

Draft Compatibility Determination

Title

Draft Compatibility Determination for Environmental Education and Interpretation
Pilot Knob National Wildlife Refuge

Refuge Use Category

Environmental Education and Interpretation

Refuge Use Type(s)

Environmental education (NWRS staff and authorized agents)

Interpretation (NWRS staff and authorized agents)

Refuge

Pilot Knob National Wildlife Refuge

Refuge Purpose(s) and Establishing and Acquisition Authority(ies)

“...to conserve (A) fish or wildlife which are listed as endangered species or threatened species...”. 16 U.S.C. 1534(a)(2) (The Endangered Species Act of 1973)

The particular purposes of establishing the Refuge were to: secure the land where mine entrances were located to prevent unauthorized use of the area and eliminate human disturbance of hibernating bats; prevent the loss of bat habitat; and help maintain and increase the existing bat population with the goal of eventually delisting the Indiana bat. (CCP)

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System, otherwise known as Refuge System, is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111 Stat. 1252).

Description of Use

Is this an existing use?

Yes. This compatibility determination reviews, replaces, and combines the 2006 compatibility determinations for Environmental Education and Interpretation.

Environmental Education and Interpretation were evaluated in conjunction with the 2007 Comprehensive Conservation Plan (U.S. Fish and Wildlife Service, 2007, 2006).

What is the use?

Environmental education (NWRS staff and authorized agents) is defined as on-refuge activities conducted by NWRS staff or authorized agents that use a planned process to foster awareness, knowledge, understanding, and appreciation in students about fish, wildlife, plants, ecology, natural sciences (such as geology) and refuge management.

Interpretation (NWRS staff and authorized agents) is defined as on-refuge activities for refuge visitors conducted by NWRS staff or authorized agents that are designed to foster an understanding and appreciation for natural and cultural resources, and associated management.

Is the use a priority public use?

Yes, this is a legislated priority wildlife-dependent public use of the National Wildlife Refuge System.

Where would the use be conducted?

Staff and partner led environmental and interpretive programs may take place throughout the refuge. Pilot Knob National Wildlife Refuge is a 90-acre refuge located on Pilot Knob Mountain that consists of a series of abandoned iron mine shafts that have become important habitat for bats, including two species of endangered bats and one threatened bat. Access to Pilot Knob National Wildlife refuge is regulated, and a portion of the refuge is fenced and gated. The public is allowed on guided interpretive hikes and academic environmental education field trips. Areas used for guided programs potentially cover most of the refuge, with focus inside the 21-acre gated portion. No access is allowed inside the mine or adjacent to any mine openings. Specific locations highlight unique geological features, cultural history, and bat habitat. The refuge is entirely upland oak-hickory and shortleaf pine forest and most surface is bedrock. Other than the fencing, there is no infrastructure or property at the refuge. Specific locations on the refuge are restricted to durable surfaces and include paths to the top of the mountain and cleared areas. The refuge has very unique geology and attracts academics, researchers, and visitors from all over the state.

When would the use be conducted?

Staff and partner led environmental education and interpretive programs may be scheduled year-round. Guided interpretive hikes are generally scheduled in the spring and fall. Academic field trips are usually requested in the spring. Visits average 4-6 hours in duration and are only conducted during daylight hours. All program

activity must conclude two hours prior to sunset.

How would the use be conducted?

Staff and partner led environmental education and interpretive programs are conducted on a limited basis only when closely guided by refuge staff or designated volunteers. The refuge is closed to entry except for pre-requested or pre-scheduled programs. Staff and partners/volunteers monitor use and ensure stipulations are followed. From 2013-2019, the refuge averaged 4 academic visits per year from several colleges to study geology. These groups totaled an average of 93 participants. In addition, an average of 3 guided interpretive hikes took place each year with an average of 53 total participants. During that seven-year period, total visitation averaged 147 people over 7 days of use. More than one academic field trip may be scheduled on the same day. The highest use in one year, 2014, totaled 280 visitors over 7 days, as school group visits were more substantial (U.S. Fish and Wildlife Service, 2020). No refuge-provided special equipment or infrastructure is required for this use. Group participants park on a public road adjacent to the refuge and access the refuge on foot. Participants in interpretive hikes must pre-register and are given details and instructions prior to the visit.

Participants may also peripherally participate in wildlife photography and wildlife observation, which are priority public uses, while on a guided interpretive hike or environmental education field trip.

There is no on-site staff. Environmental education and interpretation are conducted by staff at Mingo National Wildlife Refuge in Puxico, Missouri, 75 miles away. Some program support may be provided by nearby state agency-run sites and volunteers. Special use permits are required for any group visit that is not led directly by staff, partners or volunteers.

Why is this use being proposed or reevaluated?

This use is being reevaluated because the 15-year renewal period ends in 2021 (603 FW2.11 H). There are no administrative changes to the way this use has previously been conducted on the refuge.

Availability of Resources

The analysis of cost for administering and managing each use will only include the incremental increase above general operational costs that we can show as being directly caused by the proposed use. Guided environmental and interpretive programs require dedicated staff time, equipment, and supplies but these resources are considered part of the overall visitor services operations.

Special equipment, facilities, or improvements necessary to support the use: There is no existing infrastructure on the refuge. Participants follow dirt paths and stay in areas

that are safe for hiking. Recurring annual expenses to allow access and maintain the refuge are covered within the existing budget.

Staff time: Staff time required to conduct this use includes processing requests, coordinating with partners, travel time, leading and supporting programs, scheduling volunteers and subject matter experts, and maintaining hiking access. Approximately 20 workdays of staff time per year is required to conduct this use. This time is considered part of normal duties for all staff members of Mingo National Wildlife Refuge.

Maintenance: Routine maintenance time is expected to occur to remove hazards, repair fencing, trimming and mowing to allow this use to occur. Staff time can vary annually based on improvements needed; however, roughly 1 % of time for a single full-time employee is spent on maintaining access to the top of the mountain. These costs are part of routine maintenance of the visitor services program.

Monitoring costs: Approximately 10 hours is spent annually as part of normal staff duties to design and monitor event and program participation and collect and report participation data.

Offsetting revenues: There are no off-setting revenues. All revenues come from the Mingo National Wildlife Refuge budget.

Anticipated Impacts of the Use

Environmental education and interpretation were evaluated in the environmental assessment associated with the comprehensive conversation plan (U.S. Fish and Wildlife Service, 2007) and the Visitor Service Plan (U.S. Fish and Wildlife Service, 2011b). In both cases environmental education and interpretation has been found to not significantly impact the human environment through Findings of No Significant Impacts. The analysis below is supplemental to the previous environmental effects described in those documents. The effects and impacts of the proposed use to refuge resources, whether adverse or beneficial, are those that are reasonably foreseeable and have a reasonably close causal relationship to the proposed use. Potential impacts of a proposed use on the refuge's purpose(s) and the Refuge System mission.

Environmental education and interpretation are two of the National Wildlife Refuge System's priority wildlife-dependent recreation uses that are important tools to further the mission of the U.S. Fish and Wildlife Service. Historical and potential levels of use are not anticipated to adversely affect the resource. From 2013-2019, the refuge averaged 4 academic visits per year from several colleges to study geology. These groups totaled an average of 93 participants. In addition, an average of 3 guided interpretive hikes took place each year with an average of 53 total participants. During that seven-year period, total visitation averaged 147 people over 7

days of use. This trend is expected to continue over the lifetime of this compatibility determination. Environmental education use has been evaluated to support over 100 participants each year in the refuge's comprehensive conservation plan.

Guided programs cover a broad range of experiential learning but only take groups to specific locations of the refuge. All efforts are made to keep groups away from mine entrances or other areas of resource importance. Accommodating this wildlife-dependent use has and is expected to result in minimal impacts.

Short-term impacts

This compatibility determination includes the written analyses of the environmental consequences on a resource only when the short-term impacts on that resource could be more than negligible and therefore considered an "affected resource." Air quality, water quality, refuge management and operations, and socioeconomics will not be more than negligibly impacted by the action and have been dismissed from further analyses.

Wildlife species

Temporary disturbance to wildlife may result from guided environmental education and interpretation activities taking place at all locations on the refuge. The activity is not expected to cause greater than negligible impacts because, at current and anticipated use levels, there is sufficient refugia for wildlife adjacent to activity areas and a limited number of individuals participating in activities at any one time. Guided group size ranges from a few individuals to 40 per trip and frequency is no more than 8 per year. This use occurs in a dispersed manner to lessen impacts, and activities that cause more disturbance are limited to particular areas that were created for this purpose. Handling and temporary collection of wildlife for education purposes is expected to be minimal and cause only temporary disturbance.

Threatened and endangered species

Great care is necessary to ensure the safety of threatened and endangered bat species that frequent the refuge including endangered Indiana bats, endangered gray bats, and threatened northern long-eared bats. There is no acceptable amount of disturbance to hibernating bats. Disturbance of hibernating Indiana bats seldom results in immediate mortality of bats within the hibernacula (Mohr 1972, Humphrey 1978), except in cases of vandalism when bats are purposefully killed. To ensure disturbance to bats is minimized entering mine shafts and hiking next to adits or mine openings is prohibited. Indiana bats are known to swarm, a behavior in which large numbers of bats fly in and out of cave entrances from dusk to dawn (Cope and Humphrey 1977). For this reason, this use only occurs during daylight hours and all programs begin two hours after sunrise and conclude two hours prior to sundown. As described and implemented, there is no perceived disturbance to the bats. Entering the mine shafts is prohibited. Guided interpretive and environmental

education programs have not been an issue to date, but the use will be reevaluated if any findings of greater than negligible impacts develop.

Habitat and vegetation

There is short-term disturbance caused by trampling along the access trail and other portions of the refuge during guided environmental education and interpretation programs, however, the rocky substrate minimizes the effect. Vegetation will recover annually from use.

Geology and soils

This use often focuses on the unique geology of the site. Pilot Knob NWR is the only location of exposed bedrock that has been mined in the Midwest. This allows geologists to look at rock formed as deep as 100 feet below the surface. The base rock layering is the only location in over 800 miles for students to see unique ripple marks and mud cracks which are key to explaining geologic history of the Midwest. Academic visits may include collecting some amounts of samples in float, but no intact material is to be collected, especially in areas near adits or mine shafts. The highly supervised nature of programs inhibits inappropriate collection. Disturbance to soil and substrate is minimal as most surface used to move around the refuge is bedrock. There is no wear produced by the small amount of traffic currently on the refuge.

Visitor Use and Experience

Activities conducted on the refuge may happen during wide ranging temperature conditions, and staff will use best practices to mitigate hazards. Because entry is highly regulated, there are no concurrent uses on the refuge, but users may enjoy wildlife observation and wildlife photography in relation to this use.

Cultural Resources

Several sensitive cultural resources are present on the refuge and are subject to damage when unsupervised activity takes place. The highly structured nature of refuge programs will assist in protecting the resources. Pilot Knob NWR is relatively close to Fort Davidson which is known for the battle of Pilot Knob during the civil war. There are no known cultural resource sites related to the battle but there could potentially be sites that are unknown to refuge staff. Education is provided to foster a sense of stewardship for this unique site.

Long-term impacts

This compatibility determination includes the written analyses of the environmental consequences on a resource only when long-term impacts on that resource could be more than negligible and therefore considered an “affected resource.” Although some

resources were evaluated under short-term impacts there are no long-term impacts expected. Wildlife species, threatened and endangered species, habitat and vegetation, geology and soils, visitor use and experience, cultural resources, refuge management and operations, and socioeconomics will not be more than negligibly impacted by the action and have been dismissed from further analyses.

Public Review and Comment

The draft compatibility determination will be available for public review and comment for 15 days from March 23, 2022 to April 6, 2022. The public will be made aware of this comment opportunity through newspapers, postings at local libraries, and online communication such as on the refuge website. The State of Missouri has been asked to review and comment on the draft compatibility. A copy of this document will be made available electronically on the refuge website fws.gov/refuge/pilot_knob. Comments can be sent in by phone, email, or mail. Please let us know if you need the documents in an alternative format. Concerns expressed during the public comment period will be addressed in the final.

Determination

Is the use compatible?

Yes

Stipulations Necessary to Ensure Compatibility

1. Special use permits are required for any group visit not directly led by staff. Visits led by staff or volunteers must be approved well in advance of the event.
2. Hazardous areas and mine entrances are restricted and closed to public access. No entrance into the mine is allowed at any time by members of the public.
3. All use will occur during daylight hours and conclude two hours before sunset.
4. Individual group size will be limited to thirty participants for safety and resource protection.
5. Only walk-in access is allowed.

Justification

The stipulations outlined above will help ensure that the use is compatible at Pilot Knob National Wildlife Refuge. Environmental education and interpretation, as outlined in this compatibility determination, would not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the refuge. Based on available science and best professional judgement, the Service has determined that environmental education and interpretation at Pilot Knob National

Wildlife Refuge, in accordance with the stipulations provided here, would not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose of Pilot Knob National Wildlife Refuge. Rather, appropriate and compatible environmental education and interpretation would be the use of Pilot Knob National Wildlife Refuge through which the public can develop an appreciation for wildlife and wild lands.

Signature of Determination

Refuge Manager Signature and Date

Signature of Concurrence

Assistant Regional Director Signature and Date

Mandatory Reevaluation Date

2036

Literature Cited/References

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- Mohr, C.E. 1972. The status of threatened species of cave dwelling bats. *Bulletin of the National Speleological Society* 34:33-37.
- U.S. Fish and Wildlife Service (2007). Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. https://www.fws.gov/midwest/Endangered/mammals/inba/pdf/inba_fnldrftrecpln_apr07.pdf
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