

Powder Mountain Wildlife Due Diligence Report 2012 Update

Prepared for

Summit Series

Prepared by

SWCA Environmental Consultants

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POWDER MOUNTAIN WILDLIFE DUE DILIGENCE REPORT 2012 UPDATE

Prepared for

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INTRODUCTION

Powder Mountain Resort is being considered for a new housing development by Summit Series. The project area is approximately 536 hectares (ha) (1,324 acres) of private land split into six parcels that straddle the border of Cache and Weber Counties in northern Utah (Figure A1; all figures are in Appendix A). Uinta-Wasatch-Cache National Forest land and a state wildlife management area are adjacent to the southeast end of the project area, and private lands are adjacent to the north and east end of the project area.

SWCA Environmental Consultants (SWCA) was initially contacted in October 2001 to conduct a biological resource survey of the Powder Mountain Resort project area. This survey focused on 1) determining if threatened, endangered, and sensitive species (TES) occur on or use the project area, and 2) locating important wildlife corridors and habitat. A general vegetation survey was also conducted. In June 2012, SWCA was contacted by Summit Series, the new owners of Powder Mountain Resort, to update the wildlife assessments of the area. This includes updating the TES lists, which have changed since 2001, and reevaluating the big-game seasonal habitat types.

VEGETATION

The Powder Mountain Resort elevation ranges from approximately 1,585 to 2,872 meters (m) (5,200 to 9,422 feet) above sea level, though the project area is in the upper end of this elevation range. This topographic relief combined with other factors (e.g., soil characteristics and water availability) influences the type of vegetation in the area. Vegetation associations and/or cover types are areas that support similar vegetation. These vegetation associations provide unique forage, thermal characteristics, and other values to which wildlife and plants respond. The vegetation associations in the project area were classified using vegetation categories defined by the Southwest Regional Gap Analysis Project (SWRGAP) (Edwards et al 1996; Figure A2). The vegetation categories in the project area are split into six major habitats: conifer/aspen, spruce/fir, oakbrush, mountain shrub, sagebrush/perennial grass, and herbaceous.

Conifer/Aspen

Quaking aspen (*Populus tremuloides*) dominates the conifer/aspen habitat. Scattered subalpine fir (*Abies lasiocarpa*), occasional Engelmann spruce (*Picea engelmannii*), and Douglas-fir (*Pseudotsuga menziesii*) occur near transitional areas. Shrub cover includes mountain snowberry (*Symphoricarpos oreophilus*) and elderberry species (*Sambucus* spp.). Common herbaceous species in this habitat include western coneflower (*Rudbeckia occidentalis*) and horsemint (*Agastache urticifolia*).

Spruce/Fir

The spruce/fir habitat is dominated by Engelmann spruce and subalpine fir. Other associated woody plants include Douglas-fir, aspen, and sagebrush (*Artemisia tridentata*). Overall, the spruce/fir habitat is the most common upper montane forest type in the Wasatch Mountains. On more productive sites, the shrub layer contains snowberry, serviceberry (*Amelanchier* spp.), and chokecherry (*Prunus virginiana*), whereas the forb/grass layer commonly consists of perennial grasses. Spruce/fir stands often grade into an herbaceous grassland association.

Oakbrush

Gambel oak (*Quercus gambelii*) comprises the dominant overstory species in this habitat. This habitat occurs in transitions between the sagebrush/perennial grass and the mountain shrub habitats. Species include Gambel oak, green rabbitbrush (*Chrysothamnus viscidiflorus*), sagebrush, broom snakeweed (*Gutierrezia sarothrae*), and various grasses.

Mountain Shrub

Dominant shrub species in this habitat include snowberry, chokecherry, buckbrush (*Ceanothus velutinus*), Gambel oak, Woods' rose (*Rosa woodsii*), serviceberry, and sagebrush. Common herbaceous species may include showy goldeneye (*Viguiera multiflora*), whorled buckwheat (*Eriogonum heracleoides*), hoary aster (*Machaeranthera canescens*), sticky geranium (*Geranium viscosissimum*), and a variety of native grasses.

Sagebrush/Perennial Grass

This habitat is a mix between sagebrush and perennial grasses such as crested wheatgrass (*Agropyron cristatum*) and needlegrass (*Stipa* spp.). It occurs predominantly in drier, lower elevation sites as well as in scattered patches in the central part of the project area that are drier and too exposed to support the mountain shrub habitat. This habitat is most prevalent on south-facing slopes at the southwestern side of the project area where it functions as critical elk and high-value deer winter ranges. This habitat also occurs throughout the project area with clusters near the east end of the project area.

Herbaceous

The herbaceous habitat comprises non-woody plant species and occurs in open areas between aspen and conifer stands where soil depth and moisture are sufficient to support dense plant cover. During the survey, the herbaceous habitat had senesced to the point where species were difficult to identify. Although not identified in the 2012 survey, typically showy forbs in this habitat include bluebells (*Mertensia arizonica* and *M. ciliata*), glandular cinquefoil (*Potentilla glandulosa*), lupine (*Lupine caudatus* and *L. argenteus*), Louisiana sagewort (*Artemisia ludoviciana*), sticky geranium, scarlet paintbrush (*Castilleja miniata*), Engelmann's aster (*Eucephalus engelmannii*), Colorado columbine (*Aquilegia coerulea*), Fendler's meadowrue (*Thalictrum fendleri*), sulfur buckwheat (*Eriogonum umbellatum*), and duncecap larkspur (*Delphinium occidentale*). These forbs are common in herbaceous associations elsewhere in the Wasatch Mountains.

SENSITIVE PLANT SPECIES

No federally listed plant species occur on-site; however, two plant species that are locally endemic and therefore considered sensitive could occur in the project area. A locally endemic species is a species that is confined to or native to a particular region, thus it has a comparatively restricted distribution. Because of their unique habitat attributes and restricted distributions, endemic species typically have a higher potential for extinction, thus their populations are of conservation interest. Both the Wasatch rockcress (*Arabis lasiocarpa*) and Burke's draba (*Draba burkei*) are locally endemic to north-central Utah. Special-status plant species with potential to occur in the project area were identified from discussions with U.S. Forest Service (USFS) plant ecologists and recent correspondence with *Utah Natural Heritage Program (UNHP)*.

Although there are no legal or regulatory constraints associated with locally endemic species, the possibility that these plants may become federally listed in the future warrants determining if they occur on portions of the project area slated for development.

Burke's Drapa

There are only a few known locations of Burke's drapa; one is on James Peak in the northwestern part of the project area. Burke's drapa populations are found between 1,646 and 2,976 m (5,400 and 9,765 feet) in elevation. Populations occur on ledges and in crevices of exposed carbonate and quartzite outcrops as well as rock loam soils in Douglas-fir and mixed conifer communities. Plants appear to prefer protected microhabitats in association with semi-barren vegetation coverage (personal communication, phone call with Wayne Padgett, U.S. Forest Service, Salt Lake City, Utah to Spencer Martin, SWCA 2001). The area on and near James Peak has been extensively surveyed for Burke's drapa; however, the USFS land to the south of the project area has not been surveyed.

Wasatch Rockcress

Wasatch rockcress is found along the northern boundary of the project area according to UNHP records (UNHP 2005). It prefers rocky knobs occurring at higher elevations. The Wasatch rockcress has a limited distribution, and little is known about the species at this time. Most of the data supporting the species' status have derived from plant specimens in collections.

GENERAL WILDLIFE

Wildlife habitats in the project area are generally equivalent to the vegetation habitats described above. These habitats are occupied by a variety of wildlife species on either a seasonal or year-round basis. Wildlife species occurring in the project area are generally representative of the surrounding area. Forested habitat types in the project area consist of spruce/fir, aspen, and conifer/aspen. Wildlife species commonly found in aspen and coniferous forests in the Wasatch include elk (*Cervus canadensis*), mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), mountain lion (*Puma concolor*), Clark's nutcracker (*Nucifraga columbiana*), Steller's jay (*Cyanocitta stelleri*), northern flicker (*Colaptes auratus*), mountain chickadee (*Poecile gambeli*), dark-eyed junco (*Junco hyemalis*), ruby-crowned kinglet (*Regulus calendula*), and American robin (*Turdus migratorius*). Aspen stands are frequented by American robin, house wren (*Troglodytes aedon*), mountain bluebird (*Sialia currucoides*), least chipmunk (*Neotamias minimus*), and elk. Common wildlife species in the herbaceous habitat include white-crowned sparrow (*Zonotrichia leucophrys*), horned lark (*Eremophila alpestris*), mountain bluebird, American Robin, snowshoe hare (*Lepus americanus*), northern pocket gopher (*Thomomys talpoides*), western jumping mouse (*Zapus princeps*), deer mouse (*Peromyscus maniculatus*), elk, and mule deer. In the arid west, wetland and riparian habitats often support a greater diversity of species per unit than other habitat types; these species include moose (*Alces alces*), elk, and mule deer, and a variety of amphibians and invertebrates.

THREATENED, ENDANGERED, AND SENSITIVE SPECIES

Threatened and endangered species are those species listed as such by the U.S. Department of Interior, U.S. Fish and Wildlife Service (USFWS), under the Endangered Species Act (ESA) of 1973, as amended. Sensitive species are those species listed on the Utah Sensitive Species List (Utah Division of Wildlife Resources [UDWR] 2012) and/or are considered rare by the UNHP.

Table 1. Threatened, Endangered, and Sensitive Species of Cache and Weber Counties, Utah

Common Name	Scientific Name	Status	Habitat Present in Project Area	Species/Habitat Notes
Federally Listed Species				
Brown (grizzly) bear	<i>Ursus arctos</i>	T-ESA	Yes	Extirpated from Utah in the 1920s
Canada lynx	<i>Lynx canadensis</i>	T-ESA	Minimal	Marginal habitat in the project area.
Gray wolf	<i>Canis lupus</i>	E-ESA	Yes	Recent sightings near the project area
June sucker	<i>Chasmistes liorus</i>	E-ESA	No	No habitat in the project area.
Greater sage-grouse	<i>Centrocercus urophasianus</i>	C-ESA	Minimal	Occurs in large tracts of Sagebrush
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	C-ESA	No	No habitat in the project area.
UDWR Listed Species				
American white pelican	<i>Pelecanus erythrorhynchos</i>	SPC	No	No large water sources in the project area.
Bald eagle	<i>Haliaeetus leucocephalus</i>	SPC	No	Could occur in the project area on a transitory basis
Black swift	<i>Cypseloides niger</i>	SPC	No	Very specialized nesting habitat needs that do not occur in the project area.
Bluehead sucker	<i>Catostomus discobolus</i>	CS	No	No large water sources in the project area.
Bonneville cutthroat trout	<i>Oncorhynchus clarkii utah</i>	CS	No	No large water sources in the project area
Burrowing owl	<i>Athene cunicularia</i>	SPC	Minimal	Inhabit burrows made by prairie dogs and other burrowing mammals
California floater	<i>Anodonta californiensis</i>	SPC	No	No large water sources in the project area.
Deseret mountainsnail	<i>Oreohelix peripherica</i>	SPC	No	Often associated with limestone outcrops
Ferruginous hawk	<i>Buteo regalis</i>	SPC	Minimal	Could occur in the project area on a transitory basis
Fringed myotis	<i>Myotis thysanodes</i>	SPC	Minimal	No roosting habitat in the project area; however, there is some foraging habitat and as such, this species could occur in the project area on a transitory basis.
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SPC	Minimal	Occurs in grasslands
Great Plains toad	<i>Bufo cognatus</i>	SPC	No	Tends to occur in desert, grassland, and agricultural areas
Lewis's woodpecker	<i>Melanerpes lewis</i>	SPC	Minimal	Occurs in forested areas
Long-billed curlew	<i>Numenius americanus</i>	SPC	No	Shortgrass habitats

Table 1. Threatened, Endangered, and Sensitive Species of Cache and Weber Counties, Utah

Common Name	Scientific Name	Status	Habitat Present in Project Area	Species/Habitat Notes
Lyrate mountainsnail	<i>Oreohelix haydeni</i>	SPC	No	Limestone usually present
Northern goshawk	<i>Accipter gentilis</i>	CS	No	Contiguous forest patches that do not occur in the project area.
Pygmy rabbit	<i>Brachylagus idahoensis</i>	SPC	Minimal	Sagebrush obligate
Sharp-tailed grouse	<i>Tympanuchus phasianellus</i>	SPC	Yes	Grouse observed in the project area
Short-eared owl	<i>Asio flammeus</i>	SPC	Minimal	Grassland areas
Three-toed woodpecker	<i>Picoides tridactylus</i>	SPC	Minimal	Thick aspen/conifer forest
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	SPC	Minimal	No roosting habitat in the project area; however, there is some foraging habitat and as such, this species could occur in the project area on a transitory basis.
Western red bat	<i>Lasiurus blossevillii</i>	SPC	No	Could occur in the project area on a transitory basis
Western toad	<i>Bufo boreas</i>	SPC	Minimal	Various habitats
Bobolink	<i>Dolichonyx oryzivorus</i>	SPC	No	No wetland habitat
Columbia spotted frog	<i>Rana luteiventris</i>	CS	Minimal	Isolated springs and seeps, generally lower elevations
Kit fox	<i>Vulpes macrotis</i>	SPC	No	Arid habitats
Mountain plover	<i>Charadrius montanus</i>	SPC	Minimal	Shortgrass prairie
Smooth greensnake	<i>Opheodrys vernalis</i>	SPC	Minimal	Grassland

Notes:

T-ESA = Threatened under the ESA

E-ESA = Endangered under the ESA

C-ESA = Candidate for being listed under the ESA

SPC = Utah Wildlife Species of Concern

CS = Species receiving special management under a Conservation Agreement

Threatened and Endangered Species

Several federally listed species are known to or have potential to occur in Cache and Weber Counties. These comprise the brown bear, gray wolf, Canada lynx, greater sage-grouse, yellow-billed cuckoo, and June sucker. Only three federally listed TES species have a potential to occur in the project area: the gray wolf, Canada lynx, and greater sage-grouse.

Gray Wolf

Up until recently, the gray wolf had been extirpated from Utah. Recently, individuals have occasionally strayed into Utah from the north. In April 2011, U.S. Congress intervened and permanently delisted wolves, officially removing them from the endangered species list in parts of many western states,

including a small portion of northern Utah. The project area is located in this small portion (Figure A3). The State of Utah has authority to manage, capture, or kill wolves in the delisted zone.

During the winter of 2010–2011, wolves were seen in the Wolf Creek area just south of Powder Mountain. Given the abundance of big game in the area, it is possible that wolves may enter the project area.

Canada Lynx

Canada lynx had not been confirmed in Utah since 1991 until hair samples of a lynx were found in the Manti-La Sal National Forest in 2002. In 2006, two Canada lynx that had been released in Colorado found their way into Utah before being trapped and re-released back into Colorado. Suitable lynx habitat extends into the Powder Mountain area; however, the Powder Mountain area is considered too fragmented to support a lynx population.

Greater Sage-Grouse

The greater sage-grouse is the largest grouse in North America. It forages for insects and breeds and raises young in sagebrush communities. The greater sage-grouse needs both suitable lekking grounds (in clearings) and suitable cover by sagebrush to conceal their ground nests. Populations are declining because of habitat loss and fragmentation. Although sagebrush/perennial grasslands occur in the project area, the patches are scattered, and no known leks occur in the project area.

In March 2010, the USFWS determined that protection of the greater sage-grouse under the ESA was warranted (USFWS 2010). However, listing the greater sage-grouse was precluded. The sage-grouse is now a candidate species for listing. The Utah sage-grouse plan has not been finalized; however, the project area presently falls within the proposed Rich County sage-grouse core area. The stipulations for sage-grouse core areas have not been determined. The project area is not high-value sage-grouse habitat, and the area is not known to be occupied by sage-grouse (Figure A4; UDWR 2012); as such, sage-grouse are not likely to occur in the project area.

Utah State Sensitive Wildlife Species

UDWR designates wildlife species of concern for the state of Utah. Wildlife *species of concern* are defined as those species for which there is credible scientific evidence to substantiate a threat to continued population viability (UDWR 2011). It is anticipated that wildlife species of concern designations will identify species for which conservation actions are needed, and that timely and appropriate conservation actions implemented on their behalf will preclude the need to list these species under the provisions of the federal ESA. The following species are species of wildlife concern that have the potential to occur in the project area.

Birds

Eight bird species of concern have the potential to occur in the project area. Two of these species, the bald eagle and ferruginous hawk, have little possibility of nesting in the project area because of a lack of suitable nesting habitat. They may migrate through the area, and the bald eagle may winter nearby. Five of the bird species of concern could nest in the project area; however, it is unlikely due to lack of suitable nesting habitat. These species could forage in or pass through the project area. These species are burrowing owl, grasshopper sparrow, short-eared owl, three-toed woodpecker, and mountain plover. One species, the sharp-tailed grouse, is known to occur nearby and was observed in the project area in 2001 by

SWCA. However, because this species prefers bunch-grass areas of the foothills and benches interspersed with deciduous shrubs, it is more likely to occur in lower elevations.

Mammals

Three mammal species of concern have the potential to occur in the project area: the fringed myotis, Townsend's big-eared bat, and the pygmy rabbit. The two bats species are not likely to roost in the project area; however, they may migrate or forage in the area. The pygmy rabbit could occur in the project area; however, based on a habitat assessment, this appeared highly unlikely.

Herptiles

One amphibian species of concern (western toad) and one reptile species of concern (smooth greensnake) could occur in the project area. The western toad (also referred to as the boreal toad) can often be found in high elevation areas in a variety of habitat types, similar to those found in the project area. The smooth greensnake, which tends to inhabit grasslands, could also occur in the project area.

State Conservation Species

State conservation species are species receiving special management under a conservation agreement in order to preclude their need for federal listing. One conservation species that occurs near the project area: the Bonneville cutthroat trout.

Bonneville Cutthroat Trout

The Bonneville cutthroat trout is known to occur near the project area and inhabits streams on the property. Construction activities and recreation use could result in impacts to the watershed and negatively affect the stream habitat in the project area. SWCA recommends conducting surveys for the presence of Bonneville cutthroat trout to determine the extent and location of the populations. The use of best management practices to protect stream quality during construction will minimize the potential impacts to stream flows and sedimentation. Mitigation efforts such as improving and or developing suitable habitat for Bonneville cutthroat trout could enhance the project's recreational opportunities and maintain species diversity.

High Interest Species

Some species receive higher levels of public attention due to hunting or viewing opportunities and are consequently of higher economic value than other species. Moose, elk, mule deer, black bear (*Ursus americanus*), mountain lion, and blue grouse (*Dendragapus obscurus*) are identified as high interest species with potential to occur in the project area.

Moose

Moose have dispersed and/or have been transplanted to a variety of locations throughout the state, including the Wasatch Range. Although they may range widely across habitat types, moose are primarily associated with boreal forests and riparian areas. Moose are predominately browsers and rely on the stems, bark, and leaves of a variety of trees and shrubs for forage. Year-round forage includes willow, fir, and aspen. During the summer, grasses, forbs, and aquatic vegetation typically comprise a large portion of the moose diet (Zevloff and Collett 1988). Although the riparian areas are generally sparse in the project area, moose may tend to use these areas in excess. According to UDWR habitat layers (UDWR 2012),

there are 498 ha (1,232 acres) of moose summer habitat and 37 ha (991 acres) of winter habitat in the project area (Figure A5). Moose are relatively common in the project area.

Elk

The American elk is considered a generalist feeder (Fitzgerald et al. 1994). Grasses and shrubs comprise most of their winter diet, forbs become increasingly important in late spring and summer, and grasses dominate in the fall. Seasonal changes in habitat use are associated with seasonal changes in diet. Elk use a variety of habitat types throughout the year. The distinct season and function of these habitats result in distinguishable types of ranges. Range classifications usually fall into wintering, calving grounds, and/or summer ranges. Production or calving areas are used from mid-May through June and typically occur at higher elevation sites than winter range. Calving grounds are usually characterized by aspen, lodgepole pine, grassland/meadow, and mountain brush habitats, and are generally in locations where cover, forage, and water are nearby (Fitzgerald et al. 1994). Along the Wasatch Front, typical elk range occurs below 2,286 m (7,500 feet) in elevation and contains oakbrush, serviceberry, and sagebrush/perennial grass habitats. According to UDWR habitat layers (UDWR 2012), 455 ha (1,124 acres) of elk summer habitat and 81 ha (200 acres) of winter habitat occur in the project area (Figure A6). A large herd of elk winter in the Middle Fork Wildlife Management Area (MFWMA) south of the project area. Elk are relatively common to the project area.

Mule Deer

Mule deer occupy most habitats in Utah, but likely attain their greatest densities in shrublands on areas characterized by rough, broken terrain and abundant browse and cover. Mule deer are predominately browsers, eating up to 75% browse during certain seasons. Mule deer summer range habitat includes spruce/fir, aspen, alpine meadows, mountain shrub, and grasslands. In the winter, mule deer tend to be found on shrub-covered south-facing slopes. According to UDWR habitat layers (UDWR 2012), the entire project area is located in mule deer summer habitat. No critical winter range is located in the project area (Figure A7). During the spring, summer, and fall, mule deer are common to the project area.

Blue Grouse

Blue grouse use coniferous habitats year-round throughout the project area. Such habitats are particularly important during the winter when blue grouse roost on conifer branches and feed primarily of conifer needles. In severe winter conditions, blue grouse require unconsolidated snow in which to roost. During the summer, they use aspen patches and lower elevation openings in conifer stands. Blue grouse are common to the project area.

Mountain Lion

The mountain lion uses many habitat types. In northern Utah, they tend to occur in mountainous habitats. Although they are still fairly common throughout Utah, individuals are rarely seen due to their secretive nature. Mule deer are a main staple in their diets; as such, mountain lions tend to seasonally follow deer herds. However, mountain lions are opportunistic predators and will feed on rabbits, rodents, and other animals. Females may produce one litter of one to six kittens approximately every 2 years. Mountain lions are active year-round, during both day and night, although most activity occurs at dawn and dusk. The large amount of mule deer and big game in the general area (largely associated with MFWMA) along with the large home range of lions, especially the males, suggest that the project area is most likely within the home range of several individuals.

American Black Bear

The black bear in Utah is found primarily in large forested habitats. Black bears are omnivores with diets consisting of fruits, insects, grubs, some small vertebrates, and carrion. They breed in June or July, and young are born in January or February (average litter size is two). Young stay with their mother until the fall of their second year. Black bears are dormant during the winter. Black bear sightings around the project area have increased over the past few years.

Middle Fork Wildlife Management Area

The MFWMA is a 4,047-ha (10,000-acre) reserve managed by UDWR as crucial winter range for elk, mule deer, and moose. The area contains both riparian and sage/grassland habitats. It is closed during the winter so wintering elk will not be disturbed. Wintering bald eagles and other raptors also use the area. A number of small game fowl can be found in the grasslands areas. Wild turkeys are also found in the area.

The significance of the MFWMA to the local wildlife, especially the big-game species, is major. Most big game found in the project area during the spring, summer, and fall most likely winter in the MFWMA. The survivorship of these species through the winter is much higher than it would be if the MFWMA were not present. The healthy abundance of big game also draws in predators such as mountain lion, black bear, wolves, and coyote. Therefore, large predators are also more likely to occur in and near the project area.

CONCLUSIONS AND RECOMMENDATIONS

The Powder Mountain project area is a biologically diverse and scenic area. This report provides a general description of the biodiversity (i.e., the number of plant and animal species and the number and types of habitats) associated with the project area.

Wildlife

There are no known occurrences of TES species in the project area. The potential for lynx to occur in the project area is negligible, because the suitable habitat is considered too fragmented to support a lynx population (R. Williams, personal communication, 2001). The potential for gray wolves to occur in the project area has increased over the last several years, and they have been spotted in the general area. However, wolves have been delisted in parts of many western states, including a small portion of northern Utah. Powder Mountain falls within that small portion. Greater sage-grouse are not known to occupy the project area, though some habitat is present, and they are known to occur in this part of Utah.

Moose, elk, mule deer, and blue grouse are identified as high interest species with potential to occur in the project area. UDWR has designated portions of the project area as crucial winter range for elk and moose. Most of the project area falls into crucial summer habitat for elk, moose, and mule deer. The presence of sensitive species or big game does not place any regulatory constraints on development, nevertheless big-game ranges should be considered in the planning process. The proximity of the project area to the MFWMA is important because the management area will help keep project area big-game herds large and healthy.

The Migratory Bird Treaty Act of 1918, as amended, decrees that all migratory birds and their parts (including eggs, nests, and feathers) are fully protected. If construction takes place between April and the end of July, all areas should be surveyed for breeding birds before the area is disturbed. Most passerine

nests are given a 100-foot buffer of protection if they are found in a project area. Active raptor buffers vary depending on the species and generally follow the guidance of Romin and Muck (1999).

Vegetation

No federally listed plant species are known to occur in the project area. However, two locally endemic species are known to occur or have potential to occur in the project area: Burke's draba and Wasatch rockcress. There are only a few known locations of Burke's draba; one of these is on James Peak in the northwestern portion of the project area. In addition to the populations found near James Peak, Burke's Drapa has the potential to occur in other areas of the project area because they occur on rock loam soils in Douglas-fir and mixed conifer communities. Wasatch rockcress tends to occur on high elevation rock outcrops and talus slopes. It has not been recorded in the project area, and there is little potential for the species to occur in the project area due to the lack of rock outcrops.

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Appendix A

Figures

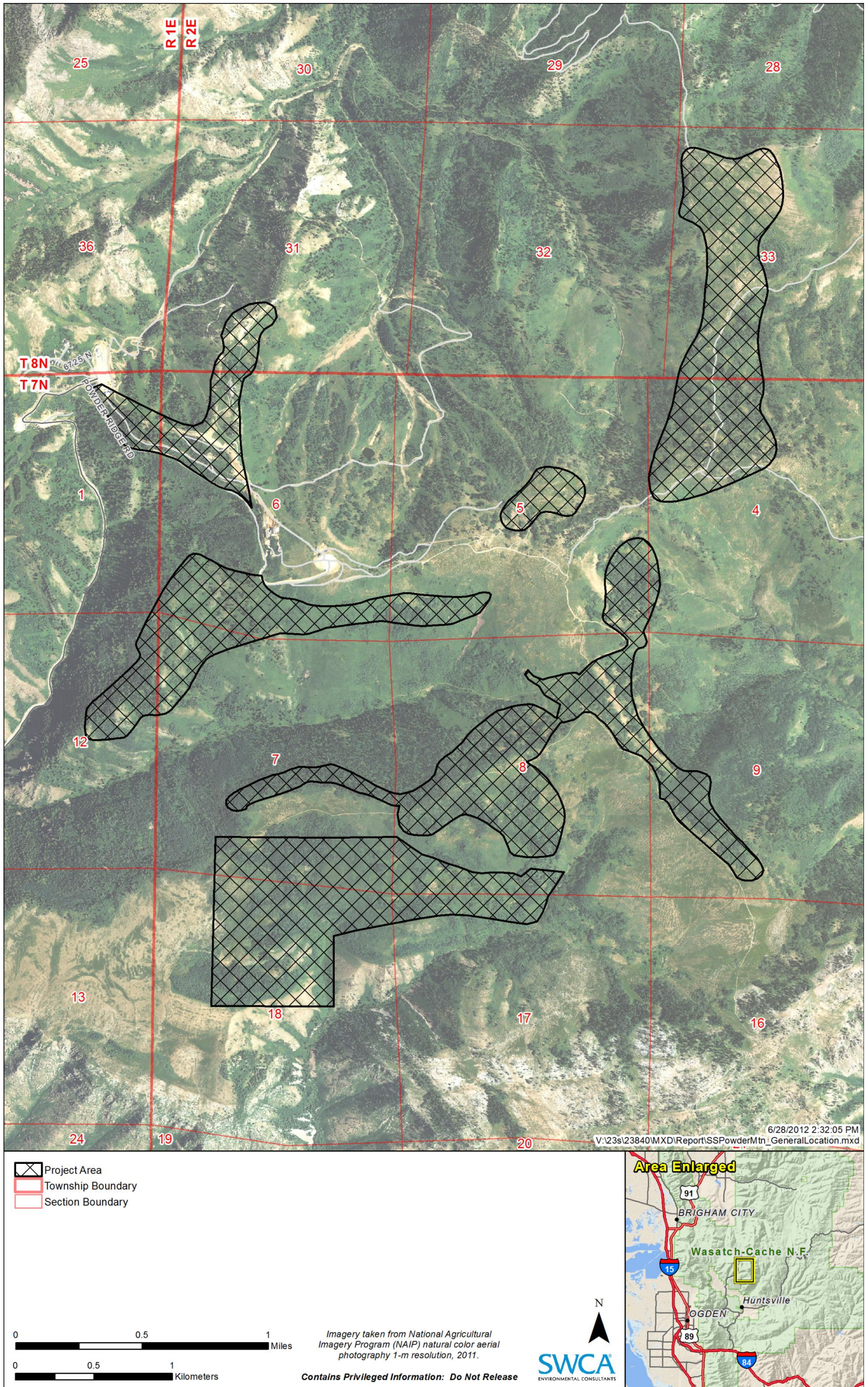


Figure A1. Map showing the project area.

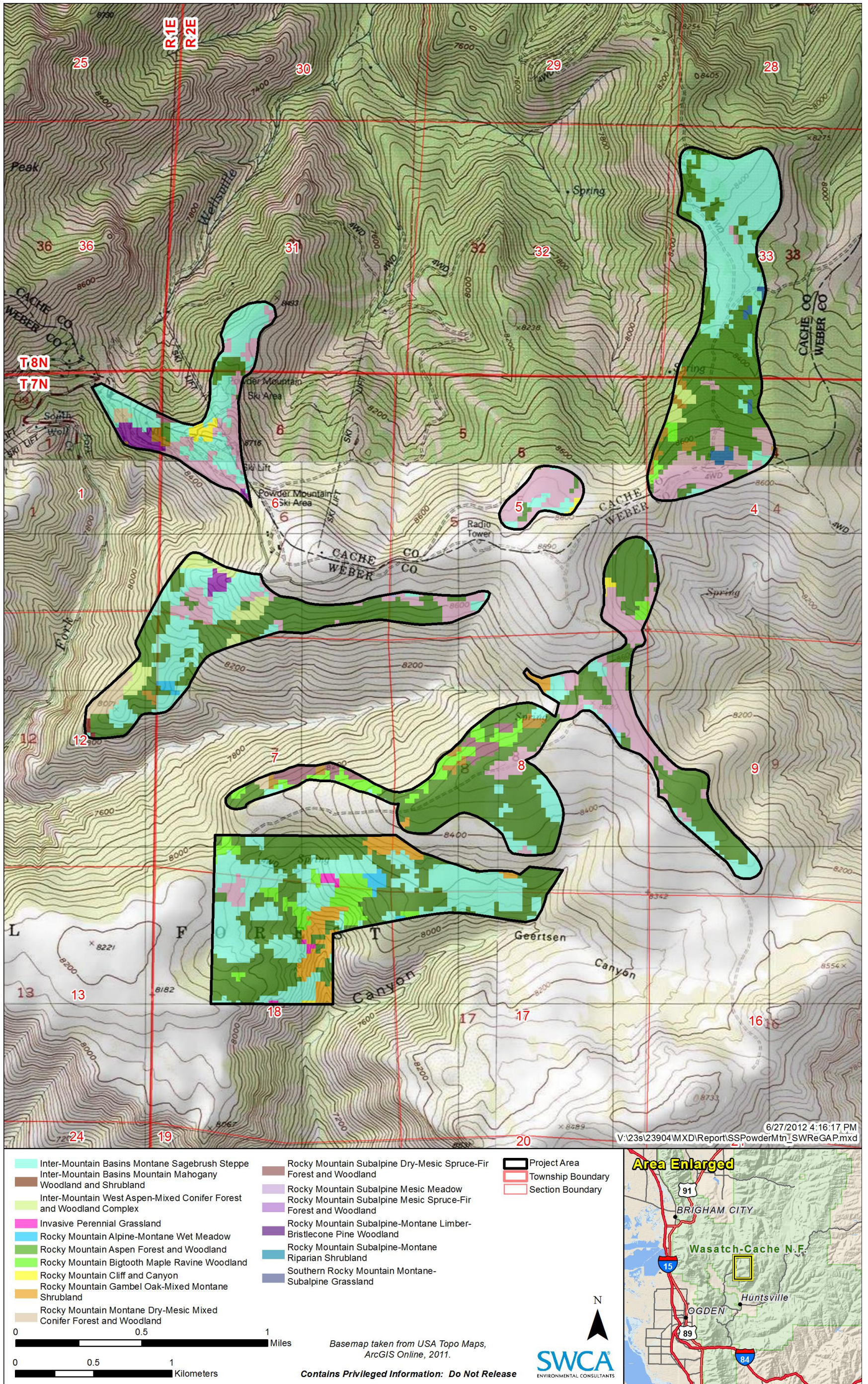


Figure A2. SWReGAP data showing vegetation categories in the project area.

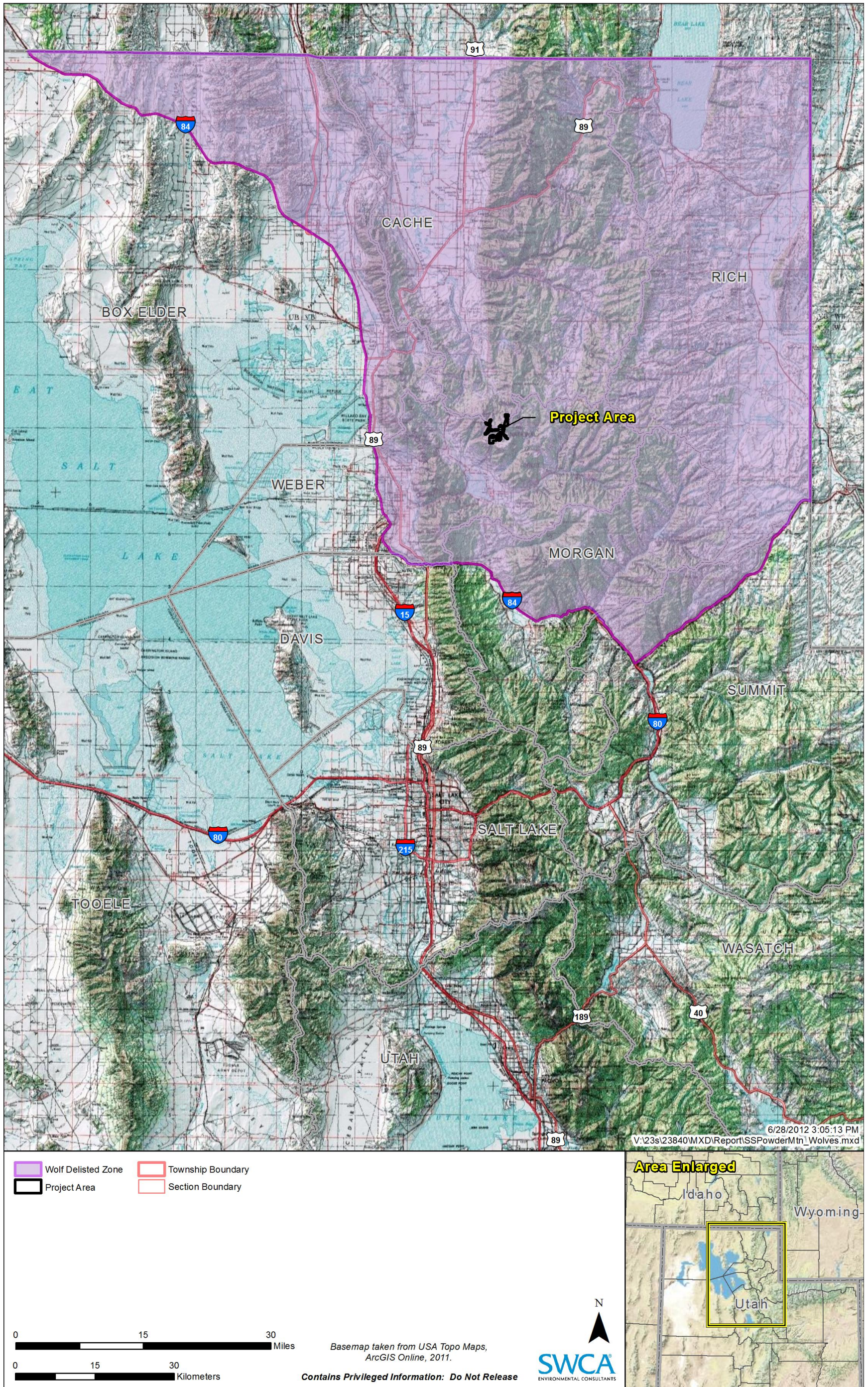


Figure A3. Wolf delisted zone in relation to the project area.

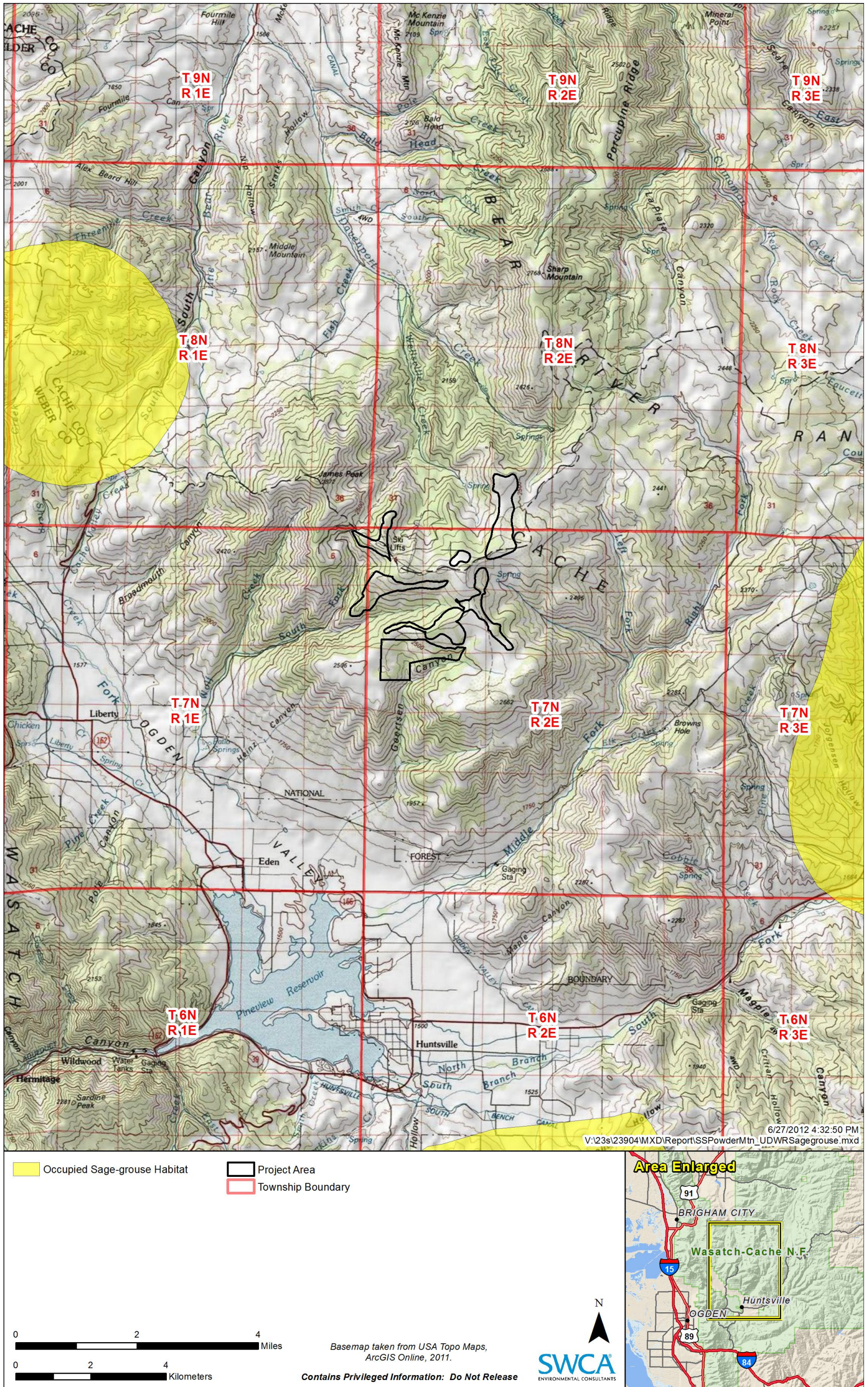


Figure A4. Occupied greater sage-grouse habitat in relation to the project area.

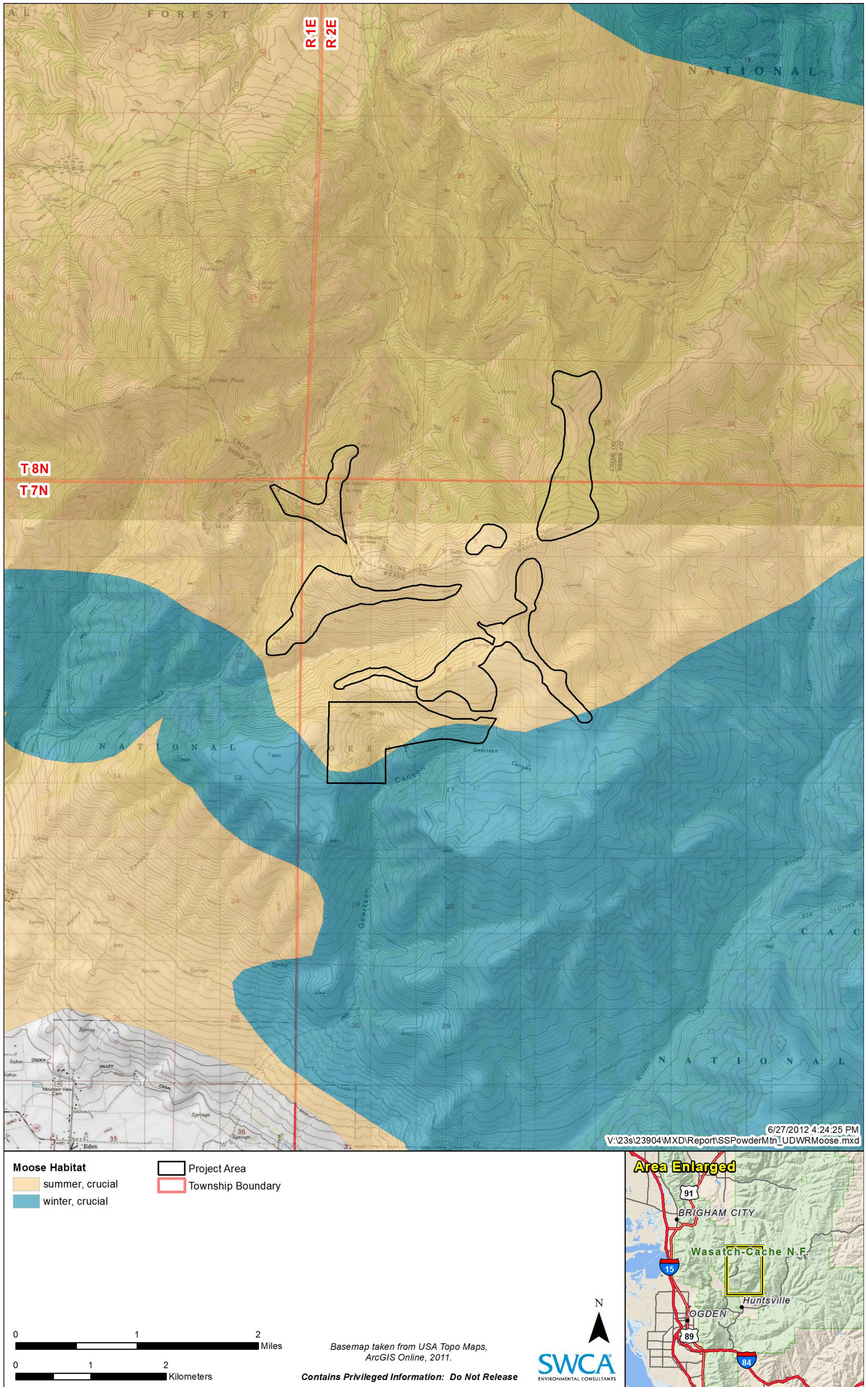


Figure A5. Moose habitat in and near the project area.

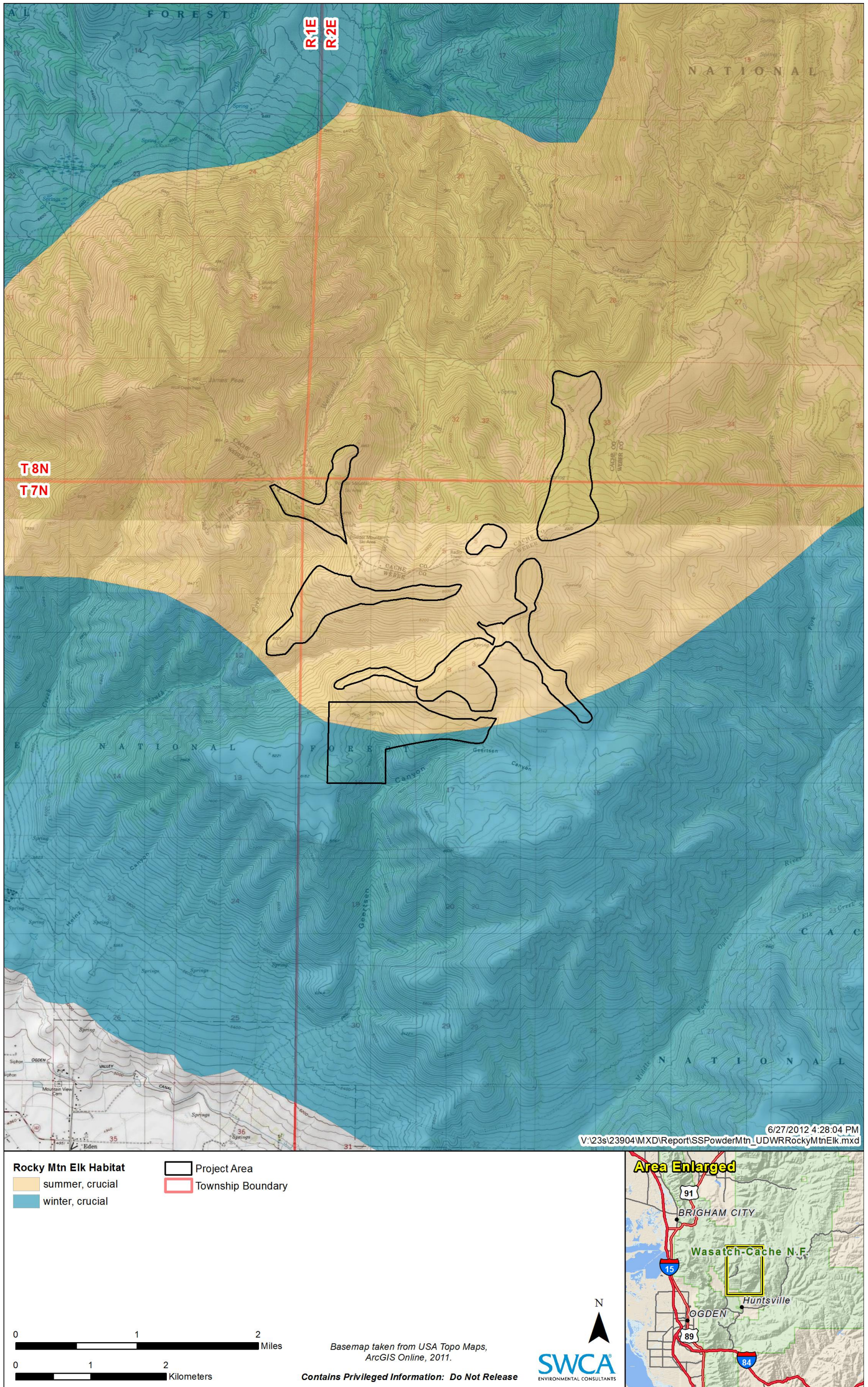


Figure A6. Elk habitat in and near the project area.

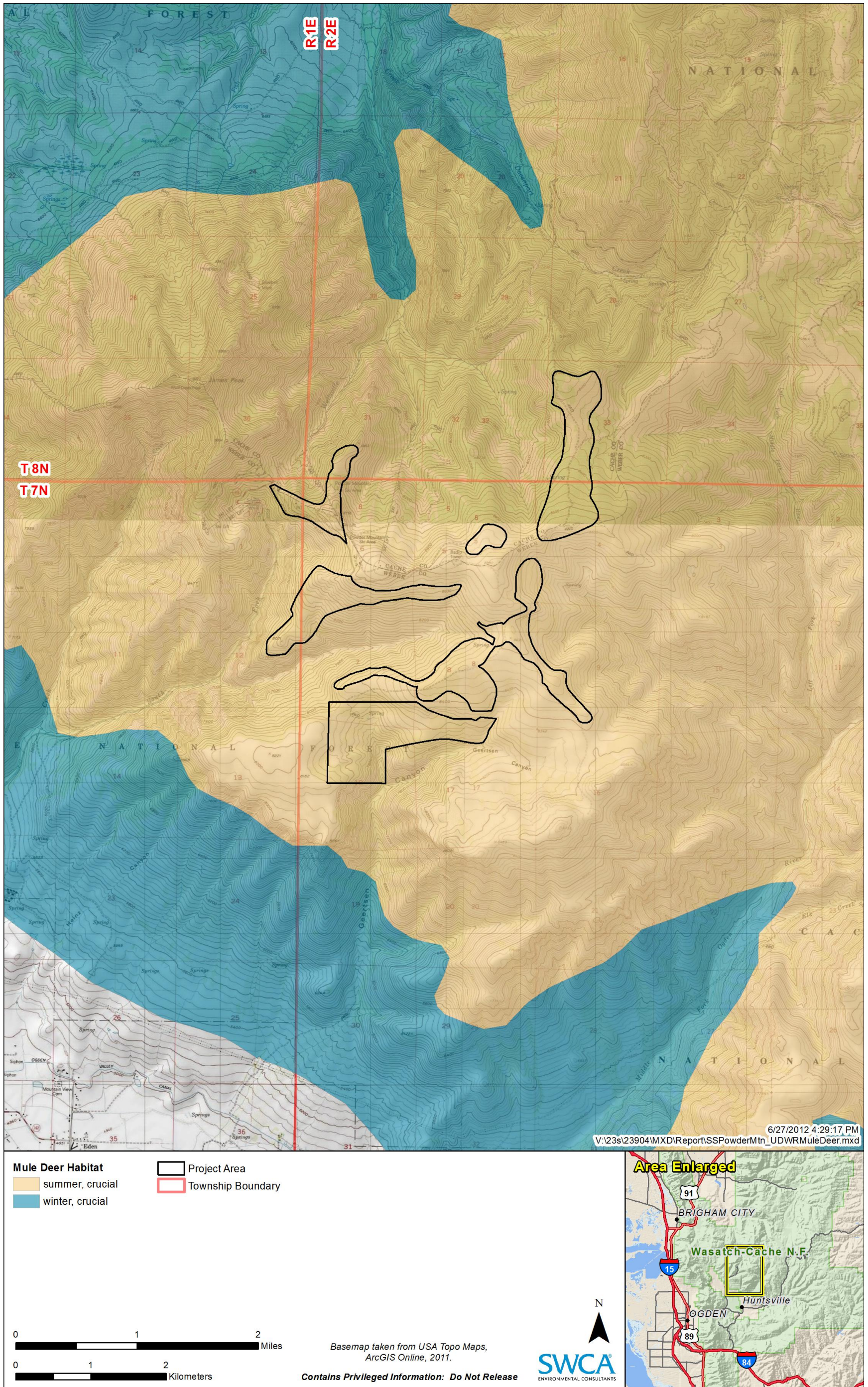


Figure A7. Mule deer habitat in and near the project area.