

Chapter 3 - Affected Environment and Environmental Consequences

3.1 Introduction

In Chapter 1, section 1.6.1 Issues, the Interdisciplinary Team developed a list of issues based on comments received during public scoping. Concerns raised by team members were also discussed and added to the issues list. The ID Team examined the list to determine if the issues identified were significant issues that will be analyzed in Chapter 3. The following sections address each of the resource headings that were determined to have significant issues. In each resource section, a description of the affected environment follows, providing the background information necessary to identify and interpret impacts. The environmental consequences address each significant issue identified for that specific resource heading and for each issue. Additionally, the environmental consequences section will discuss the direct, indirect and cumulative impacts for both the Proposed Action and No Action alternatives. Any mitigation that is specific to each resource concern will also be addressed this section.

Alternatives analyzed in detail in this EA include the **Proposed Action** and the **No Action** Alternatives. The Proposed Action would allow reissuing 20-year term special use permits for the 70 summer homes in Mill Creek Canyon, so long as each permit holder is in compliance with the terms and conditions of their existing authorization. Those permit holders who are not in compliance with their authorization would not be issued a new 20-year permit and would ultimately be required to remove their cabin and other improvements from the National Forest and rehabilitate the site. However, for the purpose of analysis, it is assumed each homeowner will take the necessary steps to comply and that all permits would be reissued. After these new permits are in place, the 70 Mill Creek Canyon summer homes would continue to be managed consistent with Forest Service regulations, policies, and handbooks, including the Forest Recreation Residence Administrative Guide” (February, 2006).

The No Action Alternative would involve allowing all current special use permits for summer homes in Mill Creek Canyon to expire on their term in 2008. By policy the Forest Service would then issue 10-year permits to all permit holders, during which time homeowners would be required to remove their cabins, access roads, and other improvements from public lands and rehabilitate the sites.

3.2 Wildlife Resources

3.2.1 Affected Environment

For the purpose of this analysis, the area of influence for all wildlife species, except big game, is considered to be Mill Creek Canyon. For big game it is the Wasatch Mountains Hunt Unit (# 17).

The lower and mid-canyon sections of Mill Creek Canyon have fairly extensive developments that affect the area's wildlife habitat capability. Among these are 12 developed picnic areas, a large Boy Scout camp, and several restaurants. Mill Creek Canyon also has an extensive non-motorized trail system.

Vegetation on south facing slopes consists mainly of mountain brush and juniper. North facing slopes are mainly conifer and aspen.

3.2.1.1 General Wildlife

Big game

Mill Creek Canyon is part of the Wasatch Mountains Hunt Unit (# 17) and supports a population of mule deer, elk, and moose. In general, the Utah Division of Wildlife Resources (UDWR) considers all elevations below 7,000 feet to be big game winter range. Slopes facing south and southwest are usually clear of snow or have less snow when compared to the northerly facing slopes and the canyon bottom. It is on these south and south westerly facing slopes where big game will spend most of the winter if they are higher in the canyon. All recreational residence tracts are below the 7,000 foot elevation, but lay on the landscape in a way to hold enough snow that they receive minimal use.

The UDWR's deer herd objective for the Wasatch Mountain Unit is 40,800 animals with a Salt Lake County subpopulation of 2,000 (UDWR Draft). Because of firearms restrictions in Salt Lake County, UDWR uses an extended archery season to hold the population close to the objective. The elk herd objective is 5,050 animals, with a Salt Lake County subpopulation of 200 (UDWR 1998). There is no population objective or estimate for moose, but moose have a much larger winter range because they tolerate much deeper snow than deer or elk.

In northern Utah, fifty nine percent (638,248 acres) of the deer summer range and 21% (125,415 acres) of deer winter range occurs on National Forest System lands (portions of the Ashley, Uinta, and Wasatch-Cache National Forests). For elk, 22% (2,356 acres) of yearlong range, 63% (485,340 acres) of summer range, and 27% (222,861 acres) of winter range are located on the same portions of the three National Forests.

Small game

Small game in Mill Creek Canyon includes blue grouse, ruffed grouse, and snowshoe hare.

Small mammals

Many species of small mammals are found in Mill Creek Canyon, and these include squirrels, chipmunks, skunk, porcupine, raccoon, and marmots. These small mammals have the capacity to hide and for the most part go undetected. Down woody debris, both naturally occurring and that around out buildings and woodpiles around summer homes creates habitat for small mammals.

3.2.1.2 Migratory Birds

There are many species of migratory birds that spend the summer breeding period in habitats provided in Mill Creek Canyon. Species composition would mirror the list obtained in the Brighton Bird Count that the Salt Lake Audubon Society has been conducting since 1968. (Audubon Society 2004). Table 3.1 lists bird species of concern that may be present in Mill Creek Canyon. This list has been compiled from Partners in Flight (PIF) species of concern and the U.S. Fish and Wildlife Service (FWS) birds of conservation concern for a larger geographic area in Utah.

| Species^A | Primary Breeding Habitat | Secondary Breeding Habitat | Winter Habitat^B | Nests |
|---------------------------------|---------------------------------|-----------------------------------|-----------------------------------|---------------|
| Black-throated gray warbler * | Pinyon-Juniper | Mountain Shrub | Migrant | Trees |
| Brewer's sparrow * | Shrubsteppe | High Desert Shrub | Migrant | Sage |
| Broad-tailed hummingbird | Lowland Riparian | Mountain Riparian | Migrant | Trees |
| Gray Viero * | Pinyon-Juniper | Northern Oak | Migrant | Shrubs |
| Virginia's warbler * | Northern Oak | Pinyon-Juniper | Migrant | Ground |
| Williamson's sapsucker | Sub-Alpine Conifer | Aspen | Migrant | Trees |
| Yellow-billed cuckoo * | Lowland Riparian | Agriculture | Migrant | Trees/Willows |
| Lewis' Woodpecker * | Ponderosa Pine | Lowland Riparian | Northern Oak | Trees |
| Loggerhead shrike | High Desert Scrub | Pinyon-Juniper | High Desert Scrub | Trees |
| Pinyon Jay | Pinyon-Juniper | Ponderosa Pine | Pinyon Juniper | Trees |
| Red-naped sapsucker | Aspen | Mixed Conifer | Mountain Riparian | Trees |
| Sage sparrow * | Shrubsteppe | High Desert Scrub | Low Desert Scrub | Sage/Ground |
| Three-toed woodpecker | Sub-Alpine Conifer | Lodgepole Pine | Sub-Alpine Conifer | Trees |

^A Bold type = PIF list.
 Regular type = BCC list.
 * = both lists.

^B Some species are not migratory but are listed because they are on the PIF and/or BCC lists.

Species that would be expected in the vegetation types within the recreation residence tracts are the broad-tailed hummingbird, Williamson's sapsucker, red-naped sapsucker, and the three-toed woodpecker. All have been identified in the Brighton Bird Count.

In general, tree nesting birds have not been affected by the presence of recreational residence tracts. Some larger trees have been removed but most are desired for shade and aesthetics. Species that depend on sagebrush, willows, other shrubs, and the ground for foraging or nesting may have been affected with the removal of these types of vegetation either during initial construction or use by the permit holders. With the small size of the tracts in comparison to the amount of habitat available, birds may have been displaced

from time to time but the tracts have not threatened the existence of any species on the Forest.

3.2.1.3 Terrestrial Management Indicator Species (MIS)

MIS identified in the Forest Plan Final Environmental Impact Statement (Appendix J) are beaver, goshawk, and snowshoe hare. MIS are monitored and evaluated on a Forest-wide basis and not by individual projects. As data is collected on the species an annual report is completed for the Wasatch-Cache National Forest which details monitoring protocols and summarizes the results of the results of the previous year's monitoring. This report released in the spring each year (Wasatch-Cache National Forest 2006).

Beaver

The Forest Service is in the process of collecting baseline information and uses UDWR data to aid in the assessment of historical beaver population trends for the Forest. The 1979-80 and 1998-1999 Furbearer Harvest Reports ((Proven, 1980, and Wolfe, 1999 respectively) and the 1971-1982 Beaver Distribution, Habitat and Population Survey (Blackwell, 1993) provide relevant information on beaver. The 1979-80 Harvest and 1971-82 Survey Reports display beaver estimations by “units” while the 1998-1999 Harvest Report considers regions (Great Basin, Rocky Mtn., Uintah Basin, and Colorado Plateau). The Survey restates the trend from the 79-80’ Report. These reports indicate the trend is static on most beaver units and increasing on some. On Unit 15, Southeast Salt Lake County it is increasing.

There are 13 trapping units that include some National Forest System lands administered by the Wasatch-Cache National Forest. UDWR beaver units include all land ownerships. In the UDWR’s 1993 document, three units were determined to be increasing and 9 units were determined to be static.

Based on the efforts described above, management activities across the Wasatch-Cache National Forest do not appear to have significantly affected suitable beaver habitat or population levels since 1980. While this is true on the broader scale, there are indications that several individual locations projects or activities have impacted beaver. With the exception of a few specific locations, Forest Service management of suitable beaver habitat within National Forest boundaries has not changed significantly from 1980 to the present.

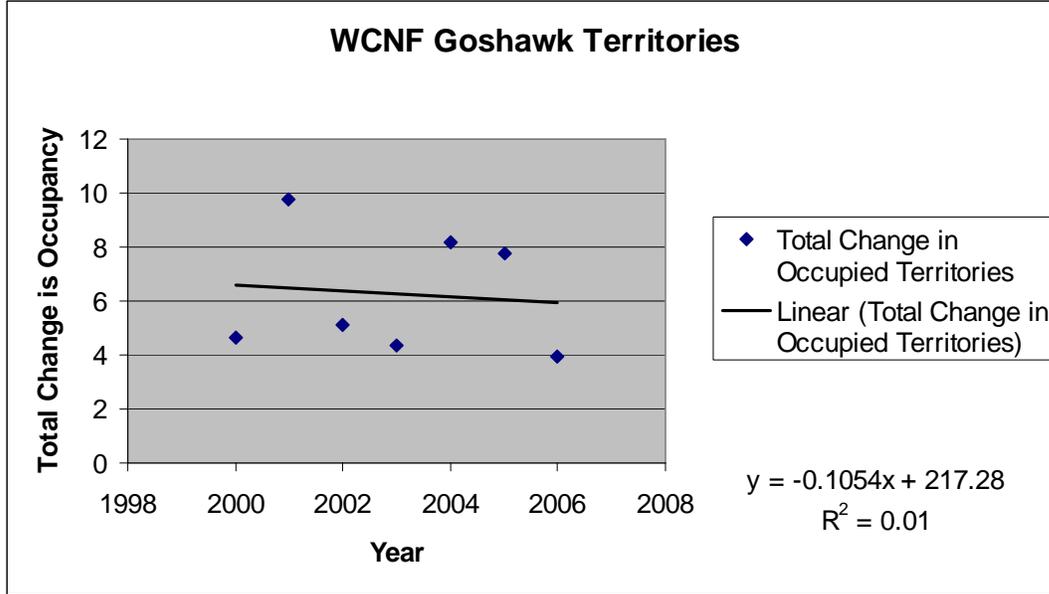
As time goes on Forest Service monitoring data will be used to augment UDRW information. On the Forest, beaver monitoring is conducted on randomized basis. None of these plots are located in sections of Mill Creek where summer homes are located. In visits to the tracts there is some evidence of beaver use in the past, but nothing in the recent past.

Goshawk

Figure 3.1 shows the territory occupancy across the Wasatch-Cache National Forest from 1999 to 2004 (adjusted to 1999 occupied territories, based on the difference in numbers of territories monitored). The baseline used was the 1999 territory occupancy of 7 known occupied territories. Adjusting to the 1999 occupied territories there has been a high in

2001 of 9.76 occupied territories and a low of 4.33 in 2003. These differences in years are not statistically significant, showing a static trend in the goshawk population Forest-wide.

Figure 3.1 Total change in occupied territories on the WCNF, 1999-2006.



Territory occupancy numbers from Figure 3.1 in table form.

| Year | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|------|------|------|------|------|------|-------|------|
| Total Change in Occupied Territories¹ | 7 | 4.66 | 9.76 | 5.09 | 4.33 | 8.18 | 7.775 | 3.97 |

¹Sum of each Districts change in territory occupancy.

The monitoring plan calls for the monitoring of 50% of the goshawk territories on the Forest annually. At the present time this totals 25 territories. There have been no goshawk territories identified in the portion of Mill Creek Canyon where recreational residence tracts are located, although many tracts are adjacent to suitable habitat and some contain suitable habitat.

Snowshoe Hare

Snowshoe hare monitoring for the Forest Plan is divided into two populations areas (Uinta Mountains and Bear River/Wasatch Range) because natural barriers that keep the populations from intermixing. Monitoring grids (5 transects with 10 points in each transect were established in vegetation types that support snowshoe hare across the Bear River/Wasatch Range in 2003. From 2003 – 2005 hare numbers increased while there was a decrease in 2006. It is too early to tell if this decrease is part of a normal snowshoe hare cycle or not. Annual surveys will continue and evaluation of the data will take place at an appropriate time.

Recreational residence tracts do have snowshoe hare habitat, although none of the monitoring grids are located in the tracts. For example, snowshoe hares will use woodpiles and areas under porches as hiding cover but there is no indication of decreases

or increases within the tracts. With the length of time the tracts have been in place it is assumed that equilibrium has been reached.

3.2.1.4 Terrestrial Endangered, Threatened, and Sensitive Species

The U.S. Fish and Wildlife Service (FWS) Utah Field Office releases their list, “Federally Listed and Proposed (P) Endangered(E), Threatened (T), and Candidate (C) Species and Habitat in Utah by County” (FWS, 2006) on a periodic basis. Species listed as occurring or having habitat in Salt Lake County are shown in Table 3.2.

Table 3.2 Federally Listed and Candidate Species for Salt Lake County, Utah

| Species/(Status) | Scientific Name |
|--------------------------|--------------------------|
| Bald Eagle (T) | Haliaeetus leucocephalus |
| Canada lynx (T) | Lynx canadensis |
| Yellow-billed cuckoo (C) | Coccyzus americanus |

Forest Service sensitive species are those species identified by the Regional Forester as “[species] for which population viability is a concern as evidenced by ... significant current or predicted downward trends in population numbers or density... or significant or predicted downward trends in habitat capability that would reduce a species existing distribution” (FSM 2670.5). Forest Service sensitive terrestrial species for the Wasatch-Cache National Forest are shown in Table 3.3. The presence (Y) or absence (N) of habitat for these sensitive species in or near the Mill Creek recreation residence tracts is indicated in this table. These species include the Townsend’s big-eared bat (*Corynorhinus townsendii*), great gray owl (*Strix nebulosa*), Northern goshawk (*Accipiter gentilis*), and Northern three-toed woodpecker (*Picoides tridactylus*).

Table 3.3. Sensitive Species Habitat Presence In Mill Creek Canyon

| Tract | Spotted Bat | Wolverine | Big-eared Bat | Boreal Owl | Flam. Owl | Great Gray Owl | Goshawk | Peregrine | 3-toed | Sharp-tail | Sage Grouse | Pygmy Rabbit |
|-------------|-------------|-----------|---------------|------------|-----------|----------------|---------|-----------|--------|------------|-------------|--------------|
| Firs | N | N | N | Y | Y | Y | Y | N | Y | N | N | N |
| Porter Fork | N | N | N | Y | Y | Y | Y | N | Y | N | N | N |
| Elbow Fork | N | N | N | Y | Y | Y | Y | N | Y | N | N | N |

Bald eagle

Except for eight nesting pairs of bald eagles, none of which are on the Wasatch-Cache National Forest, bald eagles are considered winter visitants in Utah (FWS 2006). Two basic habitat requirements, roost trees and open water for foraging are lacking in Mill Creek Canyon. The area may receive some incidental use by bald eagles, but most

activity is in the vicinity of the Great Salt Lake where prey is much more abundant. Continuation of use of the recreational residence tracts would have no effect on bald eagles.

Yellow-billed Cuckoo

Utah is on the outer edge of the range for yellow-billed cuckoos. The Bear River Range along with the Wasatch Range and the Uinta Mountains are an island of habitat occasionally used by the species. All reports in Salt Lake County are from areas below the Forest boundary, although all recreation residence tracts are generally within their elevation range. Willows and other shrubby vegetation are most likely the limiting factor in Mill Creek Canyon. Continuation of these tracts will have no effect on the yellow-billed cuckoo.

Canada lynx

Salt Lake County is considered linkage habitat for the lynx connecting Wasatch and Utah Counties to the south and east to Summit and Morgan Counties to the north. In recent years it has been used by one known lynx that left Colorado where it had been transplanted, on its trip back towards Canada where it had been originally captured. The Federal Register of Thursday, July 3, 2003, in the FWS "Remanded Determination of Status for the Contiguous United States Population Segment of the Canada Lynx; Clarification of Findings; Final Rule," it states, "...There is no evidence of lynx reproduction in Utah. We conclude that lynx that occur in Utah are dispersers rather than residents..." No critical habitat for the Canada lynx has been identified in Utah (Federal Register, 2006) The proposal to continue recreation residence use in Mill Creek Canyon will have no effect on lynx.

Boreal owl

Boreal owls are secondary cavity nesters that prefer northern coniferous forests, but will use mixed conifer-aspen, for nesting (DeGraaf, et.al 1991). While there are several reports of boreal owls in northern Utah, none have been observed in Mill Creek Canyon. Since the proposal involves no habitat alteration, continued recreation residence use will have no impact on boreal owls.

Flammulated Owl

These owls prefer ponderosa pine forests but will also use forests of spruce-fir, Douglas-fir, lodgepole pine, aspen, and pinyon-juniper (Degraaf, et.al 1991). On the Wasatch-Cache they use aspen more than other vegetation types. None have been identified in Mill Creek Canyon. Since the proposal involves no habitat alteration, continued recreation residence use will have no impact on flammulated owls.

Great horned Owl

Great horned owl habitat is present in the coniferous stands in Mill Creek Canyon. The species is considered a winter vagrant in Utah and none have been found in Mill Creek Canyon. The continued use of the tracts will have no impact on the owls or their habitat.

Northern goshawk

Goshawk habitat is present in the coniferous and conifer-aspen stands in Mill Creek Canyon. Goshawks have not been found in any of the recreation residence tracts there. Since the proposal involves no habitat alteration, continued recreation residence use will have no impact on goshawks.

Northern Three-toed Woodpecker

Three-toed woodpecker habitat is present in the coniferous and conifer-aspen stands in Mill Creek Canyon. Three-toed woodpeckers have not been found in any of the recreational residence tracts. Since the proposal involves no habitat alteration, continued recreation residence use will have no impact on three-toed woodpeckers.

3.2.2 Environmental Consequences

Based on public scoping and Interdisciplinary Team discussions, the following issue was identified as relevant to this analysis for Wildlife Resources:

How will continued recreation residence use affect wildlife, including threatened, endangered, and Forest Service sensitive species? What will be the impact to migratory bird species and Forest Service management indicator species?

3.2.2.1 Impacts Common To All Alternatives

Under both alternatives, because of the small amount of acreage involved, there would be no change in big game, small game, small mammals, and neo-tropical migrants. Distribution and movements might be affected to a degree but overall there will be no noticeable change. Trends on management indicator species across the Forest would not be affected, nor would they be affected at the project level. There would be no effect on endangered, threatened, or candidate species and no impact on Forest Service sensitive species.

3.2.2.2 Alternative 1 - No Action

Under the “no action” alternative recreation residences, out buildings, roads, bridges and other improvements would be removed. Disturbed areas would be re-vegetated with native species or return to native species through natural succession. The tract areas would provide more security for wildlife species and would tend to be used by a more diverse array of species. This would be especially true if the areas were managed for vegetation and age classes that would more closely resemble historic landscape patterns. Use patterns would simulate what is presently found further away from the tracts and other developments in Mill Creek Canyon.

3.2.2.3 Alternative 2 - Proposed Action

Under the “action” alternative of reissuing permits, residences, out buildings, roads, bridges and many other improvements would remain. In discussing terrestrial wildlife and the impacts of recreation residence tracts it must be remembered that these tracts have been in place for several decades. As such, impacts on wildlife occurred long ago when cabins and roads were first built. Wildlife species have long since grown accustomed to the development or have been displaced from the area. Salt blocks, feeders, and other activities will tend to attract some wildlife species that might avoid the area more without such attractants but in general what is present now would remain. Following the recreation residence guide would keep natural vegetation in place to benefit the most diverse array of species possible. This vegetation would continue to favor species that prefer and use older age classes of vegetation.

3.2.2.4 Cumulative Effects

Cumulative effects on wildlife are centered on wildfires and human activities such as developed recreation sites, roads and road use, maintenance of power and telephone lines and right-of-ways, maintenance and replacement of water lines. In general wildfires will be beneficial to wildlife. In setting back natural succession the area would move towards properly functioning condition with diverse age classes of vegetation that would provide habitat for the greatest number of species.

The Mill Creek road might be expanded to a degree on private land but little or none on National Forest System lands. Road use will increase as the population of the Salt Lake Valley increases. This will increase the possibilities of automobile wildlife collisions. It will also reduce habitat effectiveness for some species that tend to naturally avoid roads.

Replacement and maintenance of waterlines and power lines are short term disturbances that may displace wildlife.

3.3 Aquatic Resources

3.3.1 Affected Environment

3.3.1.1 Project Area Description

The project area includes the three recreation residence tracts in Mill Creek Canyon. The 45-home Porter Fork tract is located immediately adjacent to Porter Fork Creek and one of its tributaries, Bowman Fork. Approximately 1.4 miles further up the canyon, the single cabin Elbow Fork tract is situated along Mill Creek and the County road. Finally, the 24-cabin Firs tract is located 1.8 miles further up the canyon, and is also located along Mill Creek.

The broader analysis area is comprised of the Mill Creek Hydrologic Unit (HU), and includes all National Forest lands from the mouth of the canyon to surrounding ridgelines with Parley's and Lamb's Canyons, Summit County, and Big Cottonwood Creek. The Mill Creek HU is 19.1 square miles in size and includes 40.9 miles of perennial and intermittent streams. The streams within the HU that have perennial flows include Church Fork, Porter Fork, Bowman Fork, and Elbow Fork. There are also a number of named and unnamed tributaries that are believed to have intermittent flows.

3.2.1.2 Management Direction

The Forest Plan provides the primary direction for managing activities and uses of National Forest System lands. A large portion of the three tracts in this analysis are located in relatively close proximity to stream corridors in Mill Creek Canyon. Mill Creek is designated in the Forest Plan as Class I riparian area (Appendix VII, p.6), making it a high priority for maintaining or enhancing its values. With respect to Aquatic Resources, a number of terms are especially pertinent to the analysis in this EA. The definitions provided below are taken from the Forest Plan.

***Riparian Area** - Land areas that are directly influenced by water. They usually have visible vegetative or physical characteristics showing this water influence. Steamsides, lake borders, or marshes are typical of riparian areas. The ecosystems around or next to water areas that support unique vegetation and animal communities as a result of the influence of water.*

***Riparian Habitat Conservation Area (RHCA)** – An area that includes traditional riparian corridors, wetlands, intermittent streams, and other areas that help maintain the integrity of aquatic ecosystems by (1) influencing the delivery of coarse sediment, organic matter, and woody debris to streams, (2) providing root strength for channel stability, (3) shading the stream, and (4) protecting water quality. This designation still allows for a full range of activities but it emphasizes the achievement of riparian management objectives that are identified on a site-by-site basis. These objectives should include riparian vegetation and instream habitat condition.*

The RHCAs in Mill Creek Canyon extend on either side of streams ranging in distance from 100 to 300 feet upslope from the creek's edge. Thus, each RHCA is from 200 to 600 feet in total width. The Forest Service uses Riparian Management Objectives (RMOs) to provide specific, activity or project level guidance to help conserve riparian and aquatic values within RHCAs. In this case, a set of RMOs have been developed for the recreation residence program on the Wasatch-Cache National Forest (Forest Service 2007). These RMOs address not only the recreation residence itself, but also other improvements such as sheds, access roads, bridges, decks, patios, etc. A primary objective of the RMOs is to retain and improve vegetation in the RHCA in a way that helps to minimize sedimentation, maintain woody debris, prevent pollution, and shade the creek to keep water temperatures low; while at the same time allowing recreation

residence use, access, and wildfire protection. Both the recreation residence RMOs and additional information about RHCAs is included in this EA as Appendix E.

3.2.1.3 Existing Conditions

Fish species which inhabit Mill Creek streams include the native Bonneville cutthroat trout and non-native brown and rainbow trout. Bonneville cutthroat trout are....In the Mill Creek HU, the cutthroat trout population is divided into two sections by an old hydroelectric dam just above the mouth of Porter Fork. There is also a man-made flow weir just above Elbow Fork and a natural barrier that preclude cutthroat trout from migrating above this area. Non-native fish have been stocked in the drainage and brown trout have developed a self-sustaining population.

Other species found in the drainage include the tiger salamander. It is also suspected that boreal and woodhouse toads are in the drainage although no individuals have been found.

It is important to note that the following issues mostly apply to cabins and improvements in the Porter Fork area. Most of the homes in the three tracts being analyzed in this document have been built from the 1920s through the 1950s, during the same period that most of the picnic areas and other facilities in Mill Creek Canyon were constructed. Likely not recognizing the importance of environmental protection at the time, many of these facilities, including virtually all of the recreation residences, were built in riparian areas and floodplains. More specific to the summer homes, over the years natural vegetation around the residences was altered as recreational resident owners constructed cabins, outbuildings and roads, and installed recreational facilities around the lots. In some cases, larger trees have been removed for power lines and to reduce the hazard of falling trees. Often, dead and down trees were removed, rather than allowed to remain in the stream channel and provide aquatic benefits. In some cases, this was done for flood control purposes, while in others it was likely done for wildfire protection or aesthetic reasons. An Aquatics technical report has been prepared in support of this EA which provides additional detail of existing conditions in riparian areas near the three Mill Creek summer home tracts (Cowley 2006).

Low growing vegetation has also been impacted to varying degrees by recreation residence use. Since flowing water tends to attract people, paths, gathering areas, picnic areas, and trampled vegetation has developed in some streamside areas. In other cases, vehicle parking has impacted these areas. In some instances, small diversions and weirs have been installed in streams and some of these are barriers to fish movement.

In the Porter Fork tract, sand bags have been used in a few locations for flood control. Unfortunately, these sand bags have sometimes been left along the stream banks to deteriorate allowing sand to go directly into the stream channel. This increase in sand and fine silt, can smother spawned eggs and reduce habitat for young fish and aquatic insects.

Over the years, summer home construction and use has impacted channel conditions in ways that affect fish and other aquatic life. Removal of trees, shrubs, and other vegetation along streams has weakened banks and increased the potential for sloughing in some areas. In areas immediately near homes, larger trees that have fallen have been removed from the site or sawed into small sections, rather than allowed to a part of the natural stream environment and provide habitat. In other instances, channels have been “bermed” to shift water flows away from homes and other uses on the lots. People’s natural attraction to water has resulted in pockets of compacted soils and loss of vegetation on some stream banks and streamside areas. Finally, in a few instances small weirs have been placed in the stream to create pools. While these can create habitat for small fish, these features can also restrict fish movement and raise water temperatures.

Residential use in locations near streams invariably increases the risk of introducing contaminants into the water and damaging aquatic life. The type of impacts can range from elevated nutrient levels, to toxic contamination from chemicals so high as to kill fish and macroinvertebrates, or reduce the diversity of species. For example, gray water leach fields could seep into streams and sealed toilet vaults could become damaged and leak. Similarly, home and garden chemicals and improperly used paints and stains could inadvertently make their way into streams. There is no evidence currently of contamination from sanitation facilities and vaults have recently been inspected by the Salt Lake Valley Health Department.

Water withdrawals for summer home use have decreased flows available for aquatic life in Mill Creek Canyon streams to some degree. For example, in the analysis of Porter Fork’s new water system it indicates that 13,500 gallons/day or less than .3 percent of the creek’s flow (Mill Creek) would be used by summer homes. Though these have mostly been corrected, some stream withdrawals for recreation residence use were done without proper authorization from Salt Lake City Department of Public Utilities.

It should be noted that adverse impacts from summer homes are not equally distributed or common among the three tracts and that in the past several years adoption of the Administrative Guide and steps by some homeowners have reduced impacts to the aquatic environment. For example, within the Porter Fork tract the impacts are most pronounced. There, the tract road system and a number of the homes are located immediately adjacent to drainages, providing little buffer for streams. However, in this same tract residents recently installed a community water system, which reduced stream impacts by minimizing the amount of water diverted for home use and by removing an extensive network of distribution pipes, much of which was laid in stream channels.

As indicated in Appendix C & D of this EA, summer home lots are located in multiple categories of RHCAs. In Porter Fork, each lot is located in either a Category 1, 2, or 4 RHCA, depending on whether the adjacent stream supports a fish population or flows only seasonally or throughout the summer. As indicated in Appendix E, varying restrictions apply to activities and developments within this zone, ranging in distance from the channel from 100 to 300 feet upslope. The Elbow Fork lot is located within a

Category 1 RCHA that extends 300 feet above the edge of Mill Creek. Finally, lots within the Firs tract are located in either a Category 1 or 2 RHCA that extends from 150 to 300 feet laterally from Mill Creek.

Approximately 4.68 square miles of the Mill Creek HU is located within 300 feet of streams and water bodies and Mill Creek and its tributaries in the canyon. Recreation residence tracts overlay approximately 77 acres, or 2.6 percent, of this area. Developed recreation uses, such as picnic and parking areas, trails, and Forest Roads impact another 4 percent of the area within Mill Creek drainage that is within 300 feet of streams. These figures do not include the impact from the Mill Creek canyon road which is a County road. The activity on private lands in the lower canyon is also not included in the calculations.

3.3.2 Environmental Consequences

This section presents the effects of recreation residence management on the following issues:

What will be the effect of continued recreation residence use on aquatic life, including threatened, endangered, and Forest Service sensitive species, such as the Bonneville Cutthroat trout? As a component of the aquatic ecosystem, how will continued summer home use affect Riparian Habitat Conservation Areas?

3.3.2.1 Alternative 1 - No Action

Under the No Action Alternative the summer home special use permits would expire in 2008 and the facilities in the summer home tracts would be removed over a 10-year period. In all, 70 cabins and approximately 3 vehicle bridges and numerous culverts and foot bridges would be removed. Approximately 2.3 miles of internal tracts roads would also be removed and restored. As a part of the road removal process, the paved, 1.6-mile road through the Porter Fork tract which accesses the Mt. Olympus Wilderness would be converted to a trail. The surface of the former road would be reduced from 12 to 4 feet in width and would be converted from asphalt to a natural soil surface. Out buildings and outhouses would also be removed. With the removal of these facilities, it's likely that the areas where these tracts are located would see more recreation use of the type common to Mill Creek, especially hiking and biking.

The removal of all recreation residence improvements would have a potential short term impact as cabins and other buildings are dismantled, bridges and culverts removed, and impacted areas are leveled and re-vegetated. These activities would create sedimentation that could adversely affect aquatic life until the rehabilitation becomes effective. The severity of the impact would be determined mainly by the effectiveness of erosion control measures and the extent of the removal activities in any given year.

If the summer home tracts were eliminated and the RHCA was restored to the natural vegetation, the impact of developments in the Mill Creek HU would drop from 6.6

percent to 4.0 percent, which is about two thirds of the impact. In addition, it is assumed that without recreation residence use approximately 23,400 gallons per day of water would be returned to streams. Though this is a relatively small amount, this would provide an additional benefit to aquatic life.

Under Alternative 1, non-native rainbow and brown trout would continue to exist in Mill Creek Canyon streams and whirling disease has been detected in Mill Creek, adversely affecting the native Bonneville cutthroat trout population and other aquatic species.

3.3.2.2 Alternative 2 - Proposed Action

Alternative 2 involves authorizing continued recreation residence use of the 70 homes in three tracts in Mill Creek Canyon. The cabins in Mill Creek would continue to be managed according to the Wasatch-Cache Recreation Residence Administrative Guide and other Forest Service and local government requirements. In addition, activities and developments within RHCAs would be conducted consistent with the RMOs which have been developed as a part of this environmental review. New improvements and remodeled facilities would be subject to an appropriate level of environmental review before they are approved. No new lots, in-lieu lots or tracts would be authorized in Mill Creek Canyon.

Continued recreation residence use in the Mill Creek tracts would mean that summer homes and associated improvements would continue to exist over the long term in areas within close proximity to streams in the canyon. As noted earlier, 2.6 percent of the total area in the Mill Creek HU that is within 300 feet of streams is affected by summer home use and this would continue to the case under this alternative. Detailed information about the impacts from past recreation residence use is included in the Aquatics technical report. In the sections below, the effects of continued recreation residence is summarized. It is important to note that these effects are based on the assumption that best management practices stipulated in the Administrative Guide will be employed and that the RMOs described earlier will be adhered to.

Riparian Vegetation

Vegetation around streams is a critical element in protecting the aquatic environment. Past vegetation removal and conversion to low-growing grasses and forbs has reduced habitat for fish and aquatic insects and allowed water temperatures to increase. As the RMOs and other BMPs are implemented and vegetation gets re-established, there should be improvement to vegetation in and around streamside areas. In places, riparian vegetation has been removed by construction of the cabins or other facilities, which has reduced hiding cover for fish and hatching structure for insects. These activities have largely already taken place and conformance with BMPs should eliminate or greatly reduce this type of impact in the future. The proximity of many homes, roads, and other improvements will have some long term adverse effect on vegetation important to aquatic species and their habitat.

Sedimentation

Implementation of BMPs should help to eliminate much of the runoff related impacts to aquatic life. For instance, sandbags will only be allowed to be placed directly against the structures and would be removed each year after use. As heavily used areas adjacent to streams are allowed to re-vegetate, erosion will be reduced. However, compacted community use areas near streams and runoff and sedimentation from roads and driveways will continue to introduce some level of fine materials into streams even with proper erosion control and drainage.

Water Quality

Implementation of best management practices will involve more restricted use and storage of chemicals, paints, and stains, which should help to reduce the chances of water quality contamination in the future.

Channel Conditions

Over time and with conformance with the RMOs, channel conditions will improve as regrowth occurs in streambank and streamside vegetation. The effects of historic berms have already occurred and no additional structures would be allowed to be installed. Small, instream structures will be removed to allow fish passage. Finally, larger trees that fall will be allowed to remain in the channel and become woody debris, given they do not create a flooding hazard. However, recreation residence use in the future will continue to affect channel conditions since the natural drainage network has been permanently altered to accommodate summer home use. As in-stream structures are removed, impediments to fish movement should be reduced. Similarly, as remaining unauthorized water diversions are eliminated, water available for aquatic life should increase even though the amount of water used is quite small relative to stream flows.

3.3.2.3 Cumulative Effects

Cumulative effects to aquatic resources are those past, present, and reasonably foreseeable activities which would add to the direct and indirect impacts noted above. Activities on non-National Forest land are a substantial component of the cumulative effects in Mill Creek Canyon. There are approximately 1,007 acres of non-Federal land, mostly in the lower section of the canyon, which sees heavy use, with much of it occurring near streams. Most obvious is the Boy Scout Camp which extends for approximately one mile along Mill Creek and is extensively used by scouts throughout much of the summer. Here, parking and scouting activities have impacted vegetation and soils which contributes sediment to Mill Creek.

The County road in Mill Creek HU extends approximately 8.7 miles from the mouth of the canyon to its terminus at Big Water Trailhead. Of this distance, approximately 5.3 miles is located on NFS land while the remainder is on property owned by others. Throughout virtually its entire extent the road is located within 300 feet of Mill Creek. Though paved, in some sections inadequate shoulder drainage causes sedimentation, adversely affecting aquatic species.

In Mill Creek Canyon there are about 51 miles of system trails and many of these see heavy recreation use. Some of these trails are located near perennial and intermittently flowing streams and likely contribute sediment that could cumulatively affect aquatic life. Similarly, there are 12 picnic areas in Mill Creek Canyon, all of which are extremely popular. Most of these are relatively near streams and channels and the “spill-over” of recreation use from these developed sites has resulted in compacted soils and denuded vegetation around some sections of streams. In addition, a number of trailheads and associated parking lots are within 300 feet of streams in the Mill Creek HU. In total, approximately 123 acres of roads, trails, and developed recreation facilities are located on NFS lands within RHCAs in the drainage.

Stream obstructions which are barriers to fish movement also play a role in cumulative effects in the Mill Creek HU. Among these is a flow weir across Mill Creek just above Elbow Fork and a very steep section of stream just below. These prevent cutthroat trout from migrating above these structures. In Porter Fork Creek, an old hydroelectric dam just above the stream’s confluence with Mill Creek is also a barrier to migration.

Historically cutthroat trout movements were probably unobstructed from the Jordan River up to Elbow Fork where a natural barrier exists. When the pioneers first arrived in the area water was diverted for farming and milling. The first saw mill was built on Mill Creek in 1948 below the mouth of the canyon (Carter 1941). Later, saw mills would be built at the mouth of Porter Fork and Elbow Fork. In all there were over 8 mills located in Mill Creek Canyon (Carter 1941). These mills probably obstructed the movement of fish in the canyon. The natural obstruction at Elbow Fork sill remains. This may explain why no cutthroat trout are found above Elbow Fork. A manmade dam also exists just above the mouth of Porter Fork on Mill Creek.

Historically rainbow and brown trout were stocked throughout the drainage. In recent years stocking has taken place from Maple Grove Picnic Area downstream.

Introduced species also represents a cumulative impact to fish in Mill Creek. Non-native rainbow and brown trout have been stocked in various places in the drainage and the later has developed a self-sustaining population. In addition, whirling disease has been detected in Mill Creek.

In the early 1990 extensive habitat rehabilitation work was started in Mill Creek adjacent to the picnic areas in Mill Creek. This included planting vegetation, restricting the stream channels, and installing rock weirs. A small fishing pond with board walk was installed in 1993 across from the Mill Creek Guard Station. There is evidence that previous habitat improvement work had been done in the drainage with a number of log weir structures existing around Maple Grove Picnic Area.

3.4 Vegetation

3.4.1 Affected Environment

Given that the summer homes in Mill Creek Canyon are a long-existing use and that they represent a relatively small impact to overall vegetation in the drainage (less than 0.2 percent of the area), this analysis focuses on the impact this use has on rare plants and the presence of invasive and non-native species.

3.4.1.1 Threatened Endangered Species (TES)

The table below indicates TES plants that have known occurrences on the Salt Lake District and were targeted as having potential habitat in or around the Firs, Elbow Fork and Porter Fork recreation residences. In inventories conducted in 2006, no TES species individuals or populations were detected and very little potential habitat exists.

| Table 3.4 Rare Plants on the Salt Lake Ranger District | |
|---|--|
| Common Name | Scientific Name |
| Federal Candidate Species | |
| Slender moonwort | <i>Botrychium lineare</i> |
| Forest Service Sensitive | |
| Brownie ladyslipper | <i>Cypripedium fasciculatum</i> |
| Beavertip draba | <i>Draba globosa</i> |
| Fivepetal cliff bush | <i>Jamesia Americana var. macrocalyx</i> |
| Garrett bladderpod | <i>Lesquerella garrettii</i> |
| Recommended Sensitive | |
| Utah angelica | <i>Angelica wheeleri</i> |
| Tower rockcress | <i>Arabis glabra</i> |
| Sierra fumewort | <i>Corydalis caseana ssp . brachycarpa</i> |
| Lesser yellow lady’s slipper | <i>Cypripedium calceolus var.parviflorum</i> |
| Wasatch shooting star | <i>Dodecatheon dentatum var. utahense</i> |
| Shortstyle draba | <i>Draba brachystylis</i> |
| Sand fleabane | <i>Erigeron arenarioides</i> |
| Garretts fleabane | <i>Erigeron garrettii</i> |
| Utah mousetail | <i>Ivesia utahensis</i> |
| Alpine pepperweed | <i>Lepidium montanum var alpinum</i> |
| Broadleaf beardtongue | <i>Penstemon platyphyllus</i> |

3.4.1.2 Noxious Weeds

Although varying in size and degree of infestation, noxious weeds were identified in every tract. These are of concern because of their potential for spread and ability to alter the natural plant community. The weeds found were those typical of high human use

areas, including Burdock, Hounds tongue, Canada and Bull thistle, Field bindweed, and Oxeye daisy. The later is probably an escape from a horticultural planting(s). While some of these weeds can be controlled manually by pulling, others can only be treated chemically because of their root structure and sprouting capability.

Bull thistle, Field bindweed, and White top, are noxious weeds that have been mapped in other parts of Mill Creek. These are weeds that were mapped in areas of high human use, campgrounds, trailheads, etc. These mapped locations are considered a seed source and have likelihood of being transported to any of the recreation residences.

3.4.1.3 Non-Native, Invasive Species and Horticultural Plantings

Horticultural and other non-native plantings are common in all of the recreation residence tracts. Poppies, Lilac, Iris, Daisies, Vinca (very aggressive), Lilly of the Valley, Arborvitae, Bishops weed, sedum sp.(non-native species), Yew (tree) are all horticultural species, typical of urban landscaping, and were identified in several residences in almost every tract.

3.4.2 Environmental Consequences

This section presents the effects of recreation residence management on the main issues raised regarding vegetation:

- *How will continued recreation residence use affect vegetation, including threatened, endangered, and Forest Service sensitive plant species?*
- *To what extent will recreation residence use affect the spread of noxious and non-native invasive plant species?*

3.4.2.1 Alternative 1 - No Action

Relatively extensive ground disturbance associated with removal of summer homes, out buildings, roads, and other improvements would create a vector for the spread of noxious weeds already present in the canyon. Without an aggressive program to control the spread, there would likely be a serious increase in the area impacted by invasive plant species in canyon.

Using aerial photos, topographic maps and local knowledge, the area surrounding the recreation residence tracts was analyzed for habitat for the species listed in Table 3.4. Surveys were conducted and no TES species were found and very little potential habitat exists. Discontinuing recreation residence use would have no effect/no impact to threatened, endangered, or Forest Service sensitive plant species.

3.4.2.2 Alternative 2 – Proposed Action

Continued recreation residence use could allow already established invasive species to spread and for new species to be brought into the canyon on vehicle tires, shoes, and clothing. Likewise, new plantings could introduce other aggressive, non-native species into the area. However, use of non-native species is prohibited in the Recreation Residence Administrative Guide and a recently-completed Environmental Impact Statement and Record of Decision allows for the full range of treatment options, including herbicides, to treat noxious weeds. It is important that the use of non-native species be curtailed and that an aggressive program to control noxious weeds be implemented.

In general the vegetation surrounding the recreation residence tracts has been previously disturbed and altered by the permitted use. Continuing recreation residence use would have no effect/no impact to threatened, endangered, or Forest Service sensitive plant species.

3.4.2.3 Cumulative Effects

Past, present, and reasonably foreseeable future actions that could cumulatively add to the impacts of continued recreation residence use are mostly associated with the intensive recreation use the canyon currently experiences and will into the future. These impacts are associated with the potential for people to inadvertently bring weed seeds from other infested areas into Mill Creek on their vehicle and bike tires, clothing, shoes, and pet fur. Areas of bare soil or thin vegetation from human activities represent the most favorable sites for these seeds to become established. As such, the continued use in and around picnic areas, trails and trailheads, parking areas where people congregate are locations where noxious weeds have already been detected or at risk of becoming infested. Power lines in the canyon also are potential source of weed spread because right-of-way maintenance activities can create bare soil and bring in new weed seeds.

Future wildfires could affect the potential for spread of noxious weeds and invasive species in several ways. Typically, fires create bare soil conditions that offer a potential seedbed for noxious weeds that are already in the area. In addition, fire suppression activities such as constructing firelines can create additional sites for weeds to become established and suppression personnel and their vehicles can bring new weed species into the area. However, since these events are not predictable, their effects will not contribute to cumulative impacts.

3.5 Soil and Water Resources

3.5.1 Affected Environment

Mill Creek is a 21.7 square mile sub-watershed located east of Salt Lake City, Utah. The distance from the canyon bottom to the headwaters is about 10 miles. The canyon hillsides are steep and no lakes are found in the Canyon. The main tributaries to Mill Creek are Church Fork, Porter Fork, and Elbow Fork. Mill Creek is an unregulated stream that flows into the Jordan River. The annual flow for Mill Creek is 10,760 acre-feet or about 14.8 cubic feet per second (Utah State of. 1997).

Floodplains and Wetlands

Because of the steepness of Mill Creek Canyon there are very few areas that would be considered a true floodplain in the sense that a floodplain is a relatively flat area on each side of a channel where flood flows spread out during high flow events. The channel along most of Mill Creek and its tributaries does not have a flat area adjacent to the channel and flood flows occupy the sloping channel bank and remain within the steep, confined stream channel. The descriptions below indicate where flood flows occupy the stream channel area and this area is called the floodplain. Wetlands are areas of land that are wet during part of the growing season and have wetland species indicative of wetlands such as willows and sedges.

In Mill Creek Canyon, Mill Creek flows down a relatively steep canyon and the floodplain width varies depending upon the slope gradient that changes along the length of the channel. Along most of the Mill Creek channel the floodplain is from 10 to 20 feet wide and in a few areas the floodplain may become 50 feet wide where the slope gradient is lower.

At the Elbow Fork recreation residence, the Mill Creek stream gradient is about 10 % and the floodplain is about 5 feet wide on each side of the stream channel. A bridge spans the floodplain and the recreation residence is not in a floodplain or wetland.

At the Firs recreation residence area, the stream gradient of Mill Creek is about 5% and the floodplain is about 10 to 20 feet wide on each side of the channel. Access to the Firs Summer Home Area crosses Mill Creek at two locations which have culverts. No floodplains or wetlands occur in the recreation residence area.

At the Porter Fork recreation residence area, the stream gradient is about 6% near the bottom and increases to 25% at the upper part of the recreation residence area. Since the stream gradient is relatively steep, the area where Porter Fork floods is next to the channel and may extend to a width of about 10 feet from the stream edge. Porter Fork stream flows through eight lots and Bowman Fork stream flows through two lots. Bowman Fork stream is about one-foot wide and the water flow does not vary much since the source is from a spring and the volume flowing near the recreation residences is small. The total amount of stream and floodplain area that is within the lots of Porter

Fork recreation residence tract is 0.5 acres based on a floodplain and stream width of 20 feet. No homes are in the floodplain area.

The developments in Porter Fork Canyon have caused some restriction in the ability of the stream channel to flow where it used to prior to development. Prior to development, during high flow water would extend out of the stream channel and form new channels. This is indicated by several dry channels that are present on the fan that is at the bottom of the canyon. The paved road and road culverts that cross the stream have confined Porter Fork stream channel to its present location. Some of the recreation residences have retaining walls, log structures, and rip-rap to keep stream banks from eroding and some have structures such as stone stairs leading to the stream edge. There is a concrete diversion structure near the stream which is a remnant of an old pipeline that was constructed in Porter Fork.

Water Quality

Mill Creek is located within Salt Lake City's municipal watershed, but is not considered part of its "protected watershed" since its waters are not currently used for culinary purposes.

The State of Utah has designated the streams draining into Mill Creek above the National Forest boundary as Antidegradation Segments. This indicates that the existing water quality is better than the established standards for the designated beneficial uses. Water quality is required by state regulation to be maintained at this level. The beneficial uses of streams within these watersheds, as designated by the Utah Department of Environmental Quality, Division of Water Quality, are:

- Class 2B – protected for recreation
- Class 3A – protected for cold water species of game fish and other cold water aquatic species
- Class 4 – protected for agricultural uses.

The numeric water quality standards can be found in Section R317-2, Utah Administrative Code, *Standards of Quality of Waters of the State* (Utah, State of. 2006a).

The Utah Division of Water Quality collects water samples at various places in Utah including Mill Creek and analyzes these water samples for chemical parameters, nutrients, and metals. The most current review of the water quality information by the State Division of Water Resources shows that the water in Mill Creek meets all of its water quality beneficial uses (Utah, State of. 2006b).

The current sanitation systems at the Mill Creek recreational residences are vault toilets that contain waste and are pumped at regular intervals. Over the past several years, these facilities have been inspected by the Salt Lake Valley Health Department and have been determined to be properly functioning. Soil characteristics within the Mill Creek recreation residence tract are not well suited for septic systems. However, neither leach field septic systems, nor pit toilets, are allowed under local government ordinances. Some homes utilize gray water leach fields for disposal of water used in the household. There is no evidence to date suggesting that the methods currently employed for sewage

and wastewater management contribute to nutrient enrichment or deterioration in water quality in Mill Creek Canyon.

Water Use

The Firs and Porter Fork recreation residence tracts have their own water systems. The Firs tract has an actual water right, while the Porter Fork tract obtains its water through a contract with Salt Lake City Department of Public Utilities. As of December 2006, the Elbow Fork recreation residence had neither a water right or a contract with another entity for use of water, even though water is being diverted for summer home use. The estimated amount of water use at the recreation residence tracts in Mill Creek Canyon is shown in Table 3.5. The estimated amount of use per recreation residence for Porter Fork is 300 gallons per day (gpd) and for Firs is 400 gpd based on amount of water allowed in their water rights or contracts. The total amount of water use in the Porter Fork recreation residence tract is estimated to be 13,500 gpd or 9.4 gallons per minute. The estimated amount of use at the Elbow Fork recreation residence is 300 gallons per day (gpd). The estimated use or (gpd) per recreation residence, multiplied by the number of recreation residences per tract, will give the total (gpd) for that tract. The use per day is based on 75 gallons of water per day per person for four people as described in Forest Service Handbook (USDA Forest Service 1981). The total water use from the recreation residences in Mill Creek Canyon is estimated to be 23,400 gpd (0.04 cubic feet per second or 16.25 gallons per minute).

Table 3.5 Estimated water use at USFS recreation residence tracts in Mill Creek.

| Tract | Number of Permits | Per Residence | Water Use | | |
|-------------|-------------------|---------------|--------------------------|--------------------------|--------------------------|
| | | | Total (gpd) ¹ | Total (cfs) ¹ | Total (gpm) ¹ |
| Firs | 24 | 400 | 9,600 | 0.0149 | 6.67 |
| Elbow Fork | 1 | 300 | 300 | 0.0005 | 0.21 |
| Porter Fork | 45 | 300 | 13,500 | 0.0209 | 9.38 |
| Totals | 80 | | 23,400 | 0.0362 | 16.25 |

¹ gpd –gallons per day, cfs – cubic feet per second, gpm – gallons per minute.

Soil Quality – Soil types found within each summer home tract, and selected characteristics, are shown in Table 3.6.

Table 3.6. Soil Types and Selected Properties at USFS recreation residence tracts in Mill Creek (USDA Soil Conservation Service, 1975.)

| Soil Type | Firs | Elbow Fork | Porter Fork | |
|------------------|--------|------------|-------------|--------|
| | PSG | NJH | NJH | NZC |
| Erosion Hazard/1 | slight | slight | slight | slight |

| | | | | |
|---|-------------|----------------|----------------|-----------------|
| Erosion Hazard/2 | very high | very high | very high | moderate |
| Runoff | medium | medium | medium | slow-medium |
| Permeability | mod slow | moderate | moderate | moderate |
| Watertable Depth | > 60 inches | 20-40 inches/3 | 20-40 inches/3 | 20-40 inches |
| Flood Hazard | none | none | none | seasonal |
| Drainage | well | well | well | s.poor-mod well |
| /1:Under natural vegetation, /2: bare soil conditions, /3: depth to bedrock | | | | |

Within the Porter Fork tract, the NZC soil type is associated with the lots immediately adjacent to Porter Fork Creek and downstream of the confluence with Yellow Jacket Gulch. Suitability of this soil type for many recreation residence related uses (septic systems, shallow excavations, dwellings without basements) is limited due to seasonally shallow water tables and the potential for seasonal flooding. All other lots within the Porter Fork and Elbow Fork tracts are found on the NJH soil type. Suitability of this soil type for many recreation residence related uses (septic systems, shallow excavations, dwellings without basements) is limited due to either steep slopes or a shallow depth to bedrock. All lots within the Firs tract are found on the PSG soil type. Suitability of this soil type for many recreation residence related uses (septic systems, shallow excavations, dwellings without basements) is limited due to either steep slopes or a moderately slow permeability.

Most of the lands within the summer home tracts are forested with native vegetation and the existing soil quality is unaffected by summer home uses in these areas. Soil physical, chemical, and biologic properties have been harmfully disturbed only where lot and tract improvements such as roads, driveways, parking areas, homes and outbuildings have been constructed. These improvements make up a very small portion of the tracts as a whole. An estimated 15 to 20% percent of the total land area within the residential tracts currently consists of impermeable surfaces such as roofs, concrete, or other forms of bare and compacted ground.

Field monitoring of the summer home tracts in Mill Creek canyon was conducted to determine if tract and lot development were having an indirect effect on soil quality of the adjacent undisturbed forest lands. Soil stability in the Elbow Fork and Porter Fork tracts is quite good, there were no areas of soil erosion or slumping noted in these areas (Flood 2005a.)

3.5.2 Environmental Consequences

Based on the results of public scoping and Interdisciplinary Team review a number of issues were identified for detailed study relative to soil and water resources. They include the following:

- *How will recreation residence use affect water quality and quantity? What will be the effects on stream, floodplains, and wetland function?*

- *To what extent will continued recreation residence use affect soils, including the effects of bare soil conditions created by vehicle and pedestrian traffic within each tract?*
- *Will recreation residence permit holders be in compliance with State and local government requirements for water use and stream and spring diversions?*

The differing impacts relative to these three issues for each alternative are detailed in the following sections.

3.5.2.1 Alternative 1 - No Action

Under this alternative, the 70 recreation residences in the three tracts would be removed over a ten-year period and recreation use beyond that point eliminated in Mill Creek Canyon. These ten year permits would have the same terms, conditions, and BMPs as the current authorizations do. In order to address erosion and sedimentation impacts as cabins and other facilities are removed, additional BMPs would be developed. Practices relating to structure removal include an erosion control plan to minimize/prevent sediment from entering the stream. In addition to this, a spill prevention, and a control and countermeasure (SPCC) plan to minimize potential contamination of soil from accidental spills while facilities are being removed from the recreation residence tract. These plans will be prepared prior to the removal of any improvements. The plans must receive review and approval by the appropriate state and federal agencies before work begins. The BMPs would be monitored to ensure that they are implemented as designed and that they are effective.

Once the permit holders have removed their improvements, the Forest Service will rehabilitate the disturbed areas by treating soil compaction, restoring natural drainage patterns, and planting of native vegetation where needed. Appropriate site specific BMPs to minimize or eliminate potential sedimentation to the stream, resulting from these activities, would be developed, implemented and monitored for effectiveness by the Forest Service.

Floodplains and Wetlands

In the short-term and long-term, the direct effects of the removal of the recreation residences will be the stream channel will be able to move and not be restricted to the current location by the road. Removal of a few other small structures currently located next to the stream such as stone stairs, log structures, and rip-rap that are in place to keep stream banks from eroding, would allow the stream, at times, to move outside of its current restricted channel.

Water Quality

In the short-term, the direct effects of removal of the recreation residences could be short-term increases in erosion and sedimentation and some modification of the floodplain from landscaping the land after removal of the homes, culverts, and roads. In the long-term, no direct or indirect effects are expected to occur from the removal of the homes,

culverts, and roads because the riparian area is expected to return to a natural condition and erosion and sedimentation should be very low.

Water Use

In the short and long-term, the effects of removal of recreation residences would be the increase of 0.04 cfs of water for Mill Creek which represents about 0.3 percent of the water that flows in Mill Creek. The effects to water resources of not using the water at the recreation residences is unlikely to be measurable because of the small amount of water that is used compared to the large amount of water that flows in the Mill Creek.

Soil Quality and Stability

During the period from 2008 through 2018, the direct and indirect impacts of Alternative 1 will be very similar to those associated with the Proposed Action. Individual cabin owners may opt to remove their facilities prior to 2018 and there would likely be a short term impact to soil quality and stability as a result on individual lots. With application of BMPs and site rehabilitation most soils related impacts would have occurred by the first several years after 2018.

In general, existing improvements to tracts and lots such as roads, driveways, parking areas, homes and outbuildings make up a small portion of the tracts as a whole. Removal of these improvements would therefore result in a small improvement in soil quality as the areas were stabilized and restored to native vegetation. In the short-term, the direct effects of removal of these improvements could be short-term increases in erosion.

State and Local Government Requirements

Any water agreement contract with the City and/or water right with the State would revert back to that entity upon removal of the recreation residence tracts.

3.5.2.2 Alternative 2 – Proposed Action

The direct and indirect effects to soil and water resources for Alternative 2 will be very similar to what is currently occurring and what is described in the Affected Section above. As various measures in the Administrative Guide are implemented, the adverse impacts soils and water can be reduced. In addition, Best Management Practices (BMPs) will be implemented to mitigate potential impacts to soil quality resulting from on-going land disturbing activities within the residence tracts. The objective of the BMPs is to protect the soil quality of undisturbed lands adjacent to the summer home lots from runoff and erosion that might result from activities that are under special use permits. Specifically, soil stability of the native forest lands adjacent to some of the lots and access roads in the Firs tract will be improved when recommended mitigation measures are implemented and soil erosion is controlled.

Floodplains and Wetlands

In the short and long-term, the direct and indirect effects to will be similar to the use that exists which is that natural flowing characteristics of the stream channel will be restricted. The direct effect is that roads and small structures will continue to keep the

stream in its present location and keep the stream channel from jumping out of its banks. The direct effect to floodplains is a continuation of the current floodplain which is immediately adjacent to the stream. No direct or indirect effects to wetlands are expected because current uses of the recreation residences are not expected to change very much.

Water Quality

Currently, water in Mill Creek Canyon meets its beneficial uses and is expected to continue to meet its beneficial uses. The direct and indirect effects of Alternative 2 are expected to be the continuation of high quality water from Mill Creek Canyon that meets Utah state water quality standards. Further, it is expected that there would be no changes in management of the recreation residence tracts that would adversely affect water quality and the protection of the environment by the implementation of the Forest Recreation Residence Administrative Guidelines.

Water Use

The continuation of the use of Porter Fork and Mill Creek water at the recreation residence tracts for culinary use would be the same amount as shown on Table 1. The direct and indirect effects of this use would be a small amount of water withdrawn from the stream channel and it is expected that this amount of withdrawal will leave enough water in the Porter Fork and Mill Creek channels to maintain aquatic habitat.

Soil Quality and Stability

There will be few, if any, additional effects on soil quality, beyond those described in the “Soil/Water Resource Features and Conditions” above, associated with the re-issuance of the Special Use Permits. In general, improvements to tracts and lots such as roads, driveways, parking areas, homes and outbuildings already make up only a small portion of the tracts as a whole. No additional access roads, driveways, or parking areas are being proposed under this action.

Work has been done to eliminate unnecessary driveways and to pave some roads within the tracts in Mill Creek Canyon. However, some areas remain that have not been properly maintained and/or drained and are contributing to excessive surface runoff and accelerated soil erosion. Within the Firs summer home tract, access roads to lots 1 through 5 and lots 6 through 8 are both rutted and are actively eroding. The driveway and parking area for lot 19 is in a similar condition as well. Sediment generated from heavy rainfall on these areas could be delivered into Mill Creek and have an indirect effect on water quality. These conditions could be corrected by implementation of the following Best Management Practices:

1. Clean and maintain existing waterbars on the tract access road to lots #6-8. Install at least 5 more waterbars on this road above the driveway to lot #6.
2. Install at least 4 more waterbars on the tract access road to lots #1-5.
3. Prohibit any further vegetation clearing within the streamside buffer area between the cabin on lot #1 and Mill Creek.
4. Improve drainage and sediment detention within the parking area for lot #19. Restore ground cover downslope of this parking area.

The proposed administrative guide limits the footprint of cabins to no more than 1500 square feet, attached decks and or adjacent patios/courts to 500 square feet. Many lots within the tracts are already at these limits, for these lots the proposed action would not result in any further impairments to soil productivity. For those lots with current cabin/deck sizes that are smaller than the proposed administrative guide limits, the proposed action could result in further harmful disturbance to soil physical, chemical, and biologic properties as a consequence of enlargement of either cabins or decks.

The proposed administrative guide also limits the number of associated outbuildings to one. Under the proposed action, effects on soil quality are expected to decrease slightly as individual lots are brought into compliance by the removal of unauthorized structures and improvements. Soil quality will be improved when these disturbed areas are restored and stabilized with vegetation. A site specific description of unauthorized improvements that will be removed under the proposed action is contained in Appendix C & D.

The present footprint of summer homes, sheds, driveways and other improvements represent a permanent loss of soil productivity as these uses are extended into the future in the new permit. Where allowed under the Administrative Guide, expansion of lot improvements would extend this loss. However, these types of expansions are expected to be relatively small.

State and Local Government Requirements

Currently, the Firs and Porter Fork recreation residences have their own water systems. The Firs have their own right to the water and the Porter Fork recreation residences have a contract with Salt Lake City to use water. The single home in the Porter Fork tract would need to obtain either a water right or a contract with Salt Lake City before a new recreation residence permit can be approved. All summer homes in the three tracts have properly functioning vault toilet systems that comply with local requirements.

3.5.3 Cumulative Effects

Past, present, and reasonably foreseeable future activities and projects that could cumulatively add to effects of continued recreation residence use in Mill Creek Canyon are summarized below.

Soil Quality and Stability

The cumulative effects analysis area for soil resources is the portion of the Mill Creek watershed containing the individual summer home tract boundary encompassing all the lots and improvements on them, in addition to the access roads and other infrastructure features developed solely for the tract. The area is meant to include the riparian and wetland areas between the tract boundary and the ordinary high water mark of the adjacent stream. This area is chosen because the effects of erosion and other forms of detrimental disturbance on the soil resource that may occur within the tract from the proposed action are limited to this area.

The renewal of the term Special Use Permits which permit the continuation of existing recreation residence uses in Mill Creek would result in very few additional (cumulative) adverse impacts on soil quality. Very little construction related damage to soils is anticipated under the proposed action. No additional access roads, driveways, or parking areas are being proposed under this action, and few of the existing residences can be expanded beyond their present footprints. Incorporating standard terms of use into the permits that benefit soil quality, and the implementation of site specific BMPs to mitigate existing and potential soil erosion, would help limit further detrimental soil disturbance and maintain the overall physical, chemical, and biological health of the soil resource. Existing degraded soils will be restored where unauthorized improvements and structures are removed as a result of implementing this alternative. The long-term cumulative effects of implementing the Proposed Action will be beneficial to the terrestrial, riparian, and aquatic environment of the Mill Creek watershed.

The other activities that may cause a cumulative effect to this resource are clearing of vegetation in conjunction with the Rocky Mountain Power transmission line right-of-way (ROW) that services the three tracts, and the maintenance of the Porter Fork and Bowman Fork system hiking trails in the Porter Fork tract. Maintenance of the power line ROW would be accomplished with mechanical type equipment such as chippers and boom trucks, using existing roads and driveways within the tracts. Maintenance of the hiking trail would entail brushing and removal of fallen trees by hand crews. As such, no additional soil disturbance would occur from these activities.

Water Resources

The water resources cumulative effects analysis area is the Mill Creek drainage from the mouth of Mill Creek canyon to the headwaters. This area is chosen because it represents water conditions within the canyon before it is affected by the Salt Lake valley urban area.

The Utah Division of Water Quality assesses water quality conditions of waters in Utah and writes an integrated report that presents the results of the assessment (Utah, State of. 2006b). The following information about Mill Creek Canyon east of Salt Lake City is from this report.

“Since the inception of the program, the DWQ has removed one watershed from Utah’s 303(d) list that was impacted by only nonpoint sources of pollution. The Mill Creek watershed was on the list for sedimentation, habitat alteration and bacteria. Several areas of the stream channel were reconstructed and the recreational facilities were moved away from the stream to lessen human impact on the riparian habitat. A program was implemented by Salt Lake City that required animal owners to remove feces that their dogs excreted. Upon completing the program, the DWQ assessed the results and the bacteria standard was being met, and the riparian habitat had recovered significantly.”

Cumulatively, the water quality in Mill Creek Canyon is currently meeting Utah standards and is not listed as impaired.

Several other actions in the cumulative effects analysis area may or may not affect water resources. Other actions in the past that do not have an affect on floodplains, wetlands, water quality, or water use are: Fish stocking in Mill Creek; past hydropower development in Porter Fork because it occurred very long ago and the stream channel has stabilized; and riparian restoration work in the early 1990's on Mill Creek at picnic sites near Terraces because they have stabilized the stream bank and are not eroding now. Other present or ongoing actions from the past that do not have an affect on floodplains, wetlands, water quality, or water use are: Operation and maintenance of developed recreation facilities; maintenance of Rocky Mountain Power transmission line right-of-way; grooming of the ski trail; the Mill Creek gate; maintenance of hiking trails; motorized and non-motorized recreation use; and fire suppression. Those actions have controls upon them to protect water quality from the associated decision documents allowing these activities and there is no evidence of surface erosion that has lead to sedimentation of water that has been noted from these actions. The only other action that has had a slight effect on water in Mill Creek is the movement of a small amount of gravel that is along the road ditch that is moved into Mill Creek by summer rain storms.

The cumulative effects of these actions, in addition to the proposed action, is expected to have very little effect on water quality, wetlands, or water use. This is because the recreation residences and associated structures and roads have very little effect on floodplains or wetland functions, and water quality. Since there is very little effect from current water use, the other actions in the analysis area would have very little effect to these resources.

3.6 Recreation and Wilderness

3.6.1 Affected Environment

Mill Creek Canyon is an extremely popular day-use recreation area, in large part because it is so easily accessible to Salt Lake Valley's population. In addition, Mill Creek Canyon's abundant shade in the summer, numerous streams, large number of picnic areas, 12 total, and 51.8 miles of trails add to its popularity. Because of high levels of use, inadequate maintenance, and the deteriorating condition of facilities, Salt Lake County and the Forest Service entered into a partnership in the early 1990s. Under this cooperative endeavor, Salt Lake County Parks and Recreation Department charges a per-vehicle fee for motorized vehicles using the County road and uses the receipts to reimburse the Forest Service for maintenance work and some capital improvements.

Summer use in Mill Creek Canyon includes hiking, biking, fishing, and picnicking. Some picnic sites have group areas, which are popular for family gatherings. In addition, people visit Mill Creek Canyon for functions at the two restaurants and a Boy Scout Camp located on private land. Winter activities primarily include snow play, skiing, snowshoeing and walking. There is a yurt for winter overnight use located at the end of the road at Lower Big Water Gulch. Access to this yurt is by skiing or snowshoeing.

Recreation residence use at the 70 cabins in Mill Creek Canyon is also an important part of the recreation opportunities there. As noted in Chapter 1, the recreation residence program was established to encourage family-oriented recreation on National Forests. Aspects of the program are particularly relevant to this analysis and are outlined below.

The recreation residence program is static in that no new tracts or lots can be constructed on the Wasatch-Cache National Forest. The summer homes and associated sheds and other improvements are privately owned, even though they are located on Federal land. In total, recreation residence lots comprise about 0.2 percent (25 acres) of the land base in the Mill Creek Canyon drainage. The majority of the summer home permittees reside in communities along the Wasatch Front, though a few are from out-of-state. Recreation residence permittees pay the Forest Service an annual fee based on the appraised value of the land used and the amenities (such as roads and water systems) the Forest Service provides. In Mill Creek Canyon, annual fees paid to the U.S. Treasury permittee ranged from \$735 to \$973 and totaled approximately \$62,000 in 2006. Summer homeowners also pay local property taxes based on the value of homes. In addition, maintenance and remodeling of summer homes adds revenue to the local economy.

Occupancy of the cabins varies widely, with some families occupying the residences much of the summer and occasional weekends at other times of the year. Some cabin owners only visit on key weekends during the year. An estimated ninety percent of the use occurs from May through October 31. Permits require a minimum amount of use of 15 days per year. Permanent residence of the cabins is not allowed, nor is commercial use. Only a few homes in the three tracts are utilized in winter. Snow usually closes and limits access to tracts by early November and typically lasts into June. During low snow years, access may open in early May.

The Firs and Elbow Fork tracts are located along the Mill Creek Canyon County road, which sees relatively heavy vehicle and bicycle traffic from July 1st to November 1st, when the gate at Maple Grove is closed for the winter season. Though these two tracts are located near several trailheads and picnic areas, there is no actual interface with other recreation uses in the canyon. The homes in the Porter Fork tract are located along Forest Service road No. 018, a paved facility that is closed year-long to public motorized use. From a trailhead on the County road, this road also serves as hiking trail and provides access to the Mount Olympus Wilderness Area.

The 15,300-acre Mount Olympus Wilderness surrounds much of the Porter Fork tract. In fact, the boundaries of this designated wilderness were “cherry-stemmed” to accommodate this use. The horizontal distance from lots in Porter Fork to the wilderness boundary ranges from approximately 200 to 1000 feet. Via Forest Road No. 018, the wilderness boundary is located 1.4 miles from the County road. Compared to other trails in the Twin Peaks and Mount Olympus Wilderness Areas, the trail extending up Porter Fork Creek and Pole Canyon sees low to moderate levels of use.

3.6.2 Environmental Consequences

This section presents the direct and indirect effects of recreation residence management on the main issues raised for recreation resources. Based on the results of public scoping and Interdisciplinary Team review, two specific issues were identified for detailed analysis in this EA:

- *How will summer home use affect access and the recreation experience and safety for other visitors to Mill Creek Canyon?*
- *How will the adjacent Mount Olympus Wilderness Area be affected by continued recreation residence use of the Porter Fork Tract?*

3.6.2.1 Alternative 1 - No Action

Under Alternative 1, the recreation residence special use permits would not be reissued and the summer homes and associated improvements would be removed from the National Forest over a period of years. After removal the sites would be restored and re-vegetated. In Porter Fork, the existing tract road would be converted into a trail and continue to provide access to the Mount Olympus Wilderness Area.

In the short term, as recreation residence facilities are being removed, there will be increased noise and general disturbance caused by demolition and heavy hauling. This will temporarily detract from the quality of the recreation experience in the area. The Porter Fork Road would be converted to a four foot wide trail (part of the Porter Fork system trail) and maintained as such. Asphalt would be removed from the road and replaced with a trail that would consist of native soil. Some or all road culverts may be removed and replaced with small foot bridges. The Porter Fork spur road that goes to cabins 1A to 4A would also be converted to a four foot wide trail (part of the Porter Fork-Bowman Fork link system trail). Other roads and spurs in the three tracts would not be needed for trails and would be allowed to revert back to native vegetation.

Over the long term, discontinuing recreation residence use would not significantly change the recreation experience for visitors to Mill Creek Canyon. Recreation residence special use permits do not allow for exclusive use of public land and a great deal recreation occurs in close proximity to homes and no trails or picnic sites would be created if the summer homes were removed. For those hiking, driving, or biking on the County road, removal of the cabins at Firs and the single cabin at Elbow Fork would make surrounding landscape appear more natural and may be viewed as improvement to some recreationists. On the other hand, the structures in these two tracts are not visually dominant and many would probably not notice their absence. The change in Porter Fork would be more apparent, since the tract road and the Mount Olympus access trail are one and the same for approximately 1.4 miles. This route winds through most of the tract and past many of the homes in Porter Fork and probably appears to hikers as if it were private

property. If the homes were removed, the area would appear more as a part of natural environment and likely add to the enjoyment for some visitors.

Safety is an issue more pertinent to the Porter Fork tract than to the Elbow Fork or Firs tracts and is primarily a concern about the interface between hikers and bikers on a shared roadway. While there have been several collisions in recent years involving bikes and cars or trucks on the County road, recreation residence homeowners comprise a small part of the summer vehicle traffic. In addition, homeowners tend to be familiar with the situation and aware of the hazard. In Porter Fork, the narrow, winding tract road represents a somewhat different hazard. Dense vegetation along the roadway tends to limit sight distances for motorists, hikers, and bikers. Since this road is closed year-long to public motorized use, recreation residence traffic constitutes virtually all of the vehicular use on the road. Because of the nature of Porter Fork road, vehicle speeds tend to much slower than on the County road in Mill Creek Canyon, which mitigates the concern to some degree. Though it's impossible to quantify in a meaningful way, discontinuation of recreation residence use in Mill Creek Canyon would likely lessen the potential for a collision of a recreationist with a vehicle to some degree.

There would be little effect to the Mount Olympus Wilderness as a result of implementing the No Action Alternative. Though they are nearby, none of the Porter Fork summer homes are located within the designated wilderness. A short section of Porter Fork's water system is just inside the wilderness boundary, but these facilities are not apparent to most visitors and are provided for in 1980 Utah Wilderness Bill. Removal of the Porter Fork summer homes may be viewed by some as making the hiking experience from the County road up to the current wilderness boundary as more "wilderness-like." However, from a legal and policy perspective wilderness areas do not have a buffer and it is entirely appropriate that more developed facilities can be located adjacent to designated wilderness.

3.6.2.2 Alternative 2 – Proposed Action

Implementing this alternative would involve continued use of the existing summer homes under provisions of the Recreation Residence Administrative Guide. Though this alternative would be quite different than Alternative 1 in terms of not requiring removal numerous structures, the impacts would actually be relatively similar.

From the perspective of the change in recreation experience for other visitors to Mill Creek Canyon, there were would be little difference if the Elbow Fork and Firs tracts remained, since these facilities are not readily apparent to many visitors and do not directly overlap with any trail or picnic area. In Porter Fork, the difference between the two alternatives would be most noticeable, since a popular trail extends through much of the tract. In spite of that, most hikers have grown accustomed to the presence of the summer homes and route would still be available to them.

As compared to the No Action Alternative, the Proposed Action would present some increased potential for a collision between a vehicle and a hiker or biker in Mill Creek

Canyon. Though the overall risk is probably quite low, it is of a somewhat greater concern in the Porter Fork tract because of the narrow and winding nature of the road and its restricted sight distances.

Impacts to the Mount Olympus Wilderness, located adjacent to the Porter Fork tract would be essentially the same as under the No Action Alternative. However, a short extension of the tract's water system into the wilderness would remain in place.

3.6.3 Cumulative Effects

A number of past, present, and reasonably foreseeable future activities in Mill Creek Canyon would interact cumulatively with the effects of continued recreation use. Obviously, much of the main corridor extending up Mill Creek Canyon has a high level of development in terms of recreation facilities, such as picnic areas, trails, and roads. While these are a means of access or a destination for many, other visitors may see them as detracting from the natural experience. Similarly, vehicle traffic on the County road associated with hiking, biking, and nature viewing, is relatively heavy. Though summer home traffic is likely a small component of the overall level of traffic, the two are additive in terms of the effect on the recreation experience and safety considerations. In the lower canyon, vehicle traffic associated with customers visiting the two restaurants and use of the Boy Scout Camp are additive to recreation residence traffic, but again the latter is a relatively small component of the overall traffic volume in the lower canyon.

Several management actions also affect the nature of recreation in Mill Creek Canyon which interacts cumulatively with recreation residence use. For example, the County entrance fee program has helped greatly in providing funds for maintaining facilities in the canyon and has also probably dissuaded some from visiting Mill Creek and instead shifted their use to other canyons. Conversely, the closure of the other canyons to dogs for watershed protection purposes and the County's alternating odd/even day system for allowing dogs in Mill Creek Canyon has made it a popular place for Salt Valley dog owners.

Public recreation use is predicted to continue to increase in Mill Creek (reasonably foreseeable action), because of its adjacency to the Salt Lake Valley metropolitan area, however total use is somewhat limited by available and legal vehicle parking. Developed recreation sites in the area often reach their visitor capacities during the operational season, especially on weekends and often during summer weekday evenings. It is possible that use restrictions or increased fees could also affect Mill Creek canyon use at sometime in the future.

3.7 Visual Resources

3.7.1 Affected Environment

The affected environment is within the Central Wasatch M331D-13 subsection ecological unit and is defined by 4.5 management prescription buffer that follows Mill Creek

Canyon and into Porter Fork. The Mill Creek Canyon area consists primarily of a permanent stream and its tributaries, riparian habitat with deciduous trees, oak/maple/grass on south facing slopes, mixed conifer on north facing slopes and developed recreation areas. The main drainages are Mill Creek and Porter Fork which flows into Mill Creek.

The Mill Creek Canyon area is currently managed as a developed recreation area with several picnic areas, a fishing area, a Boy Scout Camp on a private inholding, two restaurants (one under a Forest Special Use Authorization) and several trails and trailheads. Picnic areas include Church Fork, Box Elder, South Box Elder, Upper Box Elder, Terraces, Maple Grove, White Bridge, Evergreen, Fir Crest, and Clover Springs. System trails include Rattlesnake Gulch, Pipeline, Burch Hollow, Grandeur Peak, Thaynes Canyon, Porter Fork, Bowman Fork, Mount Aire, Terraces Elbow Fork, Alexander Basin, Little Water, Big Water, Old Red Pine Road, and the Great Western. In addition the Mill Creek County road is closed and used as a groomed cross-country ski trail above the Maple Grove Picnic Area during the winter.

Project Landscape Character Themes:

The landscape character theme (LCT) within the 4.5 management prescription buffer is Develop Natural Appearing with a “High” scenic integrity objective (SIO).

Developed Natural Appearing

This landscape character theme is characteristic of National, National Forest and State scenic byways with developed recreation facilities, concentrated use areas and undeveloped recreation impacts within the foreground of the viewshed (1/2 mile). In these areas, the roadway, recreation amenities, and development are anticipated features in the landscape. For users these amenities are part of the valued natural appearing landscape. Users of these amenities are attracted to the natural appearing landscape, but desire a moderate to easy interaction with the landscape through the use of these amenities. This landscape character is adjacent to Natural Evolving and Natural Appearing landscape character themes and should draw from, complement and harmonize with these themes.

Project Scenic Integrity Objectives:

High Scenic Integrity Level

Landscapes, where the valued landscape character "appears" intact (*in relationship to the surrounding viewed landscape and its built environment that has a positive cultural connotation to the public at large*). Deviations may be present but must repeat the form, line color, texture, and pattern common to the landscape character so completely, and at such scale, that they are not evident.

Built Environment with potential positive connotation

Land Form: Dams with vegetated faces. Roads where the geometry of road in cuts and fills would not be evident but would appear to be part of the landscape.

Vegetation: Mechanical treatment mimics natural appearing lines, forms and edges found in the existing landscape.. Fire use mimics natural appearing lines, forms and edges found in the existing landscape. Fuel breaks are mitigated to mimic natural appearing lines, forms and edges found in the existing landscape. Duration of impact before ground cover and understory are established 1 year. Parking lots with more than 20 spaces should have minimum of 10% of the interior parking area landscaped. Interior landscape area should be of such a size that the vegetation could sustain itself without irrigation. Landscape areas should be dispersed throughout the parking area to effectively break up the expanse of the parking lot.

Water Form: Reservoirs that have minimum water levels maintained for conservation pools and canals that mimic natural appearing lines, forms and edges found in the existing landscape. Stock ponds that mimic natural appearing lines, forms and edges found in the existing landscape.

Cultural Features: Campgrounds, organization camps, picnic areas and dispersed recreation sites, historic sites and cabins, recreation cabins, organizational sites with strong architectural themes, roads, trails, bridges, fences. Dam spillway and outlet works and emergency spillways constructed from native stone or mimic natural appearing lines, forms and edges found in the existing landscape. Parking lots, trailheads, restrooms. Architecture is thematic and borrows from the form, line, color and texture of the surrounding landscape. Parking lots, roads, and other amenities appear to be part of the natural appearing landscape by eliminating the geometry of the built feature upon the landscape. For example road cuts do not slice through the landscape, but are shaped, contoured and constructed so that the landscape is only interrupted by the track of road.

3.7.2 Environmental Consequences

This section presents the direct and indirect effects of recreation residence management on the main issues raised for visual resources. Based on the results of public scoping and Interdisciplinary Team review, the following issue was identified for detailed analysis in this EA:

- *How will visual resources in Mill Creek Canyon be affected by continued recreation residence use?*

3.7.2.1 Alternative 1 - No Action

Removal of the recreation residence structures could substantially change the cultural character of Mill Creek and Porter Fork. Over the ten year period after the special use permits are not re-issued and structures are removed there may be a short term effect of undesirable views of structures being torn down. But once vegetation is re-established

within 2 to 5 years of the structures removal there would appear to be no effect to the natural appearing landscape.

3.7.2.2 Alternative 2 - Proposed Action

There is no effect because the existing recreation cabins are considered to be part of the cultural image of the canyons and a continuation of the special use permit would not change the cultural image as long as Forest direction is complied with.

3.7.2.3 Cumulative Effects

The no action alternative would have a substantial effect in the reduction of the cultural image within the Mill Creek canyon when all of the recreation residence are removed and would reduce the amount of built environment found in the canyon.

There would be no cumulative effect from past, present or foreseeable actions to the scenic resource as a result of the proposed action alternative.

3.8 Cultural Resources

3.8.1 Affected Environment

The analysis area will include those recreation residence structures and various associated improvements that are located in the Mill Creek Canyon recreation residence tracts, that may be eligible for review under the National Historic Preservation Act. Those identified historic structures and improvements must have enough physical integrity (in terms of location, design, setting, materials, workmanship, feeling, and association) to convey that significance, and be over 50 years of age.

3.8.2 Environmental Consequences

This section presents the direct and indirect effects of recreation residence management on the main issues raised for cultural resources. Based on the results of public scoping and Interdisciplinary Team review, the following issue was identified for detailed analysis in this EA:

- *What will be the effect on homes and other improvements that are eligible for National Register of Historic Places, including those which are located in riparian areas?*

Compliance with National Historic Preservation Act (NHPA) compliance is set in motion when a proposed undertaking involves ground-disturbing activities, removal or alteration of historic buildings or structures, or may cause potential effects to historic properties including the historic setting and integrity of a property.

3.8.2.1 Alternative 1 - No Action

Since cabins and structures would be removed under this alternative, NHPA compliance would be required. Sites would be analyzed and documented for historical values. Documentation of the structure will include a historic report, photos, and plans. This information will be used for the Forest Service to make its determinations about how to address the structures and to consult with the State Historic Preservation Officer (SHPO). Once SHPO consultation is complete, the mitigation measures that were agreed upon through consultation will be enacted.

Regarding historic structures to be removed within the riparian zones, these structures will be addressed on a case by case basis. The Forest Service will make a decision regarding the potential disposal of the structures through the consultation process with the State Historic Preservation Office and the National Advisory Council on Historic Preservation.

3.8.2.2 Alternative 2 - Proposed Action

This alternative would allow reissuing 20-year term special use permits for the 70 summer homes in Mill Creek Canyon, so long as each permit holder is in compliance with the terms and conditions of their existing authorization.

Compliance with NHPA will continue to be addressed in the course of regular permit administration as remodel alterations, new improvements or activities are proposed that could have the potential to affect historic properties. The Forest Archaeologist will review all proposals that could affect historic structures, consult with SHPO, review the Forest Plan for consistency and provide any mitigation measures that may be needed for the Authorized Officer to make a decision on a proposal.