

# **Draft Compatibility Determination**

## **Title**

Draft Compatibility Determination for Environmental Education and Interpretation  
Mingo National Wildlife Refuge

## **Refuge Use Category**

Environmental Education and Interpretation

## **Refuge Use Type(s)**

Environmental education (NWRS staff and authorized agents, not conducted by NWRS staff or authorized agents, and general)

Interpretation (NWRS staff and authorized agents and not conducted by NWRS staff or authorized agents)

## **Refuge**

Mingo National Wildlife Refuge

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

“...for the use as an inviolate sanctuary or for any other management purpose, for migratory birds” 16 U.S.C. § 715d (Migratory Bird Conservation Act)

“...suitable for (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species.” 16 U.S.C. § 460k-1, 460k-460k-4 (Refuge Recreation Act)

“... to secure for the American people of present and future generations the benefits of an enduring resource of wilderness...wilderness areas... shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness...” 16 U.S.C. §1131 (Wilderness Act)

## **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 individually in conjunction with the 2007 Comprehensive Conservation Plan and associated Environmental Assessment (U.S. Fish and Wildlife Service, 2007, 2006).

What is the use?

Environmental education uses a planned process to foster awareness, knowledge, understanding, and appreciation in students about fish, wildlife, plants, ecology, natural sciences (such as astronomy) and refuge management. Environmental education can occur as on-refuge activities conducted by NWRS staff or authorized agents and others that may not be conducted by NWRS staff or authorized agents. Lastly, environmental education (general) includes environmental education activities not specifically defined elsewhere in this category.

Interpretation is defined as on-refuge activities for refuge visitors that are designed to foster an understanding and appreciation for natural and cultural resources, and associated management. Interpretation can occur as on-refuge activities for refuge visitors conducted by NWRS staff or authorized agents and others that may not be conducted by NWRS staff or authorized agents. This use does not include the evaluation of commercially guided interpretive tours (including bus or bicycle tours) of the refuge where fees can be collected.

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 education and interpretive programs may take place throughout the refuge, off-site, and through digital platforms. Locations on refuge include the following:

### *Trails*

- Swampwalk Nature Trail (0.8 mile raised boardwalk and levee top in cypress-

tupelo swamp)

- Sweet Cabin Trail (0.4 mile gravel upland hardwood forest) and Sweet Cabin
- Bluff Trail (0.2 mile gravel upland hardwood forest),
- Visitor Center Overlook Trail (0.2 mile paved upland hardwood forest)
- Hillside Trail (0.3 mile dirt/gravel upland hardwood forest)
- Rockhouse Overlook Trail and Overlook (0.2 mile paved upland hardwood forest)
- Hartz Pond Trail (0.2 mile gravel upland hardwood forest and man-made pond and outdoor classroom loop)
- Levee tops and service roads (approximately 26 miles, bisecting bottomland hardwood forest, cypress-tupelo swamp, moist soil and other management units)

### *Roads*

Refuge roads (6 miles two-way traffic paved bottomland hardwood forest and cypress-tupelo swamp, 25 miles gravel one-way and two-way bottomland and upland hardwood forest),

### *Visitor Center and Other Infrastructure*

- Visitor center (2,100 SF exhibit area and 1,200 SF multipurpose room) and grounds (upland forest)
- Picnic pavilion (upland forest)
- 11 permanent blinds (Special Hunt Areas and Rockhouse Marsh, bottomland hardwood forest and wetland)
- 4 Overlooks or Observation Platforms (bottomland hardwood and upland forest)

### *Select Management Areas*

- 800 acres of moist soil units
- 800 acres of grassland openings, croplands, and food plots
- 6,308 acres of green tree reservoir

### *Waterways and Wetlands*

- 6 boat launches and additional water access points (bottomland hardwood forest)
- 2,911 acres of freshwater marsh, 387 acres of open water, and 77 miles of ditches, streams, and river (U.S. Fish and Wildlife Service, 2011a)

## *Wilderness Area*

7,730 acres of designated Wilderness Area (bottomland hardwood forest)

## *Other Resources*

Select additional locations are utilized across the refuge dependent on program subject matter and education objectives.

Staff-and partner-led large education-based refuge events are restricted to durable surfaces including the visitor center and visitor center grounds, the Hartz Pond Trail, the Swampwalk Nature Trail, Binford Pond, associated parking lots, and select waysides on refuge roads that can accommodate heavy foot and vehicle traffic.

Self-led environmental education and interpretive activities may take place at locations across the refuge that are open to public use or allowed by issuance of a Special Use Permit specifically for activities not conducted by NWRS staff or authorized agents, including and in addition to locations listed above. Interpretive signage is available in the visitor center, on the Swampwalk Nature Trail, at the Monopoly Marsh Overlook, and on kiosks at six refuge entrances and four interior locations. Brochures are available at kiosks, the visitor center, and digitally on the refuge website. Materials and equipment to enhance learning may be available to check out from the visitor center for use on-refuge. A small number of visitors may participate in supporting uses to access self-guided static interpretive content including bicycles, motorized and non-motorized boats, and equestrian use, but primary access to the use is by foot or vehicle. Non-authorized agents that are leading self-led field trips may request special use permits for additional access.

The areas used for environmental education and interpretive activities may occur in any habitat and area of the refuge to explore the full range of wildlife and plants present on the refuge. Most equipment and supplies used for staff-and partner-led environmental education and interpretive programs is stored in the visitor center and in the eight-stall shop building, both located on the southeast edge of the refuge along State Highway 51.

Staff- and partner-led environmental education and interpretive programs are conducted off-refuge in communities and may include schools, libraries, parks, education or nature centers, or other sites conducive to experiential learning.

Pre-recorded digital programming may be shared through the refuge website, social media, host sites, and other platforms that provide the ability to share accessible content. Live programming hosted by the refuge may be conducted in formats that meet department terms of service and accessibility requirements.

When would the use be conducted?

The refuge can be accessed for this use daily ½ hour before sunrise to ½ hour after sunset. Some staff-and partner-led programs with topics including astronomy,

nocturnal wildlife, and photography, may be hosted outside of these hours and take place at the visitor center or select locations on the refuge. These after hours programs may be advertised and not require registration. There are no self-led programs after hours. The refuge consists of 21,592 total acres, all of which is completely open to the public March 1-September 30. A significant portion of the refuge remains open to the public year-round, but portions are reserved for other uses during fall and winter months. Approximately 4,000 acres of waterfowl sanctuary areas are closed to the public October-February and approximately 8,960 acres of the General Hunt Area are closed to the non-hunting public October 1-January 15. An additional 3,689 acres of the Expanded Hunt Area are closed October 1-October 31 to non-hunting use (U.S. Fish and Wildlife Service, 2014). Ozark Highlands Auto Tour is open to motorized vehicles March 1-November 30, and all other refuge roads are open year-round. Self-directed or independent environmental education and interpretive activities are allowed during any open times throughout the year, except when necessary to restrict access because of management activities, weather related closures, or specially scheduled activities that require closures. Most staff-and partner-led environmental education and interpretive programs range from 1-4 hours in duration but vary according to the needs of the audience. Most often, guided environmental education field trips are scheduled morning to early afternoon to accommodate school day schedules. These activities may be scheduled throughout the year to address different seasonally dependent topics. Historically, field trip visits are heaviest in spring between mid-March and mid-May and during the fall between mid-September and early November. Large events may be scheduled for full days.

Off-site environmental education and interpretive activities and events may be conducted throughout the year and throughout the week in coordination with the host site.

Digital programming may be developed and delivered throughout the year and may be time-bound or available at the user's convenience.

#### How would the use be conducted?

Most environmental education and interpretation are conducted through scheduled group visits, programs, or events on-refuge and off-site. Thoughtful planning controls the volume of visits and improves the experience for the participants. Environmental education programs are developed to incorporate state education and next generation science standards and utilize experiential learning. Interpretive programs are developed to forge emotional and intellectual connection between visitors and the resource and to increase knowledge and stewardship for the U.S. Fish and Wildlife Service and its mission. Additional education is delivered through impromptu contact with interested visitors. Education support is provided to self-led groups to improve experience and adherence to stipulations. Programs can vary from simple discussions to equipment- and curriculum-intensive formal interactions. Non-personnel interpretation is conducted through interpretive media such as printed

materials, signage, and digital platforms throughout the refuge and online. Presented topics include habitats, ecology, wildlife and natural resource management, natural and cultural history, photography, hydrology, astronomy, geology, Leave No Trace, stewardship, hunting and fishing education, outdoor, and recreation and traditional skill building. Subjects that are of public interest and that support wildlife dependent recreation are regularly developed. Supporting uses that could be complimentary or apart of this use including hiking trails, electric-motorized and non-motorized boats, and bicycling and equestrian use. These uses have been evaluated for their specific compatibility on the refuge and impacts included in this determination are specific to the supporting uses of these types for the EE/interpretation use.

Audience sizes vary greatly for interpretive programs depending on activity design and interest. Environmental education visits vary in size depending on class size. Existing refuge infrastructure around the visitor center grounds (restrooms, indoor and outdoor classrooms, parking) can accommodate approximately 150 people at one time and continue to ensure the quality of experience for environmental education visits and interpretive program participants. This includes 4 full size buses and/or up to 20 passenger vehicles in the visitor center parking lot, and one bus and/or up to 15 passenger vehicles in the Swampwalk Nature Trail parking lot. The visitor center exhibit areas can support approximately 140 people at one time, and the multipurpose room holds approximately 100 people.

The Flatbanks, Bluff Road, May Pond, and Fox Pond boat ramps can accommodate approximately 6 vehicles or 3 boat trailers each. Bank fishing along Flatbanks Road and the Mingo River can accommodate approximately an additional 12 vehicles at pull off sites. Binford Pond can accommodate at least 50 vehicles.

Wildlife drives, educational kiosk content, developed trails, and off-trail pedestrian access support self-led interpretation. The refuge contains approximately 30 miles of public roads, ten interpretive kiosks, numerous interpretive signs, and six established trails.

Many visitors can be accommodated over the course of a day on a rolling basis for occasional large educational events that are dispersed across areas of the refuge. Off-site program audiences vary depending on the size and capacity of the host site. Digital audience size varies based on the topic presented and the level of interaction necessary.

Staffing levels are a limiting factor and staff, and volunteer capacity will determine how many guided programs are scheduled.

Over the past 10 years, the refuge has hosted an annual average of 1,255 environmental education participants in groups ranging from five students to 400 students, and 1,340 interpretive visits during an annual average of 31 programs on a wide variety of topics. An estimated 12,000 visitors also participate annually in self-led interpretive activities. (U.S. Fish and Wildlife Service, 2020, 2015). Large events, such as Eagles Days, average 800 visitors each day throughout a 7-hour, 2-day event

and may include off-station sites staffed by partners or other agencies. Off-site programs vary from small groups to 500 or more participants at field days and events. A goal of reaching 3,000 students annually is established in the refuge's Visitor Services Plan (U.S. Fish and Wildlife Service, 2011b).

Special use permits are required if self-led environmental education or interpretive programs involve handling or collecting wildlife or plants beyond what is allowed for current under wild edible collection regulations. Special use permits may also be required for large self-led environmental education or interpretive program groups if the size and activity of the group could negatively impact the resource.

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.

Much of the infrastructure used for environmental education and interpretation programming also supports other priority public and management uses, but some of the priority resources that support this use are the visitor center and grounds, the Swampwalk Nature Trail, the Hartz Pond Trail, Sweet Cabin Trail, and Sweet Cabin. Guided environmental education and interpretive programs require dedicated staff time, equipment and supplies, but these resources are considered part of the overall visitor services operations. Additionally, all staff on the refuge orient and welcome visitors as a portion of their duties and assist in some of the larger programs. This time is not considered above general operation costs.

*Special equipment, facilities, or improvements necessary to support the use:* existing infrastructure such as the visitor center and outdoor classrooms, will support the use. Existing refuge resources are adequate to properly and safely administer the use with existing infrastructure and facilities. If infrastructure and facilities improvements are needed, this would likely be a one-time cost that varies depending on the cost of materials and size of the project. For some infrastructure projects that support this use and other priority-wildlife dependent recreational opportunities external funding will be sought to improve trails or observation docks if they cannot be covered by refuge budget or through offsetting revenues. Recurring annual expenses to maintain infrastructure and facilities are covered within existing refuge budget. Equipment and supplies that support environmental education and interpretive

programming is available for both staff/partner/volunteer-led programs and for check-out by teachers, librarians, and home-school organizations for self-led programs. Education support, as part of normal duties, is provided for self-led programs as requested. Staff time will be needed to maintain knowledge on how to use the equipment for approximately 1-2 hours per year. In addition, staff and volunteers spend 200 hours annually checking and maintaining kiosks and interpretive signage as part of normal job duties.

*Maintenance costs:* The refuge will maintain and improve access as necessary on current trails, roads, and access points. Staff time can vary annually based on improvements needed; however, roughly 25% of time for a single full-time employee is spent on maintaining trails and working on any improvement projects. Roads, parking lots, trail maintenance, mowing, vehicle maintenance, cleaning, repair and digital equipment maintenance are part of the managing station's funding. These costs are part of routine maintenance of the visitor services program.

*Monitoring costs:* Approximately 200 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:* Funding from daily and annual passes purchased by visitors as part of the Federal Lands Recreation Enhancement Act and donations by Mingo Swamp Friends aid in maintenance, staffing, and improvement needs related to this use. Overall annual fee receipts average \$8,000-\$15,000, and proceeds fund a variety of recreation infrastructure and services including environmental education and interpretation. Funds are dedicated, annually, according to priority.

## **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. Between 2016 and 2019, the refuge averaged 1,500 on-site environmental education participants per year, 800 off-site environmental education participants per year, and approximately 40 on- and off-refuge interpretive programs with an annual average of 1,460 interpretation participants (U.S. Fish and Wildlife Service, 2020). This trend is expected to continue over the lifetime of this compatibility determination. Environmental education use has been evaluated to support over 2,000 participants each year in the refuge's comprehensive conservation plan.

Guided programs cover a broad range of experiential learning and can take groups into undeveloped areas of the refuge, but heavier use is planned on durable surfaces and developed locations. Self-led groups tend to be smaller and less frequent but can benefit from the multitude of opportunities for learning. Accommodating this wildlife-dependent use has and is expected to result in minimal impacts.

Guided environmental education and interpretive programs emphasizing stewardship values and Leave No Trace ethics may take place in the Mingo Wilderness Area, as The Wilderness Act emphasizes education as one of the features of value in the definition of Wilderness (Section 2(c)) and one of its purposes (Section 4(b)). Currently there is no group size limitations for wilderness groups participating in refuge led or self-led environmental education or interpretation programs. To date there have been no significant impacts to wilderness character from this type of visitation. However, if visitation to wilderness indicates a degradation of wilderness character based on groups using wilderness for this activity group size limitations will be implemented after re-evaluation of this compatibility determination and completion of appropriate compliance. Impacts to wilderness character are monitored annually and if there are signs of degradation to any wilderness characteristics occurring this will trigger the requirement to implement group size limitations and potentially permitting.

### 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, floodplains, refuge management and operations, and socioeconomics will not be more than negligibly impacted by the action and have been dismissed from further analyses.

### *Wildlife and aquatic species*

Temporary disturbance to wildlife may result from guided and self-led interpretive and environmental education 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. Self-led interpretive activity participation ranges from individuals to class-size groups, and groups larger than family-size are infrequent. Guided group size ranges from a few individuals to 150 in a day with an average size of 30, and frequency is no more than an average of one day per week. This use occurs in a dispersed manner to lessen impacts, and activities that cause more disturbance are limited to areas that were created for this purpose. Sampling of aquatic wildlife for environmental education is limited in scope and monitored by staff, partners and/or volunteers. Negligible impact to small quantities of aquatic insects and small fish may occur, but the population is sufficient to support individuals being removed. All motor vehicle use associated with environmental education and interpretation is restricted to designated roads and parking areas which reduces disturbance to wildlife. Though wildlife roadkill can be an unintended impact of vehicle traffic for this use, it is not an impact specific to this use. Littering can potentially impact wildlife, but existing staff resources and maintenance are used to mitigate this impact. Self-led activities are not permitted in popular waterfowl feeding and loafing areas during the waterfowl migration, this lack of use will protect waterbirds concentrated in these areas (Fredrickson and Reid 1988). Handling and temporary collection of wildlife for education purposes is expected to be minimal and cause only temporary disturbance. Activities are planned and conducted in several areas for larger groups so as not to overstress or overuse any one resource.

### *Threatened and endangered species*

Federally threatened, endangered, special status species do occur on the refuge, but it is expected that this use will not conflict with recovery or protection of these species. Known threatened and endangered areas will be avoided during periods of occupation. Studies and anecdotal information suggest that roosting bats are tolerant to transient, low intensity disturbances (e.g., humans walking near roost trees, nearby machinery) and ongoing disturbances (USFWS 2008). The refuge hosts Indiana bats and northern long-eared bats. There have been no issues to date with this use in relation to threatened, endangered, or special status species.

### *Habitat and vegetation*

Disturbance to terrestrial vegetation and wildlife may result from trampling during this use as individuals or groups walk off-trail or in unimproved areas; however, individuals primarily remain on trail systems making this impact very limited in scope. Some disturbance to aquatic vegetation may occur in shallow areas during sampling activities. This disturbance is expected to be limited in scope and duration, and the vegetation will recover annually from use. Activities are conducted in several areas so as not to overstress or overuse any one resource.

### *Geology and soils*

Disturbance to habitat is minimal although some soil compaction and erosion can occur along unimproved trails and bank and waterway access areas. These impacts are generally localized and have little overall negative impact. This activity can be accessed by electric-motor and non-motorized boat. Access points are subject to erosion from boat launching and parking, but cumulative impacts are minimal and managed with regular maintenance.

### *Wilderness*

Activities may take place in the Mingo Wilderness Area. Self-led groups and guided programs will follow wilderness regulations to mitigate impacts and maintain the character of the wilderness area. Guided programs are structured in a way that minimizes peripheral disturbance to other wilderness users and maximizes the wilderness experience for groups. Educational programs will also take place outside of wilderness to develop an information and education program designed to increase awareness and appreciation of the full spectrum of wilderness values, without stimulating unacceptable demand for use. Interpretation of wilderness in the form of signs will be installed outside of wilderness except as necessary to address visitor health and safety, to administer wildlife-dependent recreation, or to protect wilderness character.

### *Visitor Use and Experience*

Activities on the refuge may indirectly impact other recreational users as the use occurs concurrently in places of other recreation (fishing, boating, wildlife observation, photography). These indirect impacts are expected to be infrequent and negligible. This use takes place in a controlled amount of the refuge at any one time, and there are sufficient additional locations for other users.

### *Cultural Resources*

The refuge contains culturally sensitive sites that will be excluded from public experience when planning guided educational or interpretive programs. Guided and self-led visits to Sweet Cabin may lead to structural wear over time, but regular maintenance is conducted to meet preservation standards as need arises as part of the regular refuge maintenance program or volunteer work effort. Programs increase appreciation and knowledge of cultural resources on the refuge.

### *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 and aquatic species, threatened and endangered species, habitat and vegetation, geology and soils, air quality, water quality, floodplains, wilderness, 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. A copy of this document will be made available electronically on the refuge website [fws.gov/refuge/mingo](https://fws.gov/refuge/mingo). 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 may be issued to self-led groups if group size could negatively impact the resource. Permittees may not charge a fee to participants.
2. When collection or handling of species is part of the trip, a special use permit is required, and a species encountered list is required to be submitted to the refuge.
3. Independent or self-led environmental education and interpretive programs will not be conducted in seasonally closed areas of the refuge.
4. Educational groups of any type containing minors under 18 are required to have sufficient adults to supervise their group based on ages, as required by refuge staff.
5. Interpretive and environmental education programs will focus on topics appropriate to the refuge and which are intended to foster respect and stewardship of the National Wildlife Refuge System, the National Wilderness Preservation System, and specifically Mingo National Wildlife Refuge.
6. Staff- and partner-led environmental education and interpretation programs will only be conducted at a level that does not impact other management objectives and is within staff capacity.

7. Guided and self-guided programs within wilderness will follow all wilderness regulations and policy.
8. Use of motorized vehicles is limited to maintained roads and parking areas except for extenuating circumstances approved by the refuge manager.

### **Justification**

The stipulations outlined above would help ensure that the use is compatible at Mingo 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. Environmental education and interpretation are two of the six priority wildlife-dependent recreational uses identified in the National Wildlife Refuge System Improvement Act of 1997. Based on available science and best professional judgement, the U.S. Fish and Wildlife Service has determined that environmental education and interpretation at Mingo 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 Mingo National Wildlife Refuge. Rather, appropriate and compatible environmental education and interpretation would be the use of Mingo 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**

2037

## **Literature Cited/References**

- Fredrickson, L. H., and F. A. Reid. 1988. Waterfowl use of wetland complexes. Pages 1-6 in *Managing waterfowl habitats: breeding, migrating, wintering*. Gaylord Memorial Laboratory, University of Missouri, Puxico, Missouri/U.S. Department of Interior, Fish and Wildlife Service, Office of Information Transfer, 1025 Pennock Place, Suite 212, Fort Collins, Colo. 80524.
- U.S. Fish and Wildlife Service (2015). Mingo National Wildlife Refuge 2015 Annual Narrative. Unpublished report.
- U.S. Fish and Wildlife Service (2020). Mingo National Wildlife Refuge 2020 Annual Narrative. Unpublished report.
- U.S. Fish and Wildlife Service (2011a). Mingo National Wildlife Refuge Habitat Management Plan.
- U.S. Fish and Wildlife Service (2014). Mingo National Wildlife Refuge Hunting Chapter of the Visitor Services Plan (Amended).
- U.S. Fish and Wildlife Service (2011b). Mingo National Wildlife Refuge Visitor Services Plan.
- U.S. Fish and Wildlife Service (2008). Summary of Indiana Bat Ecology.
- U.S. Fish and Wildlife Service (2007). Mingo, Pilot Knob, Ozark Cavefish National Wildlife Refuges Comprehensive Conservation Plan.
- U.S. Fish and Wildlife Service (2006). Mingo, Pilot Knob, Ozark Cavefish National Wildlife Refuges Draft Comprehensive Conservation Plan and Environmental Assessment.