

Wilderness

Existing Forest Plan direction

Design, construct, and operate developed sites which are adjacent to or provide an access point into a wilderness to complement wilderness management objectives (Forest Plan III-34).

Ensure the permitted private and public sector sties on Forest service lands which are adjacent to, or provide an access point into, a wilderness complement wilderness management objectives (Forest Plan III-38).

Do not provide interpretive facilities at cultural resources sites, nor restore or enhance cultural resources for recreation purposes (Forest Plan III-38).

Provide opportunities for human isolation, solitude, self-reliance, and challenge while traveling cross-country and on system trails (Forest Plan III-38).

Prohibit competitive contest events, group demonstrations, ceremonies, and other similar events (Forest Plan III-39).

Protect air quality related values from adverse effects from air pollution (Forest Plan III-41).

Maintain fire dependent ecosystems using fires ignited naturally. Reclaim areas disturbed as part of fire control activities to meet the visual quality objective of retention (Forest Plan III-41).

Whiskey Mountain portion of Fitzpatrick Wilderness

Motorized equipment use is limited to the minimum necessary to bait, salt, treat habitat, trap and transport bighorn sheep (Forest Plan III-206).

Activity and condition trends

Performance measures

- 10 primary output elements (described below)

The Wilderness Act of 1964 (Act) set aside approximately 1,378,440 acres of the Shoshone National Forest to be administered as designated wilderness areas unimpaired for future use and enjoyment. The Act defines wilderness as an area of undeveloped federal land retaining its primeval character and influence without permanent improvements or human habitation, which is protected and managed to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of human work substantially unnoticeable, (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation, (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition, and (4) may also contain ecological, geological, or other features of scientific educational, scenic, or historical value.

Visitor use data for 2003 showed approximately 27,000 wilderness visits on the Shoshone. Wilderness visitor contacts have emphasized Leave No Trace principles and recreating in grizzly bear habitat.

Management of each wilderness is measured against accomplishment levels for the following 10 primary output elements (standards):

- Existing forest plan direction addresses the natural role of fire in wilderness and considers the full range of management responses.
- This wilderness was successfully treated for non-native, invasive plants.
- Monitoring of wilderness air quality values is conducted and a baseline is established for this wilderness.
- Priority actions identified in a wilderness education plan are implemented.
- This wilderness has adequate direction, monitoring, and management programs to protect opportunities for solitude or primitive and unconfined recreation.

- This wilderness has a completed recreation site inventory.
- Existing outfitter and guide operating plans for this wilderness direct outfitters to model appropriate wilderness practices and incorporate appreciation for wilderness values in their interaction with clients and others. Needs assessments are completed for new operations or for major changes to existing outfitter programs.
- This wilderness has adequate direction in the Forest Plan to prevent degradation of the wilderness resource.
- The priority information needs for this wilderness have been addressed through field data collection, storage, and analysis.
- The wilderness has a baseline workforce in place.

Accomplishment of approximately 60 percent of all elements must be achieved in order for a wilderness to be considered as meeting the minimum stewardship level.

Wilderness areas on the Shoshone have been managed to standard. With current wilderness management emphasis on completion of wildland fire use plans, monitoring, site inventory, wilderness education, and monitoring of air quality, it is expected that a minimum stewardship level will be met for wilderness areas in 2005.

Projections if existing Forest Plan direction continues

The number of wilderness acres would remain the same. Opportunities for human isolation, solitude, self-reliance, and challenge would be provided. A minimum stewardship level would continue to be met.

Need for change in Forest Plan direction

Current management direction is adequate; there is no need for change in management direction.

Wildlife

Existing Forest Plan direction

Manage fish and wildlife habitats, including plant diversity, to maintain viable populations of known native vertebrate species and meet population objectives of management indicator species (Forest Plan III-7).

Maintain or improve habitat for threatened and endangered species including participation in recovery efforts for listed species (Forest Plan III-8).

Coordinate Forest wildlife and fish management with the Wyoming Game and Fish Department and the U.S. Fish and Wildlife Service (Forest Plan III-8).

Where present, the following species are Management Indicator Species: deer, elk, and all federally listed endangered or threatened plant and animal species (Forest Plan III-49).

In addition to the above, use indicator species that represent the following categories:

- *Riparian area dependent species*
- *Wetland dependent species*
- *Species dependent on either climax plant communities or one seral stage of a plant community or communities (forested land and rangeland)*
- *Tree cavity-dependent species*
- *Game fish*
- *Unique fish habitats for which there are dependent species (cliff, talus, cave)*

- *Small game species*
- *Species dependent on multi-storied tree stands by commercial forest cover type*
- *Species which have particular scientific, local, or national interest, and species needing special management to prevent federal listing as threatened or endangered (Forest Plan III-49)*

Maintain habitat for viable populations of all existing vertebrate wildlife species (Forest Plan III-49).

Establish elk, moose, bighorn sheep, and threatened and endangered species on sites that can supply the habitat needs of the species and the population levels and distribution agreed to with the states (FSM 2610) (Forest Plan III-50).

Manage waters capable of supporting self-sustaining trout populations to provide for those populations (Forest Plan III-50).

Manage minerals activities to protect Crucial Preferred Winter Range and unique wildlife areas during critical seasonal periods (Forest Plan III-50).

Manage and provide habitat for recovery of endangered and threatened species as specified in the Regional Forester's 1920 (2670) letter dated June 25, 1982 (Forest Plan III-50).

Conduct habitat improvement projects jointly or cooperatively funded with the states (Forest Plan III-52).

Manage animal damage in cooperation with the state wildlife agencies, Fish and Wildlife Service, other appropriate agencies, and cooperators to prevent or reduce damage to other resources and direct control toward preventing damage or removing only the offending animal (Forest Plan III-53).

Provide mitigating measures for grizzly bears during timber harvest activities resulting from consultation with the U.S. Fish and Wildlife Service (Forest Plan III-65).

Semi-primitive non-motorized recreation areas

Maintain effective wildlife habitat.

Locate roads and trails to avoid key areas such as primary feed areas, big game rearing areas and migration routes (Forest Plan III-135).

Whiskey Mountain portion of Fitzpatrick Wilderness

Improve habitat capability through direct treatments of vegetation, soil, and waters.

Maintain habitat capability for Bighorn sheep... (Forest Plan III-203).

Activity and condition trends

Performance measures

- Populations and habitat trends for management indicator species

Wildlife population data for 1986 management indicator species

Grizzly bear

The grizzly bear was listed as a threatened species under the Endangered Species Act in 1975. The Grizzly Bear Recovery Plan (Recovery Plan) (USDI Fish and Wildlife Service 1982 and 1993), first approved in 1982 and revised in 1993, defined a recovered grizzly bear population as one that could sustain a defined level of mortality and is well distributed throughout the recovery zone. The Recovery Plan outlined a monitoring scheme that employed three demographic sub-goals to measure and monitor recovery of the Yellowstone grizzly bear population. They include:

- Maintain a minimum of 15 unduplicated females with cubs-of-the-year over a six-year average both inside the recovery zone and within a 10-mile area immediately surrounding the recovery zone (14,497 square miles).
- Sixteen of 18 bear management units within the recovery zone must be occupied by females with young, including cubs-of-the-year, yearlings, or two-year olds, from a six-year sum of observations. No two adjacent bear management units may be unoccupied during the same six-year period. This is

equivalent to verified evidence of at least one female grizzly bear with young at least once in each bear management unit over a six-year period.

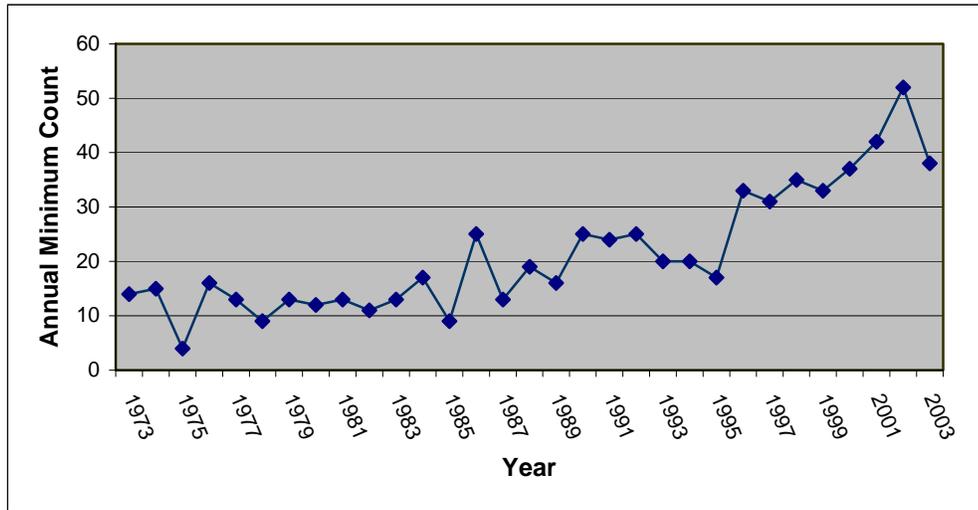
- The running six-year average for total known, human-caused mortality is not to exceed 4 percent of the minimum population estimate. The running six-year average annual known, human-caused female grizzly bear mortality is not to exceed 30 percent of the 4 percent total mortality limit over the most recent three-year period. These mortality limits cannot be exceeded in any two consecutive years. Beginning in 2000, probable mortalities were included in the calculation of mortality thresholds; cubs-of-the-year orphaned because of human causes were designated as probable mortalities.

The Interagency Grizzly Bear Study Team monitors these recovery parameters in cooperation with the Forest Service. The general trend in the grizzly bear population within the Yellowstone Ecosystem has been upward since the species came under the protection of the Endangered Species Act. Current population estimates are two to three times greater than when the bear was listed in 1975. Bears have continued to expand into new areas both within and outside of the original recovery zone, with the greatest expansion south on the Bridger-Teton National Forest and east on the Shoshone National Forest. All recovery targets identified in the Recovery Plan have been met since 1998 and the six-year average of females with cubs-of-the-year at the end of 2003 was 2.5 times the target identified in the Recovery Plan. All 18 bear management units in the GYA have been occupied at least four times in the last six years by females with young. The four bear management units on the Shoshone have been occupied by females with young in each of the last six years.

Habitat management and management of grizzly bear/human and grizzly bear/livestock conflicts have been directed by the Interagency Grizzly Bear Guidelines (Guidelines) (USDA Forest Service 1991) that were incorporated into the Forest Plan. Adherence to the Guidelines has been instrumental in achieving the demographic recovery of the grizzly bear in the GYA and on the Shoshone National Forest. The Shoshone has made a concerted effort to educate users of proper behavior in bear country. A special order requiring that all attractants be kept unavailable to bears has been in place on most of the Forest since 1990. The order has been expanded several times to include occupied grizzly bear habitat. Grizzly bear/human conflicts and associated bear mortality still occur, vary by year, and are correlated with the availability of natural food sources. In years where these food sources are low, grizzly bear/human conflicts increase. Often these conflicts result in relocation or even death of the bear. High levels of grizzly bear mortality from 1994 through 1996 were associated with poor food years for bears. Recent increases in mortality are a result of several factors, including poor food years, bears expanding into marginal habitats, and more bears in the public/private land interface.

The Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Area (Conservation Strategy) (Interagency Conservation Strategy Team 2003) was completed in 2003 and is the document that will guide management and monitoring of the Yellowstone grizzly population upon delisting. This document describes a Primary Conservation Area where stipulations to protect grizzlies would be applied. The Primary Conservation Area is the same as the original recovery zone and much of this occurs on the Shoshone (1,230,000 acres). A forest plan amendment for the six GYA national forests is under way to incorporate the Conservation Strategy into existing forest plans. The completion of this amendment will improve the consistency of habitat management for the grizzly bear across the ecosystem. The U.S. Fish and Wildlife Service indicated that a proposal to delist the grizzly bear will be published in the Federal Register sometime in 2005.

Figure 57. Unduplicated females with cubs-of-the-year, 1973 through 2003.



draft

Figure 58. Female grizzly bears with cubs-of-the-year, known human-caused female mortalities, and all grizzly bear mortalities in the GYA, 1973 through 2003.²⁰

Year	Females with cubs-of-the-year		Female mortalities			All bear mortalities		
	Annual	Six-year average	Annual	Six-year average	30% of total mortality	Annual	Six-year average	4% of minimum population
1973	14	--	6	--	--	14	--	--
1974	15	--	6	--	--	15	--	--
1975	4	--	1	--	--	3	--	--
1976	17	--	1	--	--	6	--	--
1977	13	--	5	--	--	14	--	--
1978	9	12	1	3.3	1.4	7	10.2	4.5
1979	13	12	1	2.5	1.2	7	9.2	3.9
1980	12	11	3	2.0	1.4	6	7.7	4.5
1981	13	13	2	2.2	1.5	10	8.8	4.8
1982	11	12	5	2.8	1.2	14	10.2	4.1
1983	13	12	3	2.5	1.2	6	8.5	4.1
1984	17	13	3	2.8	1.5	9	8.8	4.8
1985	9	13	4	3.3	1.5	5	8.5	4.8
1986	25	15	4	3.5	2.0	5	9.0	6.6
1987	13	15	2	3.5	1.8	3	7.8	6.0
1988	19	16	2	3.0	2.3	5	6.3	7.7
1989	15	16	0	2.5	2.0	2	5.7	6.7
1990	25	18	6	3.0	2.5	9	5.7	8.2
1991	24	20	0	2.3	2.6	0	4.7	8.8
1992	25	20	1	1.8	3.1	4	3.8	10.2
1993	19	21	2	1.8	2.9	3	3.8	9.6
1994	20	21	3	2.0	2.6	10	4.7	8.6
1995	17	22	7	3.2	2.1	17	7.2	7.0
1996	33	23	4	2.8	2.7	10	7.3	8.9
1997	31	24	3	3.3	3.2	7	8.5	10.7
1998	35	26	1	3.3	4.1	1	8.0	13.6
1999	32	28	1	3.2	4.1	5	8.3	13.7
2000	35	31	6 ²¹	3.7	4.2	16	9.3	14.2
2001	42	35	8	3.8	4.3	19	9.7	14.5
2002	50	38	7	4.3	5.0	15	10.5	16.6
2003	35	38	6	4.8	5.0	11	11.2	16.6

Gray wolf

Fourteen gray wolves from Alberta, Canada were reintroduced into Yellowstone National Park in January 1995. The following year, 17 additional wolves from British Columbia were brought to the reintroduced population. These animals and any other native wolves that might have remained in the GYA have been classified as a “non-essential experimental” population, as per provisions of the Endangered Species Act. The U.S. Fish and Wildlife Service and National Park Service monitor wolves with assistance from other agencies, groups, and individuals.

²⁰ Data for 1973 through 1992 are from Knight et al. 1997. Data for 1993 through 2003 are from Schwartz and Haroldson 2003.

²¹ Beginning in 2000, mortalities include both known and probable human-caused mortalities.

Wolves first made brief visits to the Shoshone National Forest in 1995. Numerous sightings occurred on the Forest in 1996 and one of the original packs, the Soda Butte Pack, included part of the northeast corner of the Clarks Fork Ranger District in its home range. In late 1996, the Washakie Pack formed, denned, and produced five pups in the Six Mile drainage on the Shoshone National Forest. This was the first pack to den outside of Yellowstone National Park in Wyoming. The Sunlight pair began using the Shoshone National Forest in the spring of 1998 in the Trail Creek and East Painter Creek area on the Clarks Fork District but did not produce pups until 1999. By 2000, there were four packs (Beartooth, Absaroka, Sunlight, and Washakie) using areas primarily on the Shoshone National Forest. Another pack (Greybull River) formed in 2001. All but the Greybull River pack were known to have pups in 2001. The Sunlight, Beartooth, Absaroka, Washakie, and Greybull packs all had pups in 2002 and 2003. An additional pack of four wolves, the Dubois Pack, appears to be using areas primarily on the Forest and did not produce pups in 2003. At the end of 2003 there were six known packs using areas mostly on the Shoshone for a total of 36 wolves. Several other packs include part of the Shoshone National Forest in their home ranges.

Figure 59. Gray wolf population in the GYA, 1999 through 2003.

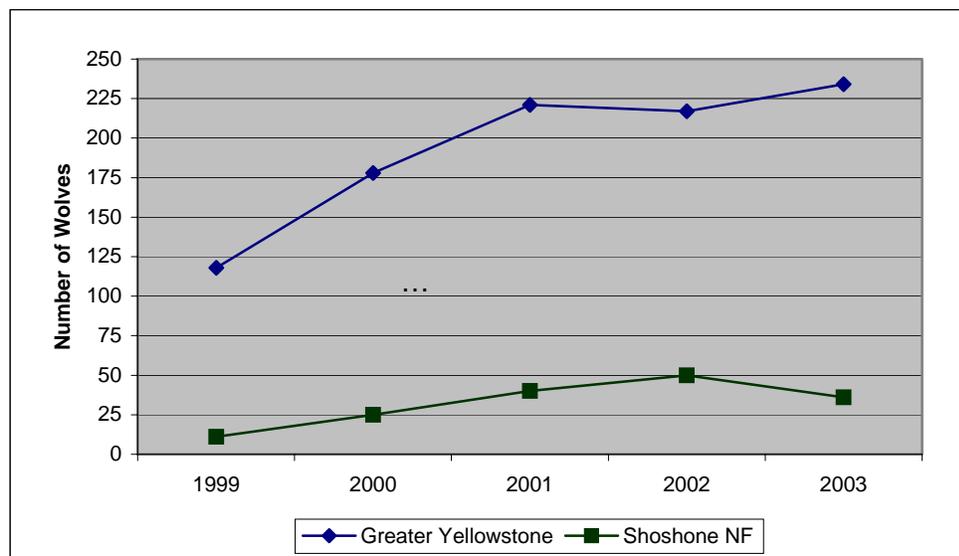


Figure 60. Wolf population in the GYA, 1999 through 2003.²²

	1999	2000	2001	2002	2003
Total Outside Shoshone NF	107	153	181	167	198
Total Shoshone NF	11	25	40	50	36
Total Yellowstone Recovery Area	118	178	221	217	234

Bald eagle

Breeding Bird Survey data for the central Rockies for 1980 through 2003 show an upward trend of 8 percent per year. The species has been proposed for delisting. The number of nesting bald eagles in Wyoming has increased from 20 pairs in 1978, to over 70 pairs in 1996, and to over 140 in 2004 (Oakleaf personal communication). There have been only a few recorded nests on the Shoshone as the Forest provides only marginal habitat for bald eagles. Areas of large open water with available large trees for roosting and nesting are more available on neighboring Bureau of Land Management land, while the Forest has predominantly smaller, headwater streams. Often pairs are found nesting in close proximity to the Shoshone.

Peregrine falcon

In 1999, the peregrine falcon was removed from protection under the Endangered Species Act. The Shoshone National Forest participated heavily in the activities that led to delisting. Over 131 peregrines were

²² Data were obtained at <http://westerngraywolf.fws.gov/annualreports.htm>

successfully released on the Forest or in adjacent areas between 1987 and 1995. The Wyoming Game and Fish Department monitors nest sites in cooperation with the Forest Service. Figure 61 and Figure 62 show the number of nests and fledglings produced over the last several years. Both of these measures show an upward trend for peregrines. Biologists monitoring peregrine falcons believe that these nests represent only a portion of the birds nesting in the area of the Forest because whenever new areas of suitable habitat are checked, they quite often find new nesting pairs.

Figure 61. Number of occupied peregrine falcon nests, 1999 through 2004.

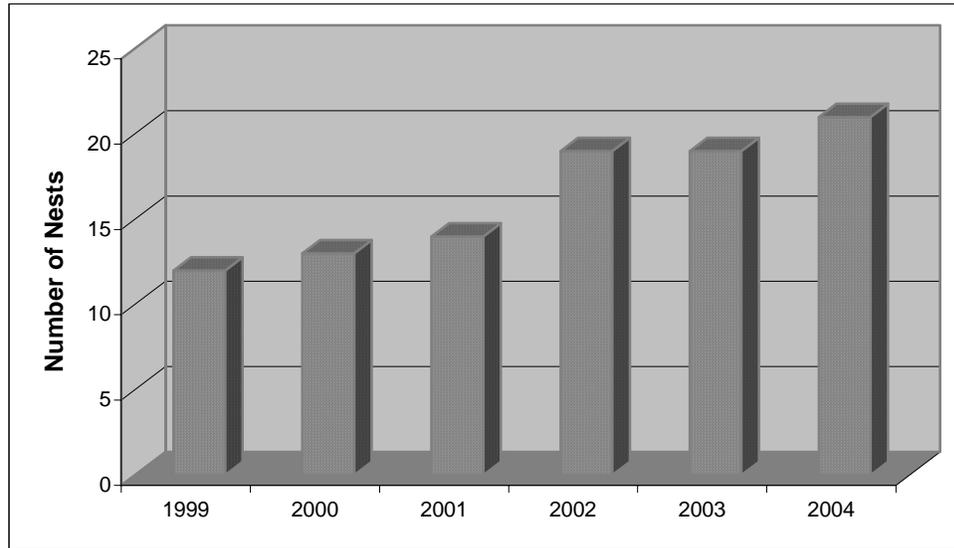
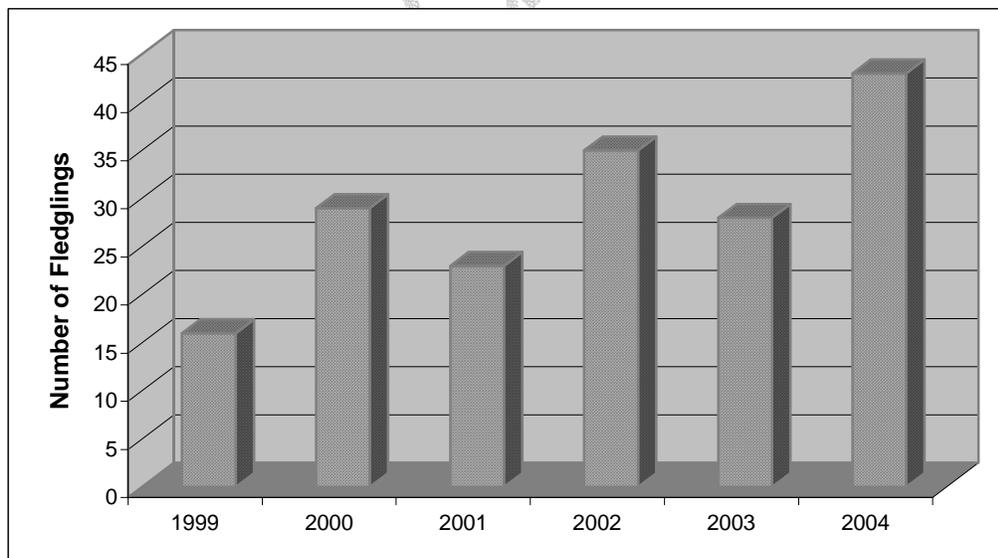


Figure 62. Number of peregrine falcon fledglings, 1999 through 2004.



Brewer’s sparrow

Data from 1980 through 2003 for the central Rockies indicate a positive trend of 1.4 percent per year. Brewer’s sparrows appear to be common where habitat is good, on the Forest and throughout Wyoming. Data for 2002 and 2003 from the Monitoring Wyoming’s Birds project indicate the species is at high densities in grassland, shrub, and juniper habitat types. On the Shoshone National Forest, the species was found at densities of 32 birds/km in the grassland habitats surveyed in 2002, and 14 birds/km in 2003. Grassland and shrub habitats are plentiful on the Forest, although the recent drought has reduced quality somewhat.

Figure 63. Densities of Brewer's sparrows (birds/km) in various habitats.

Year	Statewide			Shoshone NF grassland
	Grass	Shrub	Juniper	
2002	29	45	18	32
2003	21	95	27	14

Hairy woodpecker

The hairy woodpecker was not recorded on any of the Monitoring Wyoming's Birds transects, which is not surprising as woodpeckers are not as vocal as songbirds. Breeding Bird Survey data for the central Rockies from 1980 to 2003 show a somewhat stable to slightly downward trend of -0.7 percent per year. Forest Service and other field researchers on the Forest observed several woodpeckers in different project areas in the summers of 2003 and 2004, indicating that hairy woodpeckers do occur, though they are uncommon on the Forest. In the last five years, habitat conditions on the Forest for hairy woodpeckers have improved as densities of snags have increased due to the insect and disease outbreak on the Forest.

Blue and ruffed grouse

Data for blue and ruffed grouse are limited. Harvest data are variable from year to year and actual harvest numbers are a poor estimate of population size. Birds harvested per hunter effort is a somewhat better estimate of population numbers for these species, as it indicates how plentiful birds are and how available they are to hunters. Figure 64 and Figure 65 show birds/hunter day to measure hunter effort per bird. For blue grouse, the trend is variable but shows a stable trend. For ruffed grouse, it appears to be a stable to slightly upward trend. Blue grouse habitat is plentiful on the Forest and individuals are often seen by Forest Service personnel. Ruffed grouse habitat is declining with heavy encroachment in many aspen areas, especially on the north end of the Forest. Ruffed grouse data from the Breeding Bird Survey taken from 1980 through 2003 for the central Rockies indicate a stable trend of 0.5 percent per year. Data for the blue grouse for the same years and region indicate a stable to slightly downward trend of 0.8 percent per year.

Figure 64. Blue grouse harvested/hunter day, 1996 through 2003.

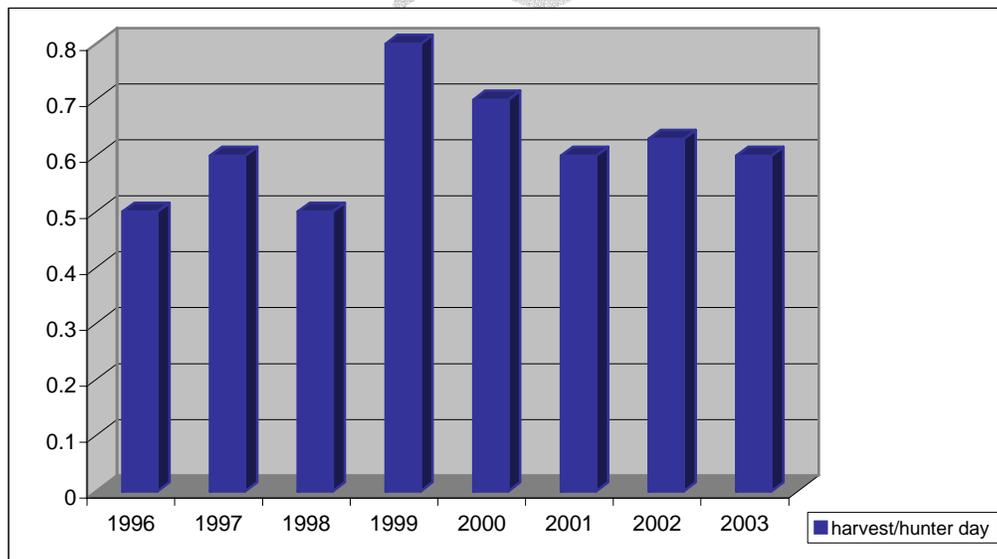
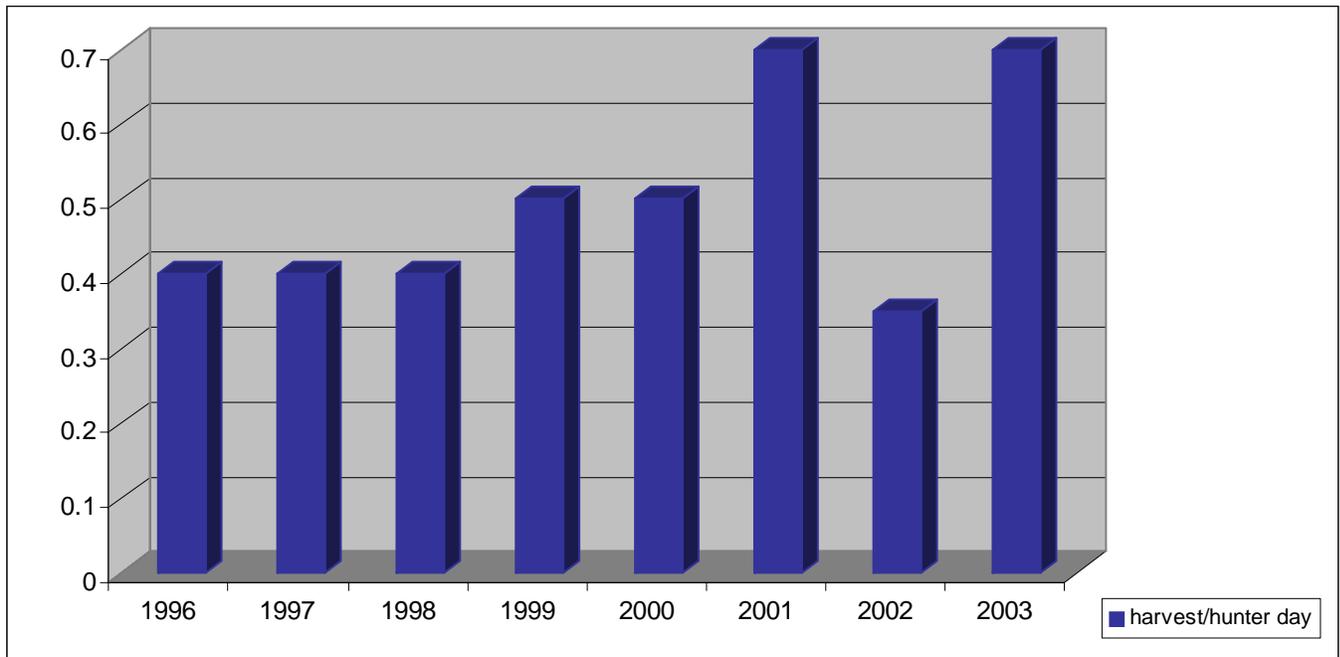


Figure 65. Ruffed grouse harvested/hunter day, 1996 through 2003.



Goshawk

The Breeding Bird Survey data for goshawk suggest a decreasing trend in the central Rockies for the last seven to eight years (1996 through 2003). Data for the same region from 1980 through 2003 indicate a stable to slightly positive trend of 0.4 percent per year. Data collected on the Shoshone National Forest indicate that the species is present but uncommon. Goshawk nests have been difficult to locate. Two active nests were found in 1989 and two nests were discovered in 1994. Surveys of these old nesting areas and surrounding habitat were conducted in 2002 and 2003 and no nests were discovered. In 2004, in partnership with the Wyoming Natural Diversity Database, surveys were performed again in areas where earlier nests had been found, and two nests were discovered. Monitoring efforts later in the summer of 2004 failed to confirm whether these nests produced any young. These nests (and surrounding areas) will be resurveyed in 2005.

Big game

The Wyoming Department of Game and Fish sets herd unit objectives for big game species based upon habitat conditions, public opinion, and cooperating agency input. Post-season population estimates were generated from the most recent (and thus considered most reliable) Wyoming Department of Game and Fish population simulation model for each herd unit. Not all species/herd units have population models; thus, not all species/herd units have population estimates. Due to modeling revisions, use of standardized modeling parameters, and refined data collection/analysis, current estimates may or may not agree with previously published population estimates (e.g., Annual Job Completion Reports). Beyond the earliest year for which population estimates are made, or if no estimates were available, a narrative discussion addresses population trends, as perceived by Wyoming Department of Game and Fish managers, with particular comments directed at the segment(s) of each herd unit that spend part or all of the year on the Shoshone National Forest.

Elk

The most reliable population estimates for the Gooseberry elk herd date back to 1995. Prior to 1995, this population increased slightly until about 1999, when it peaked at about 4,200 elk. This upward trend was likely the result of improved forage quality and quantity due to increased moisture, as well as both prescribed and natural fires that have occurred on much of this herd's winter range. In recent years, the population has shown a declining trend toward objective due to increased hunter harvest and drought conditions.

Following a comprehensive telemetry project that revealed significant interchange between the Carter Mountain and North Fork Shoshone River elk herd units, the two herds were combined in 1993 to create the Cody elk herd unit. The objective for the Cody herd unit is the combined total of the two herds. The current simulation model produces reliable estimates through 1997. Although no figures are given for 1986 through 1996, the general trend was a population near or slightly above the objective in 1986 that grew prolifically following the 1988 fires to approach perhaps 10,000 elk by 1993. Since 1993, elk numbers have gradually declined to where they are once again near objective.

The current simulation model produces reliable estimates since 1997 for the Clarks Fork elk herd unit. Although no figures are given for 1986 through 1996, the general trend was a population above the objective in 1986 that grew following the 1988 fires to approach perhaps 6,300 elk by 1993. Since 1993, elk numbers have gradually declined to where they are once again near objective.

For several years, personnel have used winter trend counts to estimate the population of the Wiggins Fork elk herd unit. Trend counts are conducted on three sub-segments within the herd unit including East Fork, Dunoir/Spring Mountain, and South Dubois. These sub-segments represent groups of elk that follow three distinct movement/migration patterns detailed in the Wiggins Fork Elk Movement Study. As part of an objective change in 2002, the Wyoming Department of Game and Fish committed to maintain 6,000 to 7,000 wintering elk in the area. The total includes 2,400 to 2,800 elk in the East Fork segment, 2,300 to 2,700 elk in the Dunoir/Spring Mountain segment, and 1,300 to 1,500 elk in the South Dubois segment. The actual number of elk counted in each herd segment is divided by a sightability factor to calculate the low and high population estimates.

The population in the Wiggins Fork herd unit has declined since 1997. Counts performed in 2002 produced numbers so much lower than the previous years that they were considered unreasonable and the trend counts were deemed invalid. The winter of 2002/2003 was extremely mild with little snow cover. It is likely more elk wintered off traditional winter ranges where the counts are conducted. In 2003, personnel observed 4,418 elk and believe the trend count was more reliable. The elk population is currently at the lower end of the objective range set in 2002. Given recent recruitment trends in the herd, the population will likely continue to decline in the near future.

Population numbers starting in 1996 for the South Wind River elk herd unit are from the POP-II model (a population simulation model) revised in 2003. Estimates for 1986 through 1995 are from prior Annual Job Completion Reports. Herd numbers rose significantly in the mid-1990s, most likely due to mild winters and now are down to very near objective. As the population rose above objective, more liberal hunting regulations were introduced and were effective at reducing this herd to near objective numbers.

Figure 66. Elk population estimates. Herd unit objectives are shown in parentheses.

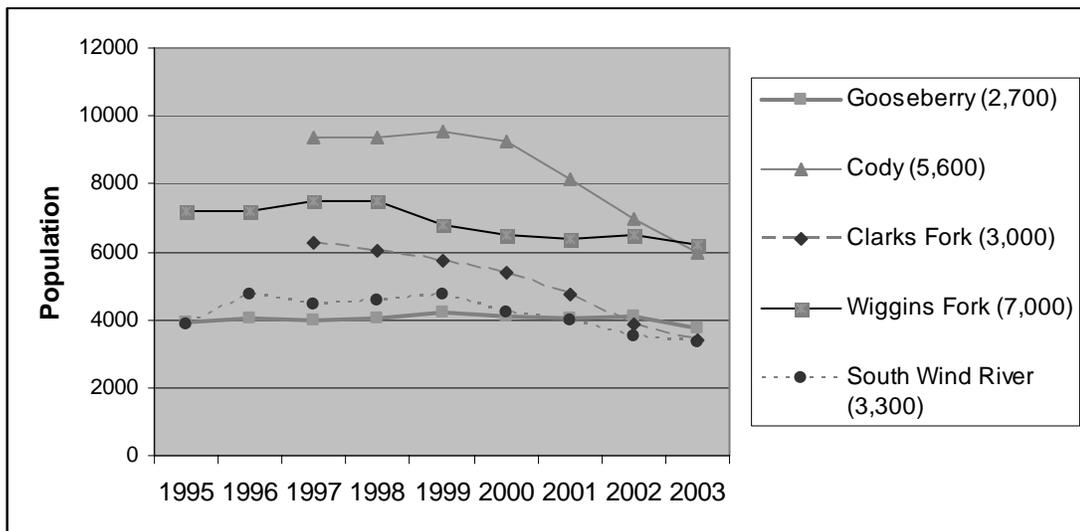
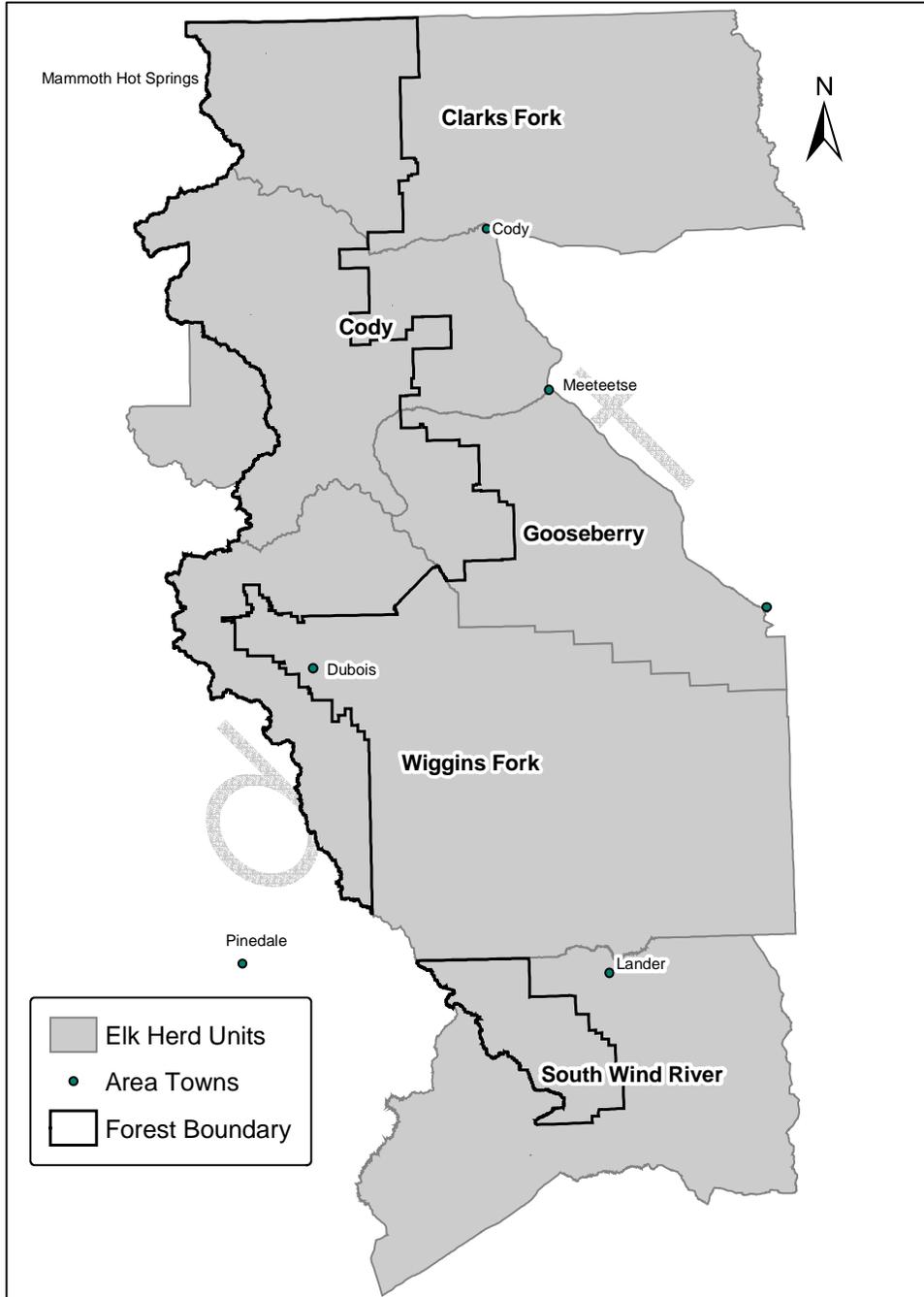


Figure 67. Elk herd units.



Mule deer

The most reliable population estimates for the Owl Creek/Meeteetse deer herd date back to 1995. Based on population estimates prior to 1995, it appears this deer herd increased slightly until about 1999, when the population began to stabilize. Severe drought conditions, which have persisted since about 2000, along with a slight decline in fawn production, have likely caused this deer herd to stabilize.

The current simulation model produces reliable estimates through 1990 for the Upper Shoshone mule deer herd unit. Although no figures are given for 1986 through 1990, the general trend was a population generally at the objective of 12,000 deer. Currently the trend is slightly downward due to reduced productivity in the herd. This loss of productivity may be due to the drought conditions of the past several years.

The current simulation model produces reliable estimates through 1990 for the Clarks Fork mule deer herd unit. Although no figures are given for 1986 through 1990, the general trend was a population below the objective of 9,000 deer. Although this herd has been managed very conservatively, the population trend is somewhat downward. This trend is potentially due to the effects of drought and increased wolf predation in the area.

The population of the Dubois mule deer herd unit is below objective and has been on a slightly downward trend. Based on current habitat conditions, the herd will probably stabilize at these numbers. Population estimates for this herd may not be reliable.

For the South Wind River mule deer herd unit, population numbers after 1992 are from the POP-II model revised in 2003. Numbers before 1993 are from the prior Annual Job Completion Report. The Lander and Hall Creek herd units were combined in 1993. This herd is fairly stable, although below objective. Habitat conditions are at a lower value because of several years of drought.

Figure 68. Mule deer population estimates. Herd unit objectives are shown in parentheses.

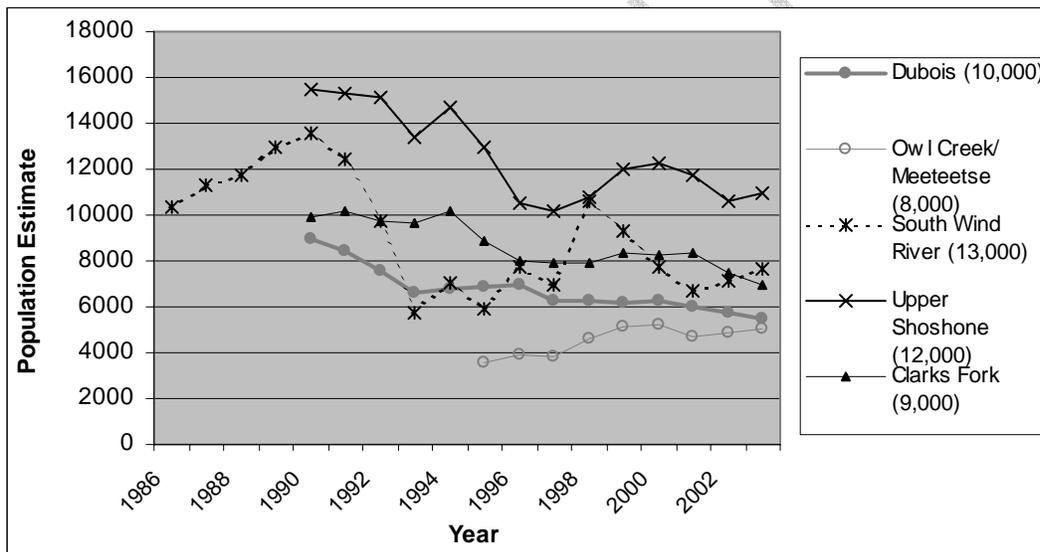
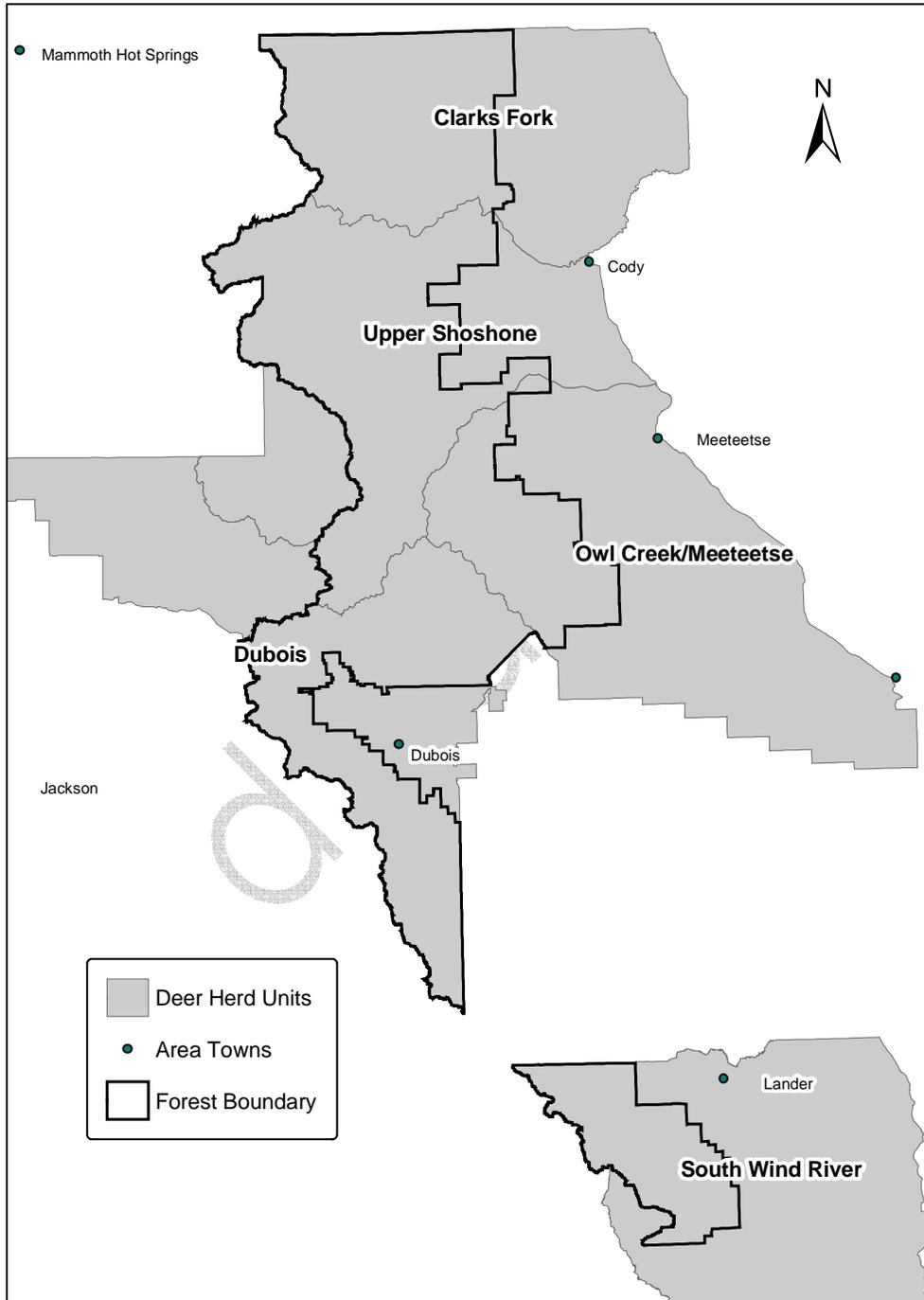


Figure 69. Mule deer herd units.



Moose

Moose populations have traditionally been managed using relatively small, single hunt area herd units, consisting of the Crandall, Sunlight, North Fork Shoshone River (North Fork), South Fork Shoshone River (South Fork), Greybull/Gooseberry, and Thorofare moose herd units. Population objectives for these herd units were 100 for Crandall, 75 for Sunlight, 75 for the North Fork, 75 for the South Fork, 85 for the Greybull/Gooseberry, and 325 for the Thorofare. Moose data in these areas are extremely difficult to collect, and therefore attempts at estimating population size have always been tenuous. Harvest data (hunter success, hunter effort) are the only pieces of information with which to assess population status. Due to perceived declines in moose numbers and the need to reduce hunting pressure, the Crandall and Sunlight herd units were combined in 1992 to create the Clarks Fork moose herd unit. The objective of 175 was derived from the previously established objectives of the combined Crandall and Sunlight herd units.

For similar reasons, the North Fork and the South Fork herd units were combined in 1999 to create the Shoshone herd unit. The objective of 150 was a result of the combined objectives of the North Fork and South Fork Shoshone herd units. Again, for similar reasons as those stated above and to simplify Annual Job Completion Report record keeping, the Clarks Fork, Shoshone, Greybull/Gooseberry, and the Thorofare herd units were combined in 2004 to create the Absaroka moose herd unit. The new objective derived from the combination of all previous herd units is 830 moose. Examination of moose harvest information indicates that moose numbers in the Thorofare have been steadily declining since the mid-1970s. Moose numbers in the North Fork/South Fork and Sunlight and Crandall areas remained relatively stable until the mid- to late 1990s, at which time numbers declined. Moose numbers in the Greybull/Gooseberry herd unit continue to be stable. Recently collected movement information has shown connectivity between the Buffalo Valley area of the Jackson herd unit and the Thorofare. Therefore, it is likely that the Thorofare herd unit will be included in the Jackson herd unit in the near future. It is probably safe to say that from 1986 through 2003, moose numbers in all areas (except the Greybull/Gooseberry herd unit) have declined from near objective levels to a point substantially below objective. The most likely factors for the decline are prolonged drought, reduction of habitat from 1988 fires, and increased predation.

The population estimates for the Dubois moose herd unit are not considered reliable. The estimates are based on small classification samples most years. For some years, there are no empirical data on the population due to a lack of flight money for classifications. Anecdotal information suggests this moose population declined in the late 1990s and early 2000s. Several individuals of this herd were found dead in 2000 of unknown causes and it is possible that a disease came through the population, which may account for the decline. Other potential factors are drought conditions and increased levels of predation.

Figure 70. Dubois moose herd unit population estimates, 1986 through 2003. The objective for this herd is 400 moose.

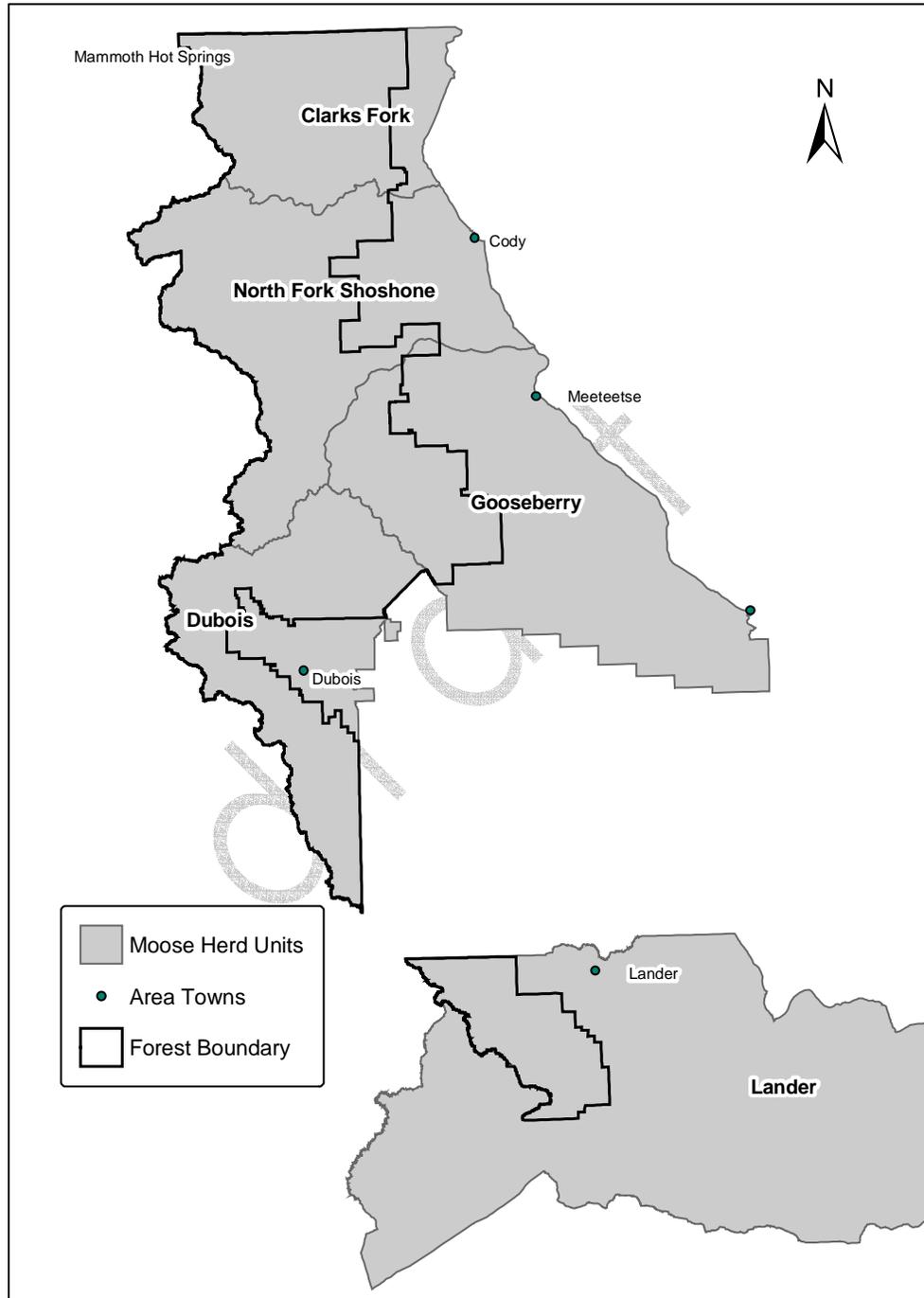
1986	1987	1988	1989	1990	1991	1992	1993	1994
625	654	699	715	686	672	697	663	674
1995	1996	1997	1998	1999	2000	2001	2002	2003
649	583	538	547	565	557	558	585	557

Lander moose herd unit population numbers from 1995 are from the POP-II model revised in 2003. This herd has trended somewhat downward perhaps due to the effects of drought conditions on willow and other deciduous vegetation food sources. Harvest of females will be reduced in hopes of reversing this downward trend.

Figure 71. Lander moose herd unit population estimates, 1986 through 2003. The objective for this herd is 450 moose.

1986	1987	1988	1989	1990	1991	1992	1993	1994
371	381	388	364	363	359	338	407	395
1995	1996	1997	1998	1999	2000	2001	2002	2003
520	499	475	475	477	451	421	410	393

Figure 72. Moose herd units.



Bighorn sheep

A reliable population simulation model does not exist for the Clarks Fork herd unit. This herd is thought to have been near the objective of 500 sheep from 1986 through the mid-1990s. Particularly severe late winter snowstorms in 1995 and 1996 caused significant mortality in the northern portion of this herd unit. Since then, numbers have been steadily increasing, but are not thought to have reached the objective as of 2003.

A reliable population simulation model was recently developed for the Trout Peak bighorn sheep herd unit. Estimates place this herd substantially below the objective of 750 sheep. Only in the early 1990s was this herd thought to be near the population objective. Following the early 1990s, this herd is felt to have fluctuated below objective levels. Data collection in this herd unit has been sporadic; therefore, population dynamics in this herd are poorly understood.

A reliable population simulation model was recently developed for the Wapiti Ridge bighorn sheep herd unit. Estimates place this herd essentially at the objective of 1,000 sheep. Previous impressions of sheep numbers from 1986 through 1998 indicate this herd has been relatively stable near the objective.

Good population data have been collected from the Younts Peak bighorn sheep herd since 1991, when the herd appeared somewhat stable. From 1986 through 1990, sheep numbers dropped from 1,000 to 900 sheep to a point near where they are estimated to have been in 1991.

The most reliable population estimates for the Francs Peak bighorn sheep herd unit date back to 1996. Based on hunter harvest statistics and annual herd classification counts dating back to the mid-1980s, it appears this population has remained relatively stable. Since 2001, lamb production has declined somewhat, which has caused a slight downward trend in the population in recent years.

The absolute value of these estimates is in all likelihood an underestimate of the Whiskey Mountain sheep population. The estimates provide an accurate trend of what has occurred in the population. Since a disease outbreak in the early 1990s, this population has declined substantially. The population is currently well below objective.

No population model has been available for the Temple Peak bighorn sheep herd since 1995. Numbers up to 1995 are from prior Annual Job Completion Reports. Numbers for 1999 through 2003 are from the 2003 Annual Job Completion Reports. The population trend appears to be stable over the last several years.

Figure 73. Bighorn sheep population estimates. Herd unit objectives are shown in parentheses.

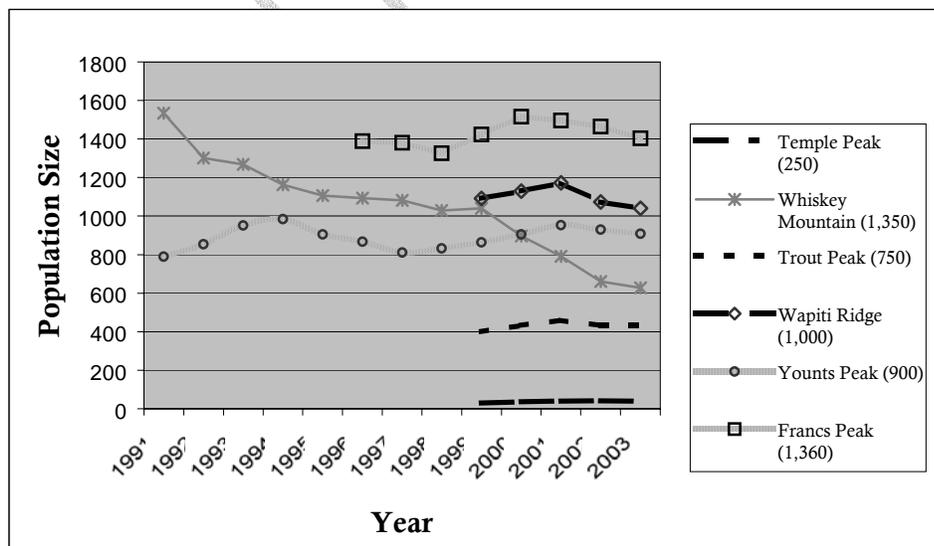
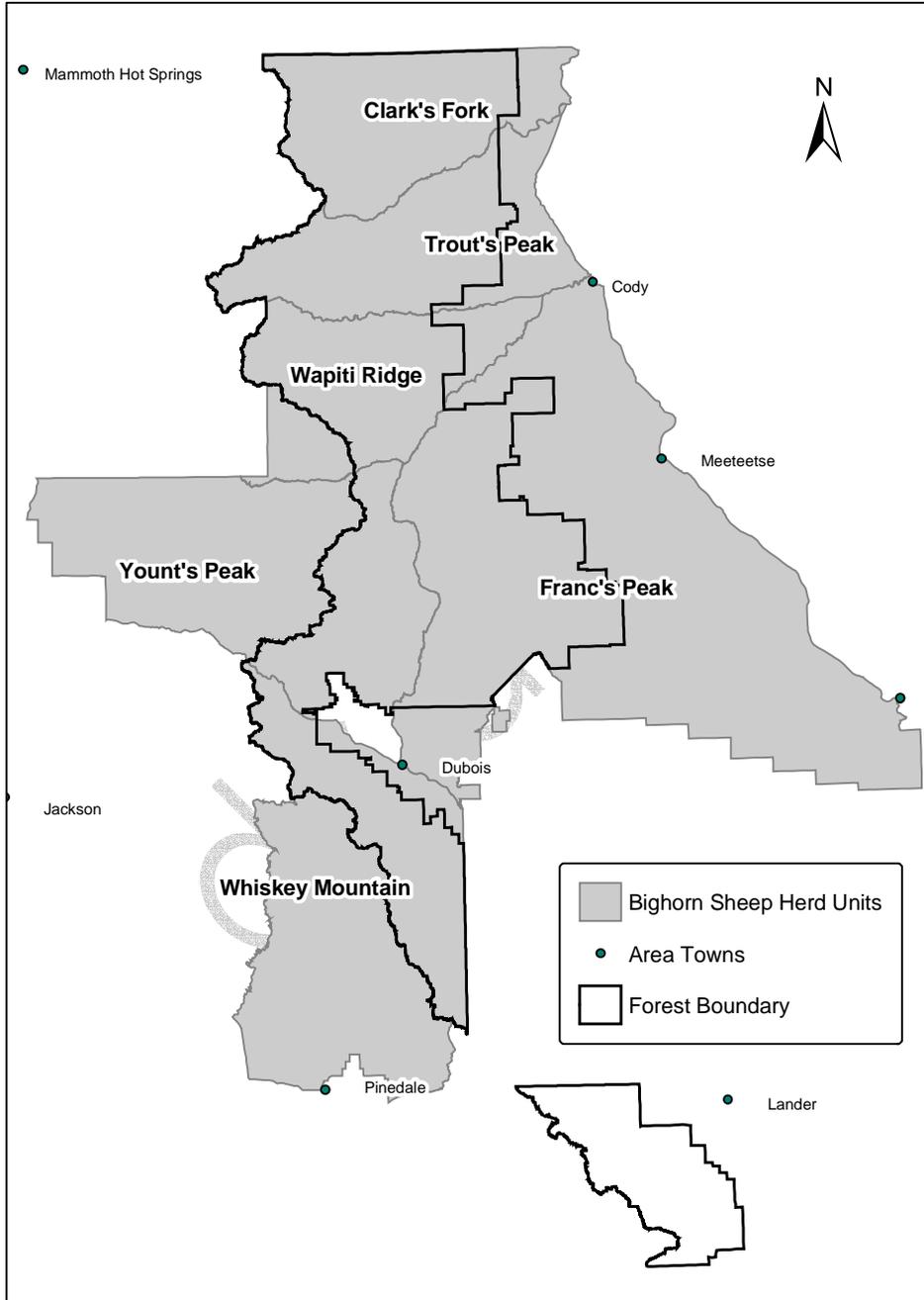


Figure 74. Bighorn sheep herd units (Temple Peak herd unit map is pending).



Mountain goats

The Beartooth herd is the only mountain goat herd on the Forest. Population estimates indicate the herd is at the objective level of 200 animals. It has been stable at this level for many years.

Figure 75. Mountain goat population estimates.

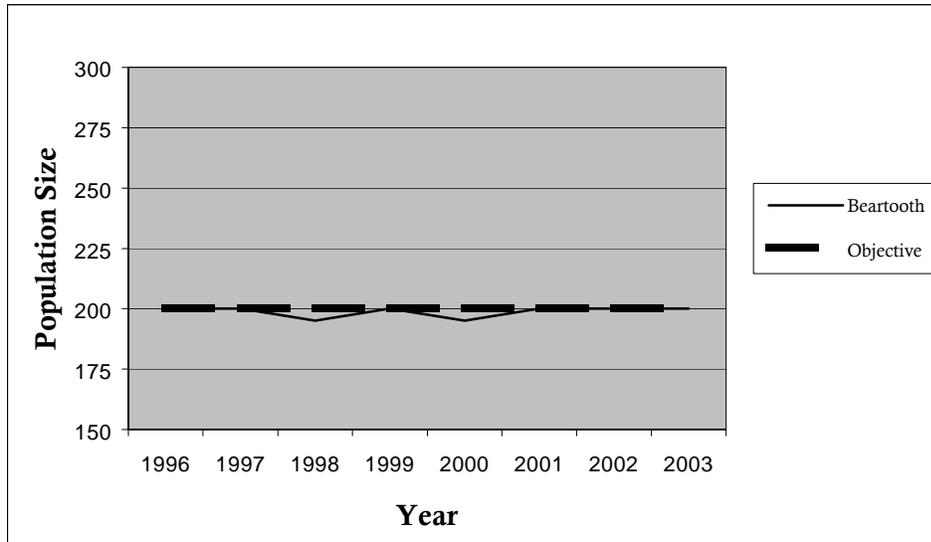
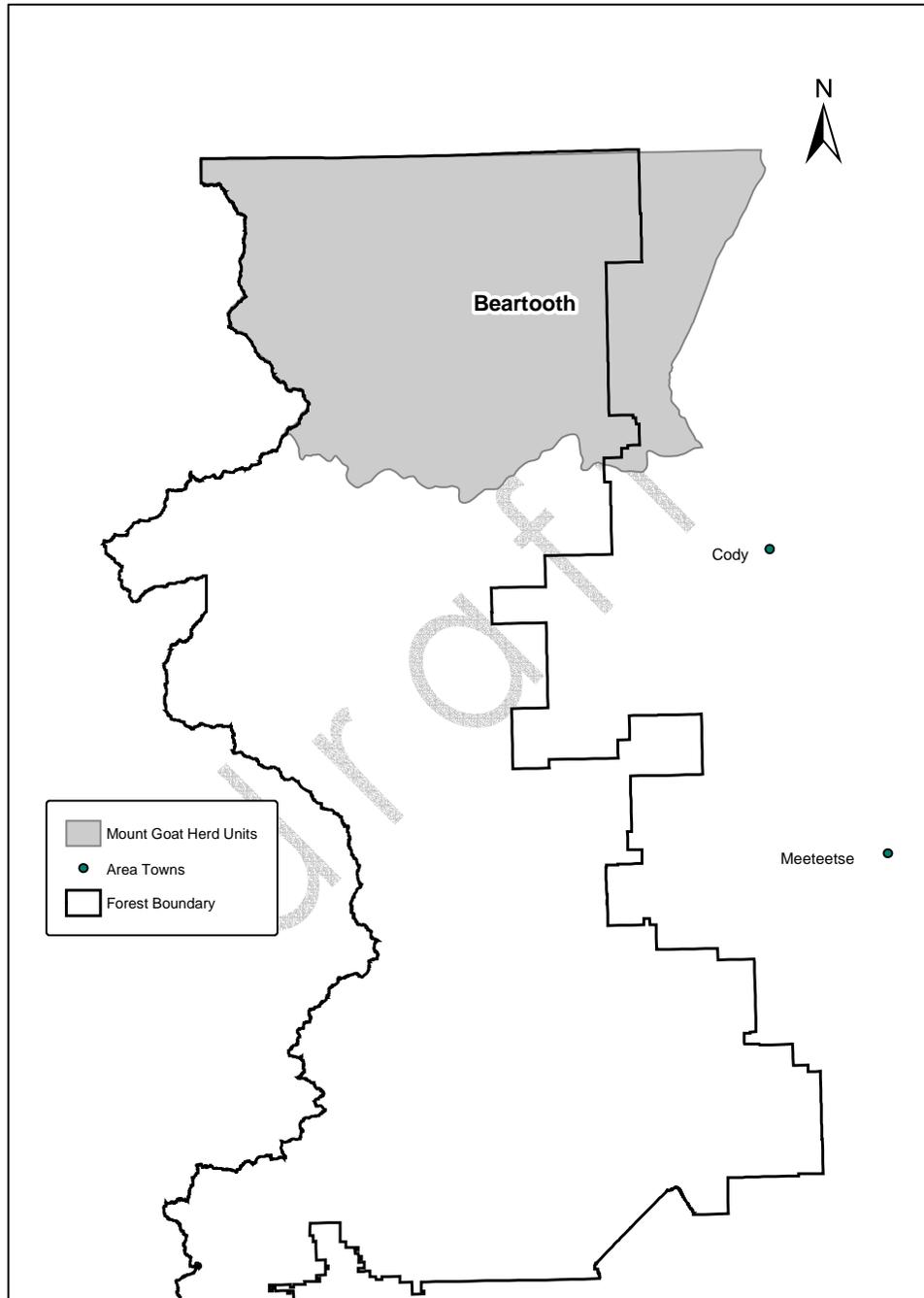


Figure 76. Mountain goat herd unit location.



Marten

Forest Service personnel commonly see marten in suitable habitats. Some monitoring was completed in the winter of 1995/1996 by snow tracking along snowmobile routes on the northern and southern ends of the Forest. Marten tracks were encountered at a frequency of 0.7 tracks per mile. Many of these same routes were again surveyed in the winters of 2002/2003 and 2003/2004. Surveys in 2002/2003 had good snow conditions and recorded over 50 marten tracks. Snow conditions in 2003/2004 were much poorer and resulted in less snow tracking. Marten tracks were still seen frequently. Additionally, a crew surveying for lynx tracks in the Beartooth Mountain area of the Clarks Fork Ranger District in the winter of 2001/2002 gathered information on marten occurrences. This crew recorded marten tracks found while looking for lynx tracks, and they found over 40 marten tracks.

These data indicate that marten are common on the Forest and probably have a stable trend. Local trappers are still successful in trapping marten with similar effort over the past decades.

Beaver

Observations made by McKinstry and Kruse in 1995 found beavers in the following drainages: Sweetwater, Little Popo Agie, Middle Fork Popo Agie, North Fork Popo Agie, Wind River, Clarks Fork, and Greybull River. Much of the Forest's stream habitat is too steep and has unstable volcanic substrates, with limited deciduous food supplies to provide good beaver habitat. Recent observations made by hydrology crews found active beavers in the following areas: Canyon Creek, Little Popo Agie, Hidden Creek, and Timber Creek.

Harvest data collected by the Wyoming Department of Game and Fish are limited for beavers, but harvest has declined in recent years. This is more an indication of the trend in the price of beaver pelts than that of beaver numbers. Based on this information, beaver trends are believed to be stable or declining on the Forest. This is not surprising as the quality and quantity of deciduous vegetation on the Forest has declined in recent years.

Game trout

Game trout are the management indicator species for aquatic habitat. Forest-wide, game trout populations and their habitats have been maintained or enhanced since 1986. The reasons for the overall improved population and habitat conditions include improved livestock grazing administration and compliance, and reductions in animal unit months. This has led to improved riparian and fish habitat conditions by reducing bank trampling and erosion, and increasing stream bank stability. Improved road drainage has reduced fine sediment input to streams. Correcting fish passage problems at road crossings has increased access to available habitat. The Forest constructed various fish habitat improvement structures on the North Fork of the Shoshone River, increasing suitable fish habitat and game trout numbers. The Forest also created ponds with suitable fish habitat at Lower Dick Creek Lake and Sawmill Pond. Additionally, stream bank stabilization and restoration projects have been completed on the North Fork of the Shoshone River and Wind River that provide additional game trout habitat.

Yellowstone cutthroat trout are a game trout and a Region 2 sensitive fish species. Since 1986, Yellowstone cutthroat trout populations have decreased somewhat due to hybridization and competition with other non-native, invasive trout species although habitat conditions have improved overall (Yekel personal communication).

Projections if current Forest Plan direction continues

If current management continues under the existing Forest Plan, the future trends of Management Indicator Species would be as follows:

Grizzly bear

With current Forest Plan direction and the protective status afforded grizzly bears as a threatened species under the Endangered Species Act, grizzly bears will continue to increase in population in the short term. Mortalities associated with human conflicts are likely to increase as grizzly populations expand. These mortalities will not be significant enough to affect the species population growth. As the Conservation Strategy is implemented, the rate of growth will likely less and eventually the population is expected to stabilize.

Gray wolf

Gray wolf numbers are likely to increase at a slower rate than the past several years. Wolves are currently filling much of the prime habitat and as they spill out into less desirable habitat, mortalities from control actions will increase. It is anticipated that wolf populations will continue to increase (even with additional mortalities) and the species will be proposed for delisting from endangered species status in the near future.

Bald eagle

The use of the National Forest System lands by bald eagles will probably remain stable in the future. This use is limited by lack of suitable habitat (large rivers or bodies of water) on the Forest, and this situation will not change over time under current Forest Plan direction. Therefore, the future trend in the short and long term should remain stable.

Peregrine falcon

The population trend of peregrine falcons will probably increase as the species is still spreading out into new, unoccupied habitat on the Forest. Peregrine falcon nesting habitat is unlikely to be impacted by any current Forest Plan guidelines.

Brewer's sparrow

Brewer's sparrows require sage and grassland habitats, which are currently suffering due to prolonged drought in the short term and conifer encroachment in the long term. Current management practices allow for habitat improvement; implementation of some of these projects may help reduce the downward population trend and habitat loss. This species population seems to be declining slowly over the short and long term.

Hairy woodpecker

Populations of hairy woodpecker will probably be stable to increasing in the near future. Increasing snag densities due to the insect and disease outbreak in the coniferous species may provide higher quality and quantity habitat for this species and result in an increasing population. Current standards and guidelines in the Forest Plan provide for ample amount of snags available for this species.

Blue grouse

Blue grouse will probably remain stable even with the insect and disease agents causing mortality in coniferous forest types. Blue grouse use opening and other mixed stands, so these habitat changes should not significantly affect their populations. Under current management, a sufficient amount of available habitat will be maintained.

Ruffed grouse

This species will remain stable or decline on the Forest due to the continued decline of early succession (young) aspen habitat. Aspen habitats have been lost due to lack of fire and the recent drought. Current and proposed vegetation treatments may increase aspen habitats, increasing ruffed grouse populations.

Goshawk

The future trend for goshawk habitat will probably continue slightly downward as the current insect and disease cycle is impacting available habitat (mature conifer forest) for this species in some areas of the Forest. The extent of decline of available habitat will depend upon how much of this species' habitat is affected by the insect and disease agents. There is a possibility that goshawks will switch to a more available prey species (such as woodpeckers). The current outlook for this species population is probably stable in the short term and unknown in the long term.

Elk

The future trends in elk populations will be chiefly determined by hunting regulations, set by the Wyoming Game and Fish Department and major fire events. The herds that are above objective levels (Gooseberry, Cody, and Clarks Fork) will probably trend downward due to high cow/calf hunting harvest/license quota until they near their objective levels. The Wiggins Fork herd is currently below objective, but based on habitat conditions, this herd will probably remain below the population objective. The South Wind River herd is currently near objective and will most likely remain stable. Current management objectives for herd populations allow for habitat improvement in crucial habitat areas.

Mule deer

The trend of mule deer herds is influenced by hunting regulations set by the Wyoming Game and Fish Department. Currently all herd units are below objective levels; some herds have been heavily affected by sustained drought and are trending downward. In the future, most populations will remain somewhat stable or perhaps increase as the Game and Fish Department sets appropriate hunting limits to encourage population increase. If the drought continues, it is possible that populations could still trend downward.

Moose

Moose populations are currently being affected by the drought conditions of the past several years, as well as increased predation. The limited available data for moose herds suggests that the northern herds are below objective levels, while the southern herds are closer to their objective levels. The Game and Fish Department will continue to limit hunting pressure on these herds to facilitate the recovery of the herd. If the drought continues, the populations will mostly likely be stable or continue to trend downward.

Bighorn sheep

The Clarks Fork, Trout Peak, Whiskey Basin, and Temple Peak sheep herds are below objective levels set by the Wyoming Game and Fish Department. Habitat conditions and severe illness are some of the factors responsible for these population declines. Current management allows for habitat improvement in crucial habitat areas. Several habitat improvement projects in the last few years have been aimed at improving habitat for this species, and other projects are planned. This management may result in a future upward trend of some of these herd units.

Mountain goat

The one population of mountain goats on the Forest will most likely continue to remain stable near the objective level. No change in management in the area this herd occupies is anticipated.

Marten

Marten habitat will probably decline as the quality is decreasing in many areas of the Forest due to insect and disease outbreaks. The extent of decline depends on how widespread the insect and disease agents become. Current levels of vegetation management are most likely not going to significantly affect marten, although without strong Forest Plan direction to monitor populations, it will be difficult to determine population trends.

Beaver

Beaver will most likely continue to decline on the Forest because the quality of the current riparian vegetation. Drought and perhaps past overgrazing of riparian areas have left insufficient habitat for beaver in some areas of the Forest. Current vegetation treatment projects are being done to improve riparian habitat but it will take many years, and the end of drought conditions, to have enough suitable habitat for beaver to increase in population.

Game trout

Under the current Forest Plan, game trout populations and associated habitat trends are improving overall. Riparian areas are slowly improving from turn-of-the-century overgrazing practices.

Need for change in Forest Plan direction

The revised plan's desired conditions and objectives regarding wildlife and habitat should consider various measures of habitat both quantitatively and qualitatively. Measures that should be considered for inclusion are:

- Roding
- Human disturbance
- Habitat linkage
- Habitat interspersion

The revised plan's desired conditions and objectives should incorporate the new concepts of species of concern and species of interest. Monitoring direction in the plan should be integrated with these new concepts.

New science should be incorporated into the desired conditions and objectives in the plans that have changed the understanding of concepts from the original plan on subjects such as edge contrast and thermal cover.

The revised plan's desired conditions and objectives for vegetation diversity should consider the historical range of variability for vegetation in the planning area.

Desired conditions and objectives for stand components such as snags, dead and down, and density, etc. should address inherent differences in forest type.

Desired conditions and objectives for the maintenance or enhancement of riparian resources should consider the historic range of variability in both the short and long term.

The revised plan desired conditions and objectives should incorporate direction from the grizzly bear and lynx conservation strategies.

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