

## Appendix D

### Issues Not Discussed in Detail – 1) eliminated by project design, 2) presenting minimal risk, 3) outside project scope, 4) already decided by existing law or policy or that are not relevant

Though not discussed in detail in the Environmental Impact Statement, many of the issues below are evaluated in further in the source documents from the resource specialist reports, and in Biological Assessments and Biological Evaluations. These documents are located in the project file and are included on the CD-ROM that is being distributed with the FEIS.

*Threatened, Endangered, Sensitive, and Management Indicator Species – Animals (excluding mule deer)*

The white paper “Life History and Analysis of Endangered, Threatened, Candidate, Sensitive, and Management Indicator Species of Dixie National Forest” (Rodriguez, 2006) is a comprehensive description of life histories and habitat requirements for species that occur or have habitat within the forest, and is hereby incorporated by reference.

Table D-1 shows all USFWS recognized threatened, endangered, and candidate vertebrate wildlife species; Regional Forester’s Sensitive Species; and Management Indicator Species on the Fishlake National Forest and their occurrence by Ranger District and Geographic Area (GA).

<b>Table D-1. T &amp; E, Sensitive, Management Indicator Species on the Fishlake NF</b>					
<b>Species</b>	<b>Status</b>	<b>Fillmore</b>	<b>Fremont River</b>	<b>Beaver</b>	<b>Richfield</b>
<b>Threatened (T), Endangered (E) and Candidate (C) Species</b>					
<b>Mexican Spotted Owl</b>	T		10		
<b>Bald Eagle</b>	T	All GAs	All GAs	All GAs	All GAs
<b>Utah Prairie Dog</b>	T		6, 9	1	16
<b>Yellow-Billed Cuckoo</b>	C	unknown	unknown	unknown	unknown
<b>Intermountain Regional Forester’s Sensitive Species</b>					
<b>Peregrine Falcon</b>	Sensitive			1*	
<b>Spotted Bat</b>	Sensitive	unknown	unknown	unknown	unknown
<b>Townsend’s Big-eared bat</b>	Sensitive	4, 5*			
<b>Northern Goshawk</b>	Sensitive	All	All	All	All
<b>Flammulated Owl</b>	Sensitive		10*		
<b>Three-toed Woodpecker</b>	Sensitive	All	All	All	All
<b>Sage Grouse</b>	Sensitive		7, 9, 10	1	17
<b>Pygmy Rabbit</b>	Sensitive		9*		17

<b>Species</b>	<b>Status</b>	<b>Fillmore</b>	<b>Fremont River</b>	<b>Beaver</b>	<b>Richfield</b>
<b>Fishlake National Forest Management Indicator Species (MIS)</b>					
<b>Mule Deer</b>	MIS	All	All	All	All
<b>Elk</b>	MIS	All	All	All	All
<b>Northern Goshawk</b>	MIS	All	All	All	All
<b>Sage Nesters<sup>1</sup></b>	MIS	All	All	All	All
<b>Cavity Nesters<sup>2</sup></b>	MIS	All	All	All	All
<b>Riparian Guild<sup>3</sup></b>	MIS	All	All	All	All

\* Limited known distribution, however, is likely to occur in additional locations.

<sup>1</sup>-- Brewer's Sparrow, Vesper Sparrow, Sage Thrasher

<sup>2</sup>-- Hairy Woodpecker, Western Bluebird, Mtn. Bluebird

<sup>3</sup>-- Lincoln's Sparrow, Song Sparrow, Yellow Warbler, MacGillivray's Warbler

<b>Key to Geographic Areas</b>	<b>Ranger District</b>	<b>Acres</b>	<b>Reference Number</b>
Beaver Foothills	Fillmore, Beaver	77,113	1
Canyon Range	Fillmore, Beaver	115,532	4
Clear Creek	Fillmore, Beaver	78,541	2, 12
East Pahvant	Fillmore	106,779	3
West Pahvant	Fillmore	204,847	5
Fish Lake Basin	Fremont River	16,962	6
Fish Lake High-top	Fremont River, Richfield	41,015	7
Last Chance / Geyser Peak	Fremont River	48,236	8
Mytoge Mtn / Tidwell Slopes	Fremont River, Richfield	81,844	9
Thousand Lakes Mtn	Fremont River	65,803	10
Beaver River Basin	Beaver	46,045	11
Indian Creek / North Creek	Beaver	42,311	13
Piute Front	Beaver	76,685	14
Tushar Mtns	Beaver	20,971	15
Gooseberry/Lost Creek	Richfield	108,044	16
Monroe Mtn	Richfield	163,901	17
Old Woman Plateau	Richfield, Fremont River	66,496	18
Salina Creek	Richfield	92,089	19

Table D-2 displays the summary indicators of habitat effectiveness for Threatened, Endangered, Sensitive, and Management Indicator Species at the forest scale. The numbers shown are specific to critical, capable, or suitable habitat for each species listed. These

species and their habitats are discussed in detail in the wildlife specialist report and the life histories report (Rodriguez 2006).

**Table D-2. Forest scale summaries of changes in route density and open use areas and distance designation acres for T & E, sensitive, and MIS species other than mule deer.**

Species	Route density (miles/mile <sup>2</sup> )					Open Use / Exemption Area (% of area)				
	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
<b>Mexican Spotted Owl</b>	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.1	0.1	0.1
<b>Bald Eagle</b>	2.5	2.0	2.0	1.5	2.1	63	18	9	7	9
<b>Utah Prairie Dog</b>	0.6	0.3	0.3	0.3	0.5	76	3	0	0	1
<b>Yellow-billed Cuckoo</b>	12.4	11.7	11.6	11.1	11.7	89	49	33	31	33
<b>Peregrine Falcon</b>	0	0	0	0	0	52	1	0	0	0
<b>Spotted Bat &amp; Townsend's Big-eared Bat</b>	0	0	0	0	0	55	1	0	0	0
<b>Northern Goshawk</b>	1.0	0.8	0.8	0.6	0.8	51	8	4	3	4
<b>Flammulated Owl &amp; Three-toed Woodpecker</b>	1.0	0.8	0.8	0.6	0.8	51	8	4	3	4
<b>Greater Sage Grouse</b>	2.3	1.7	1.7	1.3	1.8	79	15	8	6	8
<b>Pygmy Rabbit</b>	4.3	3.2	3.3	2.6	3.4	85	25	15	12	15
<b>Elk</b>	1.7	1.2	1.3	1.0	1.3	74	11	6	4	6
<b>Sage Nesters</b>	2.0	1.5	1.5	1.2	1.6	77	13	7	5	7
<b>Cavity Nesters</b>	1.0	0.8	0.8	0.6	0.8	55	9	4	3	4
<b>Riparian Guild</b>	6.8	6.1	6.2	5.5	6.3	69	33	22	18	22

Table D-2 clearly indicates that habitat effectiveness for these species under the action alternatives would be improved compared to current conditions. Thus, the action alternatives of Fishlake OHV Route Designation Project lessen the potential for adverse cumulative impacts to T & E, Sensitive, and Management Indicator Species relative to No Action. This could help slow or reverse declining trends, and maintain or improve stable or increasing population trends - at least during the portion of the life cycle that occurs on National Forest System lands. See the wildlife report, the Biological Assessment, and the Biological Evaluation for more detail on these species.

### *Migratory Birds*

Additional species for analysis were identified as part of the scoping process and review of the project area by Fishlake National Forest wildlife biologists. Migratory birds and candidates for Federal listing were identified as additional species of concern in the Fishlake OHV Route Designation project, public comment process. The Migratory Bird Treaty Act prohibits taking of migratory birds, their parts, nests, eggs, and nestlings. Deliberate take and the need for a State permit can be avoided by minimizing disturbance and habitat alteration during the breeding and nesting season.

Based upon the vegetation within the project area, several migratory bird species, which use mixed conifer, sub-alpine, and mountain riparian were selected for review. The Utah Partners in Flight Conservation Strategy (UPFCS) (UDWR 2002) was thoroughly reviewed for applicability to species. Accounts of these species are described in the 2002 strategy and are incorporated here by reference (ibid).

EXECUTIVE ORDER 13186 OF JANUARY 10, 2001 outlines the responsibilities of Federal Agencies to protect migratory birds and directs these agencies to take certain actions to further implement the Migratory Bird Treaty Act. The order also provides broad guidelines on migratory bird conservation responsibilities.

The Forest Service and the U.S. Fish and Wildlife Service developed an interagency Memorandum of Understanding (MOU) for the Conservation of Migratory Birds. The MOU identifies specific activities that will contribute to conserving and managing migratory birds and their habitats.

Priority migratory bird species that have been assessed in this document because they are threatened, endangered, sensitive, candidate, experimental nonessential, or MIS species include: bald eagle, Mexican spotted owl, yellow-billed cuckoo, California condor, peregrine falcon, greater sage-grouse, northern goshawk, flammulated owl, three-toed woodpecker, and northern flicker. The “Utah Partners in Flight Avian Conservation Strategy, Version 2.0” provides a list of their priority species (Parrish et al. 2002; p. 52). For the Sub-Alpine Conifer habitat, which includes habitat found within the project area, the three-toed woodpecker is the only species on the final list for this habitat type. The three-toed woodpecker was assessed in the specialist report.

In addition to the sub-alpine habitat, the project area is also comprised of mixed conifer and mountain riparian habitat. Priority bird species and recommendations for these species can also be found in the “Utah Partners in Flight Avian Conservation Strategy, Version 2.0”, and is also incorporated for these species (Parrish et al. 2002; p. 255-256). Priority bird species for these habitats are: Lewis’s woodpecker, and black swift for mixed conifer habitat, and broad-tailed humming bird and Virginia’s warbler for mountain riparian habitat. Conservation recommendations for these species have been taken into consideration and based upon required design criteria for wildlife, and those found in the vegetation, fire, and hydrologic specialist reports, these conservation recommendations have been incorporated.

*The analysis of priority migratory birds and species of concern indicates that implementation of the OHV Route Designation would not have a measurable adverse effect on migratory bird populations. All of the alternatives comply with Executive Order 13186 and the MOU for the Conservation of Migratory Birds.*

Based upon the action alternatives that reduce motorized route densities and halt cross-country overland travel, all action alternatives would result in an increase of habitat effectiveness across all vegetation cover types on the forests. Due to the increase of habitat effectiveness across the landscape of the Fishlake National Forest, the cumulative effects of this project would enhance habitat for the species addressed in this document across the entire CEA.

The cumulative effects area for migratory birds is the same area used for all other species in the analysis area. This area represents a broad range of habitat types that provide a wide range of seasonal habitat for these migratory bird species. Due to the migratory nature of these birds, they may not use habitat within the CEA year round. Cumulative effects to these birds would only impact habitats that they use within the CEA. The impacts to species from past, present and reasonably foreseeable actions in combination with any of the action alternative would not have adverse effects on these species, as the action alternative would enhance habitat effectiveness for all the species addressed. Other more broad-scale cumulative impacts could affect species persistence in alternate habitats where there is no management or control by this agency. Within the CEA, impacts to migratory birds would also occur from private landowners and other government agencies that can impact habitat.

Implementation of the No Action alternative would result in eventual increases in open route densities and the continuation of random overland cross country travel. These effects have had and continue to have an unknown effect on species across the landscape of the Fishlake National Forest. These effects are unknown as the cross-country travel is random, and varies from year to year. In addition, the number of migratory bird species that may occur on the forest in a given year may vary dramatically due to events of conditions on the migratory winter grounds. Therefore, the effects of leaving the Fishlake National Forest open to random cross-country travel would result in a decrease in overall habitat effectiveness for the species addressed in this document. This is supported by the increased use of the forest by OHV users and the development of unauthorized trails annually. In summary, implementation of the No Action alternative would result in continued cross-country travel and the unauthorized creation of new trails across the forest. This would result in a decrease in habitat effectiveness across the forest over time. Therefore, the cumulative effects of the No Action may impact individuals or habitat, but is not likely to contribute towards a trend to Federal listing or affect the continued persistence of these migratory species at the forest level.

All action alternatives would reduce open route density across the forest, and halt cross-country travel. This would result in increased habitat effectiveness for all the species addressed in this document. This combined with past, present and reasonably foreseeable future action enhance overall habitat in all cover types and areas where disturbance from OHV's occurs. Therefore, the cumulative effects of all action alternatives may increase habitat effectiveness for the species addressed in this analysis.

#### *Aquatic MIS Species – Resident Trout*

Effects to resident trout are the same as and fully covered by those described for aquatic biota. Because motorized use will continue in watersheds containing resident trout, motorized use may impact resident trout but will not likely lead to a loss of population viability for any resident trout populations under all of the action alternatives. Under the No Action alternative resident trout habitat will be increasingly impacted by OHV use resulting in a downward trend in habitat conditions. Under all of the action alternatives, some of the motorized use that is currently occurring along several streams creating habitat concerns would be eliminated. Route closures of high impact routes along several streams, route obliteration, restricting travel to designated routes, and barriers and other enforcement measures would reduce sedimentation, improving aquatic habitat conditions for resident trout overall. When looking at specific sub-watersheds, restricting motorized use to designated routes and barriers and other enforcement measures will at least maintain current resident trout habitat conditions. In the majority of the sub-watersheds, especially those that also have route closures, relocations, or route obliteration there would be a slight improvement to major improvement of resident trout habitat. Overall, resident trout habitat would be static (in a few cases) or slightly upward in trend (in the majority of cases).

#### *Aquatic MIS Species – Aquatic macroinvertebrates*

Aquatic macroinvertebrates were labeled a Management Indicator Species (MIS) for the Fishlake N.F. as an indicator for stream habitat (FP IV-18). There is also a Standard and Guideline relating to aquatic macroinvertebrates under the General Direction of "Manage waters capable of supporting self-sustaining trout populations to provide for those populations." (FP IV-18), which states "D. Maintain a Biologic Condition Index (BCI) of 75 or greater." (FP IV-19).

The Fishlake Forest Plan monitoring schedule is to monitor aquatic macroinvertebrates in 5 streams per year to see if streams meet the aquatic Standard and Guideline of a Biotic

Condition Index (BCI) of 75 or above. In the twenty-one year period from 1986 to 2006, the Fishlake N.F. has sampled an average of 5.7 streams per year (range from 0 to 17 per year), thus meeting the monitoring requirement. Sampling location selection has primarily been driven by interest in key watersheds on the Forest for baseline data and for monitoring of specific project activities. For specific results of this Forest aquatic macroinvertebrate monitoring since 1986, see Rodriguez (2006).

While there have been some concerns raised by recent monitoring both in terms of BCI scores and trends, OHV use is not believed to be a major contributor to the low BCI scores or declining trend at this time. If OHV use in sensitive riparian areas and along streams continues to increase as it has in the past 6 years based on field observations, however, it does have the potential to become a major concern for aquatic macroinvertebrates on many streams in the near future.

Under the No Action alternative, OHV use will likely increase in sensitive areas, leading to a reduction of aquatic macroinvertebrate BCI scores on many forest waters. This could potentially cause a downward trend on some waters to below the Forest Plan Standard and Guideline of 75 where it is currently above, and a further downward trend on waters already below the Forest Plan Standard and Guideline.

Under the action alternatives, some of the motorized use that is currently occurring along several streams creating habitat concerns would be eliminated. These and other closures and route obliteration would thus reduce sedimentation, improving aquatic habitat conditions for macroinvertebrates. Restricting motorized use to designated routes will also prevent increased impacts in the future and reduce erosion occurring from current cross-country use. Under all of the action alternatives, there would be a slight improvement to major improvement in BCI scores on streams with current impacts where route changes, closures, or route obliteration is proposed. On other streams, the closure to cross-country travel, barriers, and other enforcement action to keep motorized travel on designated routes in all of the action alternatives would at least maintain the current condition. Thus, overall BCI scores under the action alternatives would be static or slightly upward in trend. Additional discussion of the use of BCI data and macroinvertebrates is contained in the source report and the Biological Evaluation.

#### *Threatened, Endangered, Sensitive, and Management Indicator Species – Plants (excluding Last Chance townsendia)*

The Regional Forester's Sensitive Plant List includes 18 species known to occur on the Fishlake National Forest. Three species are federally listed: one as endangered (San Rafael cactus) and two as threatened (Maguire daisy and Last Chance townsendia). There are not any plant species known to occur on the Fishlake NF that are proposed for federal listing or that are candidate species. All of the known occurrences and known potential habitat for these four species are in the southeastern corner of the forest (see Figure 3-2 in Chapter 3). The area of potential habitat for these three species was analyzed in detail as described in the next section. The remaining 15 Forest Service sensitive plant species are often clustered in restricted locations but collectively distributed in all seven subsections on the Fishlake NF.

Occupied or known potential habitat for San Rafael cactus does not occur within 1.5 miles of authorized or potentially designated routes on the Fishlake NF. Occupied or known potential habitat for Maguire daisy does not occur within one half mile of authorized or potentially designated routes. For pinnate spring parsley and Wonderland alice-flower (also known as Rabbit Valley gilia), known occupied habitat does not occur within the 300-ft distance designation. However, individual gilia were close to the route distance designation corridor at one location, and that route's distance designation was removed in each of the action

alternatives. Potential impacts to Last Chance townsendia are discussed in detail in Chapter 3 and in the vegetation specialist report.

The analysis for sensitive and management indicator plants follows the same assumptions described previously in Chapter 3 for Last Chance townsendia. The analysis compared the amount of area where unrestricted and open use was allowable for each of the five alternatives. Next, the areas of dispersed camping distance designations for roads and trails were evaluated separately and compared for each alternative. The proportions of total areas were also analyzed. Table D-3 shows this analysis for the entire forest. The results for the rare plant study area have already been presented in Chapter 3, Table 3-5.

Table D-3 shows acres of unrestricted / open use and distance designation areas, and percent of the total area by alternative for the entire Fishlake NF (1,532,859 acres for this analysis includes in holdings.)

<b>Table D-3. Forest summaries of open use / distance designation areas.</b>					
<b>Designation</b>	<b>Alternative 1</b> (Unrestricted, "A" Areas, and 300' Exemption on Roads)	<b>Alternative 2</b> (Open Areas, 300' Distance Designation for Dispersed Camping along Roads and Motorized Trails)	<b>Alternative 3</b> (Open Areas, 150' Distance Designation for Dispersed Camping along Roads and Motorized Trails)	<b>Alternative 4</b> (150' Distance Designation for Dispersed Camping along Roads and Motorized Trails)	<b>Alternative 5</b> (Open Areas, 150' Distance Designation for Dispersed Camping along Roads and Motorized Trails)
Unrestricted or Open Use Areas	909,115	973	969	0	879
Roads and Trail Distance Designations	25,318	160,532	83,910	64,838	84,295
<b>Total</b>	934,433	161,505	84,879	64,838	85,174
<b>Percent of Total Area (1,564,236)</b>	60%	10%	5%	4%	5%

Alternative 1 has unrestricted / open use, and road exemption areas that include 60% of the area within the administrative forest boundary. Alternative 2 has six times less potential risk to the total area than the current condition. Alternatives 3, 4 and 5 have 12, 15 and 12 times less area of potential impact, respectively, than the current condition. Also, under the action alternatives, these four percentages should decline over the next five years as dispersed camping distance designations are either dropped or replaced by designated routes.

Next, compare the total unrestricted/open use acres in Alternative 5 to the total of unrestricted acres in Alternative 1 (909,115 vs. 879 ac.). There is a difference of 3 orders of magnitude; 1,034 times (or 103,400%) less area that might be exposed to unrestricted/open use motorized activity.

Table 3-5 shows acres of unrestricted and open use areas, and distance designation areas, and percent of the total area by alternative for the rare plant emphasis study area. (The 122,447 acres for this analysis includes in holdings.)

Alternative 1 has unrestricted/open use and road exemption areas in nearly 30% (35,966/122,447 ac.) of the total study area. This is better from the start; Alternative 1 has just half of the relative potential impact compared to the percentage of the entire forest shown in the first table. Alternative 2 has 3.7 times less area of risk to the rare plant emphasis study area than does Alternative 1. Alternatives 3, 4 and 5 have 7, 10, and 7 times less area of potential impact, respectively than does the current situation.

When comparing the total unrestricted/open use acres in Alternatives 2, 3 and 5 to the total of unrestricted/open use acres in Alternative 1 (31,488/193 or 189 ac.), the analysis shows about 165 times (16,500%) less area that might be exposed to unrestricted/open use motorized activity. This is a huge benefit for rare plant habitat.

Fortunately, this proposed action is timely for rare plants. Within another five years, serious threats would likely begin to be manifest; risks to many populations of rare plants might be evident in 10 years. The important thing is to take action now. Alternatives 2, 3, 4 and 5 would all benefit rare plants on the Fishlake to a much greater degree than Alternative 2.

The potential for suitable and occupied habitat of listed species was the major reason for this concentrated survey effort. However, the substantial number of routes without distance designation corridors in this rare plant emphasis study area provides much greater protection to the individuals and suitable habitats for the five sensitive species as well. Some routes through these areas have been changed to non-motorized; other routes will be obliterated. Also forest-wide, the distance designation is removed from any route that is gated closed. Within the rare plant emphasis study area for any of the four action alternatives, there is not any known occupied habitat in any distance designation corridor for either pinnate spring-parsley or Rabbit Valley gilia (also called Wonderland alice-flower). There is some occupied habitat within some of the distance designations for Bicknell milkvetch, Bicknell thelesperma, and Ward beardtongue. However, Bicknell milkvetch is the most abundant sensitive species in this emphasis area; Bicknell thelesperma is relatively abundant within portions of the emphasis area, and Ward beardtongue is widely distributed on the forest. In all cases for these three species, their populations within this rare plant emphasis study area extend well beyond any of the distance designation corridors and the viability of any single population will not be at risk with the implementation of the action alternatives.

Comparable field surveys specific to the OHV route project were not conducted on the forest for the area of the forest west of the rare plant emphasis area. The remaining sensitive species either have wider distributions, or if smaller distributions, then are not commonly found in the vicinity of motorize routes. The magnitudes of difference for the action alternatives displayed in Table D-3 convey the tremendous benefits to the sensitive species on the forest. The integrity and quality of ecosystems on more than 900,000 acres of land administered by the Fishlake National Forest will improve over time when Alternative 5, as modified, is implemented, and allowable open use and cross-country travel are reduced to less than 900 acres.

OHV traffic moving along the trails stirs up dust. Some of the dust may become deposited on individuals of the sensitive species. This is considered a low risk to the populations of these species overall.

There is the possibility of additional visitor foot traffic in some areas when riders might park along the route and walk to some vista or point of interest. This is considered a very low probability event.

The alternatives in the OHV Route Designation project would have “no effect” on any populations of the following federally listed plant species: the threatened Maguire daisy (*Erigeron maguirei*) or the endangered San Rafael cactus (*Pediocactus despainii*). This is based on life histories, field surveys and habitat assessments for the threatened and endangered plant species on the Fishlake National Forest and from the findings shown in Table 3-5. This is also based on the fact that motorized routes do not go within 1.5 miles of known populations, or known potential habitat, of San Rafael cactus or within one half mile of known populations, or known potential habitat, of Maguire daisy. In addition, the populations for both of these species occur in remote areas that are protected by steep slopes and cliffs. It is unlikely that motorized traffic could ever get to these locations.

The action alternatives would have “no impact” on the individuals or habitat of Fishlake naiad (*Najas caespitosa*). This is based on the fact that Fishlake naiad is known on the forest only from Fish Lake where it was found growing in shallow water to about 12 inches deep.

In contrast, the action alternatives “may impact individuals or habitat, but would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species” for the following species: Barneby woody aster (*Aster kingii* var. *barnebyana*), Bicknell milkvetch (*Astragalus consobrinus*), Tushar Mountain paintbrush (*Castilleja parvula* var. *parvula*), pinnate spring-parsley (*Cymopterus beckii*), creeping draba (*Draba sobolifera*), Nevada willowherb (*Epilobium nevadense*), Elsinore buckwheat (*Eriogonum batemanii* var. *ostlundii*), Rabbit Valley gilia or Wonderland alice-flower (*Gilia caespitosa* or *Alicellia caespitosa*), little penstemon (*Penstemon parvus*), Ward beardtongue (*Penstemon wardii*), Arizona willow (*Salix arizonica*), Beaver Mountain groundsel (*Senecio castoreus*), Bicknell thelesperma (*Thelesperma subnudum* var. *alpinum*), and Sevier townsendia (*Townsendia jonesii* var. *lutea*). This determination is based on field surveys, life histories and habitat assessments for the sensitive plant species, or their habitat, known to occur on the Fishlake National Forest as described in the biological evaluation. Although some impacts to individuals or habitat may occur with the project implementation, the action alternatives would provide an enormous benefit to these species over time as allowable cross-country travel on the forest is reduced from more than 900,000 acres to less than 900 acres and the type of allowable use is restricted within the distance designation corridors. Also, this benefit would increase and as distance designations continue to be removed from motorized routes over the next several years. See the plant Biological Assessment and Biological Evaluation for more detail.

### *Invasive Plants*

The introduction of invasive species has the potential to increase and may be an indirect effect. The Fishlake National Forest has a current GIS layer of the known locations of noxious weeds. The actual area of infestation is less than 20,000 acres. Thus, nearly 99% of the acres managed by the forest are noxious-weed-free.

The Fishlake National Forest has an award winning noxious weed management program. Because of the relatively low number of acres infested with noxious weeds, public awareness, education, and an aggressive early detection/rapid response program are key forest objectives. The Fishlake NF conducted a successful weed bounties program in 2005. Participants were paid a monetary bounty for location information about previously unmapped areas of noxious weeds. The Forest is a signatory on four cooperative weed management areas (CWMAs). One CWMA project was recently funded and completed. The Weed Warrior Program to

“Wash Before You Ride” was introduced in September 2006 at the Rocky Mountain ATV Jamboree. These are example of the types of educational and public outreach opportunities that are actively being promoted by the forest.

From the weed inventory, it is obvious that many of the noxious weed species spread along travel corridors. The strength of this OHV travel management plan is to reduce by more than 99.9% the number of acres currently available for cross-country travel. (The reduction in cross-country travel is from more than 900,000 acres to less than 900 acres.) Therefore, the potential spread of invasive species in these areas will be substantially reduced through this new access management plan. The likelihood of invasive species establishing and spreading into potential habitats of these sensitive plant species because of OHV traffic is considered low.

Portions of this forest-wide analysis area occur in nine counties in southwestern Utah including: Beaver, Garfield, Iron, Juab, Millard, Piute, Sanpete, Sevier, and Wayne. However, Iron and Sanpete counties have less than 2,500 acres each on the Fishlake NF. The Noxious Weed Field Guide for Utah contains information about the distribution of these species by county (Belliston et al. 2004). The guide divides information into sections for state noxious weeds and county noxious weeds. Species of concern for this analysis on the state list include Bermuda grass, field bindweed, hoary cress (whitetop), diffuse knapweed, Russian knapweed, spotted knapweed, squarrose knapweed, purple loosestrife, perennial pepperweed (tall whitetop), quackgrass, leafy spurge, Canada thistle, musk thistle, Scotch thistle, and dyer’s woad. Species of concern for this analysis on the county list are blue lettuce, buffalobur, bull thistle, and Russian olive. All of these species may occur in proximity to roads and trails and, given the right conditions, are capable of migrating into the disturbed areas along these corridors and/or hitchhiking on animals, people, and vehicles that move along road, trail, and stream corridors. The risk and speed of noxious weed migration increases dramatically in the stream corridors. Consider this analogy of a weed infestation: it is like a bomb going off in slow motion!

Noxious weeds and other weedy species are opportunistic and establish quickly in disturbed areas that lack robust competition from established native vegetation. Roads generally have a band of disturbed area on each side of the hardened surface. These disturbed road edges include both cut banks and fill slopes, and generally provide continuous areas that become migration routes for weedy species. Additional information about noxious weeds on the Fishlake NF may be found in the Environmental Assessment for Noxious Weed Management (Fishlake National Forest 2003).

Travel routes are often invasion corridors for the spread of noxious weeds and other invasive species. At least three noxious weed species (i.e., dyer’s woad, leafy spurge, and spotted knapweed) have the potential to dominate our landscapes nearly to the tops of the mountains if they get started in an area. Vivid examples from the Wasatch-Cache National Forest where dyer’s woad spread rapidly along travel routes all the way up the mountains underscore the reality of this threat.

On the forest, the spread of invasive species is greatly controlled by the combination of precipitation and elevation. For example, cheatgrass is prone to spread in disturbed areas with less than 8 inches of precipitation and below 7,000 feet elevation. Fortunately, only a small portion of the Fishlake NF has this combination of conditions. This example illustrates another important distinction. Cheatgrass is an invasive species and undesirable on the landscape; however, cheatgrass is not listed as a noxious species.

Some other undesirable species including black henbane, dalmation toadflax, houndstongue, poison ivy, saltcedar (tamarisk), water hemlock, and yellow toadflax are not officially listed

as noxious for this area. However, these species are truly obnoxious, and prudence would suggest vigilance for these as well. This would be especially important for areas where these species are just beginning to establish. Again, early detection and rapid response will be key to success in our war on invasive plant species.

Consistent monitoring along the Forest's roads and trails for the presence of noxious weeds and other undesirable weedy species will be essential to early detection. This monitoring data will enhance the opportunity to prevent, or proactively mitigate, the spread of undesirable weedy species.

Gelbard and Belnap (2003) conducted a study of roads as conduits for exotic plant invasions in southern Utah's semiarid landscapes. Roads appear to be a substantial contributing factor in the continuing spread of exotic plants. They found that plant invasions move from roadsides to adjacent ecosystems of natural habitats; however, disturbed habitats are most vulnerable to invasion. The following three points are taken from their conclusions. "Prevention of invasion in this semiarid landscape (is) still the best tool for effective weed management." "Clearly, roads should be considered important targets of both local and regional efforts to prevent and control exotic plant invasions." They concluded that monitoring could then allow for the use of adaptive management to decrease "the likelihood that roadside invasions will spread into adjacent ecosystems."

A study in Wisconsin found that roads seemed to provide a disturbance corridor (Watkins et al. 2003). The presence of roads can alter plant species composition and abundance of interior forest conditions beyond the road corridor. In a study on plant invasion on the Colorado Front Range, Fornwalt et al. (2003) stated, "both protected and managed areas can be invaded by non-native plant species, and at similar intensities."

The risks from invasive plant species establishing along the designated motorized route corridors and in distance designation corridors are substantially higher than the risks or threats from motorized activities to rare plants or their habitats. The reason is that invasive plants can establish quickly and spread rapidly, particularly in disturbed areas. Travel routes, by their very nature, are disturbed areas. Nearly all of the area of the Fishlake NF is at risk for the introduction and spread of noxious and other invasive weeds. The greatest threat is where the active spread is already occurring on the Pahvant Range and Canyon Mountains of the Fillmore Ranger District and in the entire Salina Creek drainage on the Richfield Ranger District.

Alternative 1 has unrestricted areas, roads, and trails with exemptions in 60% of the total area administrative boundary of the Forest. Alternative 2 has six times less area of risk to the establishment of weedy species. Alternatives 3, 4 and 5 have 12, 15 and 12 times less area of potential impact, respectively. Next, compare the total open use and distance designation acres in Alternative 5 to the total of unrestricted acres in Alternative 1 in the same table. There is a difference of 3 orders of magnitude; 1,034 times less area that might be exposed to unrestricted/open use motorized activity.

In Alternative 1, the spread of weed seed along motorized routes and in unrestricted areas probably would continue to increase in proportion to the increase in motorized activity. Some of these alien species will be aggressive invaders and listed as noxious weeds. Over time, the integrity of the forest's ecosystems probably would be compromised as the vigor of native vegetation is strained by competition from and increasing number of non-native species. Because of their disturbed character, roads and trails would increasingly be corridors for the spread of weedy species to the extent that the roads and trails are in close proximity to populations of undesirable plant species. Also, new routes would continue to develop in unrestricted areas thus increasing the amount of disturbed area for potential infestations. In

addition, vehicles often transport weed seed in the undercarriage and mixed with mud on tire treads and in wheel wells. The risk of weed migration would increase as more of the factors for the spread of weedy species occur in close proximity (e.g., roads, campgrounds, streams, trailheads and trails). To the extent that the other projects in Appendix C in this EIS add additional roads and disturbed areas, the threat of invasive plant species establishing in this area will increase the risk to plant communities across the forest.

Although the amount of area for allowable motorized activity is reduced substantially with these alternatives, the amount of activity on designated routes will likely increase. The risk of weed seed being spread would continue to remain high since this risk is a function of the amount of use, or the number of visits, of motorized activity. In addition, these aggressive plant species can spread into landscapes beyond the travel corridors and distance designation corridors along the roads and trails. Thus on balance with these four alternatives, noxious weeds and other invasive species would continue to spread on the forest. Clearly, implementation of Alternative 2, 3, 4 or 5 would reduce the amount of area that typically would be monitored for early detection and rapid response activities in noxious weed management. However, over time the vigor of some of the forest's ecosystems probably would be compromised by competition from an increasing number of noxious weeds and other non-native, invasive plant species. To the extent that the projects in Appendix C in this FEIS add additional roads and disturbed areas, the threat of invasive plant species establishing in this area will increase the risk to plant communities across the forest.

### *Vegetation and Fuels Management*

The Fishlake National Forest roads analysis (USDA Forest Service 2003) and the roads supplement for this OHV route designation project address the relationships of motorized access and vegetation management. Other issues related to vegetation are beyond the scope of this analysis and FEIS. As is evident from Table 2-35 showing the percentages of the forest within 0 to 1 mile of a road, all of the alternatives maintain substantial access for vegetation and fuels management. Other issues of vegetation and fuels management are beyond the scope of this analysis and FEIS.

### *Fire Control*

Clearly, routes may need to be used for administrative purposes in connection with fire suppression activities. The motorized routes may provide quicker access but not necessarily an adequate firebreak. Gucinski et al. (2001) and USDA Forest Service (2003) indicate one of the long-held tenets of fire fighting is that improved road access improves the efficiency and effectiveness of fire suppression activities. In contrast, both of these references also state that increased access probably results in more human-caused ignitions, yet the ramifications of this increase differ from location to location. In balance, none of the alternatives in this FEIS will alter our ability to suppress fire. Fire control needs was factored into route designation decisions. As is evident from Table 2-35 showing the percentages of the forest within 0 to 1 mile of a road, all of the alternatives maintain substantial motorized access for fire control while reducing the amount of area and number of routes where motorized users would potentially start a fire. Other issues of fire and fuels are beyond the scope of this analysis and FEIS.

### *Range Management*

Range management needs were accommodated during the route designation process by leaving necessary routes open (either administratively or to the public as well). Horses are often used to access and manage rangelands and rangeland improvements. As is evident from Table 2-35 showing the percentages of the forest within 0 to 1 mile of a road, all of the

alternatives maintain substantial motorized access for range management. Since livestock use occurs off-route, the action alternatives reduce the potential for use conflicts by closing the forest to unrestricted wheeled motorized cross-country travel. Other issues related to range management are beyond the scope of this analysis and FEIS.

#### *Research Natural Areas (RNA)*

Four established RNAs occur on the Fishlake NF: Bullion Canyon, Old Woman Cove, Partridge Mountain, and Upper Fish Creek. With one exception, all designated routes in all of the alternatives are at least a half-mile from the boundaries of the RNAs. Partridge Mountain RNA is the exception. There the routes are closer than a half-mile on the north and south. The designated motorized trail is about 500 feet from the RNA boundary at one point on the east side. However, this RNA has steep terrain where its boundary is well above the motorized trails, generally 300 to 1,000 feet in elevation. Therefore, it is held that none of the OHV route alternatives, including the distance designation corridors for dispersed camping, would have either a direct, indirect, or cumulative effect on resource characteristics of any of the four RNAs on the Fishlake NF. These areas are also closed to winter motorized use on the current travel plan and in the proposed actions.

#### *Microbial contaminant impacts to water quality*

This water quality issue relates to organisms such as E. Coli and Fecal Coliform bacteria. Current levels of microbial contaminants in streams and lakes on the forest are not known. Grazing and recreation are the primary sources of concern for this issue. Management under any of the alternatives is not expected to increase the number of or potential for humans, cattle, sheep, or wildlife to defecate in or near stream courses. In fact, the action alternatives substantially reduce route mileage and acreage of open use areas in riparian influence zones in most CEAs, which should reduce the potential for contamination. Therefore, no direct, indirect, or cumulative effects of microbial contaminants to water quality are anticipated.

#### *Radioactive contaminant impacts to water quality*

Natural geologic features are usually the primary source of radioactive contaminants; although residual radioactivity from above ground nuclear testing in Nevada may be present in some locations. On the forest, natural sources of these contaminants are known to be more prominent on volcanic geologies than on the sedimentary geologies. Uranium and hard rock mines have brought radioactive substances to the surface in locations such as Indian Creek. The tailings from the Mystery Snifter uranium mine located between the road and the creek are radioactive and are sometimes driven on by ATVs. The Street Legal Only designations in the action alternatives for Indian Creek would reduce the potential harm to humans and/or water quality by restricting the use to full sized vehicles and licensed motorcycles. The No Action alternative would not change the existing risk. The goals of reducing erosion and protecting riparian areas and wetlands using the "Required Design Criteria" and the requirements for protection of historical mines in the FEIS are consistent with preventing or reducing delivery of radioactive contaminants where natural or human related sources are present. Therefore, no significant direct, indirect, or cumulative effects are anticipated.

#### *Decreases in stream base flows*

Except for foreseeable actions, no new roads or trails, stream crossings, reservoirs, or diversions would be constructed under any alternative, so slope drainage will not be altered from its present condition. Reducing motorized cross-country travel would further reduce this possibility relative to No Action. The route obliteration associated with the action alternatives would restore natural slope hydrology, which is needed to maintain base flows.

Provided the “Required Design Criteria” are applied, no direct, indirect, or cumulative effects to soil productivity, wetland and riparian area condition, aquatic organisms, or water quality from loss of base flows are expected.

#### *Changes in stream dynamic equilibrium*

No substantial change in runoff or sediment regimes is anticipated provided the “Required Design Criteria” are followed (see subsequent analyses). Floodplain connectivity would be restored when obliterating encroaching routes in an action alternative. No Action would retain existing floodplain modifications and would allow further user created encroachments by retaining most of the forest as open to motorized cross-country travel. The action alternatives would decrease the mileage of motorized routes and acres of open use areas within and adjacent to stream channels, riparian areas, lake margins, and wetlands, which would protect riparian and channel conditions. No detectable direct, indirect, or cumulative adverse effects to or from changes in stream condition are likely under any alternative, but especially if an action alternative is chosen.

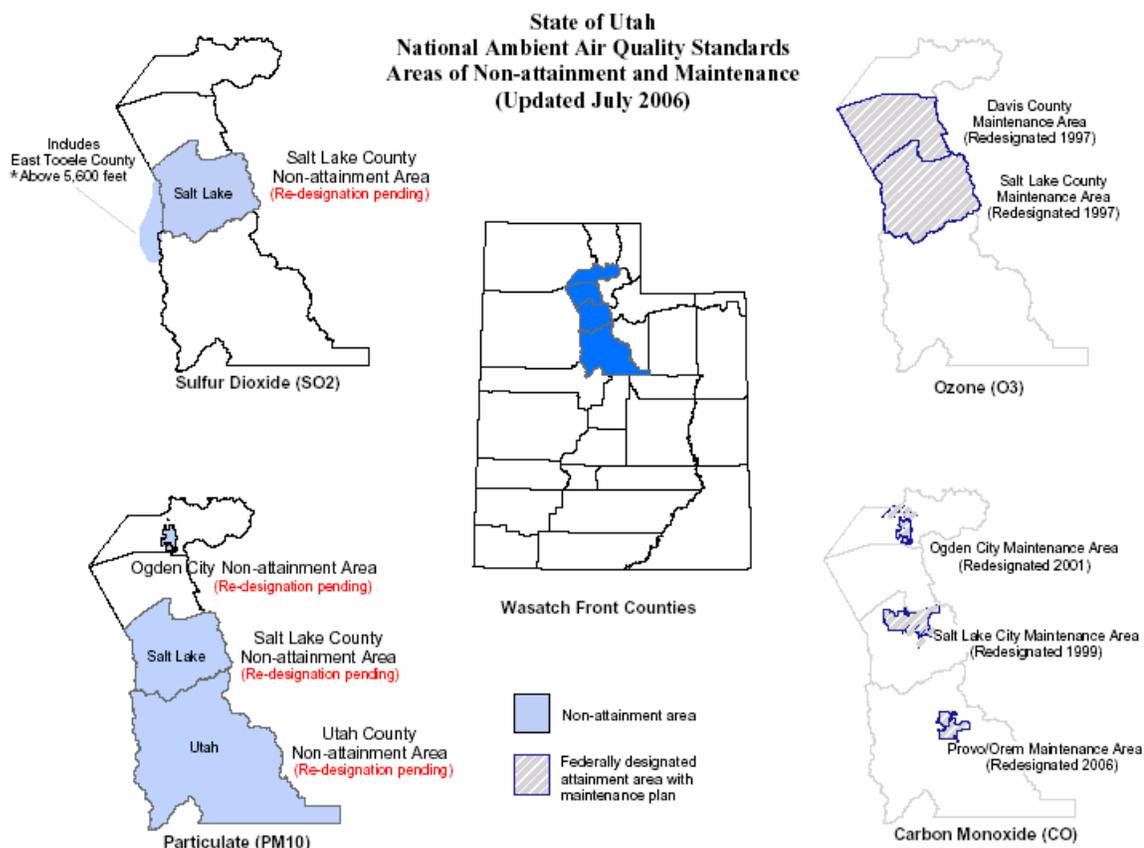
#### *Air Quality*

Air pollutant emissions associated with motorized use, which are listed under the Clean Air Act Amendments, National Ambient Air Quality Standards (NAAQS) are identified below. The NAAQS are health-based standards, which serve to limit the concentrations of the following air pollutants:

- ★ Particulates less than 10 microns (PM<sub>10</sub>)
- ★ Sulphur Dioxide (SO<sub>2</sub>)
- ★ Oxides of Nitrogen (NO<sub>x</sub>)
- ★ Carbon Monoxide (CO)
- ★ Volatile Organic Compounds (VOCs)

When any of these pollutants are above specified levels, which are monitored by the State of Utah Department of Environmental Quality – Division of Air Quality (DAQ), an area is described as non-attainment. Areas where the concentrations are below the specified levels are labeled as attainment areas. Non-attainment areas require that plans be implemented that will eventually cause the area to be in attainment. Attainment areas are controlled through permitting requirements for certain types of emission sources, and general air regulations, which can be expected to keep the area in attainment status. Attainment or non-attainment status is designated by airshed. Airsheds can be defined by county or geographic boundaries. The Fishlake National Forest is in attainment for all NAAQS pollutants as shown on the map below.

In addition to regulations that are designed to protect against NAAQS violations, additional regulations are in place, which limit the degradation of air quality in any area that is attainment for NAAQS. These federal regulations are referred to as Prevention of Significant Deterioration (PSD). PSD regulations address the pollutants’ PM<sub>10</sub>, SO<sub>2</sub>, and NO<sub>x</sub>. PSD regulations limit the amount of degradation of air quality in attainment areas to one of three levels. The three levels are Class I, Class II, and Class III, described as follows. The Class I designation allows the smallest degradation and is applicable to pristine areas. Class II areas are the most common designation. Areas that do not fall into Class I (pristine) nor Class III (heavy industrial) are designated Class II. Industrial areas may be designated as Class III, but this designation does not apply to the forest. All PSD areas in Utah are categorized as either Class I or Class II.



Air quality standards have been set by federal and state regulatory agencies for the regional airshed. Standards for criteria pollutants relevant to the proposed project are monitored by the State and regulated to protect human health and environment. The forest is classified as a Class II-Attainment area under the PSD regulations, Part D, of the 1977 Clean Air Amendments. Attainment status means that current and past ambient air quality sampling indicates that state or federal criteria pollutant standards are satisfied. Class I areas are protected against adverse impacts to air quality related values, such as: visibility, odors, flora and fauna impacts, soil water, geological, and cultural structures. Capitol Reef National Park is a Class I-Attainment area located along the southeastern border of the forest.

Based on the Environmental Protection Agency's (EPA) "[Envirofacts Warehouse](#)," which is part of the Aerometric Information Resource System (AIRS), there are no major sources within the forest. The closest major sources are the Navaho Power Plant by Page Arizona, the Intermountain Power Station by Delta, and Pacificorp's Huntington and Hunter power plants. Each of the Utah facilities are seeking an expansion of operations. A permit has also been granted by the State DAQ for NEVCO to build a powerplant in the Sevier valley near Sigurd, Utah. The modeling shows expected compliance with Class II increments and does not predict exceedence of the NPS's "Deposition Analysis Thresholds" for nearby areas such as Capitol Reef National Park. Most documented data for air pollutants on or near the forest default to background levels (measured in Utah's pristine areas).

Vehicle traffic on current roads and motorized trails results in emissions of criteria pollutants, primarily particulate emissions resulting from vehicle traffic suspending silt and dust present on native surface roads. Smoke emissions from wild and managed use fires are also another source of emissions that cumulatively impacts air quality. The emissions from wildfire and managed fire are coordinated through the Utah Interagency Smoke Management Program. Cumulative effects analyses are run daily during the burning season before approving

prescribed fires, and wildland fire use ignitions to assure that air quality standards will be met.

Attainment of air quality standards would likely continue under all of the alternatives, particularly the action alternatives that reduce the potential for wind erosion by closing the forest to wheeled motorized cross-country travel, and by reducing the miles of native surfaced motorized routes. Vehicle emissions from forest users are not expected to come even close to approaching the magnitudes or concentrations that have caused seasonal non-attainment along the Wasatch Front. No significant adverse cumulative impacts would be expected under any alternative.

### *Heritage Resources*

Heritage resources, especially prehistoric sites, are vulnerable to motorized trespass because the technology gives the user ready access to areas not formerly open to larger vehicles. Resources previously protected by their remoteness or non-accessibility are now susceptible to artifact collection, digging, vandalism and erosion.

Heritage resources, especially historic sites, are vulnerable to artifact collection, digging, vandalism and erosion because they are both close to designated trails and are highly visible. In Bullion Canyon, artifacts have been collected, structures have been pushed over and burned, an ore train bed has been made into an ATV trail and mine dumps are used as play hills. Prehistoric sites, the majority of which are lithic or ceramic scatters, are considerably less visible and recognizable by the people on fast-moving ATVs. However, they remain vulnerable to people who are collectors and to people who inadvertently camp on these sites.

Many of the historic sites on the forest have been impacted by ATVs to some extent. Because of their visibility and proximity to designated trails (i.e., historic roads) standing structures, milling facilities, abandoned town sites, hard rock gold mines and coal mine sites are particularly vulnerable. Impacts are apparent in the form of ATV trails in, around and through the properties. Mine dumps are also routinely used as “play hills”. The track bed of a *circa* 1870-1900 mule train from the Webster Mine to the Dalton Mill in Bullion Canyon has been brushed and is now a user-developed ATV trail. Less apparent and measurable is the collection of historic artifacts.

Heritage resources are irreplaceable. Archeological sites vulnerable to ATV-related damage must be monitored with any impacts reported to the forest archeologist for review and possible mitigation. Suspects are investigated and cited if appropriate.

Effects on any resource can be positive or negative. With heritage resources, and especially prehistoric sites, the prohibition of cross-country travel is a very positive effect. The prohibition limits the range and mobility of people who would collect or dig historic properties to designated routes plus their physical ability to walk and carry equipment over varying distances and uneven terrain. This action also discourages the establishment of user-designated trails over or through sites.

With designated routes, the preferred distance designation between the trail or road and a heritage resource is 150 feet rather than 300 feet. Table D-4 under the cumulative effects summary illustrates the average distance from the center of heritage resources falling within the 150-foot corridor from designated routes. Prehistoric sites are generally, but not always, obscure to someone on a motorized vehicle. Flakes and small tools, and features like hearths or ash-stained areas, are not readily identifiable and it would defeat the element of obscurity to install fences or signage. If a road is impacting a prehistoric site, and relocation of the road is unlikely then mitigation, as outlined by the NHPA, should be undertaken. Trails are more

easily moved, obliterated and rehabilitated and this should be considered as a mitigative measure if ATVs impact sites.

Historic sites, on the other hand, are the most negatively impacted by ATV traffic because of their visibility and accessibility from designated routes. Damage to these types of heritage resources includes the collection of artifacts, vandalism and the establishment of two-track trails on and around the sites. Because wagon roads that have become modern access routes first accessed historic sites, it is not possible, in most instances, to close motorized routes that pass historic sites.

Mitigation of effects will include, as discussed previously, barriers, fencing and signage. Interpretation of historic properties can also minimize damage by informing the public of a property's importance and place in history. This approach has been used in Bullion Canyon and at the Silver King Mine on Gold Mountain. One can only speculate the fate of a site like the Silver King if it had been perceived only as an old dilapidated property instead of the former home and livelihood of a young married couple living in the wilderness of 19th century Utah.

Encroaching routes within the riparian influence zone are defined in this analysis as roads and trails within 50 feet or 300 feet of heritage resources. Human beings, past, present, and presumably in the future have been and will be drawn to water because of thirst, hunger, comfort, recreation or as a source of power for industry. Many prehistoric and historic sites are found on stream terraces, lake margins, and around wetlands. Therefore, the adverse hydrologic conditions caused by motorized vehicles must be considered.

Routes within 300 feet of stream channels, lakes, and wetlands are considered to be within the "riparian influence zone". In addition to being a mechanism of disturbance, encroaching and riparian roads and trails are also instrumental in providing access to and concentrating use within riparian areas and streams by livestock and humans. This is especially true in areas that are open to snow free motorized cross-country travel such as what occurs around and between undeveloped dispersed campsites. More concentrated use can result in the trampling or erosion and intentional vandalism of heritage resources.

Changes in route mileages and open use areas within riparian areas and near water are indicated in the watershed write-up in Tables 3-7, 3-8, 3-9, and 3-17 in Chapter 3. The action alternatives reduce riparian routes in most areas on the forest, which would benefit protection of heritage resources.

All routes considered in the OHV Route Designation Project currently exist and are being used to varying degrees. As such, the impacts to the various resources described in the FEIS are already occurring. Rather than create new effects, the proposed actions encourage the maintenance and reduction of existing impacts associated with the route network and motorized use. Closing the forest to motorized cross-country travel will have the effect of reducing the potential for direct and indirect off-route interactions and impacts with other land uses. By definition, this will have the effect of reducing actual and potential cumulative impacts to nearly all resource values and uses on the forest. Table D-4 reflects the number of significant archeological sites areas within open use and dispersed camping distance designations. The number of sites in Table D-4 would decrease further as distance designations are either dropped or replaced by designated routes to campsites.

**Table D-4. Number of heritage sites within open use areas and distance designations for dispersed camping.**

Time Period	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Historic	32	19	16	12	15
Prehistoric	379	167	113	86	109
Multi (Prehistoric & Historic)	9	6	4	3	4
Total	420	192	133	101	128

Table D-5 shows the acres of eligible sites by alternative. This is even more graphic than Table D-4 data, especially compared to the existing condition. The number of sites in Table D-5 will decrease further as distance designations are either dropped or replaced by designated routes to campsites.

**Table D-5. Number of eligible heritage sites within open use areas and distance designations for dispersed camping.**

Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
855	245	137	86	133

As expected, the No Action alternative has the largest number of designated routes and open areas close to archeological sites. Of the action alternatives, Alternative 4 has the fewest number of ATV routes and open areas close to archeological sites. As a general statement, all of the action alternatives reduce the actual and potential impacts to the riparian influence zone (i.e., high probability area for archeological sites) and prohibit cross-country travel. This is a plus for heritage resources.

#### *Socio-economic Impacts*

The Fishlake National Forest recognizes that recreation plays an important role in local economies (Kocis et al. 2003, [Utah Office of Planning and Budget 2003](#), Fisher et al. 2002, Reid 2004b). With the exception of Alternative 4, the action alternatives do not appreciably affect the capacity of the motorized network (see Table 2-35), nor do they significantly alter the core trail systems such as the Paiute ATV trail or the Great Western Trail. The non-motorized trail system would be enhanced by the action alternatives. None of the alternatives eliminate public access between communities and National Forest System lands. The action alternatives increase the likelihood for sustaining motorized and non-motorized recreation in the long-term by assuring that environmental protection requirements are met.

It is not possible to quantify how the combined site-specific changes to the motorized or non-motorized travel plan in any alternative will alter public expectations and uses or influence economic returns. Any such attempt would be highly speculative. The public comments for this and previous projects offer a sample of opinions from people and groups with a vested interest in socio-economic and environmental costs associated with motorized and non-motorized recreation (see project file). The Roads Analysis supplement contains references that provide information about the socio-economic significance of recreation on the Fishlake National Forest. These sources of information are incorporated by reference. The DEIS response to comments are also incorporated by reference.

Costs to amenity values and uses are not easily valued monetarily. However, reducing environmental impacts, and reducing motorized impacts to non-motorized recreation would reduce amenity costs and should add to the value of benefits. Adaptive management will be used in all alternatives to address adverse socio-economic / amenity value impacts if unintended or unforeseen consequences arise. Therefore, no adverse cumulative impacts would be anticipated under any alternative.