechanical tui chub removal. Table 08A reflects forecasted changes in angler trips over a five-year period of contingency plan implementation and also summarizes angler trips for the twelve-year time period from 2005 - 2016.

Table 08A -- Alternative 3: Forecasted Changes in the Diamond lake Recreational Fishery Associated with Contingency Plan (ODFW 2004).

Year	Angler Trips
2012	80,000
2013	55,000
2014	55,000
2015	55,000
2016	55,000
Total 2012 - 2016: 300,000 Angler Trips	
Total 2005 - 2016: 645,000 Angler Trips	

It is assumed that if/when tui chub recur, the likelihood of sustaining improvements in the water quality and recreational fishery over time would be substantially increased with annual implementation of the described contingency plan. However is acknowledged that if contingency plans fail, adverse impacts to the recreational resources similar to the current situation would be expected to recur.

All applicable Visual Quality standards and guidelines would be met.

Direct Effects

Alternative 4

Alternative 4 would directly affect scenic and recreation resources at Diamond Lake through high levels of mechanical tui chub removal and utilization that would occur for about 3 months out of every year for the lifetime of the project. This alternative would primarily affect the watersports SOP unit (See Figure 02).

Commercial nets, seines and traps would be used annually in June and July and again in September to harvest tui chub from Diamond Lake. About 1/3 of the lake would be closed at one time to allow this activity to occur and watersports and fishing would be prohibited in those areas at that time. There would be considerable signing to alert people to avoid those areas. These warning signs would be an intrusion on the aesthetics of the lake. There would be use of Electro-shocking boats in limited areas and removal of dead fish. Thus, the available and useable surface space of the lake would go down annually in the spring and fall for the 6 year lifetime of the project.

This alternative would utilize a "featured species" or "trophy fishery" and so would provide a different type of recreational fishery than existed historically. The planted fish stock would be larger and a parallel shift in regulations would cause a shift in user type. There would be greater regulation to support the trophy fishery, and the historic type of family fishing would go down. This type of fishery would attract visitors, but there could also be more conflict among users for the best fishing holes. There may be a bounty instituted on tui chub that could draw a different user type to the lake.

Predicted changes in the recreational fishery in Alternative 4 are summarized in Table 08 (ODFW 2004). Alternative 4 would result in an improved recreational fishery compared to Alternative 1 (See Table 05, ODFW, 2004). However, Alternative 4 is projected to yield substantially fewer angler trips in the out years compared to either Alternatives 2, 3 or 5. These estimates assume a disrupted fishery associated with spring and fall tui chub netting, which would affect the angler trips and result in a leveling off at about 50,000 angler trips per year.

Table 08 - Alternative 4: Expected Changes in Diamond Lake Recreational Fishery from 2005-2010 (ODFW 2004)

Year	Angler Trips	Catch
2005	20,000	20,000
2006	30,000	30,000
2007	50,000	50,000
2008	50,000	50,000
2009	50,000	60,000
2010	50,000	70,000

Indirect Effects

Alternative 4

Because of the intensity of management activity to mechanically and biological reduce the tui chub, and the change in the type of fishery, the need for information and education would be heightened under this alternative. There is an educational opportunity that would be needed over the six-year period and the opportunity to involve citizens both through monitoring and active involvement in the effort. There may be short-term negative effects from dead fish that were shocked, but missed during collection. There would be effects on traditional users in that some people may shift to Lemolo Lake for a family fishing experience that allows more harvest as opposed to a trophy fishery where more fish tend to be released.

There is expected to be little to no change in water quality the first 3-4 years, which would result in some visitors choosing an alternative recreation location. By 2009 or 2010, some improvement in water quality would be expected, but not as noticeable as in Alternatives 2 and 3. More visitors may continue to be displaced under this alternative due to disappointments related to water quality.

Cumulative Effects

Alternative 4

Past, present and reasonably foreseeable management activities that contribute to a cumulative effect on recreation are primarily the same as described in Alternative 1. In general, these management activities have resulted/or will result in a positive influence on recreational opportunities in the project area. However, because it is anticipated that annual commercial fishing operations would be needed to effectively limit tui chub recruitment in Diamond Lake beyond the lifetime of this project; some negative cumulative effects are expected.

Over a 12-year time period, including 7 years of project implementation and 5 years of contingency plan implementation, Alternative 4 would be more successful in providing angler trips on Diamond Lake than Alternative 1, but at a lower level than Alternatives 2, 3, and 5. Assuming the same stocking strategies would be used during implementation of the contingency plan as were used during the latter years of project implementation (i.e. annual stocking with 7,500 - 10,000 two to four pound predacious fish and 230,000 catchable to trophy size domestic rainbow trout) the recreational fishery would be expected to remain the same. Table 09 reflects forecasted changes in angler trips over a five-year period of contingency plan implementation and also summarizes angler trips for the twelve-year time period from 2005 - 2016.

Table 09 -- Alternative 4: Forecasted Changes in the Diamond lake Recreational Fishery Associated with Contingency Plan (ODFW 2004).

Year	Angler Trips
2012	55,000
2013	55,000
2014	55,000
2015	55,000
2016	55,000
Total 2012 - 2016: 275,000 Angler Trips	
Total 2005 - 2016: 605,000 Angler Trips	

There are temporary negative effects on scenic quality every year for about 3 months during tui chub removal activity in the form of equipment operation and warning signs posted around the lake. During implementation of the contingency plan this effect would only occur for about one month per year. Overall all applicable Forest Plan standards and guidelines for Visual Quality would be met.

There would be no additional effects on the undeveloped riparian, Lake Creek and Diamond Lake Resort or family camp SOP units as there would be under Alternatives 2, 3 and 5.

The long-term result of this alternative would be that tui chub would likely remain in the lake at some level necessitating continuing activity into the future to assure their numbers would not increase and take over the lake as they have in recent years. Thus, a long-term negative cumulative effect on scenic quality and angling opportunities is expected under this alternative. It is important to note that two of the three primary activities that attract visitors to Diamond Lake, according to the 2001 and 2003 visitor surveys, will continue to be provided: camping in developed sites (23%) and general relaxing and hanging out (21%). Fishing is the third primary activity, at 18%. Displaced anglers are expected to return, to some degree, as some anglers will be willing to adapt to the different fish retention levels associated with a trophy fishery.

Summary of Alternatives Effects on Recreation Use:

Overall, effects on recreation use are expected to differ by alternatives with some variation among the SOP units. Table 10 illustrates the expected effects on recreation use by alternative:

Table 10 -- Summary of Alternative Effects on Recreation Use

SOP Unit	Alt. 1 - No Action	Alt. 2, 3 & 5-- Rotenone	Alt. 4 - Mechanical & Biological
Watersports	Expected short-term and long-term reduction in use due to algae blooms/closures; especially during the shoulder recreation seasons.	Expected short-term reduction in use during 18-month treatment period; long-term increase in use expected due to enhanced water quality and fisheries.	Fluctuating use is expected indefinitely with reduced use periods during tui chub harvesting with 1/3 of the lake unavailable.
Family Camp	Expected short-term and long-term reduction in use due to algae blooms/closures associated with fishing and swimming activities.	Expected downturn in use during 18-month treatment period; long-term increase in use due to improved fisheries and water quality.	Reduction of recreation use expected indefinitely due to intrusion of operations and reduced capacity at recreation facilities in spring and fall.
Diamond Lake Resort	Similar to Family Camp	Visitor use is expected to increase from commercial activities associated with treatments; recreation use is expected to decrease during the 18-month treatment period and increase in the long-term.	Fluctuating commercial and recreation use expected with reduction of recreation use expected in spring and fall.
Summer Homes	Continued reduction in use due to algae blooms/closures and reduced fishery.	Increase in visitation following the 18-month treatment period due to improved fisheries and water quality.	Some increase in use expected on a fluctuating basis - downturn expected during tui chub harvest.
Undeveloped Riparian	Negligible effect.	Reduction in recreation use during the 18-month treatment period; long-term increase in use.	Negligible Effect.

Alternative 1 would result in continued decreases in recreation use due to lake closures associated with toxic algae blooms that limit water access and affect the fishable trout populations. Alternatives 2, 3 and 5 would have the most positive long-term effect on recreational use. However, if/when tui chub recur, implementation of the contingency plan would result in fluctuating recreational use levels similar to Alternative 4. Alternative 4 would result in fluctuating recreation use levels, with an infusion of commercial use, due to continued, intermittent treatments for tui chub.

Mitigations

- (1) Introduction of building materials for permanent use during alternative implementation will be comprised of, or emulate, the appearance of natural materials and colors normally found in the natural environment such as wood and stone so that it blends with the surrounding terrain.
- (2) Use of interpretive, directional and warning signs, including floating hazard signs on Diamond Lake, shall follow a family of shapes and color schemes that are designed to (1) minimize the incongruence of signs in the natural environment, (2) carry consistent messages through familiarity of style and (3) link through design with brochures, posters or other printed material used for education and safety.
- (3) Major construction and reconstruction of sites such as the canal, road, bicycle trail, wetland expansion area, pier extensions, etc. shall be shaped and blended to fit the natural environment and earthen surface areas rehabilitated to a finished and vegetated condition.
- (4) All vegetation used for landscaping or rehabilitation of reconstruction sites shall be native and require low maintenance. A list of acceptable native plant materials or species will be provided by the Ranger District.
- (5) Equipment storage and operations locations will be pre-approved in consultation with national forest recreation managers.
- (6) Deposition of earth or rock material shall be located only in approved locations as determined by the Ranger District.
- (7) All slash and debris shall be removed from construction sites unless permission and review has been provided to allow temporary storage or disposal on-site.
- (8) When operationally practicable, construction equipment operations will be minimized between the hours of 10:00 PM and 7 AM from April 30 through September 30 when it is audible in recreation use areas.
- (9) When operationally practicable, operations lighting will be diverted downward during all dark hours and be turned off during the night to minimize disturbance to recreation visitors and summer home owners during the regular use season.
- (10) Monitor the lake water after rotenone treatment to determine when it is safe to allow recreational water contact activities.
- (11) A Public Information Plan will be developed to inform the public about the operations, provide advisements concerning recreation use, including alternative recreation use areas, and alert people about tours or educational presentations.
- (12) Visitor information will be established during alternative implementation to provide instructive material and explain procedures to the public to reduce user conflicts, inform visitors of areas "off-limits" and to educate people about the issues and solutions.
- (13) It is recommended that visitor use surveys be conducted (similar to 2001 and 2003 surveys) during (a) alternative implementation and (b) post-implementation, to assess visitor satisfaction levels, access to recreation activities, public perception of the project and expectations for recreational fishery recovery.

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Appendix

- Appendix Item No. 1.....Definitions of Terms
- Appendix Item No. 2.....Sense of Place Map
- Appendix Item No. 3.....Geographic Place Inventories
- Appendix Item No. 4.....ROS and VQO Acres by SOP Unit

Appendix Item No. 1 - Definitions of Terms

Visual Quality Objectives⁸

Retention - Management activities are not visually evident.

Partial Retention - Management activities remain visually subordinate to the characteristic landscape.

Modification - Management activities may visually dominate the original characteristic landscape.

Maximum Modification - Management activities of vegetative and landform alterations may dominate the characteristic landscape.

Distance Zones

Foreground - The limit of the zone is based upon the distances at which details can be perceived. Normally, in foreground views the individual boughs of trees form texture. It will usually be limited to areas within ¼ to ½ mile of the observer, but is determined on a case-by-case basis.

Middleground - This zone extends from the foreground zone to 3 to 5 miles from the observer. Texture normally is characterized by the masses of trees in the stands of uniform tree cover. Individual tree forms are usually only discernable in very open or sparse stands.

Background - This zone extends from the middle ground to infinity. Texture in stands of uniform tree cover is generally very weak or non-existent. In very open or sparse timber stands, texture is seen as groups or patterns of trees.

Sensitivity Levels

Highest sensitivity - sensitivity level 1 includes all seen areas from primary travel routes, use areas and water bodies where, as a minimum, at least one-fourth of the Forest visitors have a major concern for scenic qualities.

Average sensitivity - sensitivity level 2 includes all seen areas from primary travel routes, use areas, and water bodies where less than one-fourth of the Forest visitors have a major concern for scenic qualities.

Lowest sensitivity - sensitivity level 3 includes all seen areas from secondary travel routes, use areas, and water bodies where less than one-fourth of the Forest visitors have a major concern for scenic qualities.

Recreation Opportunity Spectrum (ROS)⁹

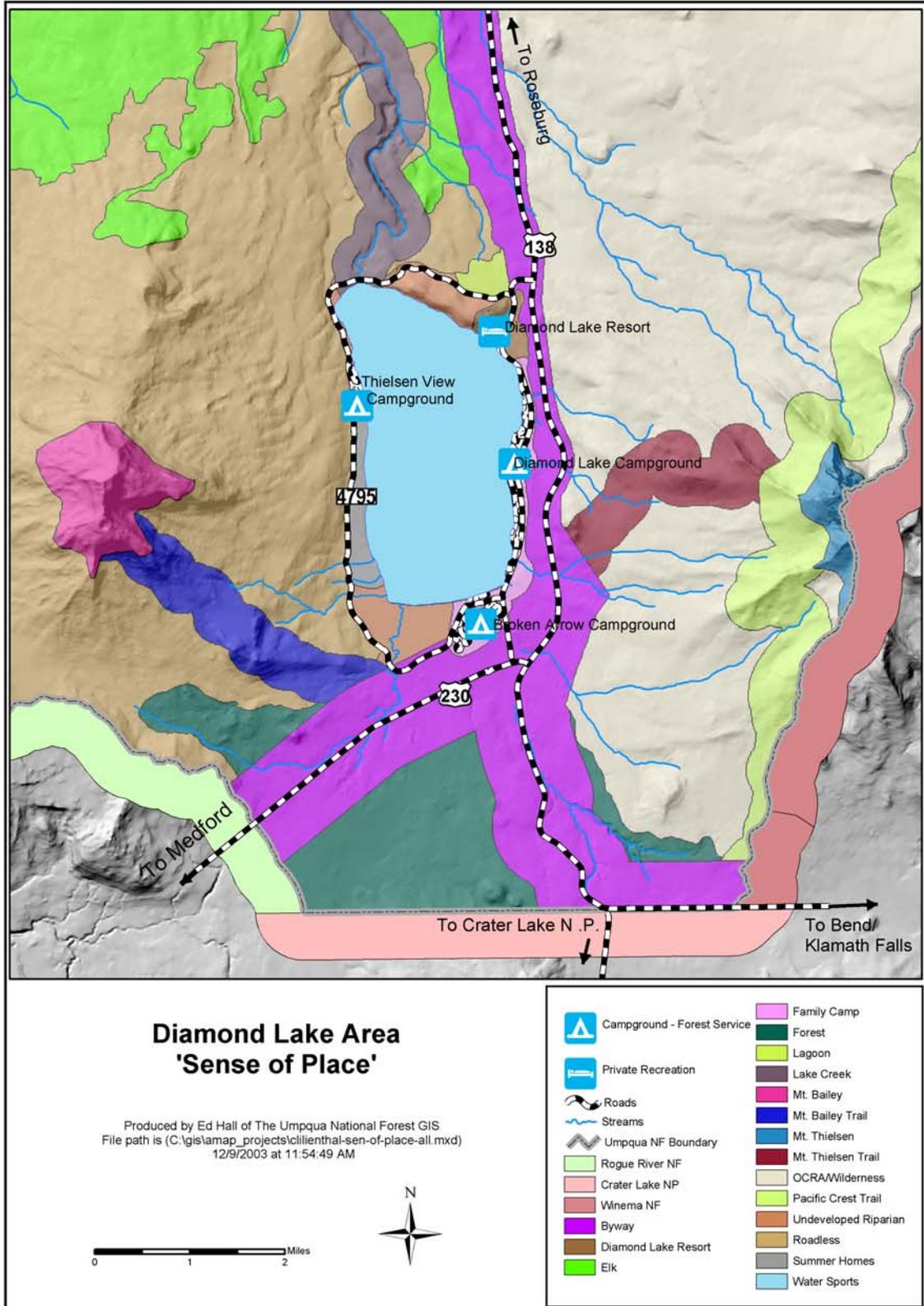
Roaded Natural – Area characterized by predominantly natural-appearing environments with moderate evidence of the sights and sounds of people. Such evidences usually harmonize with the natural environment.

Rural – Area characterized by substantially modified natural environment, with sights and sounds of humans readily evident and interaction between users often moderate to high.

⁸ Umpqua National Forest Land and Resource Management Plan

⁹ Ibid

Appendix Item No. 2 -- Sense of Place Map



Appendix Item No. 3
Geographic Place Inventories

GEOGRAPHIC PLACE – INVENTORY No. 1			
AREA: Byways			
Niche: A primary, paved transportation route over and through the Cascade Mountains that accesses a broad range of recreation opportunities, provides diverse scenic views year-round, connects Diamond Lake to Crater Lake National Park and surrounding communities, and serves as a conduit for economic activity.			
Landscape Descriptors:			
Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Diverse with varying elevational changes	High cut-banks of road through pumice air-laid soil from Mt. Mazama; Road follows close to the river in places.	Erosion, soil movement – how do we inform visitors about safety and security information?
Fauna/Flora	Diverse plant communities from hardwoods to coniferous vegetation	Noxious weeds; thick brush and undergrowth in areas along road.	How do we reduce wildfire risk in the area? How do we minimize spread of noxious weeds?
Water	Wild & Scenic Rivers, stream crossings, lakes, wetlands and reservoirs	Compaction and erosion in some places near water from vehicular use or parking.	How do we accommodate needs for staging and orientation while dispersing use?
Air	Generally clear, except during wildfire season	Smoke inhibits viewing during summer wildfires in the area.	How do we maintain acceptable air quality?
Sociologic:			
Culture	Outdoor orientation – western culture		How can management and information help to disperse use?
Community	River communities with anchor communities on Interstate 5 corridor.		How do we direct visitors to where they want to go? How do we provide the right

			information at the right time in the right way?
Polity	Politically supported and administratively designated as a scenic byway at the Oregon State and National (Federal Highway Admin.) levels.		How can we make the desired links with the nearby Volcanic Legacy All-American Road and the proposed extension of the West Cascades National Scenic Byway?
Economics	Serves as a means for economic activity to be conducted through transportation of goods and services and access to public lands	Remoteness of the area is a limiting factor for people in planning vacations and activities. Existing facilities limit certain types of activities and retreats.	How do we balance nature with human needs to support economics? How can recreation, tourism and byways help diversify the economy?
Expressions:			
Activities	Driving for pleasure, access to trailheads, interpretive sites and recreation sites along the scenic byway; access to international attraction of Crater Lake National Park.		How do we orient visitors to the recreation facilities in the area?
Events	Car tours, rallies, bicycle tours, trail events, bus tours, public fieldtrips to attractions along the byway		How do we inform visitors of safety and security information?

GEOGRAPHIC PLACE – INVENTORY No. 2

AREA: Diamond Lake Resort

Niche: A year-round, high-mountain, full-service, destination, lakeside resort that serves “Joe and Jane” citizen and multi-generations of families close to a range of outdoor recreation opportunities and social experiences including major activities and events.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	High-mountain setting, gently sloping terrain along a lakeshore	Resource damage due to compaction and facility development	How to manage for healthy forest and soils with high populations of people and facility development?
Fauna/Flora	Mixed conifer and lodgepole trees and grasses	Compaction of root systems	How to protect vegetation in developed resort area?
Water	Lakeshore location on magnificent, large, mountain lake; Deep well for use.	Water quality is compromised in the lake; fishery has declined	How to improve water quality? How to improve fishery?
Air	Clean, clear, fresh, with high visibility	Forest fire smoke can block views of surrounding attractions and affect air quality	
Air/Viewscape	same	same	How to manage for acceptable levels of air quality in the Diamond Lake viewshed?
Sociologic:			
Culture	Long-term, historic resort facility that serves multi-generational recreation users.	Facilities exhibit wear, accessibility needs improvements to accommodate aging population	How to support the private owner to make facility improvements?
Community	Management of resort has been in place many years and understands the business.	Service could be improved. Remote to population centers – difficult to attract skilled workers. Past management and practices can make change difficult.	How to encourage enhanced visitor service? How to provide quality service to visitors in a remote location? How to support changing needs and uses while protecting

			natural resource amenities?
Polity	Congressional, state, local and regional interests; political, USFS, Business organizations, Competing destination resorts.		
Economics	Resort depends on visitation for survival. Year-round business, serves summer and winter activities.	When attractions are adversely affected, use declines. Staffing needed year-round.	How to support year-round operation in remote location while balancing diverse visitor expectation and protecting resources?
Expressions:			
Activities	Lodging Food-service, equipment rentals for watersports, wintersports, horseback-riding, guided sno-cat skiing, snoplay, bicycling. Fishing derby, meetings and conferences, lounge, store, equipment and fuel sales	Diversity of offerings may be stretched to compromise quality of experience	How to support visitor needs and expectations while supporting need for income?
Events	Meetings, Festivals, Square Dancing, 4th of July Fireworks, Triathlons, Car Shows, Retreats	Lodging and facilities to support events, socializing and food service are getting worn from use. Facilities are somewhat limiting to people with disabilities.	How to support events and group activities that leave high visitor satisfaction levels and result in repeat visits? How to support moving to more “accessible” facilities due to an aging population and changing needs?

GEOGRAPHIC PLACE – INVENTORY No. 3

AREA: Family Camp

Niche: Highly developed day-use & overnight camping and boating facilities on a 3000-acre lake in the High Cascades that support multi-generations of families and groups during summer and fall seasons.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Mt. Thielsen & Mt. Bailey: cool, High Cascade, volcanic, snow-capped, expansive	None – maybe vegetation (see flora and fauna)	Concern about fire risk
Fauna/Flora	Wildlife viewing— osprey, eagles, waterfowl	Human activity around eagles	How do we manage to provide wildlife habitat and water-based recreation along the shoreline?
Water	Public access and facilities to access water	Impact to riparian zone (70% developed); Water quality – experiences with health & safety	How do we manage water resources and facilities to maintain high quality recreation experiences?
Air	Clear, cool, high visibility	Forest fires can inhibit views on an intermittent basis during the fire season	How do we manage for a clean airshed?
Sociologic:			
Culture	Diamond Lake Developed Campgrounds – hundreds of units, including interpretive talks and group reservation areas. Family camping for generations	Safety and security due to congestion, circulation & children	How do we provide adequate security and safe experiences?
Community	Outdoor recreationists, Economy-dependent community		
	Outdoor recreation is diverse; made up of a loyal group; 35% out-of-state, 65% in-state	Displaced users (see water quality)	(See water quality)
Polity	Congressional, County	Coordinate	

	Commissioners, multi-agency interests. (look at broader context)	expectations of a diverse group, special interest group's influence, and political decisions may be the driver.	
	Support, funding, enhanced partnerships		
Economics	(look at broader context)		
	Generates lots of Revenue – input to communities	Lost revenues from decreased water quality, wildfire, air quality	How do we improve water quality (key condition) to improve revenues? What is the impact of DL water quality on economics and revenue?
Expressions:	(Developed Recreation)		
Activities	Camping, showering, fishing, I&E, biking, getting away, socializing		
	All of the activities above, within the framework of the lake setting and developed facilities.	Condition of facilities	How do we support infrastructure to continue providing a quality recreation experience?
Events	Interpretive Presentations		How do we continue to support education conservation as part of the camping experience?

GEOGRAPHIC PLACE – INVENTORY No. 4

AREA: Lagoon

Niche: Supporting extensive recreation development near a major mountain lake, this sewage treatment facility creates a “defacto” wildlife area in an out-of-the-way place in the mountains and provides necessary storage areas for administrative purpose.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Level bench	Man-made ponds	How do we manage for this purposeful deviation in the natural environment?
Fauna/Flora	Grasses and low shrubs	Trees have been removed for the most part in the area.	How do we manage the vegetation to soften the appearance of the lagoons environment?
Water	Water is undergoing a purification process	Water is undergoing a purification process	How do we manage for a safe, but useful facility, and allow limited recreation?
Air	Generally clear	Sewage lagoons	How do we manage for acceptable air quality?
Sociologic:			
Culture	Administrative use		
Community	Supports local recreation sites and resort		How do we manage for people attracted by the “watchable wildlife” considering limited access and the aesthetic condition?
Polity	Facility must meet DEQ requirements		
Economics			
Expressions:			
Activities	Wildlife watching	Limited access	How do we manage the sewage lagoons considering recreation demand to watch wildlife?
Events			

GEOGRAPHIC PLACE – INVENTORY No. 5

AREA: Lake Creek

Niche: This linear, meandering, riparian feature contains Lake Creek and provides unique fish, wildlife and plant habitats, dispersed recreation opportunities and downstream water supplies.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Linear and meandering drainage through gently sloping terrain	A canal is dredged at the upper reaches	How to restore stream course to a natural condition? How to appropriately acknowledge historic significance of the canal?
Fauna/Flora	Riparian vegetation, unique habitats and aquatic environments		
Water	Freshwater outflows from Diamond Lake	Some intrusion of tui chub into Lake Creek	How to manage species so that undesirable species do not migrate downstream?
Air	Cool, clear, clean		
Air/Viewscape	Generally enclosed canopy in a riverine environment		
Sociologic:			
Culture	Forested, remote conditions/outdoor recreation orientation		
Community	Science community, state, local and federal agencies, Hydropower management		
Polity	Special Interest Groups, Water Management and Energy Corporations, Science and Wildlife Interests, Local, State and Federal Politicals		
Economics	Contributes to water supply downstream, that also affects hydropower		How to maintain flows appropriate to downstream needs?
Expressions:			

Activities	Dispersed recreation such as fishing, hunting, camping, bird- watching, photography		
Events			

GEOGRAPHIC PLACE – INVENTORY No. 6

AREA: Mt. Bailey Trail

Niche: A pedestrian access connector between Diamond Lake and the top of 8300-foot Mt. Bailey where expansive views, challenges to the climber, access to nature study or spiritual connections can be obtained.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Gently ascending	Some limited viewing areas	How do we make this trail more interesting to hikers?
Fauna/Flora	Generally tree-covered		
Water	Limited		
Air	Generally clear	Visibility reduced during summer wildfires.	How do we manage for acceptable air quality for visibility?
Sociologic:			
Culture	Outdoor orientation, both summer and winter use.		How do we manage recreation use to minimize user conflicts?
Community	Supported by special interest groups		How do we support open communications between user groups?
Polity	Special interest groups – unroaded condition is of political interest.		How do we balance development potential with the biological condition and ecological needs?
Economics			
Expressions:			
Activities	Winter and summer trail use.		How do we support security and safety for trail users?
Events	Group outings.		

GEOGRAPHIC PLACE – INVENTORY No. 7

AREA: Undeveloped Riparian

Niche: Lush, vegetated natural area with standing water or high water table supporting wildlife habitat with some dispersed recreation activities such as bird watching and photography.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Generally flat to gently rolling	Not suitable for recreation facilities	How do we provide access for people while protecting wildlife habitat?
Fauna/Flora	Vegetation associated with water and wetlands	Partially inaccessible	How to limit human access to prevent resource damage?
Water	Springs and shoreline of Diamond Lake	Transition zones between use areas	How to direct people around riparian areas to link between other site areas?
Air	Clean, clear, but sometimes “buggy”	Smoke from forest fires can sometimes limit visibility	How to manage for mosquitoes in adjacent developed recreation areas?
Air/Viewscape			
Sociologic:			
Culture	Mostly wildlife inhabited	Wildlife attracts people	How to limit human use to protect riparian area?
Community	Summer home owners, boaters, dispersed recreation use	Proximity to highly developed recreation areas	How to maintain riparian areas with surrounding recreation population?
Polity	Special Interest Groups, Birding Clubs, Recreation Users		
Economics	Not very well tied to revenue generators, except through dispersed recreation	Overgrowth of vegetation, natural deterioration of organic matter	How do we manage the area to maintain effective wildlife habitat?
Expressions:			
Activities	Bird watching, nature study, hiking, photography	People adversely affecting wildlife?	How to manage human use in riparian areas?
Events			

GEOGRAPHIC PLACE – INVENTORY No. 8

AREA: Roadless

Niche: A High Cascade natural area, free of roads, supporting dispersed recreation and spiritual activities in a high-elevation forested environment, rising to a volcanic mountain top.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Gently ascending terrain, all topographic aspects		
Fauna/Flora	Forested slopes with dead and down woody material	Difficult to navigate in places on foot	How do we maintain healthy vegetation and the scenic backdrop of Mt. Bailey?
Water	Limited springs, seeps and streams		
Air	Generally clear	Visibility reduced during summer wildfires in the area	How do we manage smoke from fires – planned or unplanned?
Sociologic:			
Culture	Outdoor orientation; historic or cultural values		How do we protect historic values or values important to indigenous people?
Community	Special Interest Groups		How do we manage for diverse user expectations?
Polity	Unroaded nature of the place is of political interest		How do we manage for recreation activities to minimize user conflicts and protect the natural resources?
Economics	Intrinsic values, social values, limited economic value		How do we measure market values, social values and intrinsic values?
Expressions:			
Activities	Dispersed recreation activities		How do we manage for appropriate levels of winter and summer recreation?
Events			

GEOGRAPHIC PLACE – INVENTORY No. 9			
AREA: Summer Homes			
Niche: Multi-generational, single-family, privately-owned recreation residences, on public land under special-use permit, along the shoreline of 3000-acre Diamond Lake, used seasonally.			
Landscape Descriptors:			
Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Generally flat to gently sloping	Extends along the west shore of Diamond Lake	Limits access to the west side of the lake for public-use.
Fauna/Flora	Lodgepole with some mixed conifer	Lodgepole vegetation, not highly aesthetic	Insect and Disease and Fire Risk
Water	Some deep wells and access to the lake for people and boats.	Shoreline erosion/compaction. Some pit toilets still exist.	How to manage for use while protecting the resources?
Air	Clean, clear air, high visibility	Smoke from forest fires may seasonally limit visibility and seasonal use of woodstoves may affect air quality	How to manage for air quality?
Air/Viewscape			
Sociologic:			
Culture	Generations of user families		
Community	Multi-generational family connections, summer home association	Can exert pressure politically	Summer use vs. over-the-snow winter use...access issues?
Polity	Politicals, community leadership, well-connected organized group		
Economics	Revenues from 100+ summer homes goes to the federal treasury	Single-purpose, exclusive use of the land.	Recreation residence fees continue to be an issue. How to support improvements in facility condition?
Expressions:			
Activities	Seasonal use of homes, use of trails, boat mooring, lakeshore use	Shore erosion	How to manage for use while protecting the resources?
Events	Organized events?		

GEOGRAPHIC PLACE – INVENTORY No. 10

AREA: Watersports

Niche: A 3000-acre water attraction and major destination that supports seasonal recreation use for a range of passive and active water-based pursuits in a remote, but highly social, intact mountain setting which contributes significantly to the local economy.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Expansive, flat-water surface in a large basin of upwardly sloping terrain		
Fauna/Flora	Macrophyte growth at the 20-30 foot level beneath the water surface. Some limited wetland areas. Surrounded by forested slopes with a few freshwater tributaries to the lake.	Macrophytes create habitat for the undesirable tui chub fish.	How to control the overpopulation of tui chub?
Water	Major aesthetic attraction and watersports magnet	Water quality problems with algae blooms and neurotoxins; Exceedance of safety and health standards during blooms.	How to manage for good water quality and avoid shutdown of water contact sports and sometimes boating activities?
Air	Clear, cool, fresh, with high visibility	Forest fires can impair visibility seasonally	How to manage for acceptable air quality conditions?
Air/Viewscape	Open, long-distance viewing		
Sociologic:			
Culture	Highly social, multi-generational family use of DL for watersports— swimming, boating, etc.	Historical perspective of family knowledge can raise expectations of “what was.”	How to incorporate long-term family knowledge into the decision space for management of the resource?
Community	Giant draw for fisher-folk, Resort, RV Park Owners, Boating, Sportsmen Groups, State Marine Board	Diverse interests can cause conflicts among users	How can customer’s expectations be met while protecting the natural resources?
Polity	State/Local politicals,	Fishbowl Effect!	How do we balance

	Congressmen, state and federal agencies: ODF&W, USFS, ODEQ, etc., Special Interest Groups		competing or regulating interests?
Economics	Destination for water-based recreation visitors; boat/craft rentals at the resort; Investment in infrastructure: recreational camping, boating facilities and fish cleaning stations that support watersports and fishing.	Downturn in water quality and fisheries impacts livelihoods; Costs to maintain infrastructure investments	How do we maintain acceptable water quality? How do we maintain fisheries? How do we finance infrastructure maintenance?
Expressions:			
Activities	Fishing, boating, canoeing, sailing, research in spacious conditions	Congestion at “hot” fishing holes	How do we disperse use?
Events	Fishing derbies, boat races, relays, other? 4th of July Fireworks		
	Spacious....many people can participate	Shore erosion from shore congestion in places	How to accommodate large numbers of people for events?

GEOGRAPHIC PLACE – INVENTORY No. 11

AREA: Mt. Bailey

Niche: A distinctive volcanic peak which attracts summer and winter outdoor recreation enthusiasts for challenge, isolation and spiritual connection purposes.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Rising to a rounded peak		
Fauna/Flora	Generally above tree-line		
Water	None		
Air	Generally Clear		
Sociologic:			
Culture	Outdoor orientation		
Community	Special interest groups, recreation groups, recreation permittees		How do we manage for diverse interests of the user groups?
Polity	General political interest		
Economics	Winter use in the area		How do we manage for diverse interests of the user groups?
Expressions:			
Activities	Dispersed recreation		
Events	Group outings		

GEOGRAPHIC PLACE – INVENTORY No. 12

AREA: Forest

Niche: Flat to rolling, rather common, forested landscapes which support general motorized and non-motorized dispersed recreation opportunities for people as well as wildlife habitats.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Flat to rolling		
Fauna/Flora	Generally forested with coniferous plant communities	Some past vegetative management activity evident	How do we maintain a healthy forest close to Crater Lake National Park, the Wilderness areas and the Semi-Primitive forest environments?
Water	Limited to springs, seeps and incidental streams		
Air	Generally clear		
Sociologic:			
Culture	Outdoor dispersed recreation orientation, particularly hunting; area is associated with providing forest products to market		
Community	Remote forest area away from local communities		
Polity	Political interest in forest products		
Economics	Provides multiple resource values, including provision of goods and services to society		How do we supply goods to the market place to support local economies?
Expressions:			
Activities	Dispersed recreation, including off-road vehicle use and over-the-snow winter motorized use.		How do we manage Off-Road Vehicle use to prevent trespass into adjacent lands with prohibited access and protect the natural resources.
Events			

GEOGRAPHIC PLACE – INVENTORY No. 13

AREA: Elk

Niche: Forested slopes and basins of mixed conifer and lodgepole pine trees with intermittent springs, seeps and wetland areas that support big game and popular dispersed recreation opportunities such as hunting, camping and off-road vehicle use.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Gently rolling slopes and basins with some steep inclines and ridges		
Fauna/Flora	Generally forested with high-elevation plant communities	Evidence of vegetative management activities; down, woody debris build-up in places	How do we manage for a healthy forest within the ecological capability?
Water	Intermittent streams, seeps and wetlands; some provide year-round water for wildlife		
Air	Generally clear	Visibility reduced during summer wildfires in the area	How do we manage for air quality during seasonal forest fires?
Sociologic:			
Culture	Outdoor dispersed recreation orientation; particularly big game hunting; area is associated with providing forest products to market		How do we manage for safety and security of people during hunting season with the concentration of hunters?
Community	Remote forest area away from local communities	Becomes a socially enriched area during hunting season	How do we manage for safety and security of people during hunting season with the concentration of hunters?
Polity	Political interest in provision of forest products		How do we manage for a healthy forest within the ecological capability?
Economics	Provides multiple recreation and resource values, including goods and services to society		

Expressions:			
Activities	Big game hunting, firewood cutting, off-road vehicle use, other dispersed recreation activities including winter snowmobiling and cross-country skiing		
Events	Group camping activities during hunting season		

GEOGRAPHIC PLACE – INVENTORY No. 14

AREA: Oregon Cascade Recreation Area/Mt. Thielsen Wilderness

Niche: Semi-primitive and primitive high country, strung with volcanic peaks and ridges of the Cascades, supports unique high-elevation habitats for plants and animals while providing opportunities for people to experience solitude, adventure and natural beauty.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Flat to rolling, gently sloping to steep escarpments, cliff features and eroded geologic formations		
Fauna/Flora	Forested high-elevation plant communities up to tree-line		
Water	Periodic springs, seeps, streams and lakes		
Air	Generally very clear	Visibility is reduced with seasonal wildfires in the area	How do we manage for clear visibility of natural features?
Sociologic:			
Culture	Outdoor orientation – little supporting recreation development		
Community	Remote from local communities, more of state and national interest		
Polity	Of political interest for its natural values		
Economics	Intrinsic and recreational values		
Expressions:			
Activities	Backcountry non-motorized dispersed recreation, group hikes and trail rides, photography, etc.		How do we disperse recreation to protect the natural resources?
Events	Group outings		

GEOGRAPHIC PLACE – INVENTORY No. 15

AREA: Mt. Thielsen Trail

Niche: Trail connector for people extending from Diamond Lake Recreation Area to the challenging and distinctive mountain volcano, Mt. Thielsen, in south central Oregon.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Flat to rolling, gently sloping to steep escarpments, cliff features and eroded geologic formations		
Fauna/Flora	Forested high-elevation plant communities up to tree-line		
Water	Periodic springs, seeps, streams and lakes		
Air	Generally very clear	Visibility is reduced with seasonal wildfires in the area	How do we manage for clear visibility of natural features?
Sociologic:			
Culture	Outdoor orientation – minimal supporting recreation development		How do we maintain the trail and support facilities to meet user needs while protecting the natural resources?
Community	Connects remote backcountry with a highly-developed recreation area		
Polity	Natural values and trail connector to the Pacific Crest Trail		
Economics	Intrinsic and recreational values		
Expressions:			
Activities	Backcountry non-motorized dispersed recreation, group hikes and trail rides, photography, etc.		How do we disperse recreation to protect the natural resources?
Events	Group outings		

GEOGRAPHIC PLACE – INVENTORY No. 16

AREA: Mt. Thielsen

Niche: A towering high-point feature on the horizon, this volcanic eruptive center is a visual focal point for miles around and attracts outdoor enthusiasts looking for challenge, climbing opportunities and incredible views.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Rising to steep ridges, angular cliff features and eroded geologic formations cradle a lightning-rod peak		
Fauna/Flora	Generally above tree-line		
Water	None		
Air	Generally Clear	Visibility reduced during seasonal wildfires in the area	How do we manage for a clean airshed to ensure visibility of natural features?
Sociologic:			
Culture	Outdoor orientation		
Community	Recreation special interest groups; of state and national interest		
Polity	Backcountry political interest		
Economics	Dispersed Recreation, scenic value		
Expressions:			
Activities	Dispersed recreation, climbing, hiking, photography, etc.; minimal recreation support facilities		How do we manage the recreation use to protect the fragile high-elevation environments?
Events	Group treks		

GEOGRAPHIC PLACE – INVENTORY No. 17

AREA: Pacific Crest Trail

Niche: A nationally significant West Coast “Pacific Crest” trail in a high mountain environment, this connector ties Canada to Mexico linking with tributary trails that extends to local attractions and places. This trail provides opportunities for people to frequently experience solitude and self-reliance.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Flat to rolling, gently sloping to steep escarpments, cliff features and eroded geologic formations		
Fauna/Flora	Forested high-elevation plant communities up to tree-line		
Water	Periodic springs, seeps, streams and lakes		
Air	Generally very clear	Visibility is reduced with seasonal wildfires in the area	How do we manage for a clean airshed along the Pacific Crest Trail?
Sociologic:			
Culture	Outdoor orientation – minimal supporting recreation development		How do we encourage volunteer sign and trail maintenance?
Community	Connects remote backcountry with trails to local places		How do we maintain the trail to serve national visitation?
Polity	Nationally designated trail		
Economics	Intrinsic and recreational values		
Expressions:			
Activities	Backcountry non-motorized dispersed recreation, group hikes and trail rides, photography, etc.		How do we disperse recreation to protect the natural resources?
Events	Group hikes		

GEOGRAPHIC PLACE – INVENTORY No. 18

AREA: Crater Lake National Park

Niche: Crater Lake, gem of the Cascade Range, holds world record standing for water clarity, is the central feature to Crater Lake National Park, and a main attraction to Oregon and the West Coast. Contributing significantly to local economies through employment and visitation, Crater Lake National Park provides a variety of developed recreation and educational activities, including the seasonal, full-service Crater Lake Historic Lodge, the Civilian Conservation Corps Era William Steele Visitor Center and seasonal guided boat tours inside the caldera.

Landscape Descriptors:

Category	Attributes (+)	Deviations (-)	Issues
Geographic:			
Landform	Flat to sloping to steep with heavily eroded volcanic and geologic features; a highly-visible water-filled caldera with angular and jutting rock escarpments		
Fauna/Flora	High-elevation coniferous vegetation		
Water	Crater Lake, waterfalls, springs and streams		
Air	Generally clear		How do we manage for a clean airshed?
Sociologic:			
Culture	Outdoor – nature orientation with historic structures of long-term service to visitors.		
Community	Central to multiple distant communities who serve as gateways to the Park		How do we manage adjacent national forest lands consider the diverse user groups?
Polity	International significance as a natural wonder		
Economics	Visitation of over 500,000 people per year contributes to the area economy		How do we fund and maintain facilities to support high visitation in the area with a quality experience?
Expressions:			
Activities	Disperse and developed recreation opportunities		How do we manage activities and support

	including full-service lodge accommodations within the Park; educational tours and interpretation; guided boat tours		events while protecting natural resources and providing a safe environment for people?
Events	Snowmobiling to the Park, Bicycle, Running and Skiing Events		

Appendix Item No. 4 ROS and VQO Acres by SOP Unit

(1a)	<u>Byways - Recreation Opportunity Spectrum:</u>	
	Roaded Modified	0.1 Acres
	Roaded Natural (potential developed site)	8.6
	Roaded Natural (visual route, level 1)	31.9
	Roaded Natural (visual route, level 2)	31.0
	Rural	1,191.0
	Rural (potential developed site)	61.9
	Semi-Primitive Non-Motorized	<u>76.7</u>
		1,401.2 Total Acres
(1b)	<u>Byways - Visual Quality Objectives</u>	
	Foreground Retention	940.6 Acres
	Foreground Partial Retention	334.2
	Retention	<u>126.5</u>
		1,401.3 Total Acres
(2a)	<u>Diamond Lake Resort - Recreation Opportunity Spectrum</u>	
	Rural	<u>166.3</u> Acres
		166.3 Total Acres
(2b)	<u>Diamond Lake Resort -- Visual Quality Objectives</u>	
	Foreground Retention	<u>166.3</u> Acres
		166.3 Total Acres
(3a)	<u>Family Camp - Recreation Opportunity Spectrum</u>	
	Rural	314.5 Acres
	Rural (existing developed recreation)	170.8
	Rural (potential developed site)	<u>46.1</u>
		531.4 Total Acres
(3b)	<u>Family Camp - Visual Quality Objectives</u>	
	Foreground Retention	412.0 Acres
	Foreground Partial Retention	<u>119.5</u>
		531.5 Total Acres
(4a)	<u>Lagoon - Recreation Opportunity Spectrum</u>	
	Rural	<u>120.8</u> Acres
		120.8 Total Acres
(4b)	<u>Lagoon - Visual Quality Objectives</u>	
	Foreground Retention	<u>120.8</u> Acres
		120.8 Total Acres
(5a)	<u>Lake Creek - Recreation Opportunity Spectrum</u>	
	Roaded Natural	79.1 Acres

	Roaded Natural (Visual, Level 1)	17.4
	Roaded Natural (Visual, Level 2)	560.8
	Rural	165.0
	Rural (potential developed site)	<u>33.1</u>
		855.4 Total Acres
(5b)	<u>Lake Creek - Visual Quality Objectives</u>	
	Foreground Retention	138.0
	Foreground Partial Retention	710.9
	Modification	<u>6.5</u>
		855.4 Total Acres
(6a)	<u>Mt. Bailey Trail - Recreation Opportunity Spectrum</u>	
	Rural	1.2 Acres
	Rural (potential developed site)	4.1
	Semi-Primitive Non-Motorized	<u>0.1</u>
		16.2 Total Acres
(6b)	<u>Mt. Bailey Trail - Visual Quality Objectives</u>	
	Foreground Retention	16.0 Acres
	Middleground Retention	<u>0.2</u>
		16.2 Total Acres
(7a)	<u>Riparian - Recreation Opportunity Spectrum</u>	
	Rural	626.8 Acres
	Rural (existing developed recreation)	0.7
	Rural (potential developed site)	<u>1.2</u>
		628.7 Total Acres
(7b)	<u>Riparian - Visual Quality Objectives</u>	
	Foreground Retention	628.7 Acres
	Foreground Partial Retention	<u>0.1</u>
		628.8 Total Acres
(8a)	<u>Roadless - Recreation Opportunity Spectrum</u>	
	Roaded Modified	0.6 Acres
	Rural	868.2
	Semi-Primitive Motorized	<u>0.1</u>
		868.9 Total Acres
(8b)	<u>Roadless - Visual Quality Objectives</u>	
	Foreground Retention	827.4 Acres
	Foreground Partial Retention	2.8
	Middleground Retention	33.6
	Middleground Partial Retention	2.7
	Modification	<u>2.3</u>
		868.8 Total Acres
(9a)	<u>Summer Homes - Recreation Opportunity Spectrum</u>	
	Rural	234.1 Acres
	Rural (existing developed recreation site)	<u>0.4</u>
		234.5 Total Acres

(9b)	<u>Summer Homes - Visual Quality Objectives</u> Foreground Retention	<u>234.5</u> Acres 234.5 Total Acres
(10a)	<u>Watersports - Recreation Opportunity Spectrum</u> Rural Rural (existing developed recreation site)	3,034.0 Acres <u>4.0</u> 3,038.0 Total Acres
(10b)	<u>Watersports - Visual Quality Objectives</u> Foreground Retention	<u>3,038.0</u> Acres 3,038.0 Total Acres