

## **INTRODUCTION**

This is a summary of the West Rim Project Biological Assessment/Biological Evaluations (BA/BEs). The full BA/BEs are located in the West Rim project file. The purpose of a BA/BE is to determine how the proposed action and alternatives to the proposed action will affect federally listed species or sensitive species listed by the Rocky Mountain Region (FSM 2670, R2 2600-94-2). The West Rim BA/BEs were prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act of 1973 (19 U.S.C. 1536(c)) and follow standards established in Forest Service Manual direction (2672.42) and the Code of Federal Regulations (50 CFR S402). The West Rim BA/BEs tier directly to the final environmental impact statement (FEIS) for the revised Black Hills National Forest Land and Resource Management Plan as amended (Forest Plan), the BA/BE completed for the 1997 Forest Plan revision, and the BA/BE prepared for the Phase II Amendment (USDA-Forest Service 2006).

## **BOTANY SUMMARY**

### **PLANT ASSESSMENTS/NATURAL HISTORY/POTENTIAL EFFECTS**

Information on the current conditions of and threats to R2 sensitive plant species on the Black Hills National Forest and in the West Rim Project Area was obtained from several sources. These sources included: the final report for the 2005 West Rim botanical surveys (Mergen 2005), the 2006 Forest Monitoring and Evaluation Report (USDA-Forest Service 2007a), the Phase II FEIS for the Forest Plan (USDA-Forest Service 2005), the Botany Specialist Report for the Citadel Project Area (Zacharkevics 2007a), the West Rim Project Area Botany Existing Condition Report (Zacharkevics 2007c), the NatureServe website (NatureServe 2007), and species specific plant assessments. The Botany Biological Evaluation (BE) for the Citadel Area (Zacharkevics 2007b) was consulted for potential effects on suitable habitat for R2 sensitive plant species that might apply to the proposed treatments and habitats found within the West Rim Project Area.

### **PLANT SURVEYS**

Site specific survey information was used to assess the current conditions of the botanical resources within the Project Area as well as analyze the potential impacts of the proposed actions. The West Rim Project Area was surveyed for botanical values as part of past projects from 1994 through 2004 and specifically for the West Rim project in 2005. Additional surveys were conducted in 2006 as part of Forest Plan monitoring.

The 2005 botanical surveys were conducted by personnel of Mergen Ecological Delineations, Inc. between May 27 and September 16, 2005. Target plant species searched for during this survey included a variety of plants of interest. The species surveyed for included R2 sensitive plant species, SOLC, species with insufficient information, other South Dakota and Wyoming tracked species, and other species of interest (Mergen 2005).

In addition to locating and recording individual target plant species, the survey was used to identify and map community types and determine the probability of an area to support target plant species. After receiving the

data from the survey, the district botanist further interpreted the data to determine locations of suitable plant habitat within the Project Area. The community types identified as target plant habitat were then mapped and entered into a geographical database (Zacharkevics 2007c).

The 2005 plant survey in addition to a survey conducted in 2003 as part of the Rubicon East project, covered most of the 43,000 acres of National Forest System lands within the West Rim Project Area; however there is an area that is slightly more than 5,000 acres in size that was added to the project after these surveys were conducted. This area was not included in the 2005 botanical survey and ground verified data on suitable plant habitat and species occurrences is not available for this area at this time. Potential plant habitat in this area would be surveyed prior to implementation of any proposed actions within the area. Hillshade, a geographical mapping tool, was used to assess the potential area of suitable habitat within this unsurveyed area. Over the past several years Hillshade has been field verified and has proven to be very helpful in predicting high probability target plant habitat. Hillshade uses the length of time and intensity of the sun in relation to topography to predict shade and therefore moisture content across the landscape. It has been observed in the Northern Black Hills that moisture is one factor driving the presence of high probability target plant habitat for most target plant species (Zacharkevics 2007c).

Information from these project specific plant surveys as well as the Forest monitoring surveys is contained in the Black Hills National Forest plant database.

## REGION 2 SENSITIVE PLANT SPECIES

No plant species that have been listed by the U.S. Fish and Wildlife Service as threatened, endangered, or proposed for listing as threatened or endangered occur in any South Dakota county in the Black Hills National Forest. Suitable habitats for Region 2 (R2) sensitive plant species in the West Rim Project Area include moist forested communities and riparian communities. The West Rim Botany Biological Assessment (JW Associates 2008h) contains a list of the R2 sensitive plant species that occur on the Forest, their state and global rank, and a description of the habitats that they are found in on the Black Hills National Forest. Table E-1 displays the reason used for determining which R2 sensitive plant species are addressed in the effects analysis for the West Rim Project Area. R2 sensitive plants that do not occur and suitable habitat does not exist within the West Rim Project Area are not addressed in the effects analysis for this project.

Table E-1. R2 Sensitive Plants Analyzed for the West Rim Project

Scientific Name	Common Name	Known to Occur in Project Area	Suitable Habitat Exists in Project Area	Addressed in Effects Analysis for Project
<i>Botrychium campestre</i>	prairie moonwort, Iowa moonwort	no	Unknown because suitable habitat has not been defined	yes
<i>Botrychium lineare</i>	narrowleaf grapefern	no	Unknown because suitable habitat has not been defined	yes
<i>Carex alopecoidea</i>	foxtail sedge	yes	yes	yes
<i>Cypripedium parviflorum</i>	yellow lady's slipper	yes	yes	yes
<i>Epipactis gigantea</i>	giant helleborine	no	no	no
<i>Lycopodium complanatum</i>	ground cedar, trailing clubmoss	no	yes	yes
<i>Platanthera orbiculata</i>	large round-leaf orchid	yes	yes	yes
<i>Salix candida</i>	sage willow	no	no	no
<i>Salix serissima</i>	autumn willow	no	no	no
<i>Sanguinaria canadensis</i>	bloodroot	no	yes	yes
<i>Viburnum opulus var. americanum</i>	highbush cranberry	yes	yes	yes
<i>Viola selkirkii</i>	great-spurred violet	no	no	no

## DETERMINATIONS FOR SENSITIVE PLANT SPECIES

Table E-2 displays the determinations by species and alternative for the R2 sensitive plant species assessed for the West Rim Project Area. A summary of the rationale and more detailed analysis of the potential effects to plant species known to occur in the Project Area and to suitable habitat is presented in the West Rim Botany Biological Assessment (JW Associates 2008h).

Table E-2. Sensitive Plant Determinations for the West Rim Project<sup>1</sup>

R2 Sensitive Plant Species	Alternative A No Action	Alternative B Proposed Action	Alternative C
<i>Botrychium campestris</i> prairie moonwort	May adversely impact individuals....	May adversely impact individuals....	May adversely impact individuals....
<i>Botrychium lineare</i> narrowleaf grapefern	May adversely impact individuals....	May adversely impact individuals....	May adversely impact individuals....
<i>Carex alopecoidea</i> foxtail sedge	May adversely impact individuals....	May adversely impact individuals....	May adversely impact individuals....
<i>Cypripedium parviflorum</i> yellow lady's slipper	May adversely impact individuals....	May adversely impact individuals....	May adversely impact individuals....
<i>Lycopodium complanatum</i> trailing clubmoss	May adversely impact individuals....	May adversely impact individuals....	May adversely impact individuals....
<i>Platanthera orbiculata</i> large round-leaf orchid	May adversely impact individuals....	May adversely impact individuals....	May adversely impact individuals....
<i>Sanguinaria canadensis</i> bloodroot	May adversely impact individuals....	May adversely impact individuals....	May adversely impact individuals....
<i>Viburnum opulus var. americanum</i> highbush cranberry	May adversely impact individuals....	May adversely impact individuals....	May adversely impact individuals....

## WILDLIFE SUMMARY

### REGION 2 SENSITIVE WILDLIFE SPECIES

Sensitive species are those plant and animal species identified by the Regional Forester for which population viability is a concern, as evidenced by:

- Significant current or predicted downward trends in population numbers or density.
- Significant current or predicted downward trends in habitat capability that would reduce a species existing distribution (FSM 2670.5).

Sensitive species documented or with suitable potential habitat in the Black Hills National Forest are displayed on Tables E-3, E-4, E-5 and E-6.

<sup>1</sup> May adversely impact individuals... = May adversely impact individuals, but not likely to result in a loss of viability in the planning area nor cause a trend towards federal listing.

Table E-3. Evaluation and Description of Black Hills National Forest  
Bird Sensitive Species and Habitats

R2 Sensitive Species	Species Documented?	Habitat Present	Analysis included in NEPA document?	Rationale
American Three-Toed Woodpecker ( <i>Picoides tridactylus</i> )	Yes	Yes	Yes	Occur almost exclusively in mature spruce stands (Beason et al. 2006).
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	Yes, Wintering bald eagles only.	Yes	Yes	Usually found near open water or carrion (Tallman et al. 2002); only one nest and one winter roost has been documented in the Forest and neither are within ½ mile of the Project Area. Wintering and migrating eagles may use the Project Area.
Black-Backed Woodpecker ( <i>Picoides arcticus</i> )	Yes	Yes	Yes	Burned areas with a high density of pre-burn snags and/or mature forests with a high snag density (Anderson 2003, Panjabi 2003). Species rare outside burned areas (Beason et al 2006).
Burrowing Owl ( <i>Athene cunicularia</i> )				Dry grasslands and pastures, usually associated with prairie dog or squirrel burrows (Tallman et al. 2002). Habitat not present in Project Area.
Flammulated Owl ( <i>Otus flammeolus</i> )	Yes	Yes	Yes	Open ponderosa pine forests (Hayward and Verner 1994).
Grasshopper Sparrow ( <i>Ammodramus saviannarum</i> )				Native mixed-grass prairies, especially in southern Black Hills (Panjabi 2004, Beason et al. 2006); prefers large grassland patches greater than 8 ha (19.8acres) (Slater 2004). Habitat not present in Project Area.
Lewis's woodpecker ( <i>Melanerpes lewis</i> )	Yes	Yes	Yes	Open burned areas with large snags; oak and cottonwood forests and open, parklike ponderosa pine forests (Anderson 2003, Panjabi 2003).
Loggerhead Shrike ( <i>Lanius ludovicianus</i> )	1 observed	Yes	Yes	Open country with scattered, low deciduous thickets (Tallman et al 2002). Breeding records occur near periphery but not interior or higher elevations of Black Hills (Peterson 1995).
Northern Goshawk ( <i>Accipiter gentilis</i> )	Yes	Yes	Yes	Nests primarily in dense, mature coniferous forests; Forages in a variety of forested areas and small openings (Kennedy, 2003).
Northern Harrier ( <i>Circus cyaneus</i> )				Open county in medium/tall grass prairies and associated wetlands, marshes and meadows (USDA-Forest Service 1996). Habitat not present in Project Area.

Table E-3. Evaluation and Description of Black Hills National Forest  
Bird Sensitive Species and Habitats (continued)

R2 Sensitive Species	Species Documented?	Habitat Present	Analysis included in NEPA document?	Rationale
Peregrine Falcon ( <i>Falco peregrinus</i> )				Open habitat with cliffs present; optimal habitat, cliffs dominate the surrounding landscape (Terre 1991). Habitat not present in the Project Area
Yellow-billed Cuckoo ( <i>Coccyzus americanus</i> )				Riparian obligate; low elevation riparian areas and woodlands with cottonwood or bur oak (Panjabi 2003). Breeding habitat must be at least 25 acres in size, but habitats greater than 100 acres and 330 feet wide are preferred; canopy cover often exceeds 50% in both understory and overstory (Nicholoff 2003). Habitat not present in the Project Area.

Table E-4. Evaluation and Description of Black Hills National Forest  
Reptile/Amphibian Sensitive Species and Habitats

R2 Sensitive Species	Species Documented?	Habitat Present	Analysis included in NEPA document?	Rationale
Black Hills Redbelly Snake ( <i>Storeria occipitomaculata pabasapae</i> )	Yes	Yes	Yes	Moist habitats with well developed areas for tadpoles, sub adults and breeding adults; adults forage in upland habitats (Smith 2003) Refer to effects analysis.
Northern Leopard Frog ( <i>Rana pipiens</i> )	Yes	Yes	Yes	Riparian and wetland areas for sub-adults and breeding adults; adults forage in upland habitats (Smith 2003). Refer to effects analysis.

Table E-5. Evaluation and Description of Black Hills National Forest  
Mammal Sensitive Species and Habitats

R2 Sensitive Species	Species Documented?	Habitat Present	Analysis included in NEPA document?	Rationale
American Marten ( <i>Martes Americana</i> )	Yes	Yes	Yes	Spruce forests with complex near-ground structure, extending into adjacent ponderosa pine stands (Buskirk 2002). Refer to effects analysis.
Black-tailed Prairie Dog ( <i>Cynomys ludovicianus</i> )				Short-grass and mixed grass prairies with soils conducive to burrowing (Higgins et al 2000). Habitat not present in Project Area.
Fringed Myotis ( <i>Myotis thysanodes pahasapensis</i> )	Yes	Yes	Yes	Found at higher elevations in spruce habitat and mixed ponderosa pine, spruce and aspen habitat; roosts in a variety of structures including caves, mines, tunnels, snags and buildings (Schmidt 2003a). Refer to effects analysis.
Rocky Mountain Bighorn Sheep ( <i>Picoides dorsalis</i> )	Yes	Yes	Yes	Cliffs, rock outcrops, and nearby meadows. Limited primarily to areas around Sheridan Lake, Dark Canyon (Rapid Creek), Spring Creek, and Custer State Park (USDA- Forest Service 2005). Refer to effects analysis.
Townsend's big eared bat ( <i>Plecotus townsendii</i> )	Yes	Yes	Yes	Forages on insects in a variety of habitats including forested and wet areas; requires suitable roosts in a variety of structures including caves, mines, or rock ledges and overhangs (Schmidt 2003b). Refer to effects analysis.

Table E-6. Evaluation and Description of Black Hills National Forest Fish and Invertebrate Sensitive Species and Habitats

R2 Sensitive Species	Species Documented?	Habitat Present	Analysis included in NEPA document?	Rationale
Finescale Dace ( <i>Phoxinus negogaeus</i> )				Streams, small lakes and cool, boggy environments often associated with springs or beaver dams; limited primarily to the Redwater Creek drainage, with the exception of Geis Reservoir on Middle Fork Hay Creek; no known occurrences on the South Dakota portion of the Forest (Isaak et al. 2003).
Lake Chub ( <i>Couesius plumbeus</i> )				Lakes and streams that usually have cool waters and clean gravel or cobble substrate; only population on the Forest is in Deerfield Reservoir (Isaak et al. 2003).
Mountain Sucker ( <i>Catostomus platyrhynchus</i> )	Yes	Yes	Yes	Occurs most often in cool, clear mountain streams, but have also been observed in large rivers, lakes and reservoirs (Isaak et al 2003). Refer to effects analysis.
Cooper's Mountain Snail ( <i>Orechelix strigosa cooperi</i> )	Yes	Yes	Yes	Found on calcareous soils, lowland wooded area and talus slopes, generally not always associated with northern or eastern exposures. In contrast to other land snails, can thrive with thin litter (Anderson 2005). Refer to effects analysis.
Regal Fritillary ( <i>Speyeria idalia</i> )	Yes	Yes	Yes	Tall-grass prairie; continuous prairie near marshes (Marrone 2005); greater than 1000 acres may be required for stable populations (Royer and Marrone 1992). Best habitat in Black Hills occurs in lower elevations along Forest boundary and in interior prairies (at least 250 acres in size) (USDA-Forest Service 1996). Refer to effects analysis.

DETERMINATIONS FOR WILDLIFE SPECIES

Table E-7 displays the determinations by species for Alternatives B and C for the R2 sensitive wildlife species assessed for the West Rim Project Area. A summary of the rationale and more detailed analysis of the potential effects to wildlife species known to occur in the Project Area and to suitable habitat is presented in the Wildlife and Fisheries Biological Evaluation/Biological Assessment (BE/BA) (JW Associates 2008d).

Table E-7. Determination of Impacts from Alternatives B and C to Sensitive Wildlife Species Located in the West Rim Project Area

R2 Sensitive Wildlife Species	No Impact	Beneficial Impact	May Adversely Impact Individuals	May Adversely Impact Populations
American Three-Toed Woodpecker ( <i>Picooides tridactylus</i> )			X	
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )			X	
Black-Backed Woodpecker ( <i>Picooides arcticus</i> )			X	
Burrowing Owl ( <i>Athene cunicularia</i> )	X			
Flammulated Owl ( <i>Otus flammeolus</i> )			X	
Grasshopper Sparrow ( <i>Ammodramus saviannarum</i> )	X			
Lewis's woodpecker ( <i>Melanerpes lewis</i> )			X	
Loggerhead Shrike ( <i>Lanius ludovicianus</i> )			X	
Northern Goshawk ( <i>Accipiter gentilis</i> )			X	
Northern Harrier ( <i>Circus cyaneus</i> )	X			
Peregrine Falcon ( <i>Falco peregrinus</i> )	X			
Yellow-billed Cuckoo ( <i>Coccyzus americanus</i> )	X			
American Marten ( <i>Martes Americana</i> )			X	
Black-tailed Prairie Dog ( <i>Cynomys ludovicianus</i> )	X			
Townsend's Big-eared Bat ( <i>Plecotus townsendii</i> )			X	

Table E-7. Determination of Impacts from Alternatives B and C to Sensitive Wildlife Species Located in the West Rim Project Area (continued)

R2 Sensitive Wildlife Species	No Impact	Beneficial Impact	May Adversely Impact Individuals	May Adversely Impact Populations
Fringed Myotis ( <i>Myotis thysanodes pabasapensis</i> )			X	
Rocky Mountain Bighorn Sheep ( <i>Picoides dorsalis</i> )			X	
Black Hills Redbelly Snake ( <i>Storeria occipitomaculata pabasapae</i> )				
Northern Leopard Frog ( <i>Rana pipiens</i> )			X	
Finescale Dace ( <i>Phoxinus negogaeus</i> )	X			
Lake Chub ( <i>Couesius plumbeus</i> )	X			
Mountain Sucker ( <i>Catostomus platyrhynchus</i> )			X	
Cooper's Mountain Snail ( <i>Orechelix strigosa cooperi</i> )			X	
Regal Fritillary ( <i>Speyeria idalia</i> )			X	