

Section 4—Summary and Planned Actions

This section of the report is a summary of the monitoring findings and our planned actions. It provides a “big picture” view of how Forest resources are changing (or not) under the direction in the RFP and what changes in management may be needed. Review and evaluation of direction and monitoring is integral to the adaptive management principles upon which the Targhee RFP is premised. In addition to the NFMA regulations that require a five-year review, the Washington Office has instructed the Forest to evaluate five aspects of the RFP direction (Appeal Decision, May 2002). These are also summarized in this final section, using information presented in the Goals and Objectives and Monitoring sections. This information is also used to determine the planned actions needed to insure the continued relevance of the Targhee RFP.

Appeal Decision Requirements

One of the decisions on RFP appeals led the Washington Office to require the Forest to evaluate five aspects of the RFP direction (Appeal Decision, May 2002). These are listed below:

- Habitat for species associated with late seral forests
- Habitat for species associated with sagebrush/grasslands
- Level of prescribed fire use for maintenance of diversity
- Habitat data and current species population information
- Timber age class distribution

The data to support the evaluation is displayed in the program summaries, objective accomplishments, or individual monitoring item sections. For example, the “habitat data and current species population information” is displayed in the discussion of individual monitoring items. The level of prescribed fire use data is displayed in the accomplishment of goals and objectives. In this summary, we have synthesized this information to evaluate whether changes need to be made in the RFP direction to better address these five concerns.

Timber age class distribution

Background on forested vegetation analysis for the Targhee RFP

The information on forested vegetation used in the revision process is based on the 1990-1991 vegetation data layer and the 412 permanent forest inventory plots on the Targhee. The vegetation data layer was developed from satellite imagery and data collected from stand exams. The 412 permanent forest inventory plots were established in the 1970's to inventory parameters in forested vegetation and monitor changes to those parameters every 10 years.

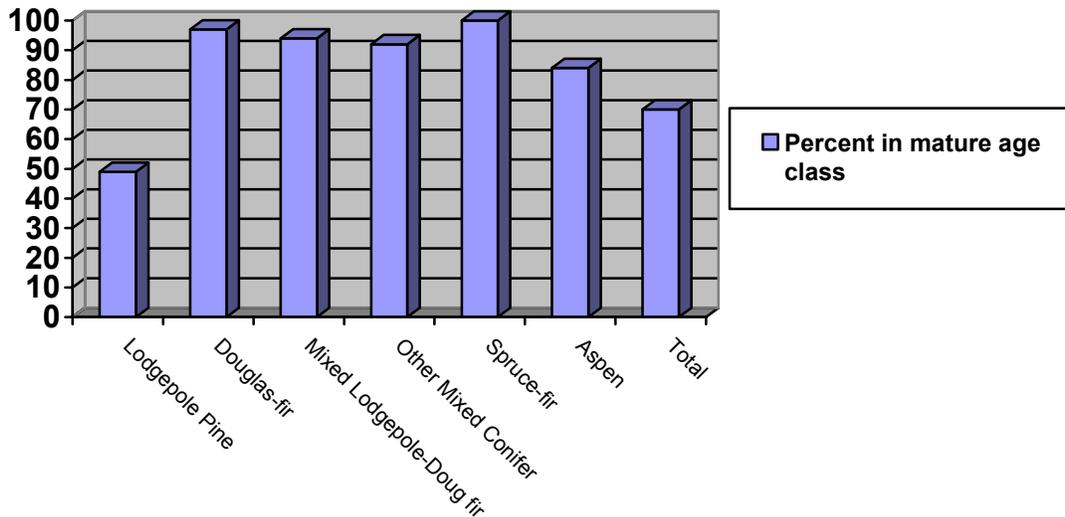
According to the RFP FEIS, approximately 703,100 acres, or 57 percent of the total forested land on the Forest, would be tentatively suitable for timber harvest. Tentatively suitable lands are those which can be managed for timber production and have not been withdrawn by a higher government level, could be harvested and reforested without irreversible damage to other resources, and where information is available to project responses to harvest (RFP FEIS III-93). The tentatively suitable timber was grouped into six categories: lodgepole pine, Douglas-fir, mixed lodgepole pine and Douglas-fir, other mixed conifers, spruce/subalpine fir, and aspen (RFP FEIS, III-93-95). The following table summarizes the tentatively suitable acres by ecological subsection and age group, as documented by the 1990-1991 GIS vegetation layer.

Table 1: Tentatively suitable acres of timber by ecological subsection and age group, condensed version of Table III-35 (RFP FEIS page III-95).

Subsection   Acres by Age Group	Lemhi/ Medicine Lodge	Centennial Mtns	Island Park	Madison Pitchstone Plateaus	Teton Basin	Big Hole Mtns	Caribou Range	Total Acres (%)
Nonstocked	0	3,740	19,280	14,460	280	5,140	250	43,150 (6%)
Seedlings	2,150	13,700	49,730	29,230	0	1,860	140	96,810 (14%)
Saplings	0	5,120	21,770	15,540	210	1,160	0	43,800 (6%)
Pole	0	5,480	12,370	8,670	1,810	820	470	29,620 (4%)
Mature	10,890	139,330	143,010	86,970	18,740	57,360	29,870	486,170 (69%)
Mature w/ prior harvest	0	3,430	0	0	0	120	0	3,550 (1%)
TOTAL	13,040	170,800	246,160	154,870	21,040	66,460	30,730	703,100

Approximately seventy percent of the tentatively suitable forested acres were in the mature age group. The following graph shows the percent of each species group in the mature age class.

Figure 73: Percent of each species in mature age class, condensed from Table III-35 (RFP FEIS page III-95).



Current timber age class distribution on the Targhee

In the analysis for the RFP, the Forest predicted age class distribution after 10 years of implementing the plan. The following table illustrates the expected age class distribution on lands of tentatively suitable timber. Harvest acres

were determined by the number of suitable acres within those management prescriptions allowing timber harvest and based on the allowable sale quantity (ASQ) (RFP FEIS, page IV-63). As described previously in this report, after seven years of implementing the RFP, the Targhee has sold 11.8 million board feet of timber, or only 15 percent of the 10 year ASQ.

In this analysis, the Forest used the same assumptions used in the Revised Plan FEIS regarding growth and changes in age class. Of the approximately 1.2 million forested acres on the Targhee, 703,100 acres were calculated to be tentatively suitable and of these acres, 465,569 acres or 66 percent are considered suitable for timber management purposes. Timber harvest has been much lower than the predicted yearly ASQ of eight million board feet (MMBF) in the RFP. Bark beetle related tree mortality has been greater than expected, but mortality levels have not been high enough to change the classification of stands from the mature class. Table 63 below displays age class distribution information from Table IV-21 on page IV-63 of the FEIS for Alternative 3-M and adds a column for estimated age class distribution on suitable acres as of 2004.

Table 2: Current timber age class distribution in 1997, projected through 2007, and actual class distribution on suitable lands, in 2004).

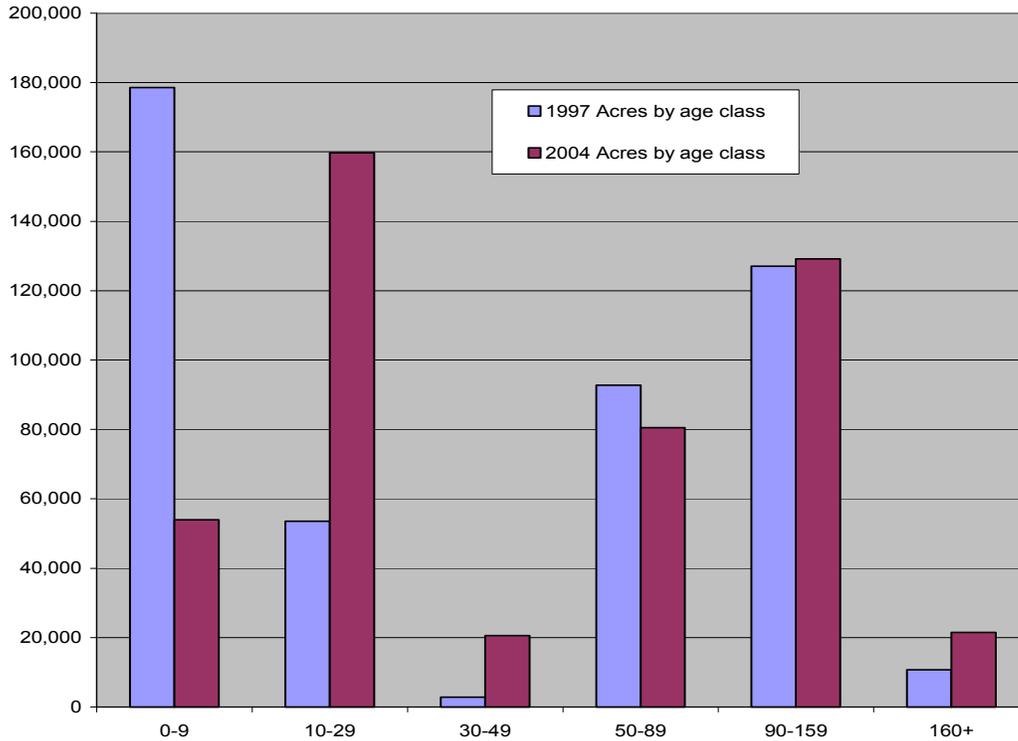
Age Class (years)	1997 RFP Acres¹	Acres predicted by the end of 2007²	Actual acres by the end of 2004
0-9	178,549	3,530	53,954
10-29	53,565	223,882	159,801
30-49	2,874	9,360	20,616
50-89	92,776	50,589	80,531
90-159	127,077	163,742	129,192
160+	10,728	14,466	21,475
Total	465,569	465,569	465,569

¹based on 1990-1991 vegetation data layer

²based on suitable acres, RFP ASQ, and expected growth

The factors affecting movement of acres into and out of age classes are: 1) age progression without disturbance and 2) disturbance factors, i.e. regeneration harvest and stand-replacing wildfire. During the seven year period (1997-2004), age progression has been the greatest factor in moving acres from one class to another. The largest movement of acres was from the 0-9 age class to the 10-29 age class, as young plantations aged and moved from the seedling into the sapling stage. The next largest movement of acres was from the 10-29 age class to the 30-49 age class as saplings moved into pole stage. Acres of the mature and older age classes also continue to increase.

Figure 74: Estimated acres of forested vegetation by age class in 1997 and in 2004.



Habitat for species associated with late seral forests

Background on forested vegetation analysis for the Targhee RFP

The Targhee is home to many wildlife and plant species that depend on mature and late seral forests for some part of their life cycle. Forest management activities can impact these species through changes in the structure or composition of their habitats. The information on forested vegetation used in the revision process is based on the 1990-1991 vegetation data layer and the 412 permanent forest inventory plots.

For the FEIS analysis, all older age classes of forested vegetation were incorporated into the “mature” category. Trees 7 inches or greater diameter at breast height (dbh) were classified as mature. According to stand exam data and Forest Inventory and Analysis information, the average age of a 7 inch dbh tree on the Targhee ranges from 70 to 92 years old depending on tree species. Table III-3 of the FEIS shows the percent of mature forest in each of the seven ecological subsections on the Targhee in 1997. Four of the seven subsections, had greater than 90 percent of their forested acres in the mature category. The percent of forested acres that were mature ranged from 61 percent in the Island Park subsection to 98.5 percent in the Caribou Range Mountains subsection. Overall, 79.6 percent of the forested acres were estimated to be in the mature age category (FEIS III-6, IV-2).

Table IV-2 in the FEIS shows the percent of mature/late seral/old growth forest expected at the end of the decade by watershed. According to the table, about 77 percent of the 1.2 million acres of forested vegetation would be in the mature age class by 2007. This figure was based on an annual allowable sale quantity of 8 MMBF harvested from an annual average of 2,050 acres. Since 1997, however, an annual average sale quantity of 1.54 MMBF has been harvested from an annual average of 370 acres (approx. 2,656 acres total). Of this amount, only about 386 acres have been a regeneration harvest or permanent removal of trees. The remainder of the harvest has been commercial thinning or sanitation/salvage, leaving a stand of mature trees after the harvest. Even if we consider all of these acres as a loss of mature forest, the percent of mature forest vegetation reduced through timber harvesting in the first seven years of plan implementation would be less than 0.3 percent of the forested acres.

Other disturbances, principally stand replacing wildfire and bark beetle infestations, have also impacted mature forest vegetation. Since the Forest Plan's implementation, wildfires have eliminated mature stands on approximately 1200 acres, with this reduction occurring on the Ashton/Island Park Ranger District in the Anderson fire and on the Dubois Ranger District in the Winslow fire. Since the year 2000, insects, specifically the mountain pine and Douglas-fir bark beetles, have had the greatest effect in reducing the number of mature trees on the Forest of any disturbance agent, and their impacts are increasing. From 2000 to 2004, Forest Health Protection maps show effects on 75,344 acres (Table 2). Infestations are currently occurring Forest-wide with the largest impacts in the Centennial Mountains resulting from Douglas-fir bark beetles. Approximately 60 percent of recent bark beetle mortality has occurred on lands with other than timber management-emphasis prescriptions. These areas, classified as unsuitable lands, are most likely experiencing more bark beetle mortality than suitable lands because a higher percentage of these lands are in mature condition. At this time, mortality levels have not been high enough to change the classification of entire stands from the mature class.

Timber stands in the mature category, can have very different structural characteristics. For this reason, the mature class was also broken into late seral and old growth categories. The Forest used old growth definitions described in "Characteristics of Old Growth Forests in the Intermountain Region." In the revision process, forest personnel examined the 412 permanent inventory plots to determine how many plots met these definitions. According to the FEIS, 8.7 percent of the permanent forest inventory plots on the Forest met the old growth definitions.

In the analysis for the RFP FEIS, late seral stands were considered to be those stands which meet some of the old growth characteristics, but not all of them. Eighty seven percent of the mature timber met some of the old growth characteristics (FEIS III-8 & III-9). The RFP further defined late seral by establishing a guideline with minimum age, dbh and trees per acre requirements (RFP III-13). As with old growth, the FEIS analysis did not estimate the amount of late seral vegetation likely to remain at the end of the decade. Standards and guidelines were established in the RFP regarding minimum amounts of late seral/old growth.

RFP Standards and Guidelines for Old Growth and Late Seral Vegetation

The RFP includes a guideline that within each principal watershed, the combination of old growth and late seral forest will be 20 percent or more of the forest acres. Where it exists, at least half of this (ten percent of the forested acres) should meet old growth characteristics (RFP, III-13). During each timber sale or vegetation management analysis at the project level, stands are examined for old growth characteristics. No RFP amendments have been made to reduce the old growth requirement, and no harvest has occurred in old growth stands from sales sold since 1997.

In the RFP standards and guidelines for old growth and late seral forest vegetation, late seral stands are defined by forest cover type using criteria for age, dbh and trees per acre shown in the table below. As with old growth, during each timber sale or vegetation management analysis at the project level, stands are examined to see if they meet the late seral definition in the RFP. No RFP amendments have been made to reduce the late seral requirement and no projects have reduced the amount of late seral/old growth below the 20 percent minimum requirement.

Table 3: Late seral requirements by vegetation type from RFP, page III-13.

LATE SERAL (SUCCESSIONAL) STAGES			
	Dominant Live Overstory Trees		
Forest Type	Age	Trees/Acre	DBH (inches)
Lodgepole Pine	100+	40+	8+
Douglas Fir	140+	25+	14+
Mixed Conifer	100+	40+	12+
Spruce/Fir	110+	20+	12+
Aspen	60+	20+	10+
Cottonwood	50+	--	--

Evaluation of Habitat for Species Associated with Late Seral Forests

As shown above, approximately 79.6 percent of the forested acres on the Targhee were mature and older in the 1991 analysis. With the aging stands has come an increase in insect and disease activity. Thousands of acres are being infested by bark beetles each year. In the Centennial Mountains, an outbreak of spruce budworm is also affecting regenerating stands.

Timber harvest has affected 0.3 percent of the forested lands since the RFP was adopted in 1997. Wildfire has impacted approximately 1200 acres or 0.1 percent of mature forest since 1997. Thus, the combined disturbance since the RFP was signed has been less than one percent. During this same time period, thousands of acres of timber advanced in age with increases in the two oldest age classes (see Table 63 and Figure 73). Overall, the forest is getting older. The least represented age classes in most ecological subsections are the younger age classes. These younger forests are essential so that they can replace the older stands that will be lost due to insect related mortality and/or fire in the coming decades.

Currently, there is adequate habitat distributed across the forest to provide for species associated with late seral vegetation. As shown in the individual monitoring items, the RFP standards and guidelines are currently adequate to maintain habitat for these species. For instance, snags for primary cavity nesting species have increased dramatically with the insect activity in older stands. Over the long-term, however, the lack of disturbance and aging forest stands will negatively affect these same species limiting diversity of structure, patterns, and composition. The only way to maintain habitat for late-seral associated wildlife species is to maintain a mosaic of age and structural classes across the forest. Regenerating stands now would insure that a new forest is available to replace the old stands affected by insects and wildfire.

Aspen is one of the most important wildlife habitats on the Forest. Historic maps show that aspen covered about 20 percent of the Targhee in the early 1900's. Lack of disturbance and livestock grazing has impacted this essential community type. Currently, less than 6 percent of the forest has aspen dominated stands (106,197 acres; FEIS Table III-3). As shown in Table III-3, 92 percent of the aspen is in the mature category. These stands are characterized by old, decadent aspen trees intermingled with conifers (primarily Douglas-fir) that have encroached on the aspen. The conifers shade out the aspen and will eventually replace it by out-competing the aspen for space, light, water and nutrients. Without more active management of aspen stands, the Forest is at risk of losing this important wildlife habitat.

Figure 75: Great gray owlets in a broken-topped snag, one of the many important components of mature, late seral, and old growth stands.



Recommendations

Continue with ASQ harvest on suitable lands to provide wood products to industry and the public. Prioritize projects on suitable lands that are designed to reduce the impacts of bark beetle infestations to maintain late seral vegetation. Consider site-specific projects to reduce insect and disease activity on unsuitable lands where the natural role of insects and disease is interfering with higher priority RFP goals and objectives. The Forest should emphasize wildland fire use and forest management practices to increase the amount of younger age classes to provide for a diversity of habitats for a variety of wildlife species. The Forest should also emphasize the removal of conifers in aspen stands through mechanical harvest or fire to increase and perpetuate this important vegetation type.

Habitat for species associated with sagebrush/grasslands

General ecology of sagebrush in southeast Idaho

On the Caribou-Targhee National Forest, sagebrush and mountain shrub ecosystems are mapped at a very broad scale as "sagebrush steppe" potential natural vegetation type (A.W. Kuchler, 1964). This vegetation type covers the northern portion of the Intermountain Region where sagebrush is co-dominant with perennial bunchgrasses. Approximately forty percent of the 1.8 million acres of National Forest System lands within the Targhee zone of the Caribou-Targhee are classified as nonforested vegetation. The remaining sixty percent is classified as forested vegetation. Of the nonforested vegetation, the sagebrush/mountain shrub vegetation grouping occupies approximately 365,000 acres forest-wide and is dominated by the presence of big sagebrush (*Artemisia*) taxa. At least eleven sagebrush taxa are represented on the Targhee.

In sagebrush cover types other shrubs may be present; however, sagebrush is the prominent shrub and dominates the overstory in later seral stages. Mountain big sagebrush (*Artemisia tridentata*, spp. *vaseyana*, var. *pauciflora*), subalpine big sagebrush (*Artemisia tridentata*, spp. *spiciformis*), and Vasey sagebrush (*Artemisia tridentata*, spp. *vaseyana*, var. *vaseyana*) are considered to be the nucleus of the sagebrush cover types on the Forest. Other sagebrush cover types, though distinct in their ecology, have limited acreages forest-wide. Structure, composition, and patterns of this vegetation grouping are a product of site potential as it is influenced by disturbance (Hironaka, *et al*, 1983; Shiflet, 1994; USDA-FS, 1997).

The composition of the sagebrush/mountain shrub vegetation group should display a balance between the shrub overstory and the herbaceous understory. The associated understory consists of an herbaceous layer of perennial and annual grasses and forbs in varying amounts. Species composition of the understory is strongly influenced by physical and chemical soil characteristics and by disturbances, such as grazing. Both grazing intensity and type of grazing animal affect the species composition (Shiflet, 1994). Some grass species commonly associated with the sagebrush/mountain shrub vegetation type are Idaho fescue (*Festuca idahoensis*), bluebunch wheatgrass (*Agropyron spicatum*), Sandberg bluegrass (*Poa secunda*), mountain brome grass (*Bromus carinatus*), and slender wheatgrass (*Agropyron trachycaulum*) (Shiflet (ed.), 1994). Sagebrush-grass habitat types found on the Forest are described in **Sagebrush-Grass Habitat Types of Southern Idaho** (M. Hironaka, *et al*, 1983). This document includes a comprehensive list of shrubs, grasses, grass-like plants, and forbs that occur in these habitat types.

Sagebrush canopy cover has a direct relationship to herbaceous understory production and seedling recruitment. As sagebrush becomes established in dense stands, production and re-establishment of grasses and forbs are reduced. A variety of factors may contribute to this reduction, including competition for light, water, nutrients, and space. Literature references suggest that when canopy cover on mountain big sagebrush sites approach twelve to twenty percent (depending on the sagebrush species), herbaceous production is restricted, and these sites are essentially closed to recruitment of new herbaceous seedlings (Winward, 1991; Bedunah, 1995; Sturges, 1975). Laycock, *et al*, (1994) reported that once sagebrush canopy cover becomes dense it could dominate a site for long periods of time with little change in range condition. These studies also suggest other shrub-dominated vegetation types react similarly to the sagebrush-grass type. Other studies have found that when big sagebrush canopy cover density is reduced, an increase in herbaceous production occurs (Britton, *et al*, 1978; Blaisdell, *et al*, 1982).

As with forested vegetation, sagebrush species react differently to management and disturbances. For example, some sagebrush species will readily re-sprout after disturbances, such as fire. However, other species rely on seeds from live plants to re-inhabit a disturbed site.

In a review of the literature, Peterson (1995) reported that after treating some sagebrush sites with fire, an initial increase in herbaceous production resulted in a net decrease after eleven years of recovery as sagebrush reinvaded the site. This information implies that results of treatments vary, depending upon the sagebrush species treated and ecological and climatic factors. As herbaceous understory species decline, the fine-fuel component necessary to carry fire into the sagebrush canopy is lost (Young, *et al*, 1978). Sagebrush-grass ecosystems in southeast Idaho and western Wyoming evolved with a natural fire return interval of twenty to forty-five years (Barrett, 1994; Houston, 1973; Blaisdell, *et al*, 1982; Gruell, 1985; Williams, 1995; Wright, *et al*, 1979). Factors, including loss of the understory component, grazing, and fire suppression, have caused stagnant conditions on many sagebrush sites where natural fire regimes have been altered (Winward, 1991; Tausch, *et al*, 1993).

Changes in the sagebrush/grassland communities over time

The Upper Columbia River Basin Draft EIS assessed this vegetation group at a broad scale and determined that the primary cause of departure from historical succession was related to grazing, changes in fire regimes due to suppression, and invasions of undesirable forb and grass species. The results have been lower productivity, higher probability of severe or catastrophic events, and lower similarity to the temporal, spatial, and habitat diversity of the native system (UCRB Draft EIS, 1997).

Current and past fire suppression activities have allowed overstory succession in the sagebrush/mountain shrub vegetation group to progress relatively uninhibited. The rate of return to pre-burn conditions is highly variable after lethal fire because the seeds generally come directly from live plants and are slow to travel far from mother plants. The rate of recovery is largely dependent on protection from further disturbance, sagebrush subspecies, and undefined weather variables that favor sagebrush seedling survival and establishment (Harniss, *et al*, 1973). The

literature suggests the rate of recovery ranges from as little as fifteen years to more than thirty years to achieve full recovery (Bunting, et al, 1987; Frass, et al, 1992; Harniss and Murray, 1973; Sturges, 1975; Bushey, 1986; and Walhof, 1997). In southeast Idaho, it is estimated that it takes approximately twenty to thirty years for sagebrush sites at 0-5 percent canopy cover density to reach greater than 15 percent canopy cover density (Blaisdell, et al, 1982; Project records on file). The range varies with climatic factors, edaphic factors, and plant species. On the Targhee, sagebrush return intervals have been documented to average about 15 to 20 years (Beaver Creek VMP; South Big Holes VMP).

The area occupied by the sagebrush/mountain shrub vegetation group has been diminished due to encroachment from other vegetation types such as Douglas-fir (*Pseudotsuga menziesii*) (Targhee EUI, Beaver Creek VMP, Camas Creek Landscape Analysis). Across the Forest, the sagebrush overstory has become more vigorous and dense, and the understory composition has shifted to less desirable species, including annuals and introduced species in limited areas. This change in overstory/understory composition and structure has resulted in decreased watershed stability on many of these sites and a sparse understory. (See PFC Assessment, Caribou National Forest and Surrounding Areas, 1997).

Targhee RFP direction and consideration of sagebrush/grasslands

At the time the Targhee RFP was being developed, management of nonforested habitats was not a major concern for most land managers or members of the public. Public issues with the revision revolved around timber harvest, access management, and grizzly bears. At the time the Targhee RFP was signed, sage grouse and pygmy rabbits were not a pressing issue for wildlife or vegetation managers, now they are both listed as Forest Service sensitive species. Over the past decade researchers and land managers have become increasingly aware of the decline in some species associated with sagebrush/grasslands. Despite the lack of emphasis at a regional or national scale, the Forest did recognize the importance of diversity in the structure of sagebrush stands. For this reason, the RFP includes direction to strive for big sagebrush canopy coverage distributions on a subwatershed basis as follows: >5 percent of the area in the 0-5% canopy cover class; 75 percent of the area in the 5-30% canopy cover class; 20 percent of the area in the >30% canopy cover class (RFP, III-13).

In the revision, non-forested vegetation was mapped using landsat imagery. The landsat imagery did not classify vegetation by sagebrush species/subspecies or provide information on sagebrush canopy cover classes. The RFP included a monitoring item to attempt to gather this information. This was not done on a forest-wide scale due to lack of funding and other priorities. District rangeland managers have been collecting information on sagebrush canopy cover in association with site-specific projects, however. This information is being used in this evaluation but represents only a small fraction of the non-forested vegetation on the Forest.

Present conditions of sagebrush/grasslands on the Targhee

Forest-wide, the ecological status of the sagebrush/mountain shrub vegetation group occurs in various canopy cover densities. For this analysis, the Forest modified the canopy cover classes included in the RFP to be current with research and management goals. Canopy cover has been broken into four categories: 1) 0-5 percent canopy cover (where sagebrush is essentially absent from the site); 2) 5-15 percent canopy cover density class (where the understory has not yet become affected by sagebrush overstory); 3) 16-24% canopy cover (optimum sage grouse nesting density); and 4) areas with greater than 25 percent canopy cover. These breakpoints between canopy cover densities were used because sagebrush canopy cover densities between 12 percent and 20 percent begin to restrict the the production in herbaceous (forbs and grasses) understory as canopy cover density increases and competes more for space, light, water and nutrients (Winward, 1991). Research also indicates that sage grouse prefer canopy covers between 16-24% for nesting habitat (Connelly et al. 2001; Curlew sage grouse habitat mapping meetings, 2004). These groupings are also consistent with those in the Caribou RFP and Curlew National Grassland Plan.

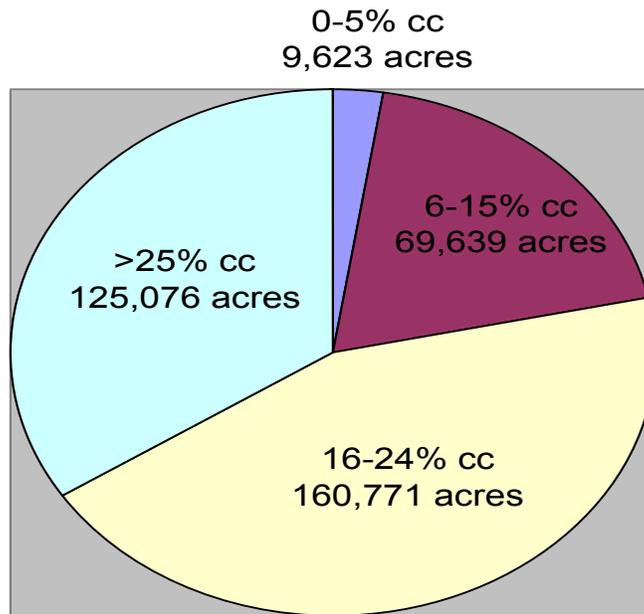
For this evaluation, we started with the acres of sagebrush/grassland habitats in the GIS database. Rangeland managers then estimated the current (2004) percent of sagebrush acres in each of the four categories by subwatershed. The subwatersheds were determined by using 6th level Hydrologic Unit Codes (HUCs). This estimation was based on aerial photo interpretation, on-the-ground knowledge, ocular canopy cover estimates, line intercept data, and review of landscape and watershed analyses. As depicted in Figure 75 and Table 65, below, approximately 77 percent of the sagebrush/grassland habitat on the Targhee is over 15 percent canopy cover. Most of the open sagebrush stands are located on the Teton Basin District where the sagebrush/grassland habitat component is a minor part of the landscape. On the Palisades and Dubois Ranger Districts, sagebrush/grassland

habitats cover over half of the land area and are predominantly in the higher canopy cover classes (16-24% and >25%). All acres are estimations which represent the best available information at this time.

Table 4: Estimates of sagebrush/grassland acres and percentages in each canopy cover class.

	Canopy Cover Class			
	0-5%	6-15%	16-24%	>25%
Acres	9,623	69,639	160,771	125,076
% of Total	3	19	44	34

Figure 76. Acres of sagebrush in each canopy cover class.



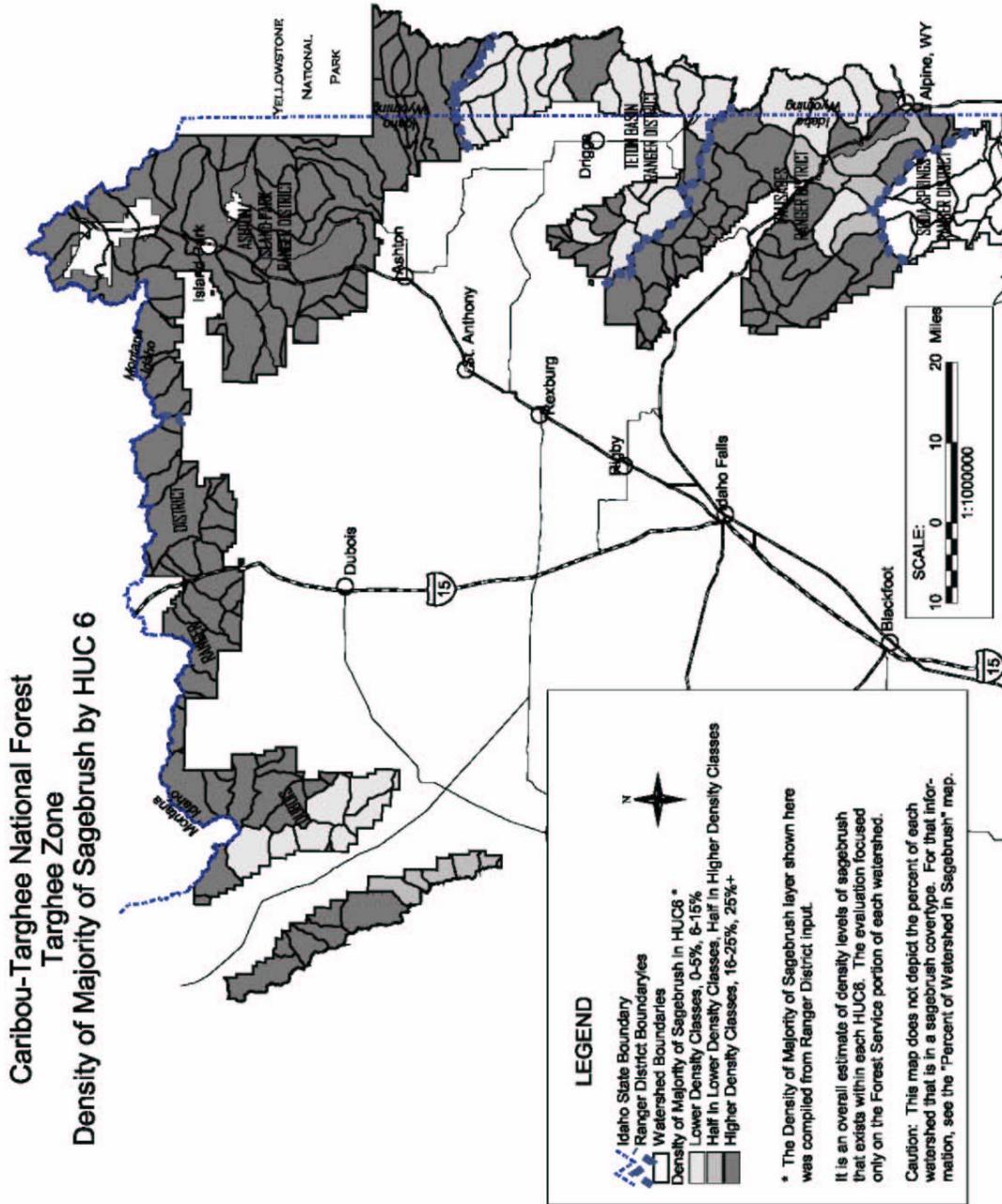
Management of sagebrush/grassland habitats

The Forest has a long history of treating areas to reduce the density of sagebrush canopy. In the early days of range management, treatments were conducted to eradicate sagebrush from sites so that understories could be increased in production and/or diversity. Chemicals such as 2,4-D and diesel were used to eliminate the shrubs from the site. Other treatment methods such as chaining and root ripping were used extensively in the Great Basin but not on the Targhee due to terrain. Prescribed fire was commonly used. In the past three decades, however, methods and objectives have changed. The emphasis now is on creating or maintaining a mosaic of age classes to provide diversity. The predominant method for sagebrush treatment currently is prescribed fire. All burn plans are written to maintain a mosaic of burned and unburned patches within the treatment area. Since the vegetation layer for the Targhee RFP was developed in 1991, approximately 12,645 acres of sagebrush have been treated by various methods. Since the RFP was adopted in 1997, approximately 8,695 acres of sagebrush have been treated on the Targhee. The Dubois Ranger District thinned approximately 1,000 acres of sagebrush on Owen’s Bench in 1999 using tebuthiron (Trade name Spike 20P). In 1995, 300 acres were treated by rotobating in the Horse Creek area of the Dubois Ranger District. Table 67 summarizes this data. Out of the total 365,000 acres of sagebrush on the Targhee, only about 3½ percent has been treated since 1991.

Table 5: Acres of sagebrush treatments by District from 1991 through 2004. All acres are approximate and reflect the burn perimeter if prescribed fire was used, not just the "black" acres. Black acres would be fewer due to the mosaics planned and achieved.

	Dubois	Island Park	Ashton	Teton Basin	Palisades	TOTAL
1991	200	0	0	0	0	200
1992	0	0	0	0	0	0
1993	250	0	0	0	0	250
1994	0	0	0	0	0	0
1995	300	0	0	700	750	1750
1996	1100	0	0	350	300	1750
1997	0	0	0	100	500	600
1998	0	0	0	0	0	0
1999	1400	200	0	900	0	2500
2000	1000	0	0	150	900	2050
2001	1045	0	0	250	1400	2695
2002	400	0	0	0	300	700
2003	0	0	0	0	0	0
2004	150	0	0	0	0	150
Total	5,845	200	0	2,450	4,150	12,645

Map 1: Estimated density of the majority of the sagebrush by 6th Code HUC.



Evaluation of Habitat for Species Associated with Sagebrush/Grasslands

As shown by the literature review and actual data from the Targhee, the mountain big sagebrush in this area has evolved with a 20 to 40 year fire return interval. Thus, the Forest should be treating at least 9,000 acres per year just to maintain this fire interval. Since the RFP was adopted, however, the Forest has been treating approximately 1,000 acres per year. With the low rate of sagebrush treatment occurring on the Forest, sagebrush will continue to succeed to higher canopy cover classes. The Curlew National Grassland FEIS (2002) and Caribou RFP FEIS (2003) both estimated that the canopy cover would increase in density by approximately 1 percent per year. Using this assumption, (Forest VDDT model of sagebrush succession), it is predicted that at the present rate of treatment (1,000 acres/year), 55 percent of the sagebrush/grasslands on the Targhee would be in the greater than 25 percent canopy cover class by 2009 and 76 percent would be in that category by 2014 (see Table 68). Many of these acres would also have an increase in the Douglas-fir component due to the lack of disturbance (Targhee EUI 1999; Beaver Creek VMP EA 1998; Camas Creek Landscape Analysis 1996).

Table 6: Estimated percent of sagebrush which would be in each canopy cover class in 5 and 10 years.

Year	Acres in each sagebrush canopy cover class w/ succession and treatment (% of total)			
	0-5%	6-15%	16-24%	>25%
2004	9,623 (3%)	69,639 (19%)	160,771 (44%)	125,076 (34%)
2009	5,000 (1%)	44,442 (12%)	115,205 (32%)	200,462 (55%)
2014	5,000 (1%)	14,662 (4%)	69,639 (19%)	275,848 (76%)

Mountain brush habitats in some areas are declining due to advancing late seral juniper invasion. Continued decline of mountain brush habitats will reduce carrying capacity on big game winter range, as well as nesting habitat for avian species. Other rangeland cover types, such as mountain mahogany and sagebrush, are trending towards old structural conditions, resulting in reduced understory production. While some cover and forage is provided by older age classes of mountain mahogany and sagebrush, and is required by some species, treatments are needed to provide a better balance of early and mid seral stages of these types to meet other wildlife (USDA-FS, 1997).

These findings for the Targhee rangeland vegetation also correspond with the findings from the Scientific Assessment for Ecosystem Management in the Interior Columbia Basin that found widespread declines in these types. Partners in Flight also concluded that sagebrush shrublands were a high priority habitat for conservation. (See Issue 3, Ecosystem Management, Non-Forested Vegetation for more information.)

Rangeland communities provide a wide array of habitats for a variety of wildlife species found on the Forest. This includes big game animals, native grouse (sage and Columbian sharp-tailed), raptors, and migratory birds such as the rufous-sided towhee and chipping sparrow. Maintaining habitat for these as well as all the other species dependent on these habitat types requires a mosaic of age classes and sagebrush canopy densities across the landscape. Lack of disturbance as is evident in the Targhee canopy cover class distribution will result in less productive understory herbaceous vegetation as well as and less structural and plant species diversity in sagebrush stands. Wildlife species such as the Brewer’s sparrow, that prefer higher canopy coverage and denser stands of sagebrush will benefit from this in the short term. Sage grouse, however, require a variety of canopy coverage classes throughout the year and over the long term, they will be negatively impacted. Two sensitive wildlife species reliant on sagebrush stands are further discussed below.

Sage Grouse Habitat

The greater sage grouse was recently designated as a sensitive species for the Intermountain Region. According to “Guidelines to manage sage grouse populations and their habitats” (Connelly et al. 2000), sage grouse habitat can be separated into three categories: brood-rearing, breeding and winter habitats. Connelly et al. (2000) created guidelines for identifying optimum habitat characteristics. These guidelines represent optimal conditions and due to natural factors, the conditions will change over time on a given area. In order to manage for sage grouse habitat over the long-term, natural succession, natural disturbance, and management must be considered in a landscape context.

Most of the sagebrush habitat on the Forest is used for late brood-rearing habitat. Few areas are suitable for breeding and winter habitat due to elevation, topography, deep snow conditions, and other physical factors. Based on the information regarding sagebrush canopy cover above, approximately 44 percent of the sagebrush on the Targhee currently meets the Connelly et al. (2000) canopy cover guidelines for breeding habitat; 54 percent meets brood-rearing habitat and 88 percent meets the guidelines for winter habitat. The vast majority of this potential habitat, however, is under deep snow in the winter and is not accessible to the birds (Not available for citation).

Based on the average acres of sagebrush treated each year and successional tract described above, by 2014 only 19 percent of the sagebrush on the Forest would meet the Connelly et al. (2000) guidelines for breeding habitat. Only 21 percent would meet the canopy cover guidelines for brood-rearing habitat but 97 percent would meet the canopy cover guidelines for winter habitat. As stated above, most of the sagebrush in the potential winter habitat is under several feet of snow.

As stated previously, it is not possible to maintain canopy cover of sagebrush in optimal conditions over time across the Forest. At the current rate of succession and disturbance, sagebrush habitats are going to increase in canopy cover. These very high density stands would no longer provide optimum sage grouse habitat. In order to maintain current amounts of optimum sage grouse habitat over time, the Forest needs to treat more of the dense sagebrush stands.

Table 7: Percent canopy cover needed for "productive sage grouse habitat" in mesic sagebrush sites. Height requirements are not included because the Forest does not have the data at this time. From Connelly et al. (2000).

Connelly et al. (2000) guidelines for productive sage grouse habitat	Breeding Habitat	Brood-rearing Habitat	Winter Habitat
	15-25	10-25	10-30

Pygmy Rabbit

Pygmy rabbits are associated with sagebrush stands in deep sandy soils, with a tall, dense structure and a high percent of woody cover. According to research on the Idaho National Laboratory (INL) west of the Targhee, the pygmy rabbit is a habitat specialist at the landscape and habitat scale (Heady, Gabler and Laundre, 2000). Pygmy rabbits prefer sagebrush plants at least 50 cm tall in dense clumps. In Green and Flinders (1980) sagebrush density was usually over 25 percent cover where the pygmy rabbit burrows were found. The pygmy rabbit is the only rabbit that digs its own burrows (Utah Division of Wildlife Resources 2003). Burrows are usually associated with deeper, sandy soils at the base of tall big sagebrush plants. In some areas, pygmy rabbit burrows can be found in lava rock piles surrounded by dense sagebrush and they sometimes occupy burrows dug by other animals (Janson 1940; Nowak 1997). In the Blue Springs Hill area of Utah, pygmy rabbit burrows were found in sagebrush stands at the sides and bases of hills (Janson 1940).

Sagebrush is the primary food in the winter, making up 81 to 99 percent of their diet. Grasses and forbs are also eaten in mid- to late-summer. Their summer diet consists of 51 percent sagebrush, 39 percent grasses and 10 percent forbs. (Green 1978, Green and Flinders 1980, Utah Division of Wildlife Resources 2003, Federal Register, Final Rule to List the Columbia Basin Distinct Population Segment of the Pygmy Rabbit 2003, Janson 1940.

Pygmy rabbits do not move far from their burrows to eat, in the winter they rarely move more than 30 yards (Janson 1940; Green and Flinders 1980). The radius of activity increases in response to snow melt and breeding activity (Janson 1940, Janson 1946, Green and Flinders 1978). Pygmy rabbits generally have two litters per year (up to three) with four to six young per litter (McClure 2001). Annual mortality is high, up to 88 percent (Final Rule to List the Columbia Basin Distinct Population Segment of the Pygmy Rabbit 2003). Many predators, both terrestrial and avian, eat pygmy rabbits with weasels being the chief cause of mortality (Janson 1940).

The greatest threat from management to pygmy rabbits is reduction of their habitat. Habitat loss and diminishment of habitat quality has occurred through wildfire, prescribed fire or other sagebrush reductions, farming, human settlement, and invasive species (Hadley 2002; Final Rule to List the Columbia Basin Distinct Population Segment of the Pygmy Rabbit 2003). A new study by the Utah Division of Wildlife is indicating that a lack of age and structural

diversity in sagebrush habitats may be affecting pygmy rabbits. As with the sage grouse, the continued lack of disturbance in sagebrush stands may impact pygmy rabbits negatively over the long term. Understory depletion will affect their summer and fall diet, half of which consists of forbs and grasses. Sagebrush treatment may displace pygmy rabbits, however, they would have ample areas to disperse to due to the small size of treatments and mosaics generally achieved by controlled projects.

Recommendations

Because of the relatively short successional cycle, the sagebrush cover type provides the greatest opportunity for vegetation treatments in nonforested vegetation where it is found to be ecologically sound. The RFP direction to strive for a mosaic of canopy cover classes remains valid. Achieving that mosaic, however, is not likely to occur given current analysis requirements, wildlife species emphases, and budget constraints. Within the context of the RFP direction, the Forest should prioritize sagebrush management. Priority should be given to improving the quality of sagebrush habitats where specifically identified for species of special concern or in a watershed analysis.

Level of prescribed fire use for maintenance of diversity

The overall goal of the RFP is that ecosystems and their components are maintained in properly functioning condition: dynamic and resilient to disturbances to structure, composition, and processes at appropriate landscape scales. Ecosystems are not at risk for disturbances that have the potential to degrade them beyond the point of resiliency and sustainability. Biodiversity is maintained or enhanced by managing as much as possible for a diverse array of habitats tied to natural occurrence and distribution of plant communities.

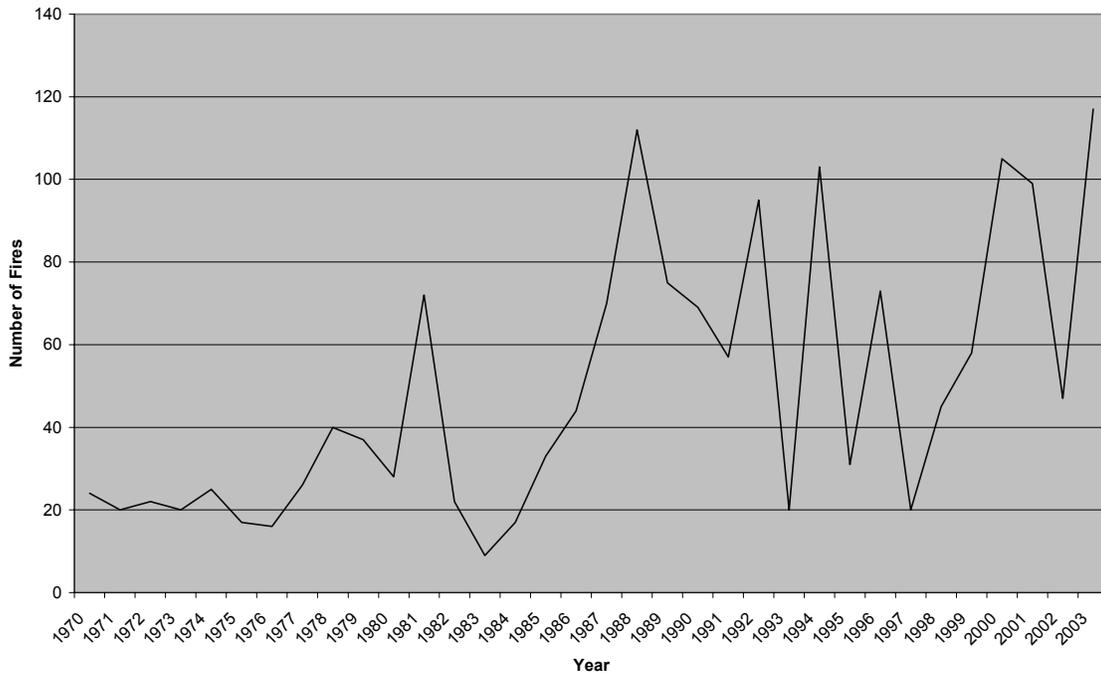
The Targhee RFP included several goals for the fire program, including the use of fire as a tool to move vegetation toward properly functioning conditions. First, the historic role of fire should be identified and efforts made to restore fire as an ecological process, where appropriate, to achieve multiple-use and ecosystem management objectives. Prescribed fire and wildland fire use should be used to achieve desirable soil and habitat characteristics, improve forest health, and create or maintain diversity in vegetative structure, composition, and patterns. In addition, the Forest should suppress fire in a safe, cost-effective manner, where necessary, to protect human life and safety, developments, structures, and sensitive resource values. To aid this, fuel accumulations are reduced and managed within their historic range.

These goals were developed to address the escalating number and acres of wildland fire prior to the development of the National Fire Plan and Healthy Forest Initiative. The Caribou-Targhee fire management group has emphasized fuels management and wildland fire planning in several ways for the last five years. While fuels continue to increase and vegetation continues to move toward older age classes that are more susceptible to fire, Fire management specialists have made some significant strides.

Historic Role of Fire

Back-dating forested stands and reviewing of historic documents indicates that the Lodgepole pine habitats east of highway 93 evolved with stand-replacing fires such as occurred on the Targhee and in Yellowstone National Park in 1988. Fire suppression has changed this natural process. A recent analysis of available wildfire information for the past 34 years shows that wildfire has had little overall affect on vegetation on the Caribou-Targhee. Since 1970, the number of wildfire starts has been increasing. Most of these starts are less than 1/10 acre in size and do not make an impact on the vegetation and associated processes. During the period 1970 to 1979, the average number of starts was 25 per year, during 1980-1989 the average was 48, during 1990-1999 the average was 57 starts and since 2000 there has been an average of 92 starts per year.

Figure 77: Number of fire starts per year from 1970 through 2003.



The number of acres burned is also going up but compared to the amount of Forest land, it would take about 750 years to burn the whole forest if we relied on wildfire to do it at the current rate. The decade from 1970 to 1979 averaged 3,789 acres burned per year. The next decadal average rose to 6,778 acres per year. From 1990 to 1999, the average was only 1,272 acres. In the four years since 2000, we have averaged 3,622 per year. Only fires of at least one acre in size were counted towards the acreage.

The biggest fire since 1970 was the Gallagher Peak fire which burned 37,230 acres in 1979. Fires in the greater than 500 acre class are summarized as follows: in 1981, there were 24,253 acres burned in only 2 fires, in 1987, there were 3,450 acres burned in two fires, in 1988, the forest had 37,907 acres burned in eight large fires, in 1992, there were 4,094 acres burned in four fires, in 1994, there were 3,918 acres burned in two fires, 1996 had only one large fire of 1,069 acres, in 2000 there were 6,812 acres burned in six fires and in 2003, there were 4,613 acres burned on the forest in the Winslow fire (in Idaho) but that fire crossed into Montana and did burn substantially more acreage. Both the number of starts and average acreage burned has increased over the past three decades. There also seem to be more big (>500) fires occurring. Despite this, the number of acres burned by wildfires is still insignificant in terms of total acres of vegetation on the Caribou-Targhee and introducing fire back into the landscape.

Fire Management Planning

The lack of disturbance from fires in the last century has contributed to the increase in total biomass across much of the landscape and also to the rapidly maturing vegetation and the decline in early seral communities. In 2003, fire and vegetation specialists completed a fire condition class map for the Forest. Using the definitions from the National Fire Plan, this interdisciplinary group classified vegetation in terms of its departure from historic fire cycles. In short, Condition Class (CC) 1 means vegetation is within the natural fire regime; CC 2 indicates communities have missed one fire cycle; and CC 3 means vegetation is two or more fire cycles out of historic ranges. Managers mapped these conditions at the 6th code Hydrologic Unit (HUC). According to this draft map, over half of the Forest is in CC 2 and, meaning at least one fire cycle has been missed. For more information on CC's and the National Fire Plan, see the Forest Service website at <http://www.fs.fed.us/fire/> or <http://www.fireplan.gov>. Forest employees also are participating in a larger mapping effort which uses landsat imagery to map vegetation. The "Fire Regime Condition Class mapping effort", commissioned by the State, will depict fire condition classes for all of Idaho. Information from this effort can be used to prioritize fuel reduction treatments. For instance, CC 3 vegetation, directly adjacent to populated areas, should be a priority for treatment. The CC map will also be used to identify projects that fall under the Healthy Forests Restoration Act, passed in November of 2003.

Another significant interdisciplinary effort the Forest has made in fire management is the completion of the first version of the Wildland Fire Use Guidebook, which covers the entire Targhee portion of the Caribou-Targhee National Forest. The Guidebook provides guidance for situations where lightning caused fires are managed to achieve resource benefits, based upon the forest-wide, subsection, and prescription area direction from the RFP. Table 70 shows the acres and percent of each subsection on the Targhee zone of the Caribou-Targhee where Wildland Fire Use may be allowed. It is important to note that wildland fire use may be permissible in an area but many other factors play into the determination allowing a lightning ignition to burn. These other factors include risks to life and property, time of year, seasonal moisture trends, fire severity during that year, other fires currently burning, available resources, social and political concerns, etc. In 2003, the first three "wildland fire use" fires were allowed to burn on the Teton Basin (Fox Fires 1 and 2) and Ashton/Island Park Districts (Hominy Fire). These fires burned a total of 27 acres. In 2004, three wildland fire use fires burned a total of 6.5 acres in three separate fires. More information on Wildland Fire Use on the Caribou-Targhee can be found at <http://www.fs.fed.us/r4/caribou-targhee/fire/fireuse/>

Table 8: Acres by subsection where wildland fire use is allowed.

Subsection Name	Acres where WFU is allowed	Percent of Subsection
Lemhi-Medicine Lodge	183,548	66
Centennial Mountains	93,444	32
Island Park	23,601	7
Madison-Pitchstone Plateau	98,746	68
Teton Range	163,841	80
Big Hole Mountains	211,463	62
Caribou Range Mountains	98,767	50
Total Targhee	873,409	49

Recommendations

Overall, both forested and non-forested vegetation on the Forest is considered outside of historic fire regimes, much of it in fire Condition Class 3. Even though the Forest has developed a consistent prescribed burning program, limited financial and human resources continue to reduce opportunities to only use prescribed fire treatments as a way to address areas on the Forest where fire condition classes indicate a need for management intervention. At the current rate of treatment vegetation will continue to move into higher fire condition classes faster than projects can be designed and implemented. The Fire Use Guidebook provides an opportunity for Forest managers to use wildland fires to re-establish large acreages of CC 2 and CC 3 vegetation into historic fire regime patterns. In the future, prescribed fire treatments will focus on reducing fuel build-up in the wildland urban interface instead of large-scale ecosystem diversity projects. Forest managers should begin now to emphasize the use of wildland fire, as directed by the RFP, to move vegetation closer to historic regimes and conditions. Careful planning and execution will be needed along with the risks and uncertainties that some unexpected losses may occur in the short term in order to meet long term goals of maintaining healthy, sustainable ecosystems.

Habitat data and current species population information

This information is detailed in the individual monitoring item and wildlife program summary sections. Overall, the monitoring information and population data the Forest has indicates that the direction in the RFP is maintaining or enhancing habitat to support viable populations of existing native and desired non-native vertebrate species in the Forest. Based on this data, the Forest has determined that the RFP is sufficient to provide well distributed habitat for reproductive individuals.

Summary and Conclusions

The Forest Leadership Team certifies that, with the planned actions in this Report, the 1997 Targhee Revised Forest Plan will remain a valid and appropriate plan for managing the Targhee portion of the Caribou-Targhee National Forest. The updates to management direction in response to this evaluation will extend the life of the RFP and minimize the need for revision in the future.

Management and Monitoring Summary

One of the most significant needs for change which resulted in revision of the Targhee Forest Plan was to better address wildlife habitat management. The 1985 Plan had emphasized salvage logging of dead and dying lodgepole pine and other commodity resources. By the early 1990's, Forest personnel saw that the management direction should be changed. When the revision was completed and the RFP signed in 1997, four wildlife species were listed as threatened or endangered by the U.S. Fish and Wildlife Service. In 2000, the Canada lynx was listed as threatened. Management activities have focused on aiding recovery of these species. At the time of this Report, one of these species, the peregrine falcon, has been delisted and the others are on the verge of delisting.

Peregrine falcon

One of the reclassification objectives of the Recovery Plan was to have a minimum of seventeen breeding pairs in Idaho, producing an average of 1.25 young each year. In 2004, twenty-six occupied territories were documented in Idaho, producing an average of 1.6 young per occupied territory and 2.3 young per successful territory (Sallebanks 2004). In 2004, the number of occupied territories, number of young per occupied territory, and number of young per successful territory were the highest recorded in the state of Idaho since 1985. In the past two decades, the number of occupied territories on and adjacent to the Forest has grown from one to a high of ten in 2000. In the spring of 2000, the peregrine falcon was removed from the Endangered Species List.

Bald eagle

According to the Pacific States Recovery Plan, the habitat management goal for the portion of the Greater Yellowstone zone that includes the Targhee NF is to have twenty-three nesting territories; this goal was met in 1988. The population has continued to increase, and in 2002, approximately fifty-four nesting territories were documented in this area. Out of the fifty-four nesting territories, twenty have nest sites on the Forest, and another eleven have a portion of the territory on the Forest.

Gray wolf

The Targhee is part of the Central Idaho and Greater Yellowstone Experimental Nonessential Population areas. At the end of 2004, there were 40 identified wolf packs, 30 breeding pairs, and a minimum fall wolf population of 324 wolves in the Greater Yellowstone Population Area. One established wolf pack, the Bechler pack, was using the Forest. At the end of 2004, there were 50 identified wolf packs, 30 breeding pairs, and a minimum fall wolf population of 452 wolves in the Central Idaho Population area. Since wolf reintroduction, no wolf mortality has occurred on the Forest as a result of management activity. No packs have been established on the Forest but wolf activity has been confirmed for the past several years.

Grizzly bear

The grizzly bear has met or exceeded all of the recovery goals identified in the Recovery Plan. In 2003, the Conservation Strategy was finalized in preparation for delisting the bear. The Targhee RFP is currently being amended through the "Six Forest Grizzly Bear Habitat Amendment" to incorporate direction from the Conservation Strategy that is not already included in the RFP. Distribution of grizzly bears is expanding south along the Teton and west along the Centennial Mountain ranges. Since the RFP was signed, the

Bechler-Teton Bear Management Unit (BMU) has been occupied every year and Henry's Lake and Plateau BMU's have been occupied 5 years and 4 years out of the past 6 years respectively. No bears have been killed as a result of livestock interactions on the TNF. Domestic sheep are being moved to allotments outside the Recovery Area and only two sheep allotments remain active within the Targhee portion of the recovery area. With the decommissioning of about 384 miles of road in 1998, all BMUs are meeting road density standards.

Canada lynx

The Forest has conducted winter snow tracking surveys along designated routes to help document the presence and distribution of lynx and other furbearers since 1996. Beginning in 1999 and continuing through 2003, the Forest participated in a national lynx detection survey, using the national lynx detection survey protocol (McKelvey et al. 1999). Four areas of the Targhee and one area of the Caribou were surveyed. Only one Canada lynx hair was detected on the Forest during the surveys, and this was on the Westslope of the Tetons in 2003. The Targhee has funded several studies aimed at better understanding the potential for Canada lynx habitat on the Forest. Since snowshoe hares are the principle diet of lynx, especially for successful reproduction, the Forest has funded two studies to obtain information about snowshoe hare distribution, abundance and habitat use. In 2003, the Forest hosted an interagency lynx coordination meeting in Island Park to discuss lynx habitat mapping, lynx information, and snowshoe hare information for the Caribou-Targhee NF and adjacent BLM lands. This meeting was arranged by the U. S. Fish and Wildlife Service, and included members of the interagency "Lynx Biology Team." In 2003 and 2004 the Forest contracted with researchers to develop models to predict the potential for subalpine fir in the Centennial Mountains and the Plateau areas of the Forest which is primary habitat of snowshoe hares. Based on this modeling and other lynx surveys and data, the Caribou-Targhee National Forest and the Bureau of Land Management made recommendations to the U.S. Fish and Wildlife Service to realign the lynx analysis map units.

While the RFP has a considerable amount of direction for the above species, it also insures habitat protection and enhancement for a host of other species. The RFP has been effective at maintaining security areas and reducing road densities to provide higher quality habitat for big game species. Across the forest, most wildlife managers agree that elk numbers are at all time highs and Idaho Fish and Game has issued permits to reduce populations in some areas. The Forest continues efforts to enhance habitat for trumpeter swans. Several ponds on the Forest provide nesting habitat for these sensitive species. Overall, the monitoring information and population data the Forest has indicates that the direction in the RFP is maintaining or enhancing habitat to support viable populations of existing native and desired non-native vertebrate species in the Forest. Based on this data, the Forest has determined that the RFP is sufficient to provide well distributed habitat for reproductive individuals.

Another of the emphasis items of the RFP is to maintain and enhance habitat for native trout on the Forest. The Targhee has established partnerships with other agencies and a myriad of private organizations to enhance Yellowstone cutthroat trout (YCT) habitat. All of the major streams on the Forest have been surveyed for the presence and condition of native cutthroat. These surveys have identified opportunities for enhancement which are prioritized for action. Several fish weirs have been constructed to restrict non-native trout from migrating upstream into YCT stronghold streams. Other projects such as the Thurman Creek reintroduction project and Garden Creek watershed improvement project have directly improved habitat for these sensitive fish species. The RFP direction for fisheries and aquatic influence zones (AIZ's) is maintaining and, in places, enhancing riparian conditions on the Forest.

One of the most controversial elements of the RFP was to eliminate cross-country motorized travel from 93 percent of the Forest. The RFP also established motorized route densities for each prescription area which led to additional restrictions on motorized use. So far, almost 500 miles of roads have been decommissioned to insure the closures are effective. Motorized user groups have supported the steps the Forest is taking to manage motorized recreation. The Forest continues to upgrade trails and create a balanced network for motorized use. Efforts to educate the public and enforce the Travel Plan have also increased. Despite this, monitoring does show that illegal motorized use is occurring throughout the Forest, especially by off-highway vehicles (OHV's) such as four-wheelers. In the face of declining budgets, the Forest is expanding its partnerships to assist with enforcement and education.

The Forest has turned a corner on forest and rangeland management. Timber harvest and prescribed burns focus now on restoring ecosystem functions, not on producing board feet or forage for livestock. While both of those are legitimate uses and within the Mission of the Forest Service, they are not emphasis items. Instead, treatments focus on ecological restoration and fuel hazard reductions. Historical maps indicate that at the beginning of the 20th century, aspen dominated over 20 percent of the forested acres on the Targhee. As we enter the 21st century, less than 6 percent of the Forest is dominated by aspen and many of those acres are barely holding on. To address this issue, the Forest has successfully used commercial timber harvest, prescribed burning, and hand felling to restore and regenerate aspen. Many of the conifer forests are outside of their natural fire regime and in need of treatment to reduce fuel build-ups. In response to this, we are focusing fuel reduction projects in the urban interface areas such as Island Park and Palisades summer home area. In more remote areas of the Forest we have developed a Guidebook so that we can use wildland fire to meet management goals. These efforts have been successful and in the future we will accelerate these activities.

Invasive, or non-native, aggressive, species are also a threat to forest ecosystem sustainability. Cooperative Weed Management Groups, comprised of private, state and federal resource managers, cover the entire Forest. Rangeland managers use a variety of control methods to combat this threat to our resources.

After the RFP was approved, many of the same issues which the RFP addressed became nationally recognized. In 2000, the National Fire Plan was developed to focus land managers on reducing wildland fire hazards, particularly in and around communities surrounding public lands. The Forest Service developed the Recreation Agenda to improve outdoor recreation settings, visitor satisfaction with facilities and services, and educational opportunities, among other things. The Healthy Forest Initiative and Healthy Forests Restoration Act of 2003 were developed to direct funding and resources at maintaining the health and sustainability of forested landscapes. The Roadless Area Conservation Rule insures that forest managers are considering the value of Inventoried Roadless Areas prior to management activities. In 2003 the Chief of the Forest Service outlined the four biggest threats that forest managers should deal with. All four of these—fire hazard and fuel build-up, unmanaged recreation, invasive species, and habitat fragmentation from loss of open space—are issues that the Targhee RFP addressed in 1997. This Report details how the Forest is being managed in accord with these, and many other, national agendas.

National Forest Management Act Requirements and Certification

As required by the National Forest Management Act (NFMA) this evaluation of the RFP has determined:

- No conditions or demands in the area covered by the Targhee RFP have changed significantly enough to require any revision (36 CFR 219.10(g)).
- While budgets have decreased dramatically, they have not significantly changed the long-term relationships between levels of multiple use goods and services enough to create the need for a “significant amendment” (36 CFR 219.10(e)).
- As is shown in the Accomplishment of Goals and Objectives section of this Report, the Forest has accomplished most of the objectives of the RFP(CFR 36 219.12(k)).
- As shown in the Monitoring Results and Evaluation section of this Report, management Standards and Guidelines have been followed closely. Very few site-specific amendments to allow deviation from standards have occurred and guidelines unless documented are being followed when implementing site specific projects. In eight years of implementing the RFP, all vegetation management projects with a timber sale component have complied with all applicable wildlife standards and guidelines (36 CFR 219.12(k)).
- As shown in the Production of Commodity Resources—Timber Program monitoring, the Forest has been fully in compliance with NFMA requirements for restocking, timber suitability, size limits for harvest areas, and insect and disease activity following management (36 CFR 219.12(k)).

Based on the information in this Report, however, there are changes that need to be made in the Targhee RFP. In the next two years, the RFP will be amended to update the Monitoring Plan, standards and guidelines, and management indicator species. In addition, through the remainder of the life of the Targhee RFP, the Forest will:

- accelerate efforts to reduce hazardous fuels through a variety of treatment methods, particularly in and near interface communities
- increase forested and non-forested vegetation management to move toward more diverse conditions
- continue efforts to enforce the Travel Plan and create a network of roads and trails for all users
- foster more partnerships to further enhance natural resources on the Forest

Planned Actions

None of the monitoring or implementation data showed any Changed Conditions indicating the need for a revision of the Targhee's Revised Forest Plan. Resource specialists in an interdisciplinary setting evaluated monitoring data for each individual program area and recommended changes to monitoring protocols and monitoring items. The interdisciplinary team and Forest leadership team reviewed the recommendations and determined what changes should be made to address resource issues and concerns. These planned actions are explained below. Other changes may be proposed later based on the information in this Report.

Monitoring Plan Changes

As shown in the Budget monitoring item, the Caribou-Targhee is funded at approximately 60 percent of the amount needed to conduct Priority Group 1 monitoring on the Targhee, Caribou, and Curlew zones. The average Budget Line Item (BLI) amount for Forest Plan monitoring is less than expected to do Priority Group 1 monitoring on the Targhee NF alone. In order to accomplish monitoring commitments in the RFP, in the face of static or declining budgets, the Forest must become more efficient and more focused in its monitoring efforts. One way to improve efficiencies is to make all three monitoring plans as similar as possible. This reduces training and reporting costs.

The Forest will propose to replace the detailed Monitoring Plan in Chapter V of the Targhee's RFP with a less detailed and constraining plan. Detailed information, such as protocols, indicators or thresholds, and numbers of transects to monitor, will be converted into a Monitoring Guide. The Monitoring Plan in Chapter V of the RFP will identify the parameters to be monitored along with frequency and other information required by NFMA. The Plan will not include details about how the monitoring will be accomplished, however. By removing this information from the RFP and placing it in a Monitoring Guide, monitoring protocols can be updated and adapted without amending the RFP. This proposal would align Targhee monitoring with the monitoring plans for the Caribou RFP and Curlew Grassland Plan, providing consistency between the three zones. The Monitoring Guide will be adapted to incorporate new methods, more efficient processes, and other information without the need for a Forest Plan amendment each time.

In addition to converting the monitoring plan to a more adaptive and consistent format with the Caribou and Curlew Plans, Forest managers also propose to delete several monitoring items. The rationale deleting the following items are displayed in the previous section on individual monitoring items. Other monitoring items will be replaced with different parameters that are more responsive to monitoring questions. Items proposed for deletion are listed below; the priority group is shown in parentheses:

- Long-term Visual Range in Class I and Class II Airsheds (3)
- Hydrologic Disturbance in Watersheds (2)
- Native Cutthroat Trout Habitat Features—Phase III (1)
- Cavity Nesters (1)
- Red Squirrel Population in Grizzly Bear Habitat (1)
- Recreation-Wildlife Conflicts (2)
- Jedediah Smith Wilderness—Wildlife 1 and 2; Cultural Resources 1 (3)
- Streambank Disturbance/Stubble Height/Channel Stability (Correlation Plots) (1)
- Maximum Created Opening Size (3)

Priority Group shifts will also be proposed for several items. Most of these shifts are reflective of changing policies in Forest management and are needed to focus limited resources on priority areas, and to address changes in the

resources from Forest management activities. For example, the Wilderness monitoring will be shifted from Priority Group 3 to Priority Group 1 to reflect the Forest's commitment to managing the Jedediah Smith and Winegar Hole Wildernesses to national standards. See the section on monitoring items for proposed priority shifts.

In addition, the Forest will propose to add four new monitoring items:

Recreation

- Assess impacts to soils and vegetation off trails.

Photo documentation would be used during watershed assessments and travel plan implementation analyses to document changes in OHV use off-trails

Soils

- Landslides

Surveys of landslides would be used to determine if management activities are causing mass soil movement.

Timber/Forested Vegetation

- Changes in Age Class Distribution by Subsection

Monitoring would determine if management activities and wildland fire use is moving the Forest vegetation toward PFC and improving ecological sustainability. Changes in extent and age-class distribution will be reviewed for aspen and conifers.

- Actual timber harvest in relation to Allowable Sale Quantity (ASQ)

Management Indicator Species List Changes

Management Indicator Species (MIS) are defined as “plant and animal species, communities, or special habitats selected for emphasis in planning, and which are monitored during forest plan implementation in order to assess the effects of management activities on their populations and the populations of other species with similar habitat needs which they may represent” (FSM 2620.5). The role of management indicator species in National Forest planning is described in the 1982 implementing regulations for the National Forest Management Act.

“...certain vertebrate and/or invertebrate species present in the area shall be identified and selected as management indicator species and the reasons for their selection will be stated. These species shall be selected because their population changes are believed to indicate the effects of management activities. In the selection of management indicator species, the following categories shall be represented where appropriate: Endangered and threatened plant and animal species identified on State and Federal lists for the planning area; species with special needs that may be influenced significantly by planned management programs; species commonly hunted, fished or trapped; non-game species of special interest; and additional plant or animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality (36 CFR 219.19(a)(1)).”

The 1997 Targhee RFP selected twenty-three terrestrial or avian wildlife species and habitats as MIS. In this review, the information suggests that some of these species are redundant or not known to be present on the Forest. Still other MIS are not reflective of Forest management activities and do not make good indicators. The majority of these species would still be monitored through Forest Plan monitoring, but they would not be designated as MIS as described above. The rationale for proposing these changes is detailed in the previous section on individual monitoring items and summarized in the table below. This Forest Plan amendment will be proposed in 2007 or 2008, depending on budget and staffing. This amendment will be reviewed using the appropriate environmental analysis as required by the Forest Planning regulations. The Forest will also change the monitoring requirements for MIS in the RFP to allow the use of data and analysis relating to habitat in lieu of population monitoring as provided for in the 2004 Planning Rule (36 CFR 219.14(f)).

Table 70: Management Indicator Species and proposal for changes based on this evaluation.

Management Indicator Species (1997 RFP)	Proposal
Primary Cavity Nesters: Lewis's Woodpecker Red-naped Sapsucker ¹ Williamson's Sapsucker Downy Woodpecker Hairy Woodpecker Three-toed Woodpecker Black-backed Woodpecker Northern Flicker	Delete all eight primary cavity nesters as MIS since it is very difficult or impossible to get population numbers with any current, known monitoring technique.
Standing Dead Tree Habitat	Delete as MIS. Monitor changes in snag densities by using information on pest increases in managed and unmanaged stands.
Grizzly Bear	Retain MIS and monitoring.
Bald Eagle	Retain MIS and monitoring.
Gray Wolf	Delete as MIS because Idaho has exceeded reintroduction targets and very few forest management activities would affect the populations. Keep as monitoring item.
Peregrine Falcon	Retain MIS and monitoring.
Furbearers: Canada lynx Wolverine Fisher Pine Marten	The wolverine, fisher, and Canada lynx are present on the Forest but are in such low densities that monitoring populations would be very difficult. Keep all four furbearers as monitoring items using the furbearer transects and incidental observations and retain pine marten as MIS.
Northern Goshawk	Retain MIS and monitoring.
Forest Owls: Great gray owl Boreal owl Flammulated owl	Delete all three owls as MIS because the practical monitoring method (winter owl calling) does not yield adequate information on <i>populations</i> . Keep all three owls as monitoring items.
Trumpeter Swan	Retain MIS and monitoring.
Spotted Frog	Retain MIS and monitoring.
Common Loon	Retain MIS and monitoring.
Harlequin Duck	Delete as MIS because indicators of recreation use on few streams; known monitoring methods do not show population data. Keep as monitoring item.
Elk Vulnerability and Elk Habitat Effectiveness	Retain as MIS and change reporting to every 5 years
Red Squirrel	Delete as MIS and monitoring item.
Yellowstone cutthroat trout	Delete as MIS but maintain monitoring items. This species is being managed for through RFP direction, including establishment of AIZs, specific Standards and Guidelines, aggressive monitoring, cooperation with external partners, and implementation of meaningful restoration efforts.

¹ The RFP identifies eight woodpeckers: yellow-bellied sapsucker, William's sapsucker, downy woodpecker, hairy woodpecker, three-toed woodpecker, black-backed woodpecker, Lewis' woodpecker and northern flicker. The woodpeckers mentioned in sentence 2 are from Process Paper D. The FEIS and Process Paper D identify the red-naped sapsucker instead of the yellow-bellied sapsucker in the RFP. This is because as the RFP was going to press, the taxonomists separated the yellow-bellied sapsucker and red-naped sapsucker into two different species. This was changed in Process Paper D and the FEIS but not in the RFP. Their habitat and snag requirements are the same, however.

Forest Plan Direction Changes

Goals and Objectives

Insects and Disease

- Insects and disease are allowed to play, as nearly as possible, their ecological role in the environment. (Rx 2.3: Eligible Wild River)

This is not measurable and has no timeframe; therefore this statement should be either a goal or a guideline. All of the other wild and scenic type prescriptions include a guideline for insects and disease. This prescription actually has two guidelines that restrict the conditions under which insect and disease control may be used. In addition, this statement contains similar wording as the Forest-wide goal for insect and disease; therefore it is not necessary in the 2.3 prescription. The Forest will propose to delete this objective.

Caves

- There are currently no monitoring items or objectives for caves.

The Forest will propose to add an objective to develop monitoring plans for all caves that have been determined to be significant under the National Resource Protection Act of 1988 by 2008.

Vegetation and Plant Species Diversity

- By 2007, in cooperation with the Intermountain Research Station, develop a research plan and monitoring plan for each research natural area. (Rx 2.2: Research Natural Areas)

The Forest will propose to reword this objective so that it reflects the need to conduct basic stewardship monitoring for each RNA by 2010. Formal Research and detailed monitoring plans are only possible if a specific research interest is identified for a specific RNA. The Forest will cooperate if a researcher is interested in a RNA and the research is consistent with the Establishment Record for each RNA and Forest Service Manual (FSM 4063.3) direction.

New—III-12 of RFP, 5 should be a goal rather than standard or guideline and also have an objective of acres per year as is previously talked about in this monitoring report..

Fisheries, Water, and Riparian Resources

- Not more than 30 percent of any principal watersheds and their subwatersheds should be in a hydrologically disturbed condition at any one time.

Evaluate this guideline at the appropriate watershed scale for the specific project, be it the principal watershed, principal subwatershed, 5th or 6th level HUC, or other defined area with the Forest boundary.

- Fish habitat improvement projects will emphasize recreational fishing opportunities. (Rx 2.5: Eligible Recreation River)

This is not measurable and has no timeframe. The only specific direction in the prescription related to fisheries is a standard that "Fish stocking of non-native species is allowed." The Forest will propose to delete this objective.

Wildlife

- All wolves found in the wild on the Forest will be considered nonessential experimental animals as defined in the FEIS for the Reintroduction of Gray Wolves...

This is a decision of the US Fish and Wildlife Service, not the Forest Service, and is out of the scope of Forest management. The Forest will propose to delete this objective.

- Develop management plans for any caves, mine shafts, and other suitable habitats where spotted and western big-eared bat species are known to be present.

As worded, this is not an objective. No known habitats are occupied by these bats on the Targhee NF. The Forest will propose to change this wording to "Within three years of finding caves, underground mine openings, and other habitat occupied by spotted or western big-eared bats, develop a management plan."

Recreation

- Delete the Goal on page III-25 that says "Establish a linear capacity for two-way snowmachine trails for purposes of safety and quality of the recreation experience."

While this may provide useful information, it is a capacity setting that would be difficult, if not impossible, to implement because of costs and multiple access to trails. There does not appear to be a safety issue driving the need for this capacity limit at this time. The Forest will address this on a site-specific basis if it becomes an issue in a particular area.

Livestock Grazing

- Establish utilization levels for key browse and grass species in either the AMP or Annual Operating Instructions for allotments in deer and elk winter ranges.

This is not worded as an objective. The Forest will propose to change this to a guideline.

Timber Management

- Design timber management projects to simulate natural patch sizes, patch shapes, connectivity, and species composition and age class diversity.

This is not worded as an objective. The Forest will propose changing this to a goal: "Timber management projects simulate natural patch sizes, patch shapes, and connectivity. Forest vegetation management moves stands towards more natural species composition and age class diversity."

Prescription areas and standards and guidelines

Wilderness

- Change the half-mile of the Fish Lake trail that accesses Yellowstone National Park within Winegar Hole from Prescription 1.1.6 to Prescription 1.1.8.

Currently this trail is in the pristine prescription, Rx 1.1.6, but it is managed (and has been for a long time) as Prescription 1.1.8. This was a mapping error and will be corrected.

Fisheries

- Replace Table on page III-11 with the Riparian Condition Indicators (RCI) displayed in Appendix B of the 2003 Caribou RFP.
- Delete Guidelines 3, 4, 5 on page III-11 and replace them with the two paragraphs located at the bottom of RFP 4-46 of the Caribou Revised Forest Plan to direct the use of Riparian Condition Indicators.

Livestock Grazing

- Range direction on pages III-30 to III-31 will be changed since almost all of the information is covered in the Forest Service Handbooks:
 - Delete 3 (A)
 - Reword 3 (B) to say "Livestock grazing shall be restricted following prescribed or wildland fire use and/or rangeland planting or seeding before seed set of the second growing season, or until the objectives of the treatment are achieved."
 - Delete C(1), C(2), C(4);
 - Retain C
 - Make C(3) a standard on its own
 - Change D to include the footnote that this does not apply to small sized enclosures such as corrals.
 - Delete E because it is in the Forest Service Manual directives
 - Reword F on page III-30 to say that permittees **may** be allowed motorized access to maintain or develop range improvements

assigned in their grazing permits or for other authorized administrative activities

- *G and H deal with heritage resources and Programmatic Agreements. These have been dissolved by the agencies and should therefore be deleted.*
 - *Delete I because it is a duplicate of III-11 therefore is unnecessary*
 - *Delete J because the Forest Service does not use FRES levels anymore. Delete it out of the Management Prescriptions also because it is no longer valid policy.*
- Permittees are allowed motorized access to maintain facilities. AMP's and annual operating plans will include direction that motorized access must be less than 1 to 2 vehicles per week. (S)

Since 1997, this has been interpreted differently on the Districts. Some Districts follow Process Paper M, which explains the details of how the standard should be applied, and some do not. Since this is a standard, and Process Paper M (PP-M) is part of the RFP, a District would have to do a RFP amendment to prohibit access, according to the process outline in PP-M. Permittees have expressed displeasure with the inconsistency of application. The Forest will propose to change this standard to a guideline consistent with the 2003 Caribou RFP: "Permittees may be allowed motorized access to maintain or develop range improvements assigned in their grazing permits or for other authorized administrative activities. AMPs and Annual Operating Instructions should include direction to comply; travel permits should be issued to authorize this use." Stated as a guideline, it would be permissible to prohibit the use without having to amend the RFP.

Timber Harvest

- Include a guideline to allow public firewood gathering, by permit, within 300 feet of an open motorized road.

Guideline would be worded "Woody debris and dead standing snags are available, by permit, within 300 feet of an open motorized road for public firewood gathering unless the area is designated otherwise."

Woody Residue Needs for Wildlife and Soils

- Reword guidance so that it does not apply within 300 feet of an open motorized route.

Fine Organic Matter Retention

- Reword guideline (and monitoring) to measure ground cover.

Guideline would be worded "Maintain ground cover, microbiotic crusts, and fine organic matter that would protect the soil from erosion in excess of soil loss tolerance limits and provide nutrient cycling.

Created Openings

- The Forest proposes to delete the size limit guideline from management prescriptions 5.2.1, 5.2.2, and 5.4. See Monitoring Item for the decision rationale on this item..

Wildlife

- Goshawk Table (RFP III-21): Management season standard in the Nesting Area and Post Fledging Area is Oct-Feb.

According to new research by Susan Patla, the mean fledge date on the Targhee NF is July 15 and the mean date for onset of incubation is May 5 (Patla, 1997). The Forest proposes to change this standard to September through March to be consistent with the Caribou RFP and with Patla's dates. The birds would still have more than a month before incubation and over a month after fledging before management activities could take place.

- Prescription 5.3.5: "...Long-term activities must be concentrated in activity areas on an annual basis between April 1 and September 15. Each activity area shall not exceed 7,000 acres in size. (S)"

The Forest clarified this direction in 1999 in response to an appeal of the Willow Creek Vegetation Management Project. The RFP direction is somewhat confusing and the Forest will clarify this. The management direction does not prohibit activities from September 15 to December 15; instead it places more emphasis on conducting activities during the spring and summer. Outside of these dates, the guideline is used: "Long-term activities should be concentrated in space and be of as short of duration as is practical. (III-148)." The standard and guideline will be clarified.

- The Forest will propose to change the areas on the Palisades and Teton Basin Districts that are currently in management prescription 2.7(a) Elk and Deer Winter Range which does not allow any non-motorized or motorized cross-country travel to 2.7(b) which allows non-motorized cross-country travel and motorized travel on designated routes.

The Fall Creek winter range has a high concentration of lions but hunters cannot use the area because of the access restrictions in management prescription 2.7(a). This has created a conflict with Idaho Fish and Game's desire to reduce predators in the winter range. Idaho Fish and Game has indicated that they are less concerned with human disturbance in the winter range than with predation on wintering deer. The area along the Snake River from Heise to Little Baldy Mountain is also in management prescription 2.7(a). There are no designated routes for winter travel along the corridor. In an effort to reduce non-native trout populations along the South Fork of the Snake, Idaho Fish and Game now allows fishing along this section of the river year-round. The Forest's management prescriptions, however, restricts access to the river for anglers in the winter. Idaho Fish and Game supports this proposal to change 2.7(a) areas to 2.7(b).

- The Forest will propose to either change the 2.7 winter range access management labels or change the travel plan map labels for these areas so that the letter designations match.

On the travel plan maps, the 2.7(a) winter range management prescription areas are labeled with a "B" to show that they are closed to human entry except on designated routes. The winter range management prescription areas 2.7(b) are identified with an "A" on the travel plan to show that they are open to all non-motorized use and motorized on designated routes in the snow season. This difference in labeling has caused confusion both within the Forest Service and with the public.

Miscellaneous

- Hydrologically disturbed definitions will be clarified to discuss recovery time, which types of treatments create hydrological disturbance, address type conversions, and specify that there is room for variation. The guideline will not apply to ski areas, developed recreation sites, utility corridors, or administrative sites.
- Definitions of created openings will be standardized and clarified.
- Definition of elk security cover will be clarified.
- In the RFP, Chapter III, Part 2 – Subsection descriptions and direction, there are maps of each subsection showing the location and acres in management prescription areas. There are errors in some of these maps and tables. The Forest will correct the subsection maps and tables to reflect the management prescription designations as shown on Map 10 and including any amendments from the past seven years.

Watershed Assessment Direction

In the monitoring and evaluation reviews, Forest resource specialists and managers identified several items that should be specifically addressed or inventoried in watershed analyses at the ecosystem scale. These are listed below:

- Hydrologic disturbance in watersheds
- Sagebrush canopy cover categorization
- Dispersed recreation impacts
- Off-trail recreational impacts

- Recreation and wildlife conflicts
- Compliance with travel plan guidance

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