THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE SPECIES

Special management emphasis is given to species for which there is a viability concern. The Forest Service has a legal requirement to maintain or improve habitat conditions for Threatened, Endangered, and Proposed species under the Endangered Species Act. Administrative direction also exists to maintain or improve conditions for Candidate species for federal listing.

The U.S. Fish and Wildlife Service has not identified any critical habitat within the Forest for terrestrial species currently listed as threatened or endangered under the ESA. The National Marine Fisheries Service has identified critical habitat for chinook salmon. The Threatened, Endangered, Proposed, and Candidate species of the Sawtooth National Forest, their locations, and important considerations for management are described in Table E-1.

Table E-1. Threatened, Endangered, Proposed, or Candidate Species For the Sawtooth National Forest, as of December 2002

Type	Common Name	Status	Global Rank*	Habitat	Management Concerns
Mammal Species	Gray wolf	Experimental non-essential	G4	All PVGs	Threat of mortality
	Canada lynx	Threatened	G5	PVGs 3, 6, 7, 9, 10, 11	Vulnerability, prey availability during winter
Bird Species	Bald Eagle	Threatened	G4	Large trees near lakes, reservoirs or large streams	Nesting and roosting sites
	Yellow-billed cuckoo	Candidate	G5	Extensive riparian cottonwood forest	Need extensive riparian woodland (cottonwood) habitat
Fish Species	Sockeye salmon	Endangered	NA	Morainal lakes and perennial streams	Sediment in spawning and rearing habitat
	Chinook salmon	Threatened	NA	Perennial streams	Sediment in spawning and rearing habitat
	Steelhead trout	Threatened	NA	Perennial streams	Sediment in spawning and rearing habitat
	Bull trout	Threatened	NA	Perennial streams	Sediment in spawning and rearing habitat, water temperature, habitat connectivity

*Global Rank is a system of ranking the range-wide status of species maintained by State Conservation Data Centers and Natural Heritage Programs throughout North America and several other countries. Numerical rankings range from G1 to G5, where G1 species are considered critically imperiled at the global scale, and G5 species are considered globally widespread, abundant, and secure, although there may be concerns for the viability of local populations. Many researchers believe that species ranked G1-G3 need special consideration or mitigation for management activities that may negatively affect their habitat because their long-term viability is currently a concern (Andelman et al. 2001).

NA = No ranking available from the Conservation Data Center

INTERMOUNTAIN REGION SENSITIVE SPECIES

Table E-2 shows the Intermountain Region Sensitive species that occur on the Sawtooth National Forest. The Regional Forester's Sensitive Species List is evaluated annually to see if species need to be added or removed. The Regional Forester designates species as "Sensitive" because their population or habitats are trending downward, or because little information is available on their population or habitat trends. The primary purpose of the Sensitive species program is to conserve or restore habitat conditions for these species to prevent them from becoming federally listed under ESA.

Table E-2. Intermountain Region Sensitive Species For the Sawtooth National Forest, As of December 2002

Type	Common Name	Global Rank	Habitat	Management Concerns
Mammal Species	Wolverine	G4T4	All PVGs, high elevation	Vulnerability during denning
	Fisher	G5	PVGs 3, 4, 5, 6, 7, 8, 9, 10	Habitat fragmentation, snags and logs
	Townsend's big-eared bat	G4	Caves, mines, large trees	Vulnerability to disruption
	Spotted bat	G4	Caves, mines, large trees	Vulnerability to disruption
Bird Species	Northern goshawk	G5	All PVGs, forested	Nesting territories and prey availability
	White-headed woodpecker	G4	PVGs 1, 2, 5	Large snags, large trees, low tree density
	Northern three-toed woodpecker	G5	PVGs 3, 7, 8, 9, 10, 11	Sufficient snags
	Flammulated owl	G4	PVGs 1, 2, 3, 5, 7	Large snags and trees
	Boreal owl	G5	PVGs 3, 6, 7, 8, 9, 11	Large snags
	Great gray owl	G5	PVGs 9, 10	High-elevation forests with meadows
	Columbian sharp-tailed grouse	G5T3	Sagebrush and grasslands	Sufficient shrubby wintering areas
	Common Loon	G5	Natural Lakes	Vulnerability during nesting and abundance of small fish for prey
Fish Species	Westslope cutthroat trout	NA	Perennial streams	
	Wood River sculpin	NA	Perennial streams	
Amphibian Species	Spotted frog	G4Q	Riparian areas	Sufficient still or pond water

NA = No ranking available from the Conservation Data Center

MANAGEMENT INDICATOR SPECIES

Table E-3 shows the Management Indicator Species (MIS) selected by the Sawtooth National Forest. The primary reason that Management Indictor Species (MIS) are selected is because their populations are believed to indicate the effects of management activities. Other reasons are also considered (36 CFR 219.19(a)(1). By monitoring and assessing habitat conditions of MIS, managers can estimate effects on other species within similar habitats.

Table E-3. Management Indicator Species for the Sawtooth National Forest

Type	Common Name	Global Rank	Habitat	Management Concerns
Bird Species	Pileated Woodpecker	NA	PVGs 2-9	Sufficient large trees, snags, and down logs
	Sage Grouse	NA	Sagebrush/ grassland	Habitat reduction and alteration
Fish Species	Bull Trout	NA	Perennial streams	Sediment in spawning and rearing areas, water temperature, habitat connectivity

*MIS for Management Areas 4, 5, 7, and 9-20.
NA = No ranking available from the Conservation Data Center

CHANGES IN SOURCE HABITAT FOR SELECTED SPECIES

The Wisdom et al. (2000) analysis evaluated 91 wildlife species considered at risk within the Interior Columbia Basin Ecosystem Management (ICBEMP) area. This ICBEMP analysis divided the Columbia River Basin into 13 geographic units called Ecological Reporting Units (ERUs). ERU 13 covers the majority (87 percent) of the Sawtooth National Forest north of the Snake River while ERU 10 (4 percent) and ERU 11 (6 percent) cover the portion of the Forest south of the Snake River (see Table E-4). Within each ERU, changes in source habitat from historic to current times were estimated, and risks factors to species or source habitat conservation were identified. Source habitat is defined as "those characteristics of macro vegetation that contribute to stationary or positive population growth" (Wisdom et al. 2000). A decrease in source habitat of greater than 20 percent was considered significant and a risk to that species long-term viability. Table E-4 shows the changes in source habitat that have occurred basin-wide and in ERUs 13, 10, and 11 for selected species in the Wisdom et al. (2000) analysis that are known or believed to occur on the Forest. Shading within the table highlights species' source habitats with a 20 percent or greater decrease from historical

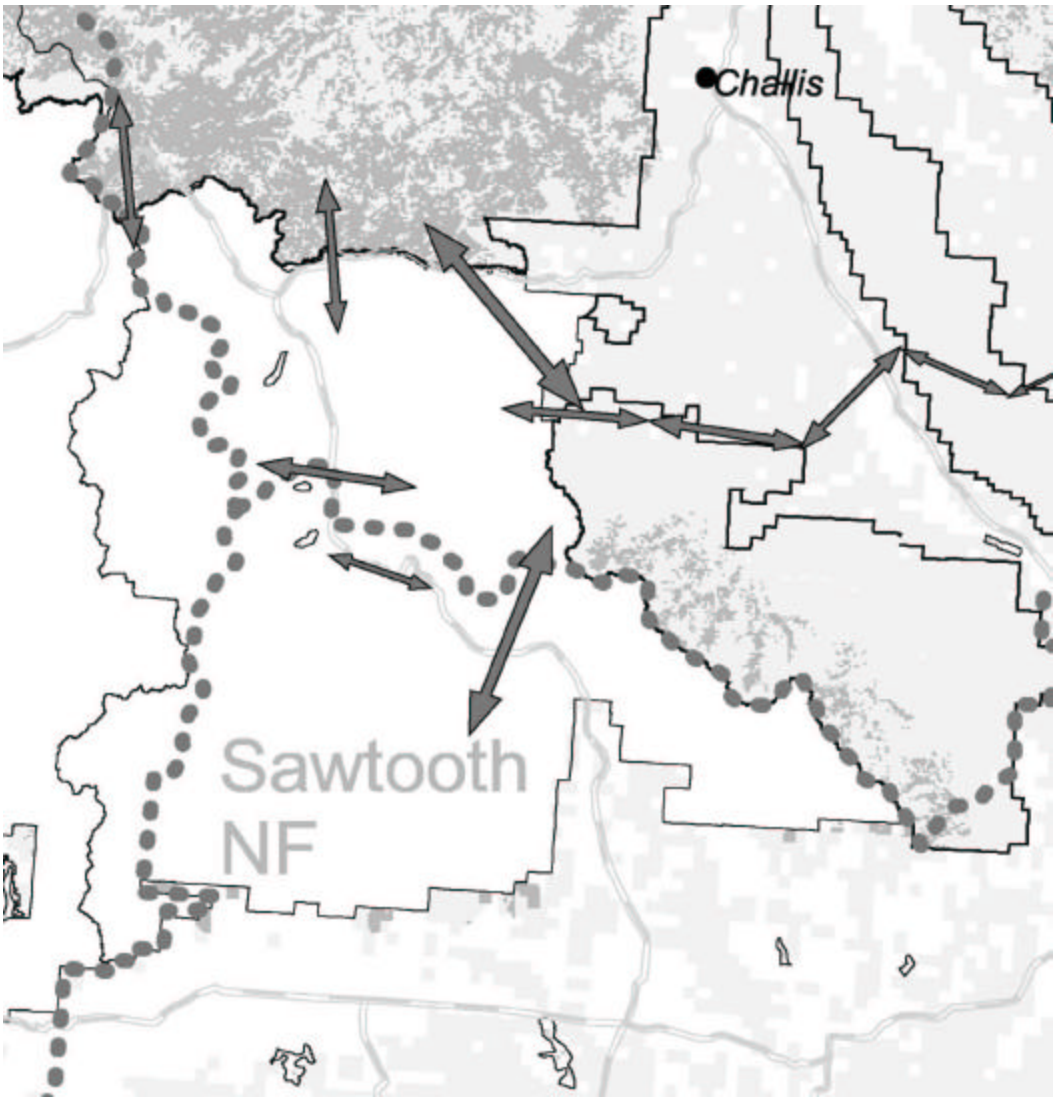
Table E-4. Changes In Source Habitat For Selected Wildlife Species That Occur within the Ecogroup, taken from Wisdom et al. 2000

Species	Basin Wide Change	ERU 13 Change	ERU 10 Change	ERU 11 Change
Canada lynx	+ 14%	+ 12 %	+ 3 %	+ 33 %
Gray wolf	- 16 %	- 3 %	-13 %	- 34 %
White-headed Woodpecker	- 63 %	- 61%	N/A	N/A
Pygmy nuthatch	- 67 %	- 62 %	N/A	N/A
Lewis's woodpecker, migrant	- 83 %	- 63 %	- 95 %	- 51 %
Flammulated owl	- 56 %	- 52 %	- 62 %	- 99 %
Northern goshawk, summer	- 43 %	- 7 %	- 40 %	- 32 %
American marten	- 38 %	+ 16 %	N/A	N/A
Fisher	- 20 %	+ 35 %	N/A	N/A
Black-backed woodpecker	- 34 %	+1 %	N/A	N/A
Wolverine	+ 33 %	+ 32 %	N/A	N/A
Mountain quail	+ 16 %	- 12 %	+ 56 %	N/A
Bighorn sheep, winter	- 49 %	- 29 %	- 25 %	- 24 %
Bighorn sheep, summer	- 41 %	- 17 %	- 29 %	- 53 %
Vaux's swift	- 23 %	+ 51 %	N/A	N/A
Pileated woodpecker	- 21 %	+ 21 %	N/A	N/A
Northern three-toed woodpecker	+ 22 %	+ 77 %	N/A	N/A
Boreal owl	- 61 %	+ 1 %	N/A	N/A
Great gray owl	- 6 %	+ 31 %	N/A	N/A
Spotted bat	- 17 %	- 18 %	- 16 %	- 51 %
Townsend's big-eared bat	- 8 %	+ 20 %	- 15 %	- 47 %
Sage grouse, summer	- 27 %	+ 11 %	- 13 %	- 53 %
Sage grouse, winter	- 27 %	+ 10 %	- 13 %	- 54 %
Columbian sharp-tailed grouse, summer	- 45 %	- 56 %	- 24 %	- 43 %

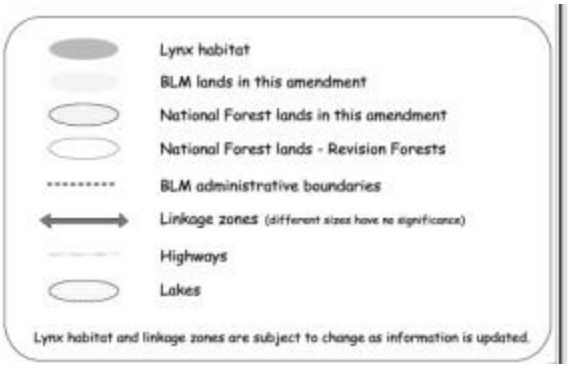
N/A = There were no available survey population records from for these species on FS administered lands within this ERU.

LYNX HABITAT LINKAGE ZONES

Figure E-1. Lynx Habitat Linkage Zones for the Sawtooth National Forest
(From Northern Rockies Lynx Amendment Area mapping, as of September 2002)



The arrows on the map represent linkage zones.



MANAGEMENT STRATEGIES TO ADDRESS ELK VULNERABILITY TO MORTALITY, TRAVEL MANAGEMENT IMPACTS, AND SECURITY NEEDS

The following management strategies are intentionally broad and should be refined through coordination with State agencies, relative to population objectives, local field conditions, and experience with local elk populations. Land managers (biologists, planners, and line officers) should view these strategies as the foundation on which to implement elk habitat management under the Forest Plan (USDA Forest Service 1983). As there are many interacting variables, managers should evaluate each landscape on its own merits, taking into account hunter density and hunter use patterns in combination with access and forest vegetation (Weber et al. 1998). Christensen et al. (1993) provides a step-down process that can be used to coordinate Forest Plans with State strategic Plans.

When a primary issue for land management is elk security and vulnerability, emphasis should be placed on process, content and implementation of information rather than on numerical standards (Christensen et al. 1993). As pointed out by Weber et al. (1998), "It does not seem feasible to assign threshold values to act as maximum road density or minimum patch size guidelines." Nonetheless, there is information on relative road densities, and security needs that can be used as guidance.

Where maintenance of elk habitat quality, security, and/or vulnerability has been determined to be an important management consideration, open road densities, location of open roads and trails, and off-road motorized use should be evaluated to determine effects (Thomas et al. 1988). Elk management goals and objectives should be clear before imposing travel restrictions (Lyon et al. 1985). Because the response of elk to open or closed roads does vary, decisions to construct or close roads should be evaluated on a case-by-case basis (Lyon et al. 1985, Frederick 1991).

Open road density and security quality are both important when considering elk security and vulnerability during the hunting season. See Figure E-2 for display of habitat effectiveness for elk at road densities up to six miles per square mile (Lyon 1983, Lyon et al. 1985, Christensen et al. 1993). The model assumes that existing habitat contains a satisfactory array of security that provides for elk (Lyon 1979). When security and forage is less than desired, the effects of roads may be greater than displayed. Motorized traffic evokes an avoidance response by elk. Habitat effectiveness increases as the miles of road per square mile decreases.

Where the agreed upon management objective is to allow a desired numbers of bull elk to escape harvest, options include: shortening the hunting season, increasing restrictions on hunters, or providing security areas for elk through access restrictions. A combination of these options may be required. Security areas should be of the size, shape, and arrangement to meet desired elk objective and hunting opportunities. Hiding areas and security are not interchangeable components of elk habitat (Lyon and Canfield 1991). Hiding areas may be a factor in security prior to the hunting season, but it does not automatically provide security during the hunting season.

Where the objective is to have long hunting seasons, and distribute the bull harvest over the entire hunting season and maintain a desired level of mature bulls in the post-hunting-season population, guidelines should be developed for retaining or managing for elk security. For example, one recommended approach is to retain 30 percent or more of an analysis area in nonlinear blocks of secure areas equal or greater than 250 acres and equal or greater than 0.25 mile from motorized access (Hillis et al. 1991, Lyon and Canfield 1991). However, the number, size, and location of areas retained should be determined through use of local information and application of up-to-date information to meet desired conditions.

When addressing big game security at the local level, elk selection for wallows and licks, travel corridors and routes, forage sites, and forest stringers should also be considered. Lyon et al. (1985) point out that security and shelter appear to be the most basic habitat requirements for elk. "Productive elk habitat cannot be evaluated in separate parts." During any season it is important that all recognized components of elk habitat be considered concurrently and be managed to meet desired outcomes.

Where needed to meet management objectives, vegetation around wallows, licks, travel corridors, created and natural openings, and forest stringers should be managed to maintain security (i.e., dense vegetation, or security areas). Vegetation screening in these areas should be provided and linked where feasible so that elk can make the expected use of these habitats. Vegetation should be managed around these components so that an individual is generally not observable as it makes use of, or travels through them. Specific site distances to provide security should be determined at the project level based on current elk reference sources and local knowledge of elk use. Generally, vegetation around licks or wallows should be two or more site distances as defined in the glossary. Forested vegetation around created and natural meadows should retain adequate vegetation density and stand size to provide for security. Integrity of forested stringers used as travel routes should be retained when necessary to meet desired elk objectives.

Elk winter range should be identified using current winter distribution surveys and habitat use, developed in cooperation with the Idaho Fish and Game Department and cooperators. Forested areas adjacent to winter foraging areas should maintain the vegetative integrity for elk (Lyon et al. 1985).

On winter ranges, modification of forested stands should be planned on a local basis. Primary emphasis is on maintaining adequate thermal and security to meet agreed upon elk management objectives. Forested vegetation should retain the ability following management to provide for continued use by elk to conserve energy and use available forage.

Figure E-2. Elk Habitat Effectiveness and Road Density (Lyon et al. 1985)

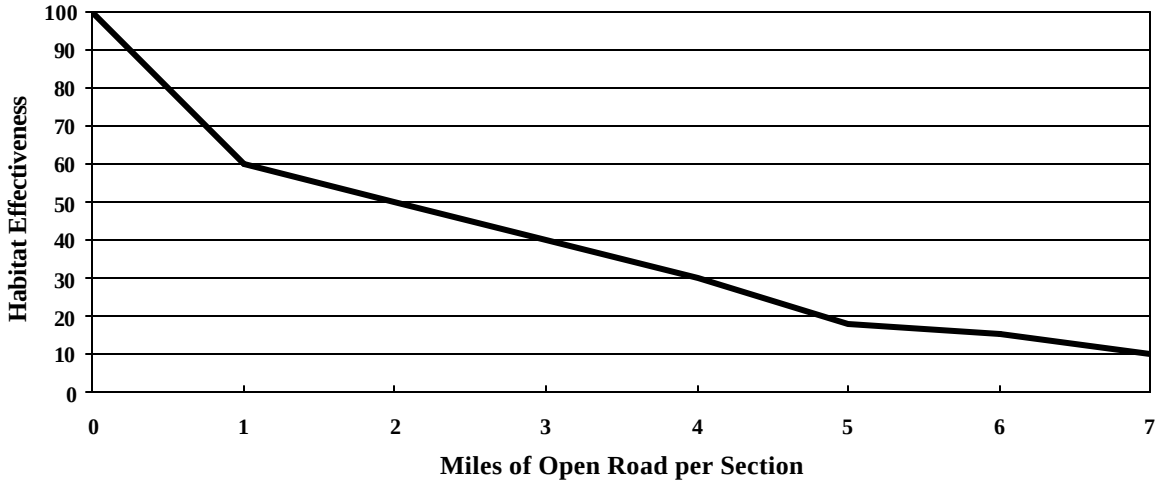
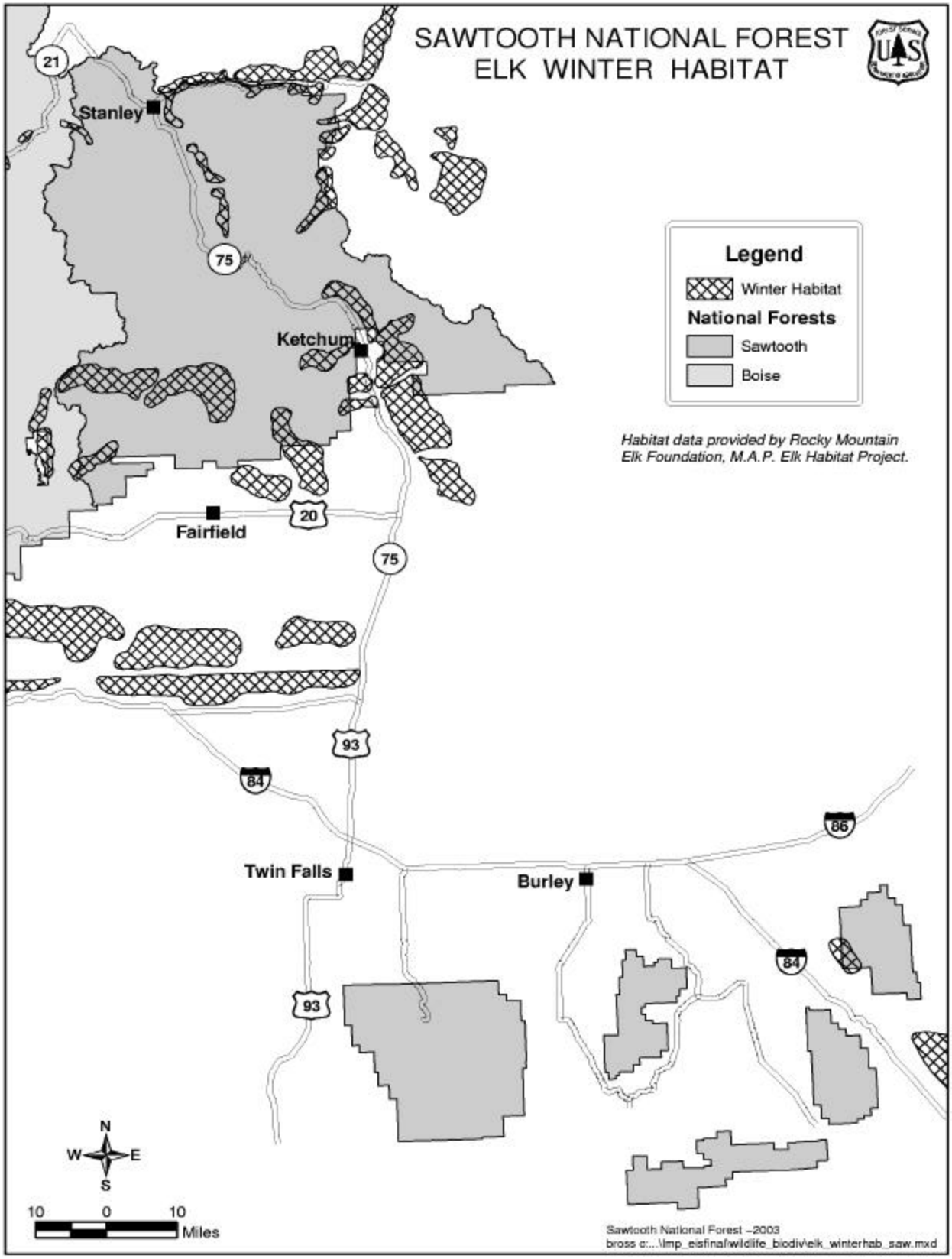


Figure E-3. Elk Winter Habitat



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