Sawtooth National Forest

Terrestrial Management Indicator Species

Forest Plan 5-Year Monitoring Report (2011)

For

Pileated Woodpecker and Greater Sage-Grouse

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Table of Content

Introduction……..4

Management Indicator Species Monitoring…….5

Forest Plan Monitoring Elements for MIS……...…5

Monitoring Elements and Discussion……..6

Population Data – Pileated Woodpecker...…….....9

Habitat Information – Pileated Woodpecker…..……11

Management Improvements to Pileated Woodpecker Habitat…….……..11

Findings……..14

References……..16

Appendix A – Vegetation Refresh for Forested Vegetation Dataset..…….……...17

Appendix B – Sawtooth MIS Survey Protocols……....20

Appendix C – Project and Management Activity List Relative to Pileated Woodpecker and Greater Sage-grouse Habitats…….…..23

INTRODUCTION

In order to evaluate the effects of management practices on fisheries and wildlife resources, the U.S. Forest Service monitors select species whose population trends are believed to reflect the effects of management activities on Forest ecosystems. These species are termed "management indicator species" (MIS). The requirement for MIS monitoring is outlined in federal regulation 36 CFR 219.19 which states:

> *"In order to estimate the effects of each alternative on fish and wildlife populations, 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."*
>
> *"Population trends of the management indicator species will be monitored and relationships to habitat changes determined."*

To address the requirements at 36 CFR 219.19, the 2003 Sawtooth National Forest Land and Resources Management Plan (Forest Plan) identified two terrestrial wildlife species as MIS: Greater sage-grouse and pileated woodpecker; and included monitoring elements specific to both population and habitat for these MIS.

The pileated woodpecker was selected as an MIS because it is believed to be functionally linked to groups of other species, or families that use source habitat tied to large trees, and old mixed conifers forests that occur across broad elevations and developed under mixed fire regimes, and utilizes habitat components that are considered important for other species utilizing similar habitats.

The Greater Sage-grouse was selected as an MIS because it is believed to be functionally linked to groups of other species, or species that use source habitats tied to sagebrush communities and is considered a sagebrush obligate species.

Table 1 summarizes habitats represented and management concerns for the Sawtooth NF terrestrial MIS.

Table 1. Terrestrial Management Indicator Species – Sawtooth National Forest.

Common Name	Habitat	Management Concerns
Pileated Woodpecker	PVGs 1, 2, 3, 4, 7, 10*	Sufficient large trees, snags, and coarse woody debris.
Greater Sage-grouse	Sagebrush/grassland	Habitat Reduction, Connectivity, and Degradation

*****Potential Vegetation Group(s) (PVGs): *PVG**1***: Dry Pondersoa Pine/Xeric Douglas-fir; *PVG**2***: Warm Douglas-fir/Moist Ponderosa Pine; *PVG**3***: Cool Moist Douglas Fir (can contain aspen and ponderosa pine components); *PVG**4***: Cool Dry Douglas Fir (can contain aspen and lodgepole pine components); *PVG**7***: Cool Dry Subalpine Fir (can contain aspen, lodgepole pine, douglas-fir, and Engelmann spruce components); *PVG10*: Persistent Lodgepole Pine(on the Sawtooth NF, PVG10 provides pileated habitat only where it occurs on the Sawtooth NRA).

This report documents the results of MIS monitoring for pileated woodpecker and greater sage-grouse conducted on the Forest during the first five to seven years of Forest Plan implementation.

FOREST PLAN MONITORING ELEMENTS TO BE ADDRESSED

The 2003 Forest Plan included two monitoring elements specific to terrestrial MIS. Following are the two elements and the associated monitoring questions to be answered through the elements, along with a list of applicable Forest Plan objectives used to help answer the monitoring questions.

Monitoring Element #27 – Terrestrial Management Indicator Species Populations.

-Are management actions maintaining or restoring distribution and abundance of management indicator species? This monitoring element is measured by the Indicator: Population trends and demographic population data.

Forest Plan Objectives Related to Monitoring Element #27:

- WIOB08 - Continue to map locations of species occurrence and habitat for MIS and Region 4 Sensitive Species during fine- and site/project scale analyses. Incorporate information into a coordinated GIS database, including FAUNA (i.e. WILDLIFE) and coordinate with the Idaho Conservation Data Center (Idaho Natural Heritage Program).
- WIOB09 - During fine-scale analyses, identify and prioritize opportunities for restoring degraded MIS and Sensitive species habitat.
- WIOB10 - Update appropriate NRIS database modules for sensitive species' occurrence and habitat on a biennial basis to incorporate the latest field data.

Monitoring Element #28 – Terrestrial Management Indicator Species Habitats.

-Are management actions providing for, or moving toward the extent of vegetative components necessary to meet the needs of MIS species? This monitoring element is measured by the Indicator: Change in habitat acres; change in large tree structure by PVG.

Forest Plan Objectives Related to Monitoring Element #28:

- WIOB03 - Prioritize wildlife habitats to be restored at a mid- or Forest-scale, using information from sources such as species habitat models, and fine-scale analyses. Initiate restoration activities on priority wildlife habitats to move current conditions towards desired conditions.
- WIOB07 - Maintain or restore each PVG in each watershed (5th field hydrologic unit) to provide at least 20 percent of the forest vegetation in the large tree size class (medium tree size class in PVG 10 – Persistent Lodgepole Pine).

- WIOB08 - Continue to map locations of species occurrence and habitat for MIS and Region 4 Sensitive Species during fine- and site/project scale analyses. Incorporate information into a coordinated GIS database, including FAUNA (i.e. WILDLIFE) and coordinate with the Idaho Conservation Data Center (Idaho Natural Heritage Program).
- WIOB09 - During fine-scale analyses, identify and prioritize opportunities for restoring degraded MIS and Sensitive species habitat.
- WIOB10 - Update appropriate NRIS database modules for sensitive species' occurrence and habitat on a biennial basis to incorporate the latest field data.
- VEOB01 - During fine-scale analysis, identify and prioritize areas for regeneration of:
  a) Aspen in both climax stands and as a seral component of coniferous stands
  b) Native herbaceous understory in shrub communities
  c) Woody riparian species
  d) Whitebark pine.
- VEOB06 - Determine high-priority areas for vegetation management actions that restore or maintain vegetation desired attributes.

MONITORING RESULTS DISCUSSION – PILEATED WOODPECKER:

Background - As previously described, pileated woodpecker was selected as an MIS because it is believed to be functionally linked to groups of other species, or families that use source habitat tied to large trees, and old mixed conifers forests that occur across broad elevations and developed under mixed fire regimes, and utilizes habitat components that are considered important for other species utilizing similar habitats. Source habitats[1] for the pileated woodpeckers are generally late-seral stages of the subalpine, and montane community group/types (Wisdom et al. 2000; vol. 3, appendix 1, table 1). Cover types and structural stages that provide source habitat for the pileated woodpecker include: Engelmann spruce-subalpine fir, structural stage old-forest multi-story; and Interior Douglas-fir, Western Larch, and Grand Fir, in the old forest multi-story and old forest single story, structural stages (Wisdom et al. 2000; vol. 3, appendix 1, table 1).

The pileated woodpecker prefers forest types with tall closed canopies and a high basal area. They most often occur in areas of extensive forest or minimal isolation from extensive forest. Canopy covers of less than 40% are less likely to provide large snags, downed wood, and large diameter trees preferred by this family and species. For a forested stand to posses the components to qualify as source habitat for pileated woodpecker, tree sizes within PVGs 1, 2, 3, 4, 7, and 10 must be in the medium or large tree size class; and canopy cover must be either moderate or high for PVGs 2,3,4,7, and 10, and high for PVG 1.

[1] Source habitat is defined as "those characteristics of macro vegetation that contribute to stationary or positive population growth" (Raphael et al. 2001).

Historically, the Sawtooth contained approximately 184,000 acres of pileated woodpecker habitat in 27 watersheds located on the north end of the Forest (Ketchum Ranger District, Fairfield Ranger District, and Sawtooth National Recreation Area). On the Sawtooth National Forest, PVGs 3, 4, and 7 have the structural and compositional capability to develop suitable tree sizes, canopy layers, canopy covers and a mosaic of forest conditions for pileated woodpeckers, under historic disturbance conditions. Under departed vegetation conditions, PVGs 1, 2 and some PVG10 stands also provide source habitat for pileated woodpeckers. Although PVG 10 does occur across the Forest, only those PVG 10 stands located on the Sawtooth NRA provide habitat for pileated woodpeckers. The south end of the Forest (Minidoka RD) neither historically nor currently provides source habitat for pileated woodpecker.

In addition to broad-scale source habitat characteristics, pileated woodpeckers have requirements for habitat features at finer scales. These include large snags or hollow live trees (>53cm [21 in] dbh) for nesting, roosting, or both, and large standing dead and downed trees for foraging (Wisdom et al. 2000). As PVGs 1, 2 and Sawtooth NRA PVG10 stands currently in a departed condition move into more historic conditions, these PVGs will not provide source habitat for this species. Loss of those PVGs as habitat are expected to be offset as other PVGs that historically provided source habitat for pileated woodpecker, continue to progress towards late seral conditions which provide high quality source habitat.

The most significant risk to pileated woodpeckers on the Forest is habitat modification or loss. Changing fire cycles due to long-term fire suppression (resulting in uncharacteristic wildfire) poses the greatest threat to pileated woodpeckers on the Forest. Fire exclusion (i.e. fire suppression) may provide a benefit to pileated woodpecker habitat in the short-term. Eventually, fire exclusion will produce unnaturally dense stand conditions which may allow uncharacteristic fire effects. These conditions are expected to decrease source habitat conditions in the long-term (Filbert 2009 Wildlife Conservation Strategy, pileated woodpecker species paper. p.7). Due primarily to fire suppression practices, natural disturbance regimes have changed across the Forest. This has led to a change in patch size and juxtaposition of tree size classes from historical conditions (Filbert 2010. Wildlife Conservation Strategy Technical Report. P. 19).

Range-wide, timber harvest activities also pose a serious threat to pileated woodpeckers (Bull and Jackson 1995). However, given the limited size of the program on the Forest, timber harvest on the Sawtooth does not pose a serious threat to pileated woodpeckers.

Results for Monitoring Element 27: There are two aspects to monitoring element 27: 1) are management activities maintaining or restoring distribution of Management Indicator Species; 2) are management activities maintaining or restoring the abundance of Management Indicator Species. To address this element, the Forest reviewed data relative to population trends and distribution for pileated woodpecker in occupied habitat on the north end of the Forest, and state-wide trends as reported in the annual Breeding Bird Surveys. Results of this data review are provided below.

Figure 1 below shows current pileated woodpecker source habitat (184,187 acres) and occurrence data on the Sawtooth. Source habitat is widespread across the north end of the Forest and occurrence data shows pileated woodpeckers being detected in all forested PVGs on the north end of the Forest. Pileated woodpeckers have been observed in 26 of the 27 source habitat watersheds on the Forest.

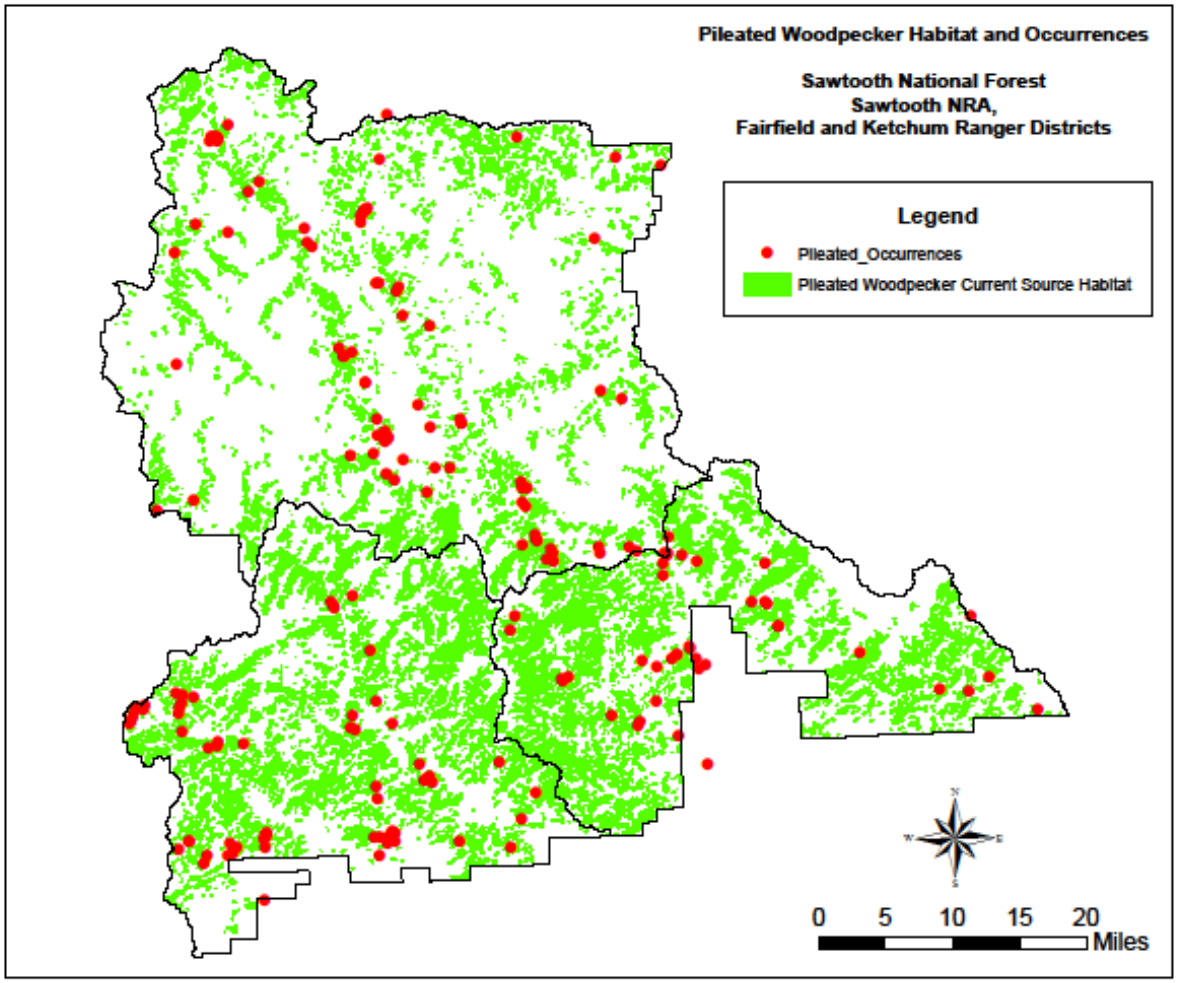


Figure 1. Pileated Woodpecker Modeled Source Habitat and Occurrences.

The Sawtooth adopted the point count method as the survey method to monitor population and distribution of pileated woodpeckers on the Forest (see Appendix B). The point count method is recognized as an efficient and data-rich method of counting birds and is the preferred method in forested habitats or difficult terrain (Ralph et. al. 1993). The level of accuracy of the point count methodology for determining population trends is dependent on random selection of transects within suitable (historic and current) habitats, the number of points surveyed annually, and the number of years that data is collected. While survey data from the first five years of monitoring may give some indication of population trend, it may take five more years of data collection to

be able to make a statistically reliable assessment of a population trend. The longer the time period (# of years) the more likely that major changes in habitat can occur and therefore affect the population trend estimate.

Pileated woodpecker surveys involving permanent point counts have been conducted annually since 2004 along established transects throughout the north end of the Sawtooth.

Survey locations were identified in both potential and existing suitable habitat across the pileated woodpecker historic range on the Forest. Between 340 and 370 survey points have been consistently surveyed each year. In addition to bird presence, habitat information is collected at each point in the form of vegetative structure. Vegetative structure is collected: a) within a 100 meter radius of each point, b) within a 30 meter radius of each point, and c) within a 15 meter radius of each point. The results of the annual surveys are shown in Table 2 below.

Table 2. Number of Individual Pileated Woodpeckers Observed per Year on the Northend of the Sawtooth National Forest on Established Transects.

Year	2004	2005	2006	2007	2008	2009
Individuals Observed	6*	17	7	16	12	12

*The number of pileated woodpeckers counted in 2004 was reported incorrectly in the 2004 monitoring report. Other bird species counted along the survey transects were inadvertently included in the 2004 pileated woodpecker numbers.

As shown in Table 2, counts on the Forest ranged from a low of 6 in 2004 to a high of 17 in 2005. A number of factors could have contributed to the lower counts observed in 2004 and 2006, including timing, weather influences, etc. Using both the occurrence data and the point count survey data, early indications are that pileated woodpecker populations on the Forest are relatively stable. In addition to the Forest specific data, each year the North American Breeding Bird Survey (BBS), a cooperative effort between the U.S. Geological Survey's Patuxent Wildlife Research Center and Environment Canada's Canadian Wildlife Service, monitors the status and trends of North American bird populations. Pileated woodpeckers are one species of bird monitored annually by the BBS. BBS data analyses suggest that pileated woodpecker populations have increased throughout their range (Sauer et al. 2008). Western BBS Region data show a modest annual increase of 2.2 percent (n = 320 routes, p = 0.0017) between 1966 and 2007. Idaho data show an annual increase of 2.0 percent (n = 18 routes, p = 0.365) during the same period.

Findings: The purpose of collecting point count data annually is to establish a population trend with a relationship to management activities. A statistically valid population trend prediction is not yet possible based on the amount of data currently available. However, Point Count Survey data gathered between 2004 and 2009 indicates that the population trend for pileated woodpecker on the Forest is relatively stable. While this estimation is similar for population trends across

Idaho based on the BBS, additional years of survey data are necessary to make a definitive call on population trend. Similarly, point count survey data and occurrence data indicate that pileated woodpeckers are well distributed throughout their habitat on the Forest. This estimate is based on the information that pileated woodpeckers have been observed in 26 of the 27 source habitat watersheds on the Forest. This species does not appear limited by dispersal across the Forest.

Need for Change: Based on the results of monitoring element 27, there are no identified needs for change in Forest Plan direction relative to pileated woodpecker populations.

Results for Element 28: The key aspect of this monitoring element is a determination as to whether management actions are providing for, or moving toward the extent of vegetative components necessary to meet the needs of MIS species. To address this element, the Forest looked at data relative to management activities implemented on the Forest under the direction of the 2003 Forest Plan (See Appendix C for Project List), as well as natural occurrences, i.e. wildfire and bark beetle outbreaks, that have occurred since 2003.

The Sawtooth National Forest provides approximately 184,000 acres of habitat for pileated woodpeckers. Since the analysis for the 2003 Forest Plan was completed, a measurable amount of forested PVGs, including those stands that provide pileated woodpecker habitat, have been affected by historic stand-replacing wildfires, insects and disease attacks, and to a lesser degree, management activities (i.e. timber harvest, fuels reduction treatments, fire exclusion, and vegetation manipulation treatments). For example, approximately 63,000 acres have been impacted on the Forest by mountain pine beetle in the last decade. While not all of these acres would qualify as pileated woodpecker source habitat, it is an indication that habitat has been affected by mountain pine beetle mortality. Because of these changes, the Forest initiated the *Vegetation Refresh for the Montana Forested Vegetation Dataset* in 2008 (See Appendix A for variables considered and changes made to PVGs). The "refresh" modified both tree size and canopy cover relative to fire severity and mountain pine beetle mortality. The "refreshed" data show that reductions in tree size class and canopy cover reduced the amount of pileated woodpecker habitat on the Forest.

In addition to the Vegetation Refresh process, the Forest began work on development of a Wildlife Conservation Strategy (WCS) for forested communities to address Forest Plan objective WIOB03 - *Prioritize wildlife habitats to be restored at a mid- or Forest-scale, using information from sources such as species habitat models, and fine-scale analyses. Initiate restoration activities on priority wildlife habitats to move current conditions towards desired conditions.* As part of the WCS process, the Forest updated the multi-scale analysis completed for the 2003 Forest Plan. Through the WCS process, it was determined that some changes in Forest Plan direction were needed to address changes in Forest conditions, to reflect best available science

and to build upon the Utah and Idaho Comprehensive Wildlife Conservation Strategies (Idaho CWCS; IDFG 2005 and CWCS; UDWR 2005) which were developed after completion of the 2003 Forest Plan. In particular, it was determined that WIST01, which required that the Forest maintain at least 20% of the acres within each forested PVG found in a watershed (5th field HU) in large tree size class (medium tree size class for PVG 10, persistent lodgepole pine), is no longer an appropriate "threshold" for conservation of wildlife habitats in the large tree size class. Through the WCS, this standard will be replaced with standards that focus on size class, canopy cover and composition specific to individual PVGs identified to be in need of restoration rather than a one-size fits all standard.

As part of the Forest's annual monitoring program, the Forest has reviewed several vegetation management projects that have been implemented within pileated woodpecker habitat. Many of these projects, such as the South Fork Boise River Ponderosa Pine Thinning project, included wildlife habitat improvement objectives. The review process showed that the projects were successful in moving vegetative conditions towards desired condition and that mitigation measures designed to reduce impacts to wildlife species and habitat as well as applicable Forest Plan direction relative to wildlife management was implemented.

The majority of vegetation management projects implemented on the Forest since 2003 included a fuels reduction objective. Projects with a specific objective to reduce fuels to provide defensible space to structures and private property can negatively impact pileated woodpecker habitat through a reduction in habitat components such as large trees and snags, and a reduction of coarse woody debris. These projects have had design input by wildlife biologists to minimize any potential impacts to pileated woodpecker habitat. Timber harvest, fuels reduction, and vegetative manipulation treatment projects have been designed to minimize adverse impacts to pileated woodpecker source habitats and to ensure that long term habitat components will develop over time.

From 2003 to 2010, approximately 54 acres of pileated woodpecker habitat on the Forest were treated mechanically to reduce fuels and decrease the potential fire severity. These projects include: Inlet Salvage Sale (Sawtooth NRA 2005), Valley Salvage Timber Sale (Sawtooth NRA 2006), Stanley Lake Salvage (Sawtooth NRA 2007), Warm Springs Timber Sale (Ketchum Ranger District 2007), and Smoky Pine #3 Timber Sale (Fairfield Ranger District 2009).Through design input from District Wildlife Biologists and incorporation of applicable Forest Plan direction, these treatments either maintained or improved pileated woodpecker habitat.

In addition to mechanical treatments, approximately 1,694 acres of pileated woodpecker habitat was treated using either Rx fire or wildfire use for resource benefit from 2003 to 2010. These treatments include: Kale Creek Rx Fire 2004 (Ketchum Ranger District), Barker Marsh wildfire use for resource benefit Fire 2005, Lime Creek 2007 and 2008 (Fairfield Ranger District), and Phillips Creek Rx Fire 2009 (Fairfield Ranger District). Similar to the mechanical treatments,

input from District Wildlife Biologists as well as Forest Plan direction was used to either design and/or manage these fires.

Since 2003, the Forest has had several wildfires burn within potential pileated woodpecker habitat. A total of 78,242 acres of forested lands on the north end of the Forest were affected by wildfire between 2003 and 2010. These wildfires include the Valley Road, Trailhead, Castle Rock, South Barker, and Trail Creek fires. Within these burned areas, approximately 21,000 acres in PVGs 1, 2, 3, 4, 7, and 10 burned at high severity. High severity fires are considered to be stand-replacing and therefore represent a long-term loss (>15 years) to pileated woodpecker habitat. Approximately 54,000 acres were determined to have burned within the low and moderate Severity categories. These acres would be considered as either maintained or a short-term loss (<3 – 15 years) to pileated woodpecker habitat based on burn patterns, etc.

In addition to activities or natural occurrences that directly affect forested vegetation, human use of roads and trails can potentially affect pileated woodpeckers and their habitat. High road densities may limit the development of suitable habitat characteristics in pileated woodpecker source habitat by promoting snag removal, habitat fragmentation, and recreational activities. In addition, high levels of human activity associated with road and trail use can cause pileated to leave roost trees. In 2008, the Forest completed a revision of its summer use Travel Management Plan. Implementation of the 2008 Travel Management Plan is improving the effectiveness of pileated woodpecker habitat on the Forest through elimination of motorized cross-country travel, closure of non-system roads and trails, and designation of motorized travel routes. These management actions will help in decreasing the potential disturbance of pileated woodpeckers and their source habitats (e.g. reduce snag cutting activities). The reductions in road and trail densities associated with the 2008Travel Plan should result increased pileated woodpecker habitat effectiveness.

From 2003 to 2010, a total of 2,617 acres within pileated woodpecker habitat were identified as having populations of invasive plants. Invasive plant species compete with and can replace native plant species, thereby degrading the environmental condition of pileated woodpecker habitats. The Forest does have an active noxious weed treatment program and treats as many acres of known infestation as possible. However, funding constraints do not allow for all known infestations to be treated annually. Forest -wide, noxious weed infestations are evaluated annually; new infestations are identified, mapped and treated while previous infestation sites are revisited, evaluated, and treated as needed. Treatment areas are prioritized annually with highest the priority assigned to those areas previously treated in an attempt to eradicate treated populations, followed by newly identified individual plants or populations in an attempt to keep them from becoming an established infestation. Treatment applications include herbicide spraying, mechanical/physical, or bio-control. As these acres are treated, the threat of additional degradation to pileated woodpecker habitat is removed from those areas. Due to the small amount of pileated woodpecker habitat containing noxious weeds, less than 2% of the Forest's total pileated habitat, and that the Forest is treating noxious weeds every year, it is concluded that

noxious weeds are having a minimal amount of habitat degradation on pileated woodpecker habitats.

Findings: As previously described, changing fire cycles due to long-term fire suppression (resulting in uncharacteristic wildfire) poses the greatest threat to pileated woodpeckers and their habitat on the Forest. The Forest does have an active vegetation management program and is making progress towards goals and objectives for developing the extent of vegetative components necessary to meet the needs of MIS species. Overall, from 2003 to 2010, vegetative manipulation projects and management activities have had a positive effect on pileated woodpecker habitat on the Sawtooth National Forest. As previously stated, the Forest is in the process of developing a Wildlife Conservation Strategy (WCS) in accordance with Forest Plan objective WIOB03. Through the WCS process, it was determined that some Forest Plan direction relative to wildlife habitat associated with forested communities, including standard WIST01, was no longer appropriate considering best available science. Through the Forested WCS, the Forest Plan will be amended to include direction to focus restoration in forest stands classified as "large tree size class" and "medium tree size class" to promote desired old forest habitat or large tree stand conditions and to reduce hazards and risks to these habitats. This amended direction will benefit pileated woodpeckers.

In addition to needed changes in management direction identified in the WCS, it is recognized that much of the Forest is not adequately covered by a MIS associated with forested habitats. Therefore, there is a need to add an additional MIS. To address this concern, it is recommended that the Forest add Northern goshawk as an MIS and results of population trends be analyzed and reported in the next 5-year monitoring and evaluation report. The Northern goshawk, an R4 Sensitive species, does have habitat distributed across the entire Forest. The Sawtooth has been annually monitoring goshawk nesting territories and collecting nesting habitat data across most of the Forest.

MONITORING RESULTS DISCUSSION – GREATER SAGE-GROUSE:

Background: As previously stated, Greater Sage-grouse was selected as an MIS because it is believed to be functionally linked to groups of other species, or species that use source habitats tied to sagebrush communities and is considered a sagebrush obligate species. Sage-grouse are also considered a landscape scale species, in that their seasonal habitat requisites vary, even within predominantly shrub-steppe habitats. Lek sites, where males display during the breeding season, are characterized by low, sparse vegetation or bare ground. Nesting habitat is typically characterized by moderate sagebrush canopy cover (generally ranging from 15-25 percent) and an herbaceous understory of native grasses and forbs. During brood rearing, hens and their broods typically inhabit wet meadows and other mesic sites supporting a variety of forbs. In general, winter habitat consists of denser sagebrush communities where sage-grouse can forage

on sagebrush that is exposed above the snow. Sage-grouse select winter use sites based on snow depth and topography to access sagebrush. Sagebrush heights of 25-30 cm (10-12 in) and canopy cover of 10-25 percent, regardless of snow cover, are important for winter use by Sage-grouse.

Greater Sage-grouse source habitats include two of the three structural stages described for big sagebrush and mountain big sagebrush (*open canopy*, low-medium shrub; and *closed canopy*, low-medium shrub) and low sagebrush (0-10% canopy cover; and 11-20% canopy cover) (Wisdom et al. 2000; Vol. 3, appendix 1, table 1). These source habitats also typically include an understory composed of native grasses and forbs, particularly in nesting and brood-rearing habitats. Greater Sage-grouse also rely heavily on shrub/herbaceous wetland/riparian habitats in close proximity to sagebrush habitat, where native forbs provide spring and summer food for hens and their broods. In addition, special habitat features for this species include the need for large landscapes with a juxtaposition of habitats, presence of a native herbaceous understory, and access to succulent forbs (Connely et al,. 2000).

Current estimates are that the Sawtooth contains approximately 563,000 acres of sage-grouse habitat. As described in the 2008 MIS supplement to the Forest Plan Final Environmental Impact Statement:

> "Sixty out of 64 watersheds on the Sawtooth provided some degree of source habitat historically, although not all sagebrush acres may have been occupied by sage-grouse. The northern portions of the Sawtooth National Forest (i.e., Fairfield and Ketchum Ranger Districts and the Sawtooth National Recreation Area) have always been composed primarily of vegetation communities that do not provide suitable habitats for Greater Sage-grouse. Thus, Greater Sage-grouse populations have probably always been small, if existent at all, within these areas. Those populations that did occur were likely restricted to isolated patches on a seasonal basis. Conversely, suitable habitats for Greater Sage-grouse were historically abundant throughout the southern portions of the Sawtooth National Forest (i.e., the Minidoka Ranger District). Therefore, divisions within this District likely contributed to large and widely-distributed populations of Greater Sage-grouse." (MIS Supplement, 2008, pg. 12)

The current estimate of sage-grouse habitat on the Forest is based on modeled landsat data. Field review of this data indicates that the model may have over-estimated acres of low sagebrush in the low and moderate canopy cover classes. The Forest is currently conducting an intensified inventory of non-forested vegetation across the Forest. Data collected though this effort will be used to develop a new, more accurate non-forest vegetation layer. The inventory and associated mapping projects are anticipated to be completed in late 2012 to early 2013. Data from this effort will be used to update sage-grouse habitat layers on the Forest.

While the majority of sage-grouse habitats on the Sawtooth NF are for used brood-rearing, the Minidoka RD does contain historic and current leks, nesting, brood rearing (riparian and upland summer), some limited winter habitat on the Cassia and Black Pine Divisions, and late summer and fall habitats. In 2006, the Idaho Department of Fish and Game (IDFG) completed the "Conservation Plan for the Greater Sage-grouse in Idaho" (2006 Conservation Plan). This plan included identification of key habitats, defined as areas of generally intact sagebrush that provide sage-grouse habitat during some portion of the year (2006 Conservation Plan, p.3-13), for sage-grouse across the State. Sage-grouse "key habitat" is derived from the BLM's Sage-grouse Habitat in Idaho data set. Much of the habitat on the Minidoka RD is identified as "key habitat". In contrast, the 2006 Conservation Plan did not identify any key habitat on the north end of the Forest (Ketchum RD, Fairfield RD, and Sawtooth NRA). Updates to the BLM/Interagency Sage-grouse Habitat in Idaho data set completed since the 2006 Conservation Plan shows that there is a small amount of key habitat on the Ketchum and Fairfield RDs (USDI BLM 2010). Future updates will likely identify the key habitat that remains in the Sawtooth NRA. This habitat is late brood rearing habitat. The habitat on the north end of the Forest is at the edge of the range of sage-grouse and contains areas where there is overlap between sage-grouse and Dusky grouse. Except for three historic leks in the Sawtooth Valley (Sawtooth NRA), there are no known leks on the north end of the Forest. However, there are a number of leks within 5 miles of the southern boundary of the Fairfield and Ketchum RDs.

Relative to population trends, declines in Greater Sage-grouse populations have been documented range-wide, with estimates of 45%-80% since the 1950's (Braun 1998). Broad-scale monitoring of sage-grouse populations in Idaho did not begin until the 1960s. Similar to range-wide trends, statewide sage-grouse populations showed an overall declining trend from1965 to 2003(2006 Conservation Plan, p. 1-10). Reasons for the declining trend are thought to be from cumulative factors, particularly the reduction of sagebrush habitat due to wildfire, changes in natural fire frequencies related to annual exotic grass invasions, West Nile virus, agricultural and urban development, and mining. Other factors include habitat degradation resulting from livestock overgrazing, hydrological alterations affecting brood rearing habitat, fences, powerlines, windturbines, etc. (Wambolt et al. 2002, Connelly et al. 2000, Braun 1998).

The IDF&G completed a sage-grouse management plan in 1997 in part to address concerns over declining sage-grouse populations. The 1997 Plan included dividing the state into sage-grouse management areas, and called for the creation of Local Working Groups (LWG) that would develop sage-grouse management plans for each of Idaho's sage-grouse planning areas. These working groups were tasked with working with, and through, the appropriate federal and state agencies, landowners, and regulatory processes to implement the conservation measures/actions identified in their LWG plans to reduce, eliminate, or mitigate identified threats to sage-grouse and sage-grouse habitat. The 2006 Conservation Plan maintained these LWGs, describing them

as the heart of Idaho's sage-grouse conservation strategy, and included a goal to establish LWGs in sage-grouse planning areas that did not have them. Through the 2006 Conservation Plan, the North Magic Valley[2] and the South Magic Valley LWGs were established. Sage-grouse habitat in the Cassia, Albion, & Black Pine Divisions of the Minidoka RD falls within the South Magic Valley Sage-grouse Planning Area (SMVPA). A very small portion of the Fairfield and Ketchum RDs falls within the North Magic Valley Sage-grouse Planning Area (NMVPA). The Sawtooth NF is an active participant in both the North Magic Valley and the South Magic Valley LWGs. In addition to developing conservation and management plans for sage-grouse populations within their respective planning areas, the LWGs conduct population and habitat monitoring, as well as complete habitat improvement projects.

The Raft River Division of the Minidoka RD is located in Utah. Similar to Idaho, the Utah Greater Sage-grouse Management Plan (2009) established 13 sage-grouse management areas with associated local working groups tasked with developing management plans for their respective management area. While the Utah LWGs are not as well organized as the LWGs in Idaho, the groups have coordinated monitoring efforts since their establishment. The Raft River Division falls within the West Box Elder Adaptive Resource Management Area (WBEARMA) LWG.

Results for Element 27: There are two aspects of this monitoring element: 1) are management activities maintaining or restoring distribution of Management Indicator Species; 2) are management activities maintaining or restoring the abundance of Management Indicator Species. To address this element, the Forest looked at data relative to population trends for Sage-grouse across the Forest and occupied habitat on the Forest. Results of this data review are provided below.

Greater Sage-grouse populations on the Forest are assessed annually using the following techniques and information. **1**) Presence/Absence Data of breeding season activity, **2**) Counts of the number of male Sage-grouse using those breeding season areas, **3**) Use of lek site data from the Idaho Department of Fish and Game, **4**) General Observations, **5**) Occurrence data used from other agency radio-collar studies to determine when Sage-grouse are on the Forest. The majority of the Forest's sage-grouse population data is collected by IDFG through annual lek route surveys. IDFG, with the LWGs, also conduct surveys at leks not associated with designated routes. Data from these surveys is used to help further define distribution and serve as a backup to annual lek route data in determining trend. Annual sage-grouse lek surveys are the main population estimation technique used by the IDGF and LWGs (See Appendix B for the Sage-Grouse Lek Routes Protocol). The number of additional leks surveyed each year by the LWGs is determined by the level of resources available (i.e. financial, personnel, logistical). This situation causes varying levels of intensity of lek monitoring from year to year. However, each

[2] The 2006 Conservation Plan originally called for the creation of the East Magic Valley and the West Magic Valley Planning Areas. These two planning areas were combined to form the North Magic Valley Planning Area.

LWG does have a number of lek routes that have been consistently monitored each year since at least 2004. Information from these routes can be used to estimate population trends. When reviewing lek route data, it is important to understand that daily attendance of sage-grouse at lek locations and the ability to detect birds can be influenced by variables such as weather, time of day, the presence of predators, and other factors.

Figure 2 below displays source habitat and occurrence data for sage-grouse on the north end of the Sawtooth. Lek site locations shown in this figure and Figure 4 are based on Idaho

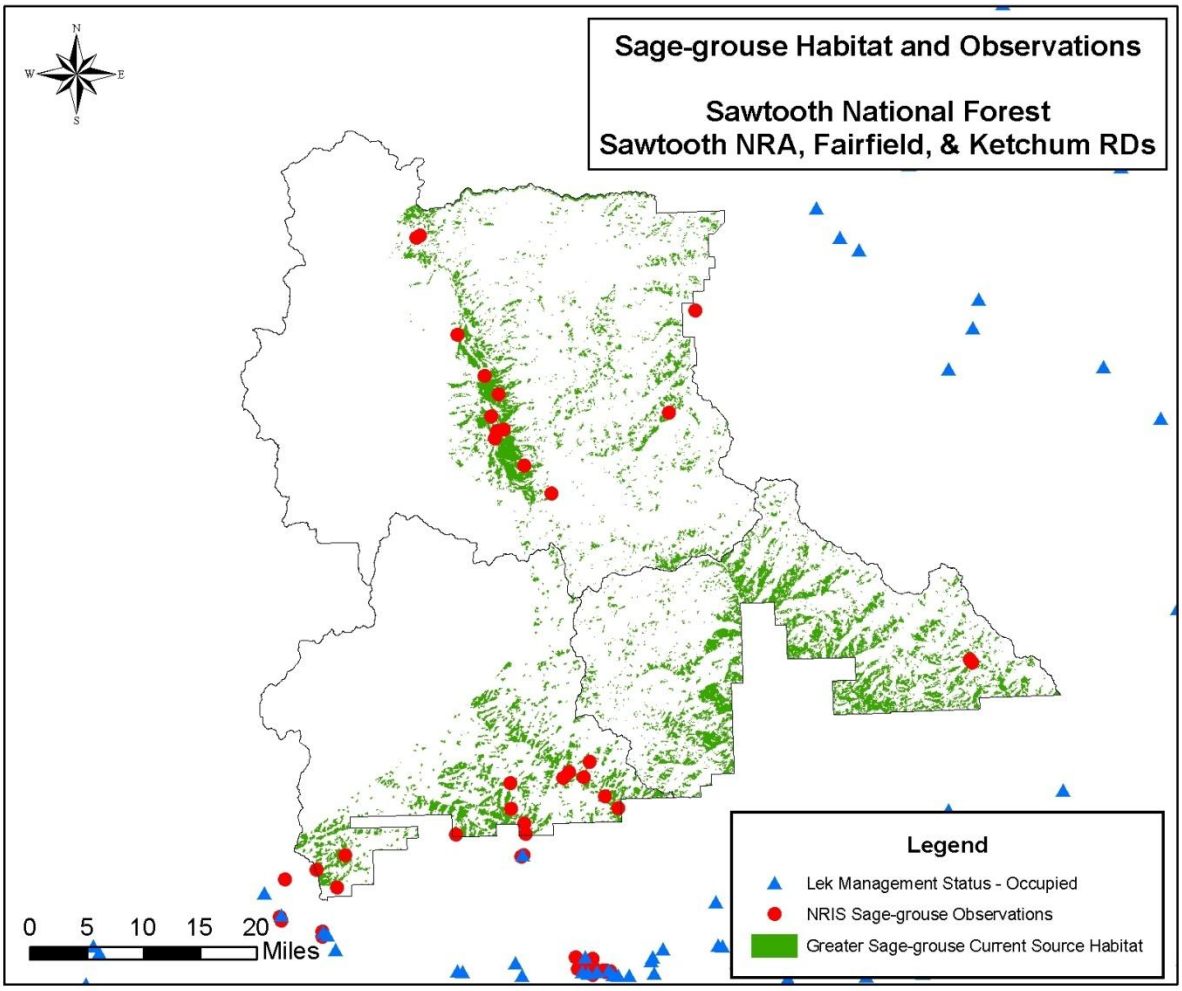
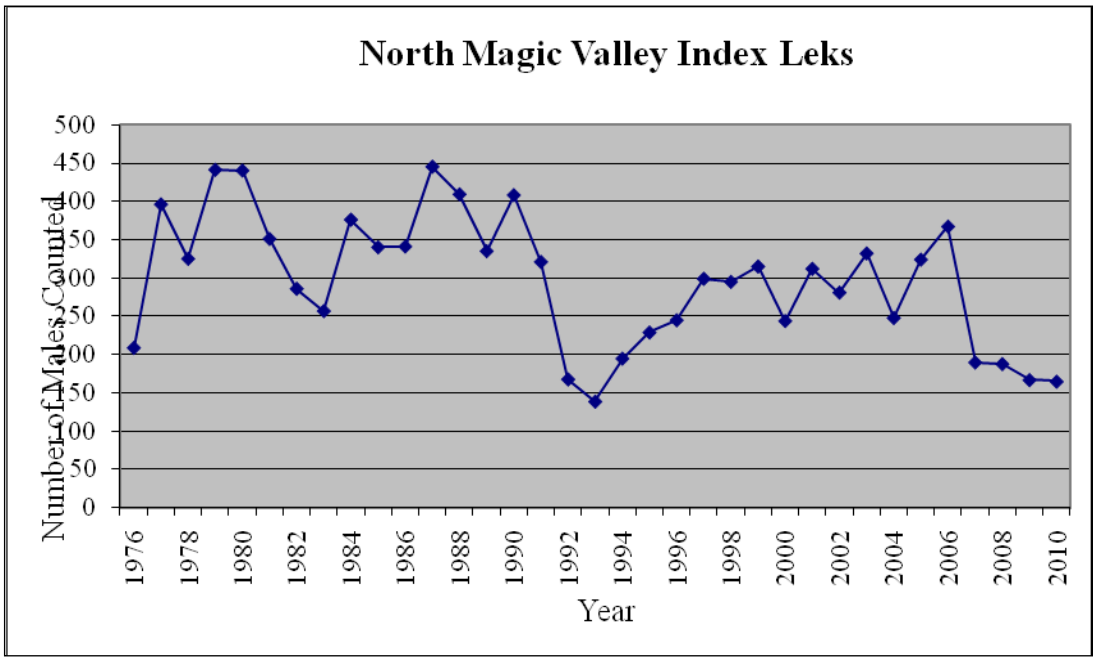


Figure 2: Greater Sage-grouse Source Habitat on the Fairfield & Ketchum Ranger Districts and Sawtooth National Recreation Area

Department of Fish and Game (IDFG) data. Lek Management Status – Occupied: is defined by the IDFG as a lek that has been active during at least 1 breeding season within the prior 5 years. As displayed in Figure 2, no known leks occur on national forest lands on the north end of the Sawtooth. Although there are no known lek sites located on the north end of the Forest, there are

eight consistently run lek routes conducted in the NMVPA. Two of these lek routes are within 2 miles of the Forest boundary and four within 20 miles. As such, data from the lek sites located south of the Forest boundary can be used to estimate population trends on the north end of the Forest. Sage-grouse population data specific to routes monitored for the NMVPA is summarized in Figure 3.

Figure 3. Counts at 15 Leks in the NMVPA that have been run regularly since 1976.



While population increases were noted across the North Magic Valley area between the late 1990's to 2006, a sudden drop in population numbers was noted in western locations of the region in 2007. This drop in population is thought to be from a local outbreak of West Nile Virus in late summer/early fall 2006. West Nile Virus was never confirmed in sage-grouse within the NMVPA, but highly suspected as many species (including humans) suffered from the virus in that year. Population numbers in 2008 were slightly below 2007, but somewhat increased in 2009. Known cases of West Nile in most species have considerably reduced since 2006.

Figure 4 displays the source habitat and occurrence data for sage-grouse on the south end, or Minidoka Ranger District (Minidoka RD), of the Sawtooth. Unlike the north end of the Forest, there are several occupied leks located within the Forest boundary on the Minidoka RD.

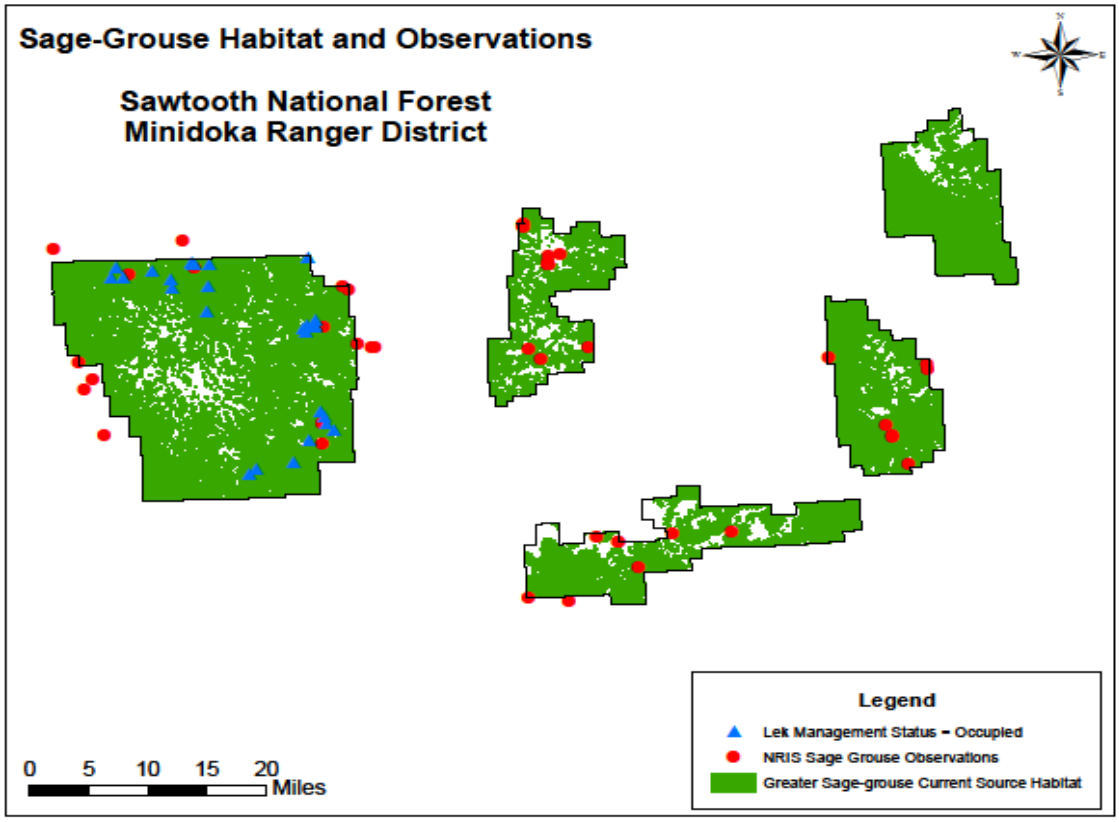


Figure 4: Greater Sage-grouse Source Habitat on the Minidoka Ranger District.

The Cassia Division of the Minidoka RD appears to have three distinct migratory populations of sage-grouse. One population winters in Shoshone Basin and migrates to the Deadline Ridge uplands. Another population on the north end of the Cassia Division winters in the Dry Creek, Indian Springs, and McMullen Creek areas and migrates to uplands on the division. A third population winters at various locations in the Oakley Valley area with some birds nesting on Cottonwood Ridge and other groups migrating into other upland areas on the division. There are two standardized lek routes run on the Minidoka RD, the Cottonwood Ridge Route and the Dry Creek Route. Sage-grouse population data specific to routes on the Minidoka RD is summarized in Table 3. During years where lek routes show no data, it is generally because those areas were inaccessible during the time of year routes are typically run or resources were not available to monitor those lek routes.

Table 3. Total number of males counted by year on Standardized Lek routes monitored on the Cassia Division on the Minidoka RD.

LEK ROUTE	2004	2005	2006	2007	2008	2009	2010
Cottonwood Ridge	67	97	104	59	45	32	37
Dry Creek			25		48	15	29

The SMVPA Local Working Group has reported through its' annual reports that the average number of males per lek on routes that were monitored ranged from 20 males in 2004 to 10 males in 2010. Similar to the NMVPA, lek counts indicated slight population increases across the South Magic Valley area from 2004 to 2006, with a sudden drop in population numbers noted in 2007. While there is limited evidence that West Nile Virus (WNV) affected sage-grouse in the South Magic Valley, local IDFG Biologists suspect that it was a factor in the significant population declines noted in 2006-2007 (See population data displayed below). One dead sage-grouse was found that was diagnosed positive for WNV. No other sage-grouse were confirmed to have WNV. Since sage-grouse population declines are considered severe for such a short time-frame, it is assumed that something like WNV played a role because population declines of that magnitude cannot be explained with poor production alone (e-mail response from IDFGINFO; January 2011).

There are three known, active leks on the Raft River Division, the Lynn Spring, the NE Lynn Reservoir and the Broad Hollow Fields leks. The NE Lynn Reservoir lek was first surveyed in 1980 and was monitored periodically through 1998. Beginning 1999, the lek has been monitored annually. The Lynn Spring and Broad Hollow Fields leks have been surveyed periodically since 1979 and 1971 respectively. In 2010, UDWR requested that the Forest begin annual monitoring of the Broad Hollow Fields lek. Table 4 includes the survey data gathered on the three leks located on the Raft River Division from 2000 to present. Given that two of the three Raft River leks have not been consistently monitored over the past decade, data from other leks located

Table 4. Total number of males counted by year on Standardized Lek routes monitored on the Raft River Division of the Minidoka RD

LEK	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Lynn Spring			7		2		0			0	
NE Lynn Reservoir	42	34	50	41	32	30	22	10	18	17	17
Broad Hollow Fields	2		7	3	4						2

*Years where no data is shown represent years where surveys were not conducted

within the WBEARMA but outside of the Forest boundary that have been surveyed annually since at least 2000 can be used to estimate population trends on the Forest (Table 5). Lek surveys completed for West Box Elder show a stable to slightly declining trend through 2006 and then, similar to populations in Idaho, show a sharp decline in 2007 (2011 USFS Utah sage-grouse lek data).

Table 5. Total number of males counted by year on Standardized Lek routes monitored in West Box Elder County outside the Forest boundary

LEK	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Park Valley-Rosette M53	25	25	9	19	23	18	18	8	11	15	11
Rosette East 3	11	*	0	8	15	21	9	2	3	2	1
Dove Creek Sign	19	23	14	12	21	14	13	8	7	1	3

*This route was not surveyed in 2001

Findings: The purpose of collecting lek route data annually is to establish a population trend with a relationship to management activities. Given that it is not known what role West Nile virus outbreaks played in the significant population declines noted throughout the Forest in 2007-2009, and the limited years of data collected, a statistically valid population trend prediction as it relates to the effects of management activities on sage-grouse populations is not yet possible. However, it appears that prior to the 2007-2009 population declines, population trends on the Sawtooth were stable or slightly improving. Data collected in 2010 indicate that population numbers are slightly improving from the lows in 2007-2009. Additional data gathered over the next 5-years of Forest Plan implementation may provide a more valid population trend.

Need for Change: Based on the results of monitoring element 27, there are no identified needs for change in Forest Plan direction relative to sage-grouse populations.

Results for Element 28: The key aspect of this monitoring element is a determination as to whether management actions are providing for, or moving toward the extent of vegetative components necessary to meet the needs of MIS species. To address this element, the Forest looked at data relative to management activities implemented on the Forest under the direction of the 2003 Forest Plan (See Appendix C for Project List), as well as natural occurrences, i.e. wildfire, that have occurred since 2003.

As previously described, the Sawtooth National Forest has approximately 563,611 acres of sage-grouse habitat. The mountain big sagebrush vegetative community makes up 93% of sage-grouse habitat on the Forest. As previously described, the Sawtooth NF, as part of the Southwest Idaho Eco-group (SWEIG) Forest Plan Revision process mapped sagebrush types on the three forests and estimated the density of canopy cover. Since completion of the Forest Plan revision project, the SWEIG sagebrush data was compared to 2004 NAIP aerial photography and to data from 131 sagebrush line intercept transects. The aerial photography comparison showed that the SWIEG GIS data underestimated the total actual sagebrush acreage. Data from the line intercept transects showed that the SWIEG data both overestimated some areas and underestimated other areas relative to the percent canopy cover on 63% of transects.

In 2006, the Forest began work on a strategy to address Forest Plan objective WIOB03 - *Prioritize wildlife habitats to be restored at a mid- or Forest-scale, using information from sources such as species habitat models, and fine-scale analyses. Initiate restoration activities on priority wildlife habitats to move current conditions towards desired conditions.* As part of this strategy, the Forest divided the WCS amendments into four phases. The first phase, which will be completed in 2011, addresses the forested biological community; with subsequent phases slated to address rangeland; unique combinations of rangeland and forest; and riparian/wetland biological communities. To prepare for the rangeland biological community WCS, and to address mapping errors with sagebrush communities, the Forest is completing a Forest-wide "intensified grid" inventory of non-forested vegetation communities. Information from this inventory will be used to create new maps of sage-grouse habitat on the Forest, and will provide key information needed for development of the rangeland community WCS.

As part of the Forest's annual monitoring program, the Forest has reviewed several vegetation management projects that have been implemented within sage-grouse habitat. Many of these projects, such as the North East Cassia project, were designed with specific objectives to improve sage-grouse habitat. Canopy cover for many of the sagebrush communities across the Forest are not within desired ranges. Much of this condition can be attributed to fire exclusion in these vegetation types. To address this, many of the vegetation management projects designed to improve sage-grouse habitat include reintroduction of fire either through the use of prescribed fire or managed wildfire for resource benefit. The review process showed that the projects were successful in moving vegetative conditions towards desired condition and that mitigation measures designed to reduce impacts to wildlife species and habitat as well as applicable Forest Plan direction relative to wildlife management was implemented. The majority of projects with objectives to improve sage-grouse habitat have involved prescribed fire or managed wildfire.

From 2003 to 2010, there were 42,202 acres of current sage-grouse habitat burned by wildfire on the Forest. Of that total, 966 acres (approximately 930 of these acres were burned in the 2007 Black Pine Fire on the Minidoka RD) were in the High Severity burn category; 18,828 acres were in the Moderate Severity burn category; and 22,408 acres were in the Low Severity burn category. Because high severity burns are considered stand replacing, areas of sage-grouse habitat burned in the High Severity category are assumed to be not suitable for use by sage-grouse for approximately 15 years post burn. Recovery rates for mountain big sagebrush to typically reach the 5% canopy cover needed to provide sage-grouse habitat is 8-14 years (Winward 1991, Pedersen et al. 2003). No lek sites occurred in the 966 acres of sage-grouse habitat burned in high severity on the Forest. Approximately 30 % of the 966 acres of sage-grouse habitat lost to severe intensity wildfire was reseeded.

The 41,236 acres that burned in the moderate and low severity burn categories is considered a short-term or temporary loss (3 years or less) to sage-grouse habitat due to the high variability of burn severity and burn patterns typical of fires in these habitats. Areas of sage-grouse habitat burned in the Moderate or Low Severity burn category, while causing a temporary or short-term

loss of habitat, are considered as either maintaining or improving sage-grouse habitat. These moderate and low severity category burns generally show increased plant vigor and improved understory vegetative diversity. The most extensive fire affecting sagebrush in the 2003 to 2010 time period was on the Black Pine Division of the Minidoka RD. There have been several sightings of sage-grouse within the Black Pine fire perimeter since that area burned in 2007. These sightings were made in the unburned areas, the reseeded areas, and the burned and naturally recovering areas (Santini, D. 2007-2010).

In addition to sage-grouse habitat burned by wildfire, approximately 1000 acres of sagebrush vegetative types were burned using prescribed fire from 2003 to 2010. Prescribed fire projects included the Bally Mountain prescribed burn, the Raft River Aspen broadcast burn and the Cassia Mountain View prescribed burn.

Considering fire as it relates to sage-grouse habitat, approximately 98% of those total acres burned on the Forest either maintained or improved sage-grouse habitats. During this time period, no occupied sage-grouse leks were impacted by either wildfires or prescribed fires. Since no occupied leks were in burned areas, no post-burn surveys occurred as part of the annual lek surveys.

Under the direction of the 2003 Forest Plan, the Forest has completed several mechanical treatments within sage-grouse habitat. The Northeast Cassia Project on the Minidoka District was begun in 2009 and when completed will treat 4,700 acres in key sage-grouse habitat. The project is targeting sage-grouse habitat that has been degraded mainly through fire exclusion resulting in conifer invasion. Approximately 1,000 acres have already been mechanically treated with the intent to return these habitats to a more suitable vegetative community for sage-grouse use. The project also addresses wildfire prevention by removing fuels in key early and late brood rearing habitat and is expected to lessen the chance of large scale habitat degradation and removal by decreasing fire severity.

From 2003 to 2010, approximately 381 acres of sage-grouse habitat were mechanically treated to reduce fuels and decrease the potential fire severity on the Forest (See Appendix for project list). These treatments either maintained or improved this habitat. In addition to fuels reduction projects, 380 acres on Mt. Harrison on the Minidoka District were seeded to native grasses and forbs thereby improving sage-grouse habitat. There are no vegetative treatments that occurred in this time period that resulted in sage-grouse habitat loss or degradation.

In 2008, the Forest completed a revision of its summer use Travel Management Plan on the Minidoka, Ketchum and Fairfield Ranger Districts. The revised Travel Plan decisions included elimination of motorized cross-country travel, closure of non-system roads and trails, and designation of motorized travel routes. Roads and trails pose a risk to Greater Sage-grouse habitat through factors such as increased human access to their habitat, habitat fragmentation, spread of invasive species, increased wildfire risk, and collisions. Elimination of cross-country

travel through the revised summer Travel Management Plan benefits sage-grouse by reducing potential disturbance of nesting and early/late brood rearing habitat, reducing habitat fragmentation through reductions in route densities, and reducing the potential for motorized vehicles to spread noxious weeds or start wildfires within sage-grouse habitat (SNF Travel Plan Map Revision, 2008). Through the revised Travel Plan, approximately 500,681 acres of sage-grouse habitat on the Fairfield, Ketchum, and Minidoka Ranger Districts that were previously open to cross-country travel are now closed to cross-country travel. Closure of these acres to cross-country travel will reduce or eliminate current and potential impacts to sage-grouse habitat associated with cross-country motorized use in these areas. Additionally, the Forest has physically closed and restored approximately 55 miles of roads and trails in sage-grouse source habitat to date.

From 2003 to 2010, approximately 10,000 acres of sage-grouse habitat (less than 2% of the total sage-grouse habitat on the Forest) were determined to contain some level of invasive plant (noxious weed) species. Invasive plant species compete with and can replace beneficial plant species required by sage-grouse, thereby degrading the environmental condition of sage-grouse habitats. The Forest does have an active noxious weed treatment program and treats as many acres of known infestation as possible. However, funding constraints do not allow for all known infestations to be treated annually. Forest -wide, noxious weed infestations are evaluated annually; new infestations are identified, mapped and treated while previous infestation sites are revisited, evaluated, and treated as needed. Treatment areas are prioritized annually with highest the priority assigned to those areas previously treated in an attempt to eradicate treated populations, followed by newly identified individual plants or populations in an attempt to keep them from becoming an established infestation. Treatment applications include herbicide spraying, mechanical/physical, or bio-control. Due to the small amount of sage-grouse habitat containing noxious weeds and annual noxious weed treatments it is believed that noxious weeds are having only a minimal effect on sage-grouse habitats on the Forest.

A detailed list of projects and management activities related to sage-grouse habitat improvements can be found in Appendix C.

Findings:

Overall, from 2003 to 2010, vegetative manipulation projects and management activities have resulted in improvements in Greater Sage-grouse habitat on the Sawtooth National Forest. While the Forest did experience a long-term loss of approximately 950 acres of sage-grouse habitat as a result of wildfire, overall wildfires experienced since 2003 have or will result in improved sage-grouse habitat through increased plant vigor and improved understory vegetative diversity. The primary limiting factor in not making greater progress in improving sage-grouse habitats is lack of funding.

Need for Change:
While the Forest is currently implementing restoration projects across the Forest, there is a definite need to develop a strategy for habitat restoration to capitalize on restoration efforts. As described above, the Forest is in the process of developing a new vegetation layer that more accurately displays the current condition on non-forested vegetation communities across the Forest. This information will be used in completion of the non-forested vegetation WCS which likely result in a change in Forest Plan direction.

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APPENDIX A

VEGETATION REFRESH FOR THE MONTANA
FORESTED VEGETATION DATASET
Sawtooth National Forest
North – Fairfield, Ketchum, and SNRA
Feb 15, 2008

Montana Vegetation attributes for Sawtooth North:

Canopy Cover Code	Description	Tree Size Code	Description
0	Non-forest	0	Grass, Forbs, Shrub, Seedling
1	Not on Sawtooth	1	Sapling 1-5”
2	Low 10-40%	2	Small Tree 5 – 12”
3	Moderate 41-70%	3	Medium Tree 12 – 20”
4	High 71-100%	4	Large Tree > 20”

PVG designations for Sawtooth North are:
1, 2, 3, 4, 7, 9, 10, 11

WILDLAND FIRE SEVERITY

Dataset to be used for the refresh is a GRID (snf_fires) combining MTBS and BARC severity data for fires between 1995 and 2007 clipped to the Sawtooth boundary.

Wildland fires considered for this analysis:

FIRE	YEAR	PRODUCT
Queasy	1999	MTBS
Trail Creek	2000	MTBS
Valley Road	2005	MTBS
Trailhead	2006	BARC
Trapper Ridge	2007	BARC
Castle Rock	2007	BARC

Wildland Fire Severity attributes:

GRID Code	DESCRIPTION (fire severity)
0	No Data
1	Unburned/very low
2	Low
3	Moderate
4	High
5	Increased greenness
6	Cloud mask

Sawtooth North Forested Vegetation Rule Set for Wildland Fire Severity

PVG 1, 2, 3, and 4:

A. if fire severity was high (4), then size=GFSS (0) and canopy = 0;

B. if fire severity was moderate (3) and

1. size was sapling (1) or small (2) then size=GFSS (0) and canopy = 0;
2. size was medium (3) or large (4) then size = no change and
    a. canopy was high (4) then canopy = moderate (3);
    b. canopy was moderate (3) then canopy = low (2);
    c. canopy was low (2) then no change

C. if fire severity was low (2) and

1. size was sapling (1) then size = GFSS and canopy = 0;
2. size was small (2), medium (3) or large (4) and
    a. canopy was high (4) then canopy = moderate (3);
    b. canopy was moderate (3) then canopy = low (2);
    c. canopy was low (2) then no change

D. if fire severity was not 2, 3, or 4, then no change in size class or canopy.

PVG 7, 9, 10, and 11:

A. if fire severity was high (4), then size=GFSS (0) and canopy = 0;

B. if fire severity was moderate (3), then size=GFSS (0) and canopy = 0;

C. if fire severity was low (1) and

1. size was sapling (1) or small (2) then size=GFSS (0) and canopy = 0;
2. size was medium (3) or large (4) and
    a. canopy was high (4) then canopy = moderate (3);
    b. canopy was moderate (3) then canopy = low (2);
    c. canopy was low (2) then no change

D. if fire severity was not 2, 3, or 4, then no change in size class or canopy.

MOUNTAIN PINE BEETLE MORTALITY

Dataset for refresh is a shapefile (snf_mtnpinebeetle.shp) of polygons on the Sawtooth NF having mountain pine beetle mortality of at least 10 trees per acres total between 1995 and 2007 within PVGs 7, 10, or 11, at least 100 acres in size, and outside of the Valley Road Fire. These polygons total 63,644 acres in size.

Sawtooth North Forested Vegetation Rule Set for Mountain Pine Beetle Mortality

A. For all mountain pine beetle polygons, change size = sapling (1) and canopy = low (2)

APPENDIX B

Sawtooth National Forest MIS Monitoring Protocols

Protocol for Monitoring Pileated Woodpeckers

Objective:

Determine occurence of pileated woodpecker in potential habitat using point count surveys. A point count survey is a group of points distributed in survey routes or transects acroass a landscape that a re visited in a predetermined order at a particular time. Point counts involve an observer standing at the center of a point count plot and recording birds seen or head at fixed distances during a specific time frame.

General Considerations

Time of Day

Woodpeckers are most active in the morning. Therefore surveys should be conducted from about sunrise to noon.

Census Period

Breeding season point counts should be run during the time of year when the detection rates of the species being studied are most stable. For pileated woodpeckers April to mid May is the optimum time. During this period the woodpeckers are in courtship and nest building. Once incubation begins birds are less vocal.

Weather

Birds should not be surveyed when rain or wind interfere with the intensity or audibility of bird sounds, when fog or rain interfere with visibility, or when cold weather shuts down bird activity.

Point Counts

Background and Aims

The point count method is probably the most efficient and data-rich method of counting birds. It is the preferred method in forested habitats or difficult terrain. Point counts involve an observer standing in one spot and recording all the birds seen or heard at either a fixed distance, or unlimited distance. This method can be conducted one or many times at a given point.

Choosing a Counting Route for Extensive Point Counts

Field observers should map point locations onto topos and aerial photos while in the field. Because each point location is entered into a GIS database, it is critical that the observer be as painstaking as possible in placing point locations on the aerial photo. Even if a trail or point is not easily visible on the aerial, the observer should carefully estimate positions. If available, use a GPS unit to assist in accurately defining the point location. One note of caution, accuracy of GPS receivers can vary greatly; try to ensure any equipment used has a high degree of accuracy.

The precise placement of the point counts along a transect route should be determined in the field by locating the start point and using reference points on the ground to mark it on the aerial photo. The remaining 9 points should be positioned at 300-meter (984 ft) intervals as determined by precise pacing, but preferably measured with a string box. Where curves and switchbacks occur, points should be placed at least 300-meters (984 ft.) straight-line distance apart.

Field Work
The censuser should approach the point with as little disturbance to the birds as possible. Counts should begin about 1 minute after the observer reaches the census point. Time spent at each count point should be 10 minutes. Data should be separated into those individuals seen or heard during the first 3 minutes (for comparison with Breeding Bird Surveys) and those additional individuals heard in the remaining 2 and 8 minutes. See data form for how to indicate the time period.

The details of each point are recorded: the reference number, name of the point, date, and the time. The species are written down in the order they are observed. For each species, the number of individuals is recorded separately for those within a circle of 50 m around the censuser and for all those outside the circle, out to an unlimited distance. In noisy environments, dense foliage, or in tropical forests, observers have found that 25 m was preferred. The distance is that at which the individual was first observed. For birds near the 50-m border, the category may be confirmed by measuring paces to the border when the counting is over. If a bird flees when the censuser arrives at the point, the bird should be included according to its take-off place. Birds that were detected flying over the point, rather than detected from within the vegetation, should be recorded separately.

Estimating distances requires experience, so a new censuser should measure the length of steps in different terrain, and then check the distance to several singing birds in order to make the estimating of distances routine. Estimating may be eased by either natural or artificial landmarks.

A bird flushed within 50 m of a point's center as an observer approaches or leaves a point should be counted as being at the point if no other individual is seen during the count period. It is advisable that this be recorded separately.

No attracting devices or records should be used, except in counts for specialized groups of birds.

Vocalizations:

- Territorial call – rapid sequence of high-pitched "cuks" lasting 5-10 seconds; heard 0.25 - 0.5 miles away; used for long distance communication and advertisement of territory.
- Alarm call - same series of "cuks" at slower speed; can continue for several minutes.
- Other: soft, slow "cuks" by lone bird "talking to itself"; exchange between pair or between adults and juveniles at close range of soft "hn-hn-hn".

NOTE: use training vocalizations provided to distinguish the calls of pileated woodpeckers and flickers.

Filling in the Forms
Mapping Point Counts - The censuser places the location of each bird detected on the bullseye. Use the species codes on the map. The orientation of the observer should be entered on each form by placing the compass direction at the top of the bullseye.

Travel to next point and repeat. Keep track of observations made on and between survey stops. Keep time at each survey stop consistent. If a pileated calls as you're travelling between stops, make note of the time, direction and approximate location on the data sheet, and then try to get an azimuth from your next stop to the location bird was observed. Note location of any confirmed or suspected nest or feeding sites on data sheets.

If you encounter a pileated nest, get GPS location if possible, if not possible then mark with flagging along road/trail and label flagging with, for example, "pileated nest", a bearing to the site and approximate distance from flag. Do not spend a lot of time looking for nests during the transect run. If you have extra time after the run and can return to look for a nest you can do so. Note that pileateds will excavate several cavities and abandon them before finally settling on one to use.

FIELD CREWS:

The field crew is responsible for:

- Checking field equipment.
- Starting and completing surveys on time, weather & logistics permitting.
- Completing survey forms, keeping them clean and in order, and returning t hem promptly to the district biologist.
- Reporting any and all logistical problems in order to keep track of, and try to correct, the difficulties of access, methods etc.
- Asking questions about any uncertainties.
- Erring on the side of recording too much information rather than too little. Fill out survey forms as completely as possible
- Recording information on incidental species observations.
- Travelling safely and watching out for one another.
- Keeping talk and other noise to a minimum during transect run.

References

Point Count Method adapted from Handbook of Field Methods for Monitoring Landbirds by Ralph et al. 1993

Inventory Methods for Woodpeckers Standards for Components of British Columbia's Biodiversity No. 19. Version 2.0, Ministry of Environment, Lands and Parks, Resources Inventory Branch for the Terrestrial Ecosystem Task Force Resources Inventroy Committee

Protocol for Monitoring Greater Sage-grouse Lek Routes

Counts of male sage-grouse attending leks are used to provide an index to population trends. Because this protocol is an index, it is not necessary to count every lek in a region. Routes have been designed to survey sage-grouse populations throughout the region. It is important these routes be conducted annually following standardized guidelines to ensure useful, quality data. Sage-grouse will move between leks during a breeding season. Locations of leks may also differ from year to year. Results are summarized to reflect the average and maximum number of males counted along a route.

1. The starting and ending point for each route must remain the same each year. Do not change a route without consulting with the regional wildlife staff.
2. Always count all leks encountered along the route. Make an entry on the data sheet for each lek site encountered on the route, whether active or inactive. Do not leave data sheets blank or use dashes - remember that zeros are numbers also
3. In years of high or increasing grouse numbers, satellite leks may be attended or new leks may form. Stop periodically to look and listen for new leks in likely areas.

4. A lek may have more than one activity center (i.e. distinct groups of males). If groups of birds are visible to each other but separated by a relatively long distance (e.g. 200 yards), you are still looking at a single lek.
5. Make all counts from ½ hour before sunrise to 1½ hours after sunrise. Do not drive more than 25 mph.
6. Count and report all males observed; numbers of females may be noted in the comments section.
7. Count each lek at least 4 times between 20 March and 30 April with approximately 1 week between counts. In most of the Magic Valley, peak male attendance typically occurs during the third week of April.
8. Avoid making counts during rainy, inclement weather.

APPENDIX C

Table 6: List of Management Activities That May Have Affected Pileated Woodpecker or Greater Sage-grouse Populations or Habitats on the Sawtooth National Forest

Project & Year	Work Accomplished	Acres Affected
Almo Creek, Minidoka RD 2004	Removed and rehab Road due to flooding.	50 acres
One-Mile Creek, Minidoka RD 2004	One-Mile Creek Rehab due to flooding.	50 acres
Upper Warm Springs Creek, 2004	Reclaimed roads, improve riparian conditions via managing dispersed recreation	4 acres
Baker Creek, 2004	Willow planting and dispersed recreation site rehab. Increase future large trees for foraging and nesting.	4 acres
Elkhorn Creek, 2004	Reclaim ½ mile of road with improved travel management and increased wildlife security.	3.6 acres
Ketchum Placer Creek, 2004	Roads and campsites closed and rehabilitated in riparian areas.	100 acres
Kale Creek Rx Fire, 2005	Prescribed fire to maintain or improve vegetative conditions.	25 acres
Upper Cassia Creek, Minidoka RD 2005	Cold Springs Exclosure to protect spring and adjacent wetlands from livestock and recreation use.	5 acres
Lime Creek Rx Fire, 2005/2006/2007	Restore and enhance aspen communities by restoring to more historic conditions. Increase pileated woodpecker nesting and foraging opportunities.	7,532 acres
Big Smoky Thinning, 2005	Reduce tree density and fuels in Douglas-fir communities to achieve more historic conditions.	32 acres
Elk Horn Creek, 2005	Approximately ½ mile of road reclaimed which will increase wildlife security.	3 acres
Pole Creek Encroachment Thinning, 2005	Removed conifer encroachment within sagebrush communities on Sawtooth NRA	60 acres
Wolley Ranch Exclosure Fence, SNRA 2005	Fence constructed to protect riparian area adjacent to 3 miles of Salmon River.	3 acres
Warm Springs, Barr Gulch, Warfield, 2005	Manage dispersed recreation sites and roads to improve riparian conditions.	123 acres

Abbot-Shake, 2006	Remove dispersed campsites and rehab user created trails.	40 acres
Barr Gulch – Rooks, 2006	Manage dispersed recreation and improve riparian conditions.	10 acres
Kelly Flats Dispersed Recreation, 2006	Remove and rehab dispersed campsites and trail in riparian area.	40 acres
Copper Creek, 2006	Decommission roads in riparian areas.	9 acres
Valley Road Fire Rehab, 2006	Aerial straw mulching	500 acres
Cow Camp Encroachment Thinning, 2006	Sawtooth NRA fuel thinning in aspen community areas being encroached by conifers.	60 acres
Little Smoky Creek, 2007	Dispersed recreation site management to improve riparian conditions	5 acres
Kelly Flats Dispersed Recreation, 2006.	Remove and rehab dispersed campsites and trail in riparian area.	10 acres
Beaver Reintroduction Program Fairfield RD, 2007	Reintroduce beavers to improve and maintain riparian conditions in beaver dam complexes	500 acres
Harrington Fork, Lower Rock Creek, 2007	Dispersed camp sites closed and rehabilitated to restore riparian areas.	50 acres
Eightmile Exclosure, 2007	Riparian pasture turned into riparian exclosure to exclude livestock and protect headwater springs and riparian area	17 acres
Trout Creek, 2007	Repair exclosure fence to remove livestock impact to riparian area and relocate portion of road along creek.	3 acres
Rock Creek Aspen, 2007	Conifer removal in aspen communities to stimulate re-growth and remove conifer encroachment – sage-grouse brood rearing habitat	21 acres
Beaver Reintroduction Program Minidoka RD, 2007	Reintroduce beavers to improve and maintain riparian conditions in beaver dam complexes.	200 acres
East Dry Burnt Basin	Black Pine Fire Rehab.	283 acres
Salmon River Restoration, 2007	Willows and alder planted to improve riparian condition in Joes, Little Casino, Sawtooth City, and Frenchman Creeks	5 acres
Cow Camp Encroachment Thinning, 2006	Thinning of encroaching conifers to enhance aspen and sagebrush communities.	152 acres
Alturas/Cabin/Vat/Pettit, 2006	Construction of barriers to close user pioneered vehicle tracks. Increase wildlife security and decrease habitat damage.	10 acres

Alturas Timber Removal, 2007	Removal of conifers from sage-grouse habitat.	2 acres
Soldier Creek, 2007	Reduce small diameter Douglas-fir trees to allow for a larger tree size to move towards more historic conditions.	81 acres
Stanley Lake Creek, 2007	Construction of barriers to close user pioneered vehicle tracks. Increase wildlife security and decrease habitat damage.	10 acres
Black Pine Juniper Control, 2007	Remove conifer invasion with Rx burn from sage-grouse habitat.	2 acres
Beaver Reintroduction Program Fairfield RD, 2008	Reintroduce beavers to improve and maintain riparian conditions in beaver dam complexes.	200 acres
Beaver Reintroduction Program Ketchum RD, 2008	Reintroduce beavers to improve and maintain riparian conditions in beaver dam complexes.	200 acres
Miller/Boardman/Willow, 2007	Obliterate user created roads and trails that have not been designated official travel routes. Increase wildlife security and decrease habitat damage.	9 acres
Beaver Creek, 2008	Obliterate user created roads and trails that have not been designated official travel routes. Increase wildlife security and decrease habitat damage.	20 acres
Cove Creek, 2008	Obliterate user created roads and trails that have not been designated official travel routes. Increase wildlife security and decrease habitat damage.	15 acres
South Barker Wildland Fire use, 2008	Reduce fuels, reduce stand densities and improve aspen components to move area towards a more historic fire regime.	34,490 acres
Cassia Mountain View Burn, 2008	Remove conifer invasion in aspen communities with Rx burn to enhance sage-grouse habitat.	785 acres
Beaver Reintroduction Program Fairfield RD, 2009	Reintroduce beavers to improve and maintain riparian conditions in beaver dam complexes.	200 acres
Beaver Reintroduction Program Minidoka RD, 2009	Reintroduce beavers to improve and maintain riparian conditions in beaver dam complexes	200 acres
Conifer Encroachment Treatments, SNRA 2009	Conifer removal in aspen, sagebrush, and meadows.	20 acres
Raft River Aspen Broadcast Rx Burn,	Regenerate aspen stands to improve	100 acres

2009	sage-grouse brood rearing habitat	
Northeast Cassia Project, 2009	Conifer invasion removal in sage-grouse habitat.	1,000 acres
Headwaters Little Smoky, 2009	Obliterate user created roads and trails that have not been designated official travel routes. Increase wildlife security and decrease habitat damage.	19 acres
Deer Creek/Placer/Warm Springs, 2009	Obliterate user created roads and trails in cross country travel areas. Increase wildlife security and decrease habitat damage.	3 acres
Shake/Boardman/Kelley/ Smoky/Slickear/Lime/Soldier/Skelton Creeks, 2010	Obliterate user created roads and trails that have not been designated official travel routes. Increase wildlife security and decrease habitat damage.	94.5 acres
Beaver Reintroduction Program Fairfield RD, 2010	Reintroduce beavers to improve and maintain riparian conditions in beaver dam complexes.	2 acres
Baker/Castle Rock/Baugh/Corral/ Cove/Elkhorn/Peters Gulch/ Lake/Trail/Rock Red Warrior Creeks, 2010	Obliterate user created roads and trails that have not been designated official travel routes. Increase wildlife security and decrease habitat damage.	89.5 acres
Beaver/Frenchman Creeks, 2010	Obliterate user created roads and trails that have not been designated official travel routes. Increase wildlife security and decrease habitat damage.	27.3 acres
Beaver Reintroduction Program Ketchum RD, 2010	Reintroduce beavers to improve and maintain riparian conditions in beaver dam complexes.	1 acre
Trout Creek Riparian Exclosure, Minidoka RD, 2010	Upper end of Trout Creek to rebuild riparian exclosure.	3 acres
FS Flats Dispersed Camping rehabilitation, Minidoka RD, 2010	Close and rehab of off road user create routes in the FS Flats area.	10 acres
Conifer Encroachment Treatments, SNRA 2010	Conifer removal in aspen, sagebrush, and meadows.	50 acres