

Biological Evaluation
Broken Wheel Ranch - Special Use Permit
Mississippi Bluffs Ranger District
Shawnee National Forest

Prepared by: Stephen Widowski, Wildlife Biologist

Date: August 24, 2007

Introduction

This Biological Evaluation (BE) analyzes the potential effects of the proposed recreation special-use permit for Broken Wheel Ranch on Federal Threatened and Endangered and Regional Forester Sensitive plant and animal species. Formal objectives of this Biological Evaluation include:

1. identify the above listed species that would be affected by the proposed project (FSM 2672.42);
2. ensure that Forest Service actions do not result in the loss of viability of any native or desired non-native plant or animal species, or create significant trends toward Federal listing of any species (FSM 2672.41);
3. provide a process and standard that ensures that the above listed species receive full consideration in the decision making process (FSM 2672.24b-2676.17e); and,
4. make certain standards and guidelines, as per the Shawnee National Forest Amended Land and Resource Management Plan (USDA, 1992 and 2006) are followed.

Listed species reviewed include: 1) Federally listed Threatened, Endangered, and Proposed Species as listed by the U. S. Fish and Wildlife Service, 2) Regional Forester Sensitive Species (RFSS), occurring within the boundaries of the Shawnee National Forest (SNF) within the project area. Collectively species will be referred to here as threatened, endangered, and sensitive (TES) species.

Description of the Project

The Mississippi Bluffs Ranger District proposes to issue a one year special-use permit to the Broken Wheel Ranch, a privately owned cabin rental site. The permit would allow access to National Forest lands, by equestrians using the Broken Wheel Ranch as a base camp. The camp is located near the River-to-River trail and is adjacent to the Bald Knob and Clear Springs wilderness areas (see attached Map A.).

The ranch has four rental cabins, RV parking, horse-trailer parking, and a couple of barns. With the barns and parking area, the total equestrian capacity at the ranch is for less than 15 horses. The owner did not foresee many days when that number of equestrians would use his facility in one day. He believes that 8-10 riders in one day would probably be the most that would use his facility during the peak riding season. The cabins are available for hikers as well as equestrians and he believes that it would be rare for the total capacity to be used by equestrians.

The temporary permit would allow use from this cabin rental site while the Forest completes a watershed analysis for the trails designation project for these two wilderness areas. This analysis would serve to explore and define the long-term management of the two wilderness areas and three of the watersheds that are found within these areas. The current short-term permit would allow operation of this business and the long-term issuance of this permit would be part of the larger analysis.

In order to properly manage the equestrian use and ensure the protection of wilderness character during the relatively short term of the permit, the following resource protection measures would be incorporated within the permit:

- ❖ Broken Wheel Ranch equestrian clients will only be allowed to ride trails identified in the permit within Bald Knob and Clear Springs wilderness areas (Map A.). They would also be able to ride the Cedar Lake trail system (Map B.) and the Kinkaid Lake trail system (Map C.).
- ❖ Broken Wheel Ranch equestrian clients will be allowed to ride April 1 – November 30 in Bald Knob and Clear Springs Wilderness Areas (the wildernesses would be closed to Broken Wheel Ranch equestrian clients from December 1st to March 31st).
- ❖ The Forest Service shall determine the extent of moisture impacts on the trails within the Bald Knob and Clear Springs Wilderness Areas and inform the Broken Wheel Ranch of wilderness closures for ranch clients. Broken Wheel Ranch will inform equestrian clients of the wet-weather closures.
- ❖ Broken Wheel Ranch equestrian clients shall limit group size within the Bald Knob and Clear Springs Wildernesses to no more than 10 people at any one time.
- ❖ The Broken Wheel Ranch will provide equestrian clients' bridal tags or some identifier suitable to the Forest Service that must be visible on their clients' horses when riding on the Forest.
- ❖ The Broken Wheel Ranch will inform equestrian clients of the Forest Order not to harm/harass snakes on the Forest.
- ❖ The Broken Wheel Ranch will inform equestrian clients of the steps needed for management of non-native invasive species.

Existing Conditions

Dry- mesic upland forest, small amounts of mesic and wet-mesic floodplain forests along perennial stream courses, and upland forest old fields (former wildlife openings) characterize the project areas. Trees and shrubs grow well because of ideal soil depths and soil moisture conditions. Mesic forests have a dense canopy and well developed understory.

Botanical species encountered during a site visits in 2005 and 2007, include, but are not limited too: *Acer saccharum* (Sugar Maple), *Fagus grandifolia* (Beech), *Liriodendron tulipifera* (Tulip tree), *Toxicodendron radicans* (Poison ivy), *Parthenocissus quinquefolia* (Virginia creeper), *Delphinium tricorne* (Dwarf larkspur), *Podophyllum peltatum* (Mayapple), and *Viola sororia* (Woolly Blue Violet), *Viola sororia* (Woolly Blue Violet), *Alliaria petiolata* (Garlic mustard), *Cercis canadensis* (Red Bud), *Liriodendron tulipifera* (Tulip tree), *Acer saccharum* (Sugar Maple), *Polystichum acrostichoides* (Christmas fern), *Fagus grandifolia* (Beech), *Galium aparine* L. (Catchweed bedstraw), *Quercus rubra* (Red Oak), *Taraxacum officinale* (Dandelion), and *Sassafras albidum* (Sassafras).

Non-native invasive species including garlic mustard, Japanese honeysuckle, autumn olive, and Japanese stilt grass were observed immediately adjacent or on some of the trails in a few locations. The areas were visited by Stephen P. Widowski on 1/11/07, 8/9/2007 and in the summer of 2005 by Widowski and/or Calloway and the project areas and adjacent habitats were surveyed for the above species.

Current Management Emphasis

The current management emphasis, as outlined in the Forest Plan provides protection of sensitive animal resources. Forest-wide Standards and Guidelines (USDA Forest Service, 1992 and 2006; 2600 Wildlife Habitat Management) emphasize protection of essential habitat for TES species.

Scoping and Surveys

After reviewing TES plants and animal species occurring in Jackson and Union Counties, Illinois, two species occur, have occurred, or likely occur in the project area (Table 1).

Table 1. TES species known to occur in Jackson County in the Broken Wheel Ranch permit project area. Listing status codes are FT or FE=Federal Threatened or Endangered and RFSS=Regional Forester Sensitive Species.			
Species Common Name (scientific name)	Listing Status	Habitat suitability or known occurrence of listed species within project area	Species to be analyzed further? (Yes or No)*
ANIMALS			
Indiana bat <i>Myotis sodalis</i>	FE	Potential habitat in the vicinities of the trail and trailhead projects	Yes
Timber Rattlesnake <i>Crotalus horridus</i>	RFSS	Documented locations in project area.	Yes
PLANTS			
Blackstem Spleenwort <i>Asplenium resiliens</i>	RFSS SE	Known locations in project area vicinity.	Yes
Bradley's Spleenwort <i>Asplenium bradleyi</i>	RFSS SE	Known locations in project area vicinity.	Yes
Whiteleaf Mountain mint <i>Pycnanthemum albescens</i>	SE RFSS	No known locations in project area or vicinity; no suitable habitat in project area.	No
*Yes – The proposed project's potential effects on these species will be further analyzed in this document.			
*No – No further analysis is necessary and a determination of "No impact" is rendered.			

Analysis of Impacts

Indiana Bat

Direct and Indirect Effects

Potential summer roosting habitats, dead hardwood trees with exfoliating bark, are scattered along the existing trails scheduled for outfitter and guide use in the project areas and throughout the project area vicinities. The Forest Plan strategies and guidelines for Indiana bats identify retaining all standing, dead trees (Appendix H, page 288). If they need to be removed to accomplish project objectives they would need to follow timing guidelines identified in the Plan (Appendix H, p. 288) for all areas depending upon their proximity to known hibernacula or maternity roosting areas. Most of the permitted trails are within 5 miles of a known hibernacula or maternity colony. Following the Forest Plan guidelines for Indiana bats related to any dead tree removal as part of this project will result in no predicted, measurable direct or indirect effects on Indiana bat populations.

Cumulative Effects

With no direct or indirect effects predicted on Indiana bats, there would be no cumulative effects of planned actions on the species or its habitat.

Timber Rattlesnake

The species is known from the entire project area. None were observed on surveys done in 2005 or 2007. Some den habitats are very probable in the project area vicinity. I did not observe any individuals or any large-scale denning habitat immediately adjacent to the trail system during my field surveys. However, there were a few small rock-outcrops near and adjacent to the proposed permitted trails. These could be den habitat for a few individuals.

Direct and Indirect Impacts

There should be no direct effects on the species from the planned, increased equestrian or outfitter/guide use of the proposed trail and trailhead projects as long as no known, existing habitats would be disturbed. Individual animals could be directly affected if and when they are encountered by horses and riders on or immediately adjacent to the trails and trail heads. Usually individual snakes are harmed when these encounters. Late spring and late summer periods are when most encounters with rattlesnakes are likely to occur as animals are moving back and forth between den sites.

- ❖ The Broken Wheel Ranch will inform clients of the forest order not to harm/harass snakes on the Forest.

With incorporation of the above mitigation, little if any measurable direct or indirect effects should occur to timber rattlesnakes in the project area during or after the projects.

Cumulative Impacts

The project vicinity for this analysis for both plants and animals is the Clear Creek and Bald Knob Wildernesses. Any direct effects of the project could be short term effects including minor disturbances to individual animals and their habitat. However, with incorporation of above mitigation, no measurable effects on individuals or populations of timber rattlesnakes should occur as result of permit issuance.

Normal use (equestrian and hiking) of both trail systems in the project areas is light to moderate with use in summer periods usually the lightest. Existing trail usage has not had any measurable effects on rattlesnake populations in the project areas or in southern Illinois. Private lands in the vicinity include some roads, a few single family housing developments, small amounts of existing pastures and croplands, and large amounts of upland forest, some of which has had some measure of timber harvest or management.

Past impacts in the project area have included road construction and use, some small amounts of timber harvest on both public and private lands, some deforestation on adjacent private lands for pasture and cropland management and housing development, wildlife opening management on public lands on some ridgetops, cropland and pasture management on private lands, and trail construction and use predominantly on public lands.

Similar uses on private lands as have occurred in the past and that occur at present are anticipated in the future. Public lands will include similar recreational use and management as in the past except that recreational trail use by equestrians and hikers is anticipated to increase with approval and designation of an outfitter and guide permit and associated recreational use for the areas. Little if any vegetation management would occur except for possible prescribed burning and/or herbicide application to control NNIS. Mitigation measures as identified above should be included to minimize the disturbance to individual rattlesnakes and their existing habitat.

Based upon past, present, and future actions and effects in the project area, few if any cumulative effects on individual timber rattlesnakes and their habitats and no cumulative effects on their population in the project area vicinity are expected from this project.

Asplenium bradleyi and resilens

Both species are known from the project area vicinity. Neither species were observed on surveys done on trails in the project area. Most of the project area including the proposed, permitted trails is in Wilderness which the Forest manages under the WW management prescription in the 2006 Land and Resource Management Plan. Three Natural Areas border existing trails which the Forest manages under the NA management prescription in the 2006 Land and Resource Management Plan. Both prescriptions include management to protect and promote native plants and animals.

Direct Effects

Additional trail use as a result of the proposed action on established trails will not affect either species since neither occurs on the trail or trail edges.

Indirect Effects

During the site visits, *Alliaria petiolata*, (garlic mustard) was found at the trailhead and *Microstegium vimineum* (Japanese stilt grass) was found on portions of some of the trails. Both are considered exotic species that indirectly kill/outcompete native plant species. To prevent the spread of both into existing wilderness or natural areas and indirectly affecting both species, the following should apply:

- To increase awareness, public education and participation in NNIS prevention and control, the Forest will post awareness, prevention, and control messages at the River-to-River trailhead.
- The Broken Wheel Ranch will provide clients with NNIS information pamphlets provided by the Forest.
- Encourage weed-free forage and weed-free grazing by the permittee and his clients.
- The Broken Wheel Ranch will encourage recreationists to inspect, remove and properly dispose of weed seed and plant parts found on their clothing and equipment.
- As part of the permit process the Forest will work with the Broken Wheel Ranch to annually inspect trailheads, trails, and staging areas open to the public for NNIS.
- As part of the permit process the Forest will work with the Broken Wheel Ranch to encourage NNIS treatment on privately-owned lands.

Cumulative Impacts

The project vicinity for this analysis is the Clear Creek and Bald Knob Wildernesses. Short term effects include minor indirect, negative effects to both species of RFSS plants and their habitat within each project area from some initial spread of NNIS. Long term effects with the application of the above guidelines including focused control of the NNIS in the project area impacts to existing populations of either species should be negligible.

However, with incorporation of above mitigation, no measurable effects on individuals or populations of timber rattlesnakes should occur as result of permit issuance.

Normal use (equestrian and hiking) of both trail systems in the project areas is light to moderate with use in summer periods usually the lightest. Existing trail usage has not had any measurable effects on either species of their populations in the project areas or in

southern Illinois. Private lands in the vicinity include some roads, a few single family housing developments, small amounts of existing pastures and croplands, and large amounts of upland forest, some of which has had some measure of timber harvest or management.

Past impacts in the project area have included road construction and use, some small amounts of timber harvest on both public and private lands, some deforestation on adjacent private lands for pasture and cropland management and housing development, wildlife opening management on public lands on some ridgetops, cropland and pasture management on private lands, and trail construction and use predominantly on public lands.

Similar uses on private lands as have occurred in the past and that occur at present are anticipated in the future. . Public lands will include similar recreational use and management as in the past except that recreational trail use by equestrians and hikers is anticipated to increase with approval and designation of an outfitter and guide permit and associated recreational use for the areas. Little if any vegetation management would occur except for possible prescribed burning and/or herbicide application to control NNIS. Mitigation measures as identified above should be included to minimize the disturbance to individual plant species and their existing habitat.

Based upon past, present, and future actions and effects in the project area, few if any cumulative effects on either of the spleenworts and their habitats and no cumulative effects on their populations in the project area vicinity are expected from this project.

Cedar Lake and Kinkaid Lake Trail Systems

Existing designated trails on National Forest in the Cedar Lake and the Kinkaid Lake areas are listed as alternative sites for recreation clients of the Broken Wheel Ranch, a potential outfitter and guide permittee, when designated or assigned trails in the Bald Knob and Clear Creek wildernesses are too wet for equestrian travel. Biological Evaluations for Federal Threatened, Endangered and Regional Forester Sensitive plant and animal species were done in 2006 and 2007 for maintenance and use of designated trails in the Cedar and Kindaid Lake area (project file-Widowski and Calloway 2006, 2007). No significant impacts to any of the above species or their habitats from trail reconstruction, maintenance or use were identified in these areas. The only RFSS species identified from the trails or their immediate vicinities in Cedar and Kinkaid Lake areas was the timber rattlesnake. Guidelines to notify trail users of the prohibitions (Forest Order) on killing or harassing this species that are part of the proposed permit will prevent negative effects on this species from increased trail use in the Cedar and Kinkaid lake areas as well as the Bald Knob and Clear Creek wildernesses. No additional wildlife or plant biological evaluations or analyses are necessary for the potential alternative trail use in the Cedar and Kinkaid lake areas by any clients of the Broken Wheel Ranch in conjunction with their proposed outfitter and guide permit.

Determination by Species

As a result of this evaluation, it is my professional determination that implementation of an outfitter/guide permit to the Broken Wheel Ranch for equestrian and hiking uses of designated, existing trails will not contribute to a trend toward Federal listing or cause a loss of viability to Indiana bats, timber rattlesnakes, and blackstem and Bradley's spleenwort.

Recommended Conservation Measures to Avoid, Minimize, or Mitigate Adverse Effects

The following mitigation measures should be included within this project to insure that individual Indiana bats, timber rattlesnakes, and two RFSS spleenworts and their populations are not negatively affected by planned actions:

- 1) Guidelines for dead tree retention and removal in the Forest Plan should be implemented (Forest Plan, Appendix H, p. 288).
- 2) Permittee and his clientele should be notified of the existing Forest Order prohibiting the harassment or harm of snake species on the Forest and in the project area.
- 3) To increase awareness, public education and participation in NNIS prevention and control, the Forest will post awareness, prevention, and control messages at the River-to-River trailhead.
- 4) The Broken Wheel Ranch will provide clients with NNIS information pamphlets provided by the Forest.
- 5) Encourage weed-free forage and weed-free grazing by the permittee and his clients.
- 6) The Broken Wheel Ranch will encourage recreationists to inspect, remove and properly dispose of weed seed and plant parts found on their clothing and equipment.
- 7) As part of the permit process the Forest will work with the Broken Wheel Ranch to annually inspect trailheads, trails, and staging areas open to the public for NNIS.
- 8) As part of the permit process the Forest will work with the Broken Wheel Ranch to encourage NNIS treatment on privately-owned lands.

Responsibility for a Revised Biological Evaluation

This Biological Evaluation was prepared based on current available information. If the action is modified in a manner that causes effects not considered, or if new information becomes available that reveals the action may impact threatened, endangered, proposed, or sensitive species in a manner or to an extent not previously considered, a new or revised Biological Evaluation will be required.

Literature Citations

Brandon, Ronald. A. 2005. Conservation Assessment for the Timber Rattlesnake, *Crotalus horridus*. Report of the Shawnee National Forest. 56 pp.

Illinois Endangered Species Protection Board. 1999. Checklist of endangered and threatened animals and plants of Illinois. Illinois Endangered Species Protection Board, Springfield.

Illinois Natural History Survey. 2004. Available <http://www.inhs.uiuc.edu/> (Accessed April 14, 2006).

Mohlenbrock, R.H., 2002. Vascular Flora of Illinois. Southern Illinois University, Carbondale, Illinois.

NatureServe. 2004. NatureServe Explorer: An online encyclopedia of life [web application]. Version 1.8 NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer> (Accessed: April 20, 2006).

USDA Forest Service. 1992. Amended Land and Resource Management Plan, Shawnee National Forest. Harrisburg, Illinois.

USDA Forest Service. 1992. Appendices: Final Supplemental Environmental Impact Statement (Amended land and resource management plan): Shawnee National Forest. USDA Forest Service, Eastern Region, Milwaukee, Wisconsin USA.

USDA Forest Service. 2006. Land and Resource Management Plan, Shawnee National Forest. Harrisburg, Illinois.

USDA Forest Service. 2006. Appendices: Final Environmental Impact Statement (Land and Resource Management Plan): Shawnee National Forest. USDA Forest Service, Eastern Region, Milwaukee, Wisconsin USA.

Contributors

Sarah A. Calloway, Ecologist, Jonesboro, IL

Stephen P. Widowski, Wildlife Biologist, Jonesboro, IL