

# Environmental Assessment

## **Patoka River National Wildlife Refuge and Management Area Migratory Game Bird, Upland Game and Big Game Hunt and Sport Fishing Programs Regulation Changes**

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## Statement of Compliance

This Environmental Assessment is being prepared to evaluate the effects associated with the proposed action and complies with the National Environmental Policy Act (NEPA) in accordance with Council on Environmental Quality regulations (40 CFR 1500-1509) and Department of the Interior (43 CFR 46; 516 DM 8) and U.S. Fish and Wildlife Service (550 FW 3) regulations and policies. The National Environmental Policy Act requires examination of the effects of proposed actions on the natural and human environment. This Environmental Assessment is an update to the Environmental Assessments for opening portions of Patoka River National Wildlife Refuge and Management Area for hunting (2020) and fishing (2017) in accordance with the associated fishing and hunt plans. This Environmental Assessment serves as the NEPA document that analyzes the impacts of requiring non-lead ammunition and tackle on Patoka River National Wildlife Refuge and Management Area lands and waters on human, environmental, cultural and historical resources. Laws and executive orders evaluated through this Environmental Assessment are included in the Affected Environment and Environmental Consequences section.

## Proposed Action

The U.S. Fish and Wildlife Service is proposing to make changes regulating the use of lead ammunition and tackle associated with hunting and fishing activities that are permitted on the Patoka River National Wildlife Refuge and Management Area. Currently, the refuge administers fishing and hunting in accordance with the 2017 Fishing Plan and 2020 Hunt Plan and associated amendments completed through annual rule making periods. Proposed regulation changes of this type require the development of updated plans and a re-evaluation of compatibility for these uses. An additional regulation change to address safety of trail users is also proposed. No additional regulatory changes to the hunting and fishing programs on the refuge are being proposed as a part of this proposed action, except to continue to open land as it is acquired in accordance with established hunt and fishing plans through the annual proposed rule making process. As land is acquired and opened in the future it will be required to meet environmental compliance on an annual basis evaluating each action for NEPA and Endangered Species Act (ESA) compliance.

A proposed action is often iterative and evolves over time during the process. The agency may refine its proposal as it learns more from the public, tribes and other agencies. Therefore, the final proposed action may be different from the original. The final decision on the proposed action will be made at the conclusion of the public comment period for the Environmental Assessment and announced in the publication of the final 2022-23 Refuge-Specific Hunting and Sport Fishing Regulations in the federal register.

## Background

National wildlife refuges are guided by the mission and goals of the National Wildlife Refuge System (Refuge System), the purposes of an individual refuge, Service policy, federal laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, Refuge Recreation Act of 1962 and selected portions of the Code of Federal Regulations and Fish and Wildlife Service Manual.

The mission of the Refuge System, as outlined by the National Wildlife Refuge System Administration Act (Administration Act), as amended by the National Wildlife Refuge System Improvement Act (Refuge Improvement Act), 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” (16 U.S.C. 668dd et seq.).

Additionally, the Administration Act mandates the Secretary of the Interior in administering the Refuge System (16 U.S.C. 668dd(a)(4)) to:

- Provide for the conservation of fish, wildlife, and plants, and their habitats within the Refuge System;
- Ensure that the biological integrity, diversity, and environmental health of the Refuge System are maintained for the benefit of present and future generations of Americans;
- Ensure that the mission of the Refuge System described at 16 U.S.C. 668dd(a)(2) and the purposes of each refuge are carried out;
- Ensure effective coordination, interaction, and cooperation with owners of land adjoining refuges and the fish and wildlife agency of the states in which the units of the Refuge System are located;
- Assist in the maintenance of adequate water quantity and water quality to fulfill the mission of the Refuge System and the purposes of each refuge;
- Recognize compatible wildlife-dependent recreational uses as the priority general public uses of the Refuge System through which the American public can develop an appreciation for fish and wildlife;
- Ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses; and
- Monitor the status and trends of fish, wildlife, and plants in each refuge.

Therefore, it is a priority of the Service to provide for wildlife-dependent recreation opportunities, including hunting and fishing, when those opportunities are compatible with the purposes for which the refuge was established and the mission of the Refuge System.

Patoka River National Wildlife Refuge and Management Area was established on September 8, 1994, in part to protect one of two remaining intact floodplain forest systems within Indiana. Legal authorities used for establishment of the refuge include the Emergency Wetlands Resources Act 1986 (16 U.S.C. 3901), An Act Authorizing the Transfer of Certain Real Property for Wildlife (16 U.S.C. 667b) and the North American Wetlands Conservation Act (16 U.S.C. 4401-4413). Specifically, the establishing authorities are:

- “...the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions.” (The Emergency Wetlands Resources Act of 1986, 16 USC Sec. 3901).
- “...particular value in carrying out the national migratory bird management program.” (An Act Authorizing the Transfer of Certain Real Property for Wildlife, 16 U.S.C. 667b).
- “...(1) to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America; (2) to maintain current or improved distributions of migratory bird populations; and (3) to sustain an abundance of waterfowl and other migratory birds consistent with the goals of the North American Waterfowl Management Plan and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries.” (The North American Wetlands Conservation Act, 16 U.S.C. 4401-4413).

The refuge authorized acquisition boundary, which delineates where the U.S. Fish and Wildlife Service can acquire property from willing sellers, encompasses 22,472 acres of wetlands, floodplain forest, grasslands, shrublands and upland forest along 20 miles of the Patoka River corridor in southwestern Indiana. Land for inclusion in the refuge is acquired from willing sellers on a continual basis. To date, approximately 10,699 acres within the refuge acquisition boundary have been purchased in fee title or are managed under a conservation easement. The staff of the refuge also administer two satellite units in addition to the main body of the refuge. The Cane Ridge Wildlife Management Area (463 acres, fee title, closed to all

public access except non-consumptive uses in designated areas) and White River Bottoms Unit (219 acres, fee title) are all considered part of the national wildlife refuge from a management perspective. The White River Bottoms Unit is a Farm Service Agency (FSA) unit that we administratively manage but is outside the authorized refuge boundary. This unit is open for hunting and fishing access. With the satellite and FSA units, the refuge has management capability on 10,918 acres. Management objectives are identical for the national wildlife refuge, authorized at 7,005.5 acres, and the management area, authorized for the remaining 15,466.5 acres. The separate designations avoid legal conflicts with the Surface Mining Control and Reclamation Act of 1977; however, it has no implications for the management of these areas.

Hunting and fishing activities have occurred on Patoka River National Wildlife Refuge and Management Area since 1996. These uses have likely occurred within the area of the refuge for a long time as part of the historical and traditional pastime of residents in the area. Hunting and fishing were identified in the 2008 refuge comprehensive conservation plan as being priority public uses that would be authorized on most units of the refuge. The Service has determined that these uses are compatible with the purposes of the refuge and the mission statement of the National Wildlife Refuge System through compatibility determinations (2020 hunting, 2008 fishing). The Fishing Plan was updated in 2017 and the Hunt Plan was updated in 2020 to better align with State of Indiana hunting and fishing seasons, method of take and species. The 2020 Environmental Assessment associated with the updated 2020 Hunt Plan also evaluated opening lands that may be acquired in the future. As land is acquired, amendments to the 2022 Hunt and Fish Plan and appropriate National Environmental Policy Act, Endangered Species Act and other laws, regulations and policies compliance will be completed.

## **Purpose and Need for the Action**

Recreational hunting and fishing are identified as two of the priority public uses legislatively mandated by the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57). Additionally, hunting and fishing are traditional recreational uses of renewable natural resources deeply rooted in America's heritage and can be important fish and wildlife management tools. National wildlife refuges and national fish hatcheries conduct hunting and fishing programs within the framework of Federal, State, and Service regulations. Like all users, hunters and anglers on the refuge are expected to be ethical and respectful of other users, wildlife species and the environment while on refuge lands.

The purpose of the proposed action is to protect wildlife, human and ecological health against the exposure to lead in the environment while still providing and expanding opportunity for compatible wildlife-dependent recreational opportunities on Patoka River National Wildlife Refuge and Management Area. This will allow the Service to continue providing wildlife-dependent recreational opportunities, including future expansions of hunting and fishing programs, in a way that is fully compatible with the Service's public safety obligations and conservation mission. Lead-free hunting and fishing programs on refuge lands and waters will motivate visitors to value, support and contribute to the Refuge System, and to become better environmental stewards.

The need to protect wildlife, human and ecological health is driven by the Refuge Improvement Act and its biological integrity, diversity and environmental health requirements. Specifically, Section 4(a)(4)(B) of this law states that "In administering the System, the Secretary shall...ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations of Americans..." (Refuge Improvement Act). As outlined in the environmental trends and planned action section within the affected environment and environmental consequences section, the best available science indicates that lead present in the environment is known to have negative wildlife, human and ecological effects. Most notably are negative impacts to humans who consume lead from harvested game meat, impacts to migratory game bird species such as swans and avian predators and scavengers and potential loss of wildlife from lead poisoning. Reducing these effects are important to meeting the legislative mandates as outlined in the Refuge Improvement Act. Additionally, this environmental assessment is intended to meet the Service's priorities and mandates as outlined by the Refuge Administration Act to "recognize compatible wildlife-dependent recreational uses as the priority general uses of the Refuge System" and "ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses" (16 U.S.C. 668dd(a)(4)). Hunting and fishing is consistent with the refuge's larger goals to restore native plant communities for wildlife, to maintain the refuge through active management programs and to provide educational and recreational opportunities for visitors to understand the value of wildlife and native habitats of southwestern Indiana. Additional information about these goals can be found in the 2008 Comprehensive Conservation Plan (CCP) and 2017 Habitat Management Plan (HMP). Access the CCP online at <https://ecos.fws.gov/ServCat/Reference/Profile/1526> and HMP online at: <https://ecos.fws.gov/ServCat/DownloadFile/132128>.

## Alternatives

### **Alternative A – Current Hunting and Fishing Program – [No Action Alternative]**

The Patoka River National Wildlife Refuge and Management Area completes an opening package to expand hunting and fishing activities on an annual basis consistent with existing hunt and fishing plans. Prior analyses evaluated expansion as part of the preferred alternative and set the status quo to expand hunting and fishing access to new land if no extraordinary circumstances or adverse environmental impacts applied. Therefore, the no action alternative would be to expand hunting on the 74.5 acres newly acquired in 2021 and continue to provide hunting opportunities that allow the use of lead ammunition and fishing opportunities that allow lead fishing tackle on the refuge on lands currently open with no phased in approach for non-lead regulations. A great many hunters and anglers are personally choosing to make the switch to non-lead ammunition and tackle while hunting and fishing, and this trend is expected to continue.

Hunting activities would be conducted as described in the 2020 Migratory Game Bird, Upland Game and Big Game Hunt Plan. Hunting for all game species is open on all refuge land except for 463 acres within the Cane Ridge Wildlife Management Area, which is closed to all public access in order to provide a disturbance free sanctuary for migrating waterfowl, and the 62-acre Maxey Marsh area, which is closed to limit conflict with other refuge trail users. The Columbia Mine Special Regulations area has different regulations than the main refuge unit and is only open to white-tailed deer during the first week of the state defined seasons for archery, firearm and muzzleloader and spring turkey hunting. Total huntable land is approximately 10,393 easement, fee-title and FSA managed refuge acres including the newly acquired acres.

Fishing activities would be conducted as described in the 2017 Fishing Plan. Fishing is open on 10,455 easement, fee-title and FSA managed refuge acres. Fishing is not allowed at the 463 acres within the Cane Ridge Wildlife Management Area but is open on the Maxey Marsh area and special regulations on size limits of certain species applies on the Columbia Mine Special Regulations area. All game fish species are open for fishing on the refuge except mussel (clams), leech, crawfish, frogs, minnows and turtles. Size limits for fish are consistent with state of Indiana regulations, except the minimum size limit for largemouth bass is 14 inches (35.6 centimeters) on Snakey Point Marsh and on the Columbia Mine Special Regulation areas.

All acres reported are documented acres and may differ from what is reported in the 2022-2023 U.S. Fish and Wildlife Service Hunt Units map as these are depicted in geospatial acres. Documented acres are the acres as stated on the recorded deed and considered the official reporting acres acquired and under management. Geospatial acres commonly do not match documented acres perfectly. Furthermore, the easement and FSA tract under the refuge are not depicted in the Service's online hunt unit map accounting for approximately 1262 acres, however they are managed by the refuge and are open to hunting and fishing opportunities.

Hunting and fishing programs are consistent with Indiana Department of Natural Resources regulations and seasons except where refuge regulations are more specific, such as, the refuge requires non-lead shot for all hunting on the refuge except for deer hunting with buck shot and the refuge is open to fishing from sunrise to sunset. As described in the 2020 hunt and 2017 fishing plans, the refuge would continue to allow the use of lead single projectile ammunition for furbearer (squirrel, rabbit, opossum, fox, coyote, skunk and raccoon) hunting, lead ammunition for deer hunting (both single projectile and buck shot) and lead fishing tackle. All other methods of take, season dates and hours and species are consistent with state of Indiana regulations.

Under this alternative, the refuge will continue to serve as habitat for fish and wildlife as well as provide outdoor recreational opportunities for all six priority wildlife-dependent public uses defined as hunting, fishing, wildlife observation, photography, environmental education and interpretation per the Refuge Improvement Act. The refuge will continue to manage and operate the refuge consistent with the 2008 Comprehensive Conservation Plan and the 2017 Habitat Management Plan. No new requirements would be created, and the programs would be conducted as they currently are. This alternative would not comprehensively address concerns about adverse impacts to wildlife, human and ecological health from the bioavailability of lead on Service lands and waters or increase safety for trail users through addition of the administrative regulation change to develop safety zones around designated trails.

### **Alternative B – Phase in the required use of lead-free ammunition and tackle for all hunting and fishing activities by the 2026-2027 hunting season – [Preferred Action Alternative]**

The refuge has prepared the Patoka River National Wildlife Refuge and Management Area Migratory Game Bird, Upland Game and Big Game Hunt and Sport Fish plan (Appendix A), which is presented in this document as the preferred action alternative.

Under the preferred action alternative, although a great many hunters and anglers are already voluntarily making the switch to non-lead ammunition and tackle, the refuge would require the use of non-lead ammunition and tackle by the 2026-2027 hunting and fishing season for all species. Non-lead ammunition would be required for all single projectile hunting methods of take of white-tailed deer, squirrel, rabbit, opossum, fox, coyote, skunk and raccoon. Non-lead shot will continue to be required for migratory game bird hunting (duck, goose, merganser, coot, woodcock, dove, crow, rail and snipe), squirrel, rabbit, bobwhite quail, pheasant, raccoon, opossum, red fox, gray fox, coyote, and striped skunk and wild turkey. Non-lead shot, or buck shot, for hunting white-tailed deer will also be required. All sport fishing activities will require use of non-lead tackle including weights, jigs and lures. Additionally, this alternative would also open the 74.5 acres as proposed in the no action alternative to hunting and fishing and continue to allow the use of lead ammunition and tackle until the refuge-wide non-lead ammunition and tackle requirement takes effect in the 2026-2027 hunting and fishing season. Until the 2026-2027 season, the refuge will continue to manage the hunting program in compliance with the 2020 Hunt Plan and the fishing program in compliance with the 2017 Fishing Plan as a phased in approach to implementing the regulation change. This will allow the continued use of lead ammunition and tackle for hunting and fishing activities until the full phased in approach is completed and non-lead ammunition is required for the 2026-2027 hunting and fishing seasons. As land is added during the interim period between publishing the final draft of this plan and implementing the lead-free regulations the new land will be opened consistent to the current regulations which do not require non-lead single projectile hunting methods or non-lead tackle until the phased in approach is complete. Additional lands will be evaluated annually for NEPA and ESA compliance prior to opening land for hunting or fishing activities and will be subject to the same timeline for phase out of lead tackle and ammunition use. After the 2026-2027 hunting and fishing regulation change takes effect, any land acquired and opened to that date and all future land opened to hunting and fishing activities will be subject to the non-lead requirement.

During the phase-in period of time, the Fish and Wildlife Service will coordinate with the state of Indiana to develop standards for law enforcement between our agencies and provide sufficient time to conduct outreach to the public and update signage on the refuge. The refuge will also encourage hunters and anglers to voluntarily transition to non-lead ammunition and tackle through outreach ahead of the 2026-2027 requirement deadline.

Under this preferred alternative there will be no changes to the game species open to hunting and fishing on the refuge, the regulations specific to seasons or time of

day or the method of take. The refuge will remain open consistent with state of Indiana hunting and fishing regulations for all state regulated game species except where more restrictive as described in the 2022 hunt plan. The regulations change for the non-lead tackle and ammunition requirements that will take effect during the 2026-2027 seasons will be published in the Federal Register as part of the 2022-2023 Refuge Specific Hunting and Sport Fishing Regulations. An additional administrative regulation is also proposed under this alternative that would allow the refuge to prohibit hunting and the discharge of a weapon within 50 yards (45 meters) of designated public use facilities, including, but not limited to, parking areas and established hiking trails by listing or designating them in the refuge hunting and fishing brochure. This proposed regulation change would take effect in the 2022-2023 hunting season.

Under this alternative, the refuge will also continue to serve as habitat for fish and wildlife as well as provide outdoor recreational opportunities for all six priority wildlife-dependent public uses, which are hunting, fishing, wildlife observation, photography, environmental education and interpretation. The refuge will continue to manage and operate the refuge consistent with the 2008 Comprehensive Conservation Plan and the 2017 Habitat Management Plan.

This alternative continues to offer increased opportunities for safe public hunting and fishing and fulfills the Service's mandate under the National Wildlife Refuge System Improvement Act of 1997. Furthermore, requiring non-lead ammunition and tackle will eliminate the potential increased threat of potentially negative impacts resulting from spent ammunition and lost tackle to the human environment and to fish and wildlife species from lead that may be available from spent ammunition and lost tackle. The Service has determined that the 2022 Hunt and Fish Plan is compatible with the purposes of the Patoka River National Wildlife Refuge and Management Area and the mission of the Refuge System (Appendix A, Attachment 2).

### **Measures to Avoid Conflicts:**

The Preferred Action Alternative will prevent and lessen negative impacts on natural resources due to the addition of lead to the environment through use of lead ammunition and tackle. Impacts on human and wildlife health and the environment will be generally positive, but there is some possibility of economic impacts for some hunters and anglers to comply with the requirements. In order to mitigate economic impacts to hunters and anglers who previously used lead ammunition or tackle, in addition to implementing the requirement in phases over the next four years, the Service will continue educating hunters and anglers on the use of non-lead ammunition and tackle, provide resources on manufacturers and

distributors of non-lead ammunition and tackle and potentially work with partner organizations on non-lead ammunition and tackle exchanges or giveaways.

In addition to mitigation measures specific to non-lead ammunition and tackle requirements, the refuge manager may establish specific regulations for individual species or portions of the refuge depending on conflicts with other wildlife dependent recreation priorities. Permanent or periodic hunting closures for specific species or closures of portions of the refuge may be necessary if the refuge manager determines that there is specific habitat, wildlife protection and/or public safety requirements that require closed areas. The need to implement mitigation measures will be evaluated annually and determinations for each unit will be made based on the following criteria:

- The unit is large enough to support the anticipated quantity, frequency and duration of hunter and angler use without adversely affecting game populations or habitat conditions within the area.
- Public access to the unit does not require travel across private lands or closed government lands.
- Sites are available for hunters and anglers to park their vehicles legally and in a manner that will not adversely affect the habitat in the unit or existing public travel routes.
- Public hunting and fishing are not likely to adversely affect any federally listed or proposed species of concern.
- Hunting and fishing can be conducted without jeopardizing public safety.

To minimize conflicts with other priority non-hunting and fishing recreational uses outlined in the Refuge Improvement Act and for public safety, the refuge designates areas open to hunting and fishing and enforces refuge-specific regulations. Boundaries of lands owned or managed by the Service are posted with refuge boundary signs. Areas administratively closed to hunting or fishing are clearly marked with “No Hunting Zone” or “Area beyond This Sign Closed” signs. Overall, hunting and fishing impacts to visitor services and recreation opportunities are considered short-term, minor and local. Past conflicts have been minimal. We anticipate future conflicts to be about the same; however, to help mitigate potential conflict of users of trails and other recreational facilities, regulation changes may be used to create designated safe shooting zones around individual trails, identified areas of concern may be closed to hunting, trail users may be required to wear hunter orange during hunting seasons or other potential mitigation measures may be utilized if conflicts are detected. As such, the refuge has proposed an administrative regulation change that allows the refuge to prohibit hunting and the discharge of a weapon within 50 yards (45 meters) of designated public use

facilities, including, but not limited to, parking areas and established hiking trails by listing them in the refuge hunting and fishing brochure. Besides this administrative change, currently there is no perceived conflict and need for additional mitigation measures specific to potential conflict of users. All hunting would be conducted in accordance with all applicable state, refuge and federal regulations. Coordination with the public and refuge partners including the Indiana Department of Natural Resources will promote continuity and understanding of refuge and Service resource goals and objectives and will help assure that the decision-making process considers all interests.

The refuge minimizes conflict related to biological resources by adopting a “wildlife first” principle explicitly stated in the Refuge Improvement Act. The refuge limits or excludes hunting and fishing activities where there are biological concerns. This is the case at the Cane Ridge Wildlife Management Area, which is not hunted or fished specifically to provide a sanctuary for migratory birds. This area is off limits to all hunting and fishing. Although not proposed under this alternative, the refuge, in the future, could limit or exclude hunting and fishing activities on additional portions of the refuge to avoid conflicts related to biological resources, such as threatened or endangered species. Special hunts could also be used to manage hunting pressure for targeted species or provide increased opportunities and manage overall take of wild game and sport fish species at appropriate levels.

The refuge follows recovery plan guidelines for the management of federally threatened and endangered species. Federally listed threatened and endangered species that have been documented to occur within the acquisition boundary of the refuge include Indiana bat, northern long-eared bat, fanshell mussel, fat pocketbook mussel, sheepsnose mussel and the experimental population of whooping crane. The monarch butterfly, a listed candidate species under the Endangered Species Act, is known to occur on the refuge. The interior least tern and bald eagle are species no longer listed but mentioned in previous threatened and endangered biological evaluations associated with hunting and fishing opening packages. Although the bald eagle was delisted under the ESA, it is protected under the Bald and Golden Eagle Protection Act and impacts to this species is discussed later in the document. Critical habitat of threatened and endangered species is not found within the action area of the refuge. An initial analysis and draft Endangered Species Act Intra-Service Section 7 consultation was conducted, and it was determined that the proposed alternative is not likely to adversely affect any listed species or candidate species. For example, for some hunting and fishing opportunities, the Service has determined that particular factors related to species’ behaviors, specific details of the hunting or fishing opportunity (often season dates), and/or mitigation efforts (such as buffer zones between listed species

habitat and huntable acres or emergency closures) are likely to limit the species' potential exposure to and impacts from lead ammunition and tackle. See the section on threatened and endangered species for more details. If needed, the refuge may take additional actions to mitigate any potential impacts to threatened and endangered species.

The most potential for conflict with management activities occurs in areas where habitat treatments are conducted. Occasionally, an area open to hunting or fishing is proposed to receive a management action such as a prescribed fire treatment. Typically, a notice of the impending treatment is posted at the unit's public access points to alert all users, including hunters and anglers. Prior to implementing the habitat management treatment, the treatment unit is scouted by refuge fire staff to ensure that no one is put in danger by the treatment action. Other habitat management treatments such as invasive species treatment or tree removal may generate a temporary closure of an area. Notice or information about any of these closures may be posted and available at the refuge office or at public access points to mitigate conflicts.

### **Alternative Considered, But Dismissed from Further Consideration**

In developing hunt and fish plans for national wildlife refuges, we regularly receive comments and requests from some members of the public to eliminate hunting. An alternative that would close the refuge to all hunting and fishing was therefore considered but dismissed from detailed analysis. While a "no hunting or fishing alternative" would accomplish the objective of preventing the introduction of lead into the environment from use of lead ammunition or tackle, it would not achieve the purpose of ensuring the Service can continue providing wildlife-dependent recreational opportunities. An alternative to not expand hunting and fishing access to the newly acquired 74.5 acres was also dismissed from detailed analysis as it is not consistent with implementing existing hunt and fishing plans. A "no hunting or fishing alternative" or "no expansion alternative" would not fully accomplish the purposes we seek to accomplish by the adoption of the 2022 Hunt and Fish Plan, as described in the "purpose and need" section of this Environmental Assessment. Closing or not expanding the refuge to hunting and fishing would conflict with the Refuge System Improvement Act, which provides that hunting and fishing are an appropriate and priority use of the Refuge System, shall receive priority consideration in refuge planning and management, mandates that hunting and fishing opportunities should be facilitated when feasible and directs the Service to administer the Refuge System so as to "provide increased opportunities for families to experience compatible wildlife-dependent recreation, particularly opportunities for parents and their children to safely engage in traditional outdoor activities, such as fishing and hunting" 16 USC 668dd (4)(K). The Service has long recognized

benefits of hunting and fishing to both wildlife management and public engagement with the Refuge System. Furthermore, DOI Secretarial Order 3356, signed in 2017, directs the Service to enhance and expand public access to lands and waters on national wildlife refuges for hunting, fishing, recreational shooting and other forms of outdoor recreation. An alternative that failed to provide any opportunity to participate in hunting or fishing activities, where such activities are compatible with the purposes of the Refuge System, would also fail to meet the goals of the Refuge System. There are no unresolved conflicts about the proposed action with respect to alternative uses of available resources. Additionally, the proposed action builds on a well-established existing hunting and fishing program, and includes the addition of areas developed, in part, from the planning process of the refuge's Comprehensive Conservation Plan. Therefore, the Service does not need to consider additional alternatives as described in this section (43 CFR 46.310).

## **Affected Environment and Environmental Consequences**

This section is organized by affected resource categories and each affected resource discusses both (1) the existing environmental and socioeconomic baseline in the action area and (2) the effects and impacts of the proposed action and any alternatives. The effects and impacts of the proposed action considered here are changes to the human environment, whether adverse or beneficial, that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives. Impact types included in each section include direct effects, indirect effects and cumulative impacts. Direct effects are those which are caused by the action and occur at the same time and place. Indirect effects are those which are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Cumulative impacts result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

This Environmental Assessment includes the written analyses of the environmental consequences on a resource only when the impacts on that resource could be more than negligible and therefore considered an "affected resource." Any resources that will not be more than negligibly impacted by the action have been dismissed from further analyses. The following resources either (1) do not exist within the project area or (2) would either not be affected or only negligibly affected by the proposed action:

- Wilderness – The refuge does not have any designated wilderness areas per the Wilderness Act, 16 U.S.C. 1131 et seq. nor does the refuge have any waterways that fall under the Wild and Scenic Rivers Act, 16 U.S.C. 1271 et

seq. Given this, no effect to wilderness or wild and scenic rivers are expected. The proposed action complies with the Wilderness Act, 16 U.S.C. 1131 et seq. and the Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq.

- Floodplains and Wetlands specific to Executive Orders – The Service’s hunting and fishing programs do not affect water flows or other factors relevant to flooding and floodplain landscapes. Therefore, no effects to floodplains are expected as a result of proposed regulations changes and expanding access. No modifications will be made that will increase the floodplain elevation or negatively impact its function and value and thus there will be no impacts to E.O. 11988 – Floodplain Management. Executive Order 11990-Protection of Wetlands only applies if the refuge creates structures to support hunting and fishing in wetlands. This Executive Order will be evaluated on a project-by-project basis, e.g., if an accessible blind or fishing dock were to be built in the future to support hunting and fishing activities. As it stands now, there would be no impact to wetlands due to this proposed activity related to developing supporting infrastructure as no infrastructure projects are proposed specific to this action. Wetland impacts specific to vegetation and habitat and water quality are addressed in those respective sections. The proposed action complies with Executive Order 11988 – Floodplain management – Fed. Reg. 26951 (1977) and Executive Order 11990-Protection of Wetlands.
- Air Quality - The Service’s hunting and fishing programs produce negligible impacts to air quality. Some hunting equipment can discharge gases and hunters and anglers using vehicles for transportation to and from recreational areas on the refuge produce emissions, but the amount of air pollution from these sources is negligible and the pollutants produced do not have substantial localized effects.

As such, these resources are not further analyzed in this Environmental Assessment. As stated above, this section predicts the foreseeable impacts of implementing the hunting and fishing program in each of the alternatives. When detailed information may be deficient or unavailable, we base our comparisons on professional judgment and experience. We usually identify potential impacts within a long-range timeframe (i.e., 15 years); beyond that timeframe, they become more speculative.

As hunting and fishing access are expanded under both alternatives, the effects of these activities on each affected resource are addressed separately as the effects are the same under both alternatives. As such, the analysis specific to opening the 74.5 acres will be addressed under the Alternative A and B header under each

resource. The action of phasing out or continuing to use lead ammunition and tackle under the two alternatives is evaluated separately from hunting and fishing expansion as there are differences in impacts under each alternative. This analysis can be found under the separate Alternative A and Alternative B headers. Evaluation of hunting and fishing activities on the remainder of the refuge and in future expansions is not evaluated here as prior analysis address the impacts of these activities on resources and have been incorporated by reference (USFWS 2016 and 2020).

## **General description of affected environment applicable to all affected resources**

The refuge consists of approximately 10,699 documented acres within the refuge acquisition boundary and 219 acres at the White River Wildlife Management Area in Pike and Gibson Counties in southwest Indiana. Vegetation of the refuge can be broadly divided into wetlands (comprised mainly of bottomland and mixed hardwood forests), upland forest and grassland habitats.

The proposed action would occur within the entire approved refuge acquisition boundary. The 74.5-acre expansion of land for hunting migratory birds, upland game, big game and furbearers and fishing is located in the central and eastern parts of the refuge and is predominately comprised of floodplain forest and marsh habitat. See map of the refuge that includes all hunting and fishing units included within the authorized acquisition boundary and the maps of the newly acquired acres in Appendix A, Attachment 1, Figures 1-5 for location information. For more information regarding the affected environment and habitat of the refuge, see section Chapter 3 of the refuge's Habitat Management Plan: <https://ecos.fws.gov/ServCat/Reference/Profile/85054>.

A summary of lead use and introduced on the refuge from hunting and fishing activities is provided in this section as it applies to all resources that are specific to lead impacts. Over the years, opportunities for hunting and fishing have resulted in lead shot, lead fragments from bullets and lost lead fishing tackle to accumulate on refuge lands. Although the amount of lead that has entered the refuge environment from these activities has not been directly quantified at Patoka River National Wildlife Refuge and Management Area, the best professional judgement of staff on the refuge indicates that the lead entering the environment and being bioavailable from these activities is likely low given multiple reasons, including:

- The nature of hunting and fishing on the refuge, especially given the size of the refuge and multiple access sites, which disperses the potential to

introduce lead to any one specific area, reducing accumulation and build up by spreading it over a larger area.

- The current use of lead tackle by anglers and single projectile ammunition or buckshot by furbearer and deer hunters is the only addition of lead currently occurring on the refuge. Deer hunters may select hunting methods like archery that do not introduce lead into the environment or use non-lead ammunition reducing lead that enters the environment. Furbearer and squirrel hunters using shotguns are required to use non-toxic shot. Non-toxic shot for waterfowl hunting has been required since 1991, and non-toxic shot for all other hunting including turkey, upland game and furbearer hunting has been required since 2015. Tackle typically enters the environment by accident when anglers snag their line.
- The availability of residual lead from these activities on the refuge is likely low given how long some of the non-lead requirements for use of non-toxic shot have been in effect, for waterfowl since 1991 and for all other game besides white-tailed deer since 2015; lead entering the environment from these activities is buried from sediment over time.
- Lastly, there have been no reports of wildlife that have been impacted by lead poisoning on the refuge for at least the last 20 years or longer, based on staff experience and records.

Even though inputs of lead are low as illustrated above, as an agency we are concerned about the potential effects of lead on refuge resources, as illustrated in the purpose and need for this environmental assessment. Additional detail about the affected environment, environmental trends and planned actions is describe for each specific affected resource in the sections below.

## **Natural Resources**

### **Species to Be Hunted/Fished**

#### ***Description of Affected Resource, Environmental Trends and Planned Actions***

Hunting and fishing have occurred on the refuge since 1996 (Dodd 1996). During its history, the Service has not noted any significant adverse effects of these programs on the administration of the refuge and has determined that this use is compatible with the purposes of the refuge and the Refuge System's mission statement (Dodd 1996; U.S. FWS 2008a; U.S.FWS 2016; U.S. FWS 2020).

Patoka River National Wildlife Refuge and Management Area is open to hunting and fishing of various wildlife game species and sport fish species consistent with state of Indiana Hunting and Fishing regulations and refuges specific regulations. The refuge does not permit the harvest of frogs or turtles through hunting or fishing activities and does not allow the harvest of mussel (clam), minnows, crayfish or leeches through fishing activities. Species open for hunting include duck, goose, merganser, coot, woodcock, dove, crow, rail, snipe, squirrel, rabbit, bobwhite quail, pheasant, raccoon, opossum, red fox, gray fox, coyote, striped skunk, white-tailed deer and wild turkey. The refuge is open to all sport fish species as described in Indiana Hunt and Fish regulations, however not all species fishable by state regulations are present on the refuge. Species commonly fished on the refuge include bluegill, largemouth bass, crappie and catfish.

Most of the refuge's fishery resources are associated with the Patoka River and its wetlands. Two fisheries surveys of the Patoka River and many of its tributaries in the late 1980s and early 1990s revealed that fish populations were surprisingly diverse and abundant, especially considering the environmental abuses this river has endured in the past (Stefanavage 1993; U.S. Fish and Wildlife Service 1989). A total of 66 species of fish representing 15 families were found to inhabit these waters. Although not usually considered prime fish habitat, overall species diversity in the Patoka River in 1991 compared favorably with other southwestern Indiana streams (Stefanavage 1993). Diversity at sampling sites averaged 14 species in the channelized river while the natural river supported an average of 19 species. Fish of interest to commercial and sport fishermen (buffalo, drum, channel and flathead catfish and spotted bass) were more abundant in the unchannelized section of the Patoka River. The common carp was found to be the most abundant species. Gizzard shad, an important food source for more desirable predatory fish, was the second most abundant. Third in number was smallmouth buffalo, an edible species frequently sought by anglers. Of the more popular game fish, channel and flathead catfish probably provide the best sport fishing opportunities in this section of the river. Largemouth bass, bluegill, and crappie offer substantial fishing opportunities in oxbows and reclaimed mineland lakes within the refuge boundary (USFWS 2016). As a result of improving water quality from numerous projects to eliminate pollution, American paddlefish and harlequin darters have begun to show increases in population numbers since the late 1990s (USFWS 2017).

All wild game species open for hunting on the refuge were evaluated in the 2020 environmental assessment. The affected environment and environmental trends section of each game species is incorporated by reference into this environmental assessment. Within those sections of the 2020 environmental assessment there is detail about the ecology of each species, population of game species on the refuge

and harvest trends. State agencies set harvest limits to ensure sustainable populations of game species. The prior environmental assessment analyzing the affected environment corroborates that those environmental trends for each game species have not changed substantially since its publication 2 years ago (USFWS 2020). The 2020 Hunt Plan Environmental Assessment included the estimated harvest and hunter numbers at full acreage capacity on an annual average basis. Harvest and hunter numbers were evaluated in this way in order to understand the full scope of a hunting program that applies to the entire refuge. Future acquisitions will be evaluated on a case-by-case basis and as land is acquired amendments to the hunt plan and appropriate National Environmental Policy Act compliance will be completed.

### ***Impacts on Affected Resource***

#### ***Alternative A and B***

As hunting and fishing is going to be expanded to the 74.5 acres under both alternatives it is evaluated separately. It is estimated that on an annual basis an additional 17 days of use (15 for hunting, 2 for fishing) will occur from the hunting and fishing expansion on the 74.5 new acres. Although these acres will be fully open to all species for hunting and fishing consistent with state of Indiana regulations and refuge specific regulations, there are some species that will not be harvested due to limited opportunity based on habitat availability and size of parcels for hunting. The best professional judgement of refuge staff estimate that these acres will be hunted predominately for white tailed deer, waterfowl, squirrel and wild turkey. In addition to those species there is a limited chance that hunting of snipe, woodcock and dove would opportunistically occur while pursuing the primary species identified. Raccoon hunting takes place on larger areas of the refuge. Although these acres are not expected to specifically draw raccoon hunters to the hunt given their size, the 74.5 acres could be used by raccoon hunters as they pursue raccoons on adjacent areas open to hunting. Refuge staff do not anticipate harvest of raccoons to occur on these areas. Prior to acquisition the 56.5-acre unit supported white-tail deer hunting and as such it is expected to continue with an estimated 2 white-tailed deer harvested annually from these acres. It is hard to estimate how these deer will be harvested as deer hunters may harvest these deer with non-lead ammunition or through archery, which would also reduce the amount of lead entering the environment. The next opportunity for hunting that would occur on these new acres would be waterfowl hunting on the same unit. It is estimated that up to 10 merganser, 100 ducks including coots and 50 geese could be harvested each year, although these estimates are likely high for actual harvest on these acres and would be closer to 1 merganser, 50 ducks including coots and 20 geese each year. No lead would be added to the environment from this type of

hunting in either alternative. Squirrel and turkey hunting are popular hunting activities in the area and on all but 1 acre of these newly acquired acres these activities are likely to occur. It is estimated that up to 20 squirrels and 5 wild turkeys will be harvested in a year from these activities. Squirrel hunters can use both rifle and shotgun to harvest squirrel. Squirrel hunters may choose to use shotguns for squirrel hunting and non-toxic shot is already the requirement for this method of take. All harvested squirrels are removed from the premises and deer hunters are encouraged to remove gut piles, which also reduces the amount of lead entering the refuge environment. The amount of lead that would enter the environment until the lead-free requirement takes effect would be from up to four years of hunting including up to 8 deer harvested and potentially 80 squirrels harvested. Lead that could enter the environment from these activities would be fragments from ammunition that has left the body of harvested animals. Given the hunting practices and amount of take estimated using lead ammunition, the lead that would enter the environment is very small. All other hunting that would occur on these acres is lead-free, including waterfowl, upland game and wild turkey, so no additional lead would enter the environment from those activities. Although it is unlikely that dove, woodcock and snipe hunting would specifically occur on these acres we have estimated that there may be up to 10 doves, 4 woodcock and 1 snipe harvested in a year based on potential opportunistic harvest while participating in other hunting activities most likely to occur. Loss of individual animals from harvest will occur, however harvested species on new lands will account for less than 0.1% of the total individuals of that particular species harvested in the state of Indiana and even smaller percentage at the flyway scale for migratory birds. Annual waterfowl and upland game bird assessments are based upon the distribution, abundance, harvest data and flight corridors of migratory birds. Hunting on refuge land will not add significantly to the cumulative impacts of migratory bird management on local, regional or Mississippi Flyway populations. This is because the percentage of migratory birds to be taken on the refuge annually, though possibly additive to existing hunting take, would be a minimal fraction of the estimated populations, as explained in this Environmental Assessment and prior Environmental Assessments for opening refuge lands to hunting. Annual furbearer, squirrel, rabbit, deer and wild turkey assessments are based upon the distribution, abundance and harvest data. Hunting on refuge land will not add significantly to the cumulative impacts of these species on local or regional populations. This is because the percentage to be taken on the refuge annually, though possibly additive to existing hunting take, would be a minimal fraction of the estimated populations, as explained in this Environmental Assessment and prior Environmental Assessments for opening refuge lands to hunting. Impacts are considered negligible to wild game species potentially harvested on these acres.

Only 56.5 acres would support sport fishing activities that anglers would find easy to access for bank fishing on a portion of the Patoka River. On the other 18 acres there are fisheries present however the access to the sites is challenging and fishing will not likely occur there. The one-acre unit is flooded bottomland hardwood forest where anglers will likely not pursue sport fish. The other 17-acre unit is adjacent to Cup Creek along the east side; however, the tract is challenging to access as it is a distance from the nearest road. Cup Creek does support an active sport fishery. Impact from fishing and hunting activities would continue to occur under both alternatives. It is estimated that only 2 additional fishing days will occur by opening these acres to fishing. Some fish will be harvested over the estimated 2 days of fishing use; however, anglers may choose to catch and release fish. Even if anglers harvested full limits of sport fish targeted for fishing activities, this will not substantially impact the local fisheries on these units and will not add significantly to the cumulative impacts to these species on local or regional populations.

The only difference in impact to hunted and fished species under the different alternatives is the phased lead regulation change which is evaluated separately for each alternative and addressed in the wildlife and aquatic species section. Human health impacts under the two alternatives are described below as impacts to wildlife including game species is covered in the Wildlife and Aquatic Species section.

### *Alternative A*

The current hunting and fishing program on refuge lands and waters carries the potential for adverse health impacts to sport fish and huntable wildlife species from discarded lead in the environment and the potential for adverse human health impacts from lead in game meat. There is potential for the presence of discarded lead in the environment to have adverse impacts on wild game and sport fish species in addition to the inherent impacts of intentional harvest from hunting and fishing. Some wild game and sport fish species are susceptible to direct ingestion of lead and/or bioaccumulation of lead from their food sources. These types of species that are susceptible to these circumstances are discussed in detail in the non-target wildlife and aquatic species section but are applicable to similar species that are hunted including predators and big game. There is also the potential for adverse impacts to human health due to the inadvertent consumption of lead from the individual animals that are successfully harvested with lead ammunition. Studies have found that wildlife hunted with lead ammunition can increase risks to human health due to the ingestion of lead (Fisher et al. 2006; Tsuji et al. 2008; Iqbal et al. 2009; Hunt et al. 2009; Cornatzer et al. 2009; Kosnett 2009; Verbugge et al. 2009; Rank et al. 2019; Johnson et al. 2013; ATSDR 2020). Human health experts,

including the Centers for Disease Control and Prevention, have recommended the use of non-lead ammunition when hunting to avoid lead exposure and that pregnant women and children under age six should not consume wild game shot with lead ammunition (Streater 2009). This recommendation comes after a study done in North Dakota which found that those who ate wild game had significantly higher levels of lead in their blood than those who did not (Iqbal et al. 2009). There are risks of anglers having higher blood levels from use of lead tackle as lead could transfer to hands while tying on lures and weights and be accidentally ingested (Grade et. al. 2019; Sahmel et al. 2015). Continued use of lead ammunition and tackle under this alternative and any future expansions to the current hunting and fishing program, without restrictions on the use of lead ammunition and tackle, increases these potential adverse human health risks.

### *Alternative B*

The potential for adverse impacts to human health due to the inadvertent consumption of lead from use of lead tackle or the individual animals that are successfully harvested with lead ammunition would still exist during the next four years, however it will likely be reduced as some hunters adopt early use of non-lead ammunition and anglers use non-lead tackle. As non-lead requirements for ammunition and tackle take full effect in 2026-2027, health impacts to sport fish and huntable wildlife species from discarded lead in the environment and the potential for adverse human health impacts decreases substantially and becomes negligible. Lead from previous hunting and fishing activities will still be present in the environment and may impact wild game species, however the impact is likely negligible given the likely low amount of lead currently present and availability in the environment from hunting and fishing activities and minor adverse risk of bioaccumulation.

## **Wildlife and Aquatic Species**

### ***Description of Affected Resource, Environmental Trends and Planned Actions***

Service lands and waters are home to many resident and migratory fish and wildlife species. The Patoka River and its associated wetlands are well known for their diversity and outstanding wildlife values. Waterfowl, shorebirds, wading birds, raptors, songbirds, reptiles, amphibians, furbearers and other mammals utilize the area. The refuge is especially important for migratory birds, both during the migrating and nesting seasons. Over 250 species of resident and migratory birds use the refuge throughout the year. Migration counts number in the tens of thousands and include ducks, geese, shorebirds, wading birds and other avian species. The refuge's diverse habitat types are well suited for migrating and nesting

passerines also known as perching birds or songbirds. Neotropical bird studies indicate that the refuge and the surrounding watershed contain one of the most diverse assemblages of such species remaining in the Midwest. Neotropical birds are ones that breed in the United States of America and Canada and winter in Central or South America, or the Caribbean. The refuge contains 41 known species of mammals. Resident mammalian species include white-tailed deer, squirrel, bobcat and otter. Additionally, there are at least nine different species of bats present within the Patoka River Watershed and the refuge contains 26 large areas with excellent foraging and nursery habitat for the Indiana Bat, a federally listed endangered species. Patoka River Refuge also contains over 60 known species of reptiles and amphibians (USFWS 2008a). Resident or migrating species forage and consume water in these environments.

Lead has no known biological function in living things, but the bioavailability of the spent lead ammunition and shot and lead tackle, may have adverse impacts on the environment, especially for birds, specifically waterfowl and raptors and mammals (including humans). For birds, this typically occurs through direct ingestion of lead through soil, sediment or directly from food items (Rattner et al. 2008). Upland game birds and waterfowl may be exposed to lead when they ingest spent shot or ammunition fragments along with grit or pebbles, they need to fill their gizzards, a specialized organ involved in breaking down food (Bellrose 1959; Anderson 1975; Clark and Scheuhammer 2003; Kreager et al. 2008; Franson et al. 2009). Avian predators and scavengers can be susceptible to lead poisoning when they ingest lead fragments (the result of lead's brittle quality causing fragmentation upon impact) or pellets in the tissues of animals killed or wounded by lead ammunition (Platt 1976; Redig et al. 1980; Pattee et al 1981; Craig et al. 1990; Church et al. 2006; Hunt et al. 2006; Cade 2007; Pauli and Buskirk 2007; Stroud and Hunt 2009; Finkelstein et al. 2012; Rideout et al. 2012; Warner et. al 2014; Cruz-Martinez et al. 2015; Herring et al. 2016).

Lead shot was banned for hunting waterfowl and coots in North America in 1991 and exposure for these birds from spent lead shot in wetlands has declined (Samuel et al. 1992; Anderson et al. 2000; Samuel and Bowers 2000; Lewis et al. 2021). However, exposure to lead has not broadly declined in this manner for game birds in uplands where lead shot and ammunition are still commonly used (Kendall et al. 1996; Fisher et al. 2006; Larsen et al. 2007; Rattner et al. 2008; Franson 2009; Haig et al. 2014); for avian scavengers (Church et al. 2006; Hunt et al. 2006; Pauli and Buskirk 2007; Herring et al. 2016); or for diving waterbirds where lead fishing tackle remains in the sediment (Pokras and Chafel 1992; Scheuhammer and Norris 1995; Franson et al. 2003; Pokras et al. 2009; Grade et al. 2017; Grade et al. 2019). Upland game hunting of furbearers and migratory game birds and wild turkey hunting is

permitted on refuge lands; however, lead exposure for these species that utilize the refuge has declined since non-lead shot is required to take part in these activities since 2015. For scavenger species, lead ammunition fragments found in animal carcasses and gut piles, as shown in x-rays, are the most likely source of lead exposure (Craighead and Bedrosian 2008; Kelly et al. 2011; Rogers et al. 2012; Bedrosian et al. 2012; Johnson et al. 2013; Legagneux et al. 2014, Warner, et al., 2014). Many hunters do not realize that the carcass or gut pile they leave in the field usually contains lead ammunition fragments. Connections have been clearly drawn between hunting with lead ammunition and effects to scavenger species and to humans (Golden et al. 2016; Hunt et al. 2009; ATSDR 2020).

Lead poisoning affects the blood, nervous and immune systems of wildlife (Eisler 1988). According to Fallon et al. (2017) clinical signs may include “...ataxia, impaired mobility, lowered sensory abilities, vomiting, anemia, lethargy, gastrointestinal stasis, weakness and mortality.” Exposure to high amounts of lead in a short amount of time typically causes severe impairment of these systems and results in rapid death (Gill and Langelier 1994; Kelly et al. 1998; Schulz et al. 2006). Exposure to smaller amounts of lead over longer time periods, however, can cause anemia, lethargy, neurological disorders, an impaired ability to fight off disease and other negative effects (Jacobsen et al. 1977; Wobester 1997; Friend and Franson 1999; Pattee and Pain 2003; Franson and Pain 2011; Pain et al. 2019). These effects can in turn lead to indirect negative effects of lead exposure, such as increased susceptibility to predation. Thus, even lead exposure that does not directly kill wildlife, sublethal lead poisoning can have substantial adverse effects on wildlife health, including on reproduction (Scheuhammer 1987; Kendall et al. 1996; Provencher et al 2016; Pain et al. 2019, SETAC 2021).

Lead poisoning may weaken raptors by reducing their strength and coordination, leading to muscle and weight loss, reducing motor skill function and making them lethargic, which may make them more susceptible to disease, vehicle strikes or power line accidents and increases mortality rates by leaving them unable to hunt (Kramer and Redig 1997; O’Halloran et al. 1998; Kelly and Kelly 2005; Golden et al. 2016). Furthermore, nestlings of raptors have impaired survival and growth when parents bring food that is embedded with lead fragments (Hoffman 1985a, 1985b; Pattee 1984). Recent modeling has even indicated that lead poisoning suppresses population growth in eagles (Slabe et al. 2022). The extent to which elevated levels of lead have been documented in raptors admitted for rehabilitation can be found in a study of bald eagles and golden eagles in the Raptor Rehabilitation Program at the College of Veterinary Medicine at Washington State University from 1991 to 2008, where 48 percent of bald eagles and 62 percent of golden eagles tested had blood lead levels considered toxic by current standards. Of the bald and golden

eagles with toxic lead levels, 91 percent of bald eagles and 58 percent of golden eagles were admitted to the rehabilitation facility after the end of the general deer and elk hunting seasons in December (Stauber 2010).

In waters where the prohibition on lead shot for migratory waterfowl hunting has otherwise protected species from lead, lead fishing tackle still represents a source of lead poisoning in susceptible birds, primarily loons and swans (Pokras and Chafel 1992; Rattner et al. 2008; Strom et al. 2009). The primary concerns are small lead fragments released into the water and discarded lead sinkers that rest on river and lake bottoms where diving birds ingest them alongside pebbles. Studies have found impacts of ingested lead fishing tackle are a leading cause of mortality in adult common loons (Pokras and Chafel 1992; Scheuhammer and Norris 1995; Franson et al. 2003; Pokras et al. 2009; Grade et al. 2017; Grade et al. 2019). Strom et al assessed lead exposure in Wisconsin birds and found that approximately 25% of the trumpeter swan fatalities from 1991 through 2007 were attributed to ingested lead (Strom et al. 2009). Flint and Schamber (2010) estimated that lead shot pellets in the sediment of wetlands would be available to most species of waterfowl for greater than or equal to 25 years. If so, the risk of exposure to lead shot pellets from past hunting for most waterfowl species should nearly be eliminated given the ban took effect 30 years ago in 1991. However, because swans have a long neck and can forage at greater depths within sediment there is still a higher risk of lead exposure for them (Smith et al. 2019 and Haig et al. 2014). Loons are infrequent on the refuge. Both trumpeter and tundra swans use the refuge seasonally.

The best available science indicates that lead ammunition and tackle may have negative impacts on wildlife and human health and the environment. This broad potential for adverse impacts is not inherent to the activities of hunting and fishing, but specifically to the use of lead ammunition and tackle. Those potentially adverse impacts can be prevented by requiring non-lead ammunition and tackle for hunting and fishing activities. Currently there are manufacturers that offer non-lead ammunition and fishing tackle, and some states have either implemented restrictions on the use of lead or offer incentives to use non-lead ammunition or fishing tackle (U.S. Fish and Wildlife Service 1999; Center for Biological Diversity 2007; Arizona Game and Fish Department 2018; Washington Department of Fish and Wildlife 2022). In areas where non-lead ammunition and tackle are used, there have been declines in adverse effects to wildlife (Anderson et al. 2000; Samuel and Bowers 2000; Sieg et al. 2009, Kelly et al. 2011; Lewis et al. 2021).

## ***Impacts on Affected Resource***

### ***Alternative A and B***

Under both alternatives hunting and fishing activities that occur on the 74.5 acres of the refuge would result in temporary displacement of migratory and resident wildlife or a short-term disturbance to wildlife from foot traffic or boating through the area or the activities of hunting and fishing themselves. Direct impacts to non-hunted migratory birds such as woodpeckers, raptors and some songbirds including indigo buntings, red-winged blackbirds, nuthatches, finches, chickadees are negligible from this activity. Indirect impacts to this group of species are also minimal and do not appreciably reduce their numbers at the population level. Shorebirds and wading birds would not be impacted by hunting since, in most cases, they have already migrated through the area prior to the fall hunting season. Similarly, reptiles and amphibians will likely be dormant during the predominant time of use for these activities and would not be disturbed as a result. Fishing or spring turkey hunting may overlap with these species emerging from torpor; however, this use is estimated to be 5 additional use days by anglers and turkey hunters limiting potential for interactions due to a short duration and frequency. Disturbance by hunting or fishing to non-hunted migratory birds would not have substantial negative indirect impacts because most of the hunting and fishing does not coincide with the nesting season when birds are most susceptible to disturbance. Other disturbance to these species by hunters and anglers afield would be temporary in nature. Migratory birds of prey (eagles, hawks, etc.) are on the refuge during most hunting and fishing seasons but disturbance is minimal. Disturbance to the daily wintering activities, such as feeding and resting, of residential birds might occur but are likely unsubstantial because such interactions are infrequent and of short duration when they do occur. Impacts of lead are discussed separately for each alternative. Aquatic species like turtles, mussels or non-game fish may be disturbed from fishing activities that occur from a bank or from waterfowl hunters. They may be temporarily disturbed when anglers and waterfowl hunters approach fishing areas and likely move to nearby habitat during the time anglers are fishing from shore or waterfowl hunters are fishing from boats. Some erosion may occur potentially impacting water quality however cumulative impacts of use will not result in long term effects to water quality or adverse effects to aquatic species as a result. Temporary disturbance from these activities is not expected to add significantly to the cumulative impacts of wildlife and aquatic species on local or regional populations. Lead impacts are addressed below for each alternative.

### *Alternative A*

The No Action Alternative cannot prevent the risks to predators, scavengers, diving birds, aquatic species, humans or any other species susceptible to adverse impacts from the continued introduction of lead on refuge lands and waters as described above in the description of affects and environmental trends section. However, under this alternative, the Service would continue to encourage hunters and anglers to use non-lead ammunition and tackle, educate hunters and anglers about the potential adverse impacts of lead ammunition and tackle use and encourage hunters who do harvest wild game with lead ammunition to remove gut-piles and full carcasses from the refuge. Yet, even with these mitigation measures continuing to permit the use of lead ammunition and tackle on refuge lands and waters would mean an increase of lead in the environment even at small amounts as estimated and continue to have potentially negative impacts to wildlife and aquatic species, although these additive effects will likely not reach adverse cumulative effects as bioaccumulation is likely negligible. No documented wildlife or aquatic species deaths have been associated with lead poisoning on the refuge over the last 20 years, so it is unlikely that the impacts of lead entering the environment from fishing and hunting activities are causing direct mortality of wildlife and aquatic species. However, there may be sublethal effects to some wildlife and aquatic species occurring, as described in the section above, although it is hard to identify direct causal relationships with lead entering the environment from fishing and hunting on the refuge and know the full extent of the impact, given the transient nature of most wildlife using the refuge.

### *Alternative B*

This alternative would eliminate the potential risk for adverse impacts inherent to continuing to introduce additional lead ammunition and lead tackle onto refuge lands and waters after lead restrictions go into effect in 2026-2027. Until such time that the restrictions take place, added lead to the environment from the fishing and hunting activities is not expected to cause more than negligible impact to wildlife and aquatic species. Residual lead in the environment from these activities may pose a potential threat to wildlife and aquatic health; however, the potential impacts are expected to be negligible from residual lead left in the environment, and those impacts will decrease over time as lead fragments get buried in sediment and become less accessible by wildlife and aquatic species. Thus, there could eventually be virtually no significant lead impacts to wildlife and aquatic species under this alternative as no additional lead will be added to the environment and direct consumption of lead, the most likely pathway for lead affecting wildlife and aquatic species, becomes less likely over time once the non-lead ammunition and tackle requirement takes effect.

## **Threatened and Endangered Species and Other Special Status Species**

### ***Description of Affected Resource, Environmental Trends and Planned Actions***

Service lands and waters are essential to the recovery and conservation of hundreds of threatened and endangered fish and wildlife species, as well as other special status species. In the case of species that are federally listed as threatened or endangered species under the Endangered Species Act of 1973 (ESA), the Service is primarily responsible for ensuring the federal government's protection of these species, not only on Service lands and waters but in general. Endangered means a species is in danger of extinction throughout all or a significant portion of its range. Threatened means a species is likely to become endangered within the foreseeable future. The threatened or endangered status of species means that threats and stressors to an individual animal may present significant repercussions for the future of the species. The Service works to conserve and recover listed species. The Service evaluates each hunting or fishing opportunity on Service lands or waters before authorization to determine that it is not likely to adversely affect any listed species or their critical habitat. This includes evaluation of impacts from use of lead ammunition or tackle and the potential for bioaccumulation. As explained below, the Service has preliminarily determined that the proposed actions are not likely to adversely affect listed species.

Patoka River National Wildlife Refuge and Management Area uses the Information for Planning and Consultation tool (IPAC) and ECOS databases to identify threatened and endangered species that may be present on the refuge for purposes of completing biological evaluations. It should be noted, however, that these databases are updated regularly, approximately every 90 days, and, thus, it is possible that the specific threatened and endangered species identified as potentially present on or near the refuge may change between the review and finalization of this document. Federally listed Threatened and Endangered Species that occur within the acquisition boundary of the refuge are the Indiana bat (*Myotis sodalis*) northern long-eared bat (*Myotis septentrionalis*), fanshell mussel (*Cyprogenia stegaria*), fat pocketbook mussel (*Potamilus capax*), sheepsnose mussel (*Plethobasus cyphus*) and the experimental population of whooping crane (*Grus Americana*). The monarch butterfly (*Danaus plexippus*) is the only candidate species known to occur within the authorized refuge acquisition boundary (*Danaus plexippus*). No critical habitat is designated within the refuge area. It should be noted that the interior least tern (*Sterna antillarum*) and bald eagle (*Haliaeetus leucocephalus*) are species no longer listed but mentioned in previous biological evaluations associated with hunting and fishing opening packages. Given that they are no longer ESA-listed species, they are not evaluated as part of ESA section 7

compliance, but still considered under the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act.

The Migratory Bird Treaty Act (MBTA) provides legal protections to migratory bird species that occur naturally in or are native to the United States and its territories. This includes many species that occur on Service lands and waters. The Service only authorizes hunting and fishing opportunities that it determines will not violate the MBTA. In some cases, the Service puts in place mitigation measures to reduce adverse impacts from hunting and fishing activities. For example, the Service may implement large buffer zones where hunting is prohibited when certain listed migratory birds, which are protected under both the ESA and MBTA, occur on a refuge. There is still the possibility of lead exposure for migratory birds on Service lands and waters where use of lead ammunition and/or lead fishing tackle is permitted. MBTA protections extend to multiple bird species that are susceptible to direct ingestion of discarded lead through predatory or scavenging behaviors or that need to collect gizzard stones.

The Bald and Golden Eagle Protection Act (Eagle Act) protects bald eagles (the national emblem) and golden eagles from unauthorized take of the species. The Service authorizes hunting and fishing opportunities that it determines would not violate the Eagle Act. The Service cannot, however, guarantee that these eagle species will not be exposed to lead where eagles are present, and hunters and anglers are allowed to use lead ammunition and/or tackle. These eagle species are both predatory and readily engage in scavenging of carcasses and gut piles left in the environment as a result from hunting activities, which present a risk of lead exposure from lead hunting ammunition.

Migratory birds and bald eagles frequently use the refuge. Golden eagles have been reported to use the refuge annually, but not as frequently as bald eagles. Impacts to these specific species are outlined under each specific alternative within the wildlife and aquatic species section. The analysis below and in the wildlife and aquatic species section meets compliance requirements for the following laws and regulations:

- Bald and Golden Eagle Protection Act, as amended, 16 U.S.C. 668-668c, 50 CFR 22
- Endangered Species Act of 1973, as amended, 16 U.S.C. 1531-1544; 36 CFR Part 13; 50 CFR Parts 10, 17, 23, 81, 217, 222, 225, 402, and 450
- Fish and Wildlife Act of 1956, 16 U.S.C. 742 a-m
- Lacey Act, as amended, 16 U.S.C. 3371 et seq.; 15 CFR Parts 10, 11, 12, 14, 300, and 904

- Migratory Bird Treaty Act, as amended, 16 U.S.C. 703–712; 50 CFR Parts 10, 12, 20, and 21
- Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, 66 Fed. Reg. 3853 (2001).

## ***Impacts on Affected Resource***

### ***Alternative A and B***

In accordance with ESA Section 7, the refuge completed an analysis of the effects of the proposed action. The finalized ESA section 7 documentation can be found in Appendix B. A summary of the section 7 analysis is reported here. The section 7 documentation evaluates two actions and action areas. The first area and action were specific to the 74.5 acres, where the proposed hunting and fishing expansion is for the 2022-2023 season. As part of this analysis, continued use of lead during the interim period and the action of opening the refuge to hunting and fishing activities were evaluated. For the second part of the proposed action, (i.e., the proposed phased in non-lead requirement which would take effect in the 2026-2027 season), the action area includes all applicable acres currently in refuge management. The effects of the phased in approach and required non-lead tackle and ammunition use were evaluated within this action area.

Under the first action of expanding hunting and fishing to 74.5 acres, an Intra-Service Consultation under section 7 of the ESA resulted in a “May affect, but not likely to adversely affect” determination was made for the federally listed species Indiana bat, northern long-eared bat, whooping crane, fanshell mussel, fat pocketbook mussel and sheepsnose mussel. A “Not Likely to Jeopardize” determination was made for the monarch butterfly. These results were arrived at because the proposed project is expected to cause insignificant or discountable effects to individuals given the transient nature of these species, minimal chance of overlap with potential hunting and fishing activities, and minor amounts of residual lead left in the environment from these activities. For each species, the potential impacts were considered temporary in nature and likely will be limited in overlap, if they occur at all, given that the potential use of the expansion area is estimated at 17 additional use days (15 for hunting and 2 for fishing) and that the species are transitory in nature and likely not present on the acres when the uses are occurring in the fall and early spring.

Effects of residual lead left in the environment are also not likely to adversely affect these species, given the same reasons outlined in alternative B analysis noted below and circumstances for potential effects being even more discountable and insignificant given the size of these units, lack of potential overlap in use by these species, and negligible amount lead added to the environment from these activities

during the proposed phased in period. The amount of lead introduced to the environment because of deer and squirrel hunting on the 74.42 acres is negligible, given expected participation levels, encouragement on removing gut piles and spent shells, and potential use rates of non-lead ammunition as some hunters may make the transition earlier than the required date. Based on past and current hunting trends on the refuge, it is expected that the majority of the hunters will target deer and squirrel. It is estimated each year only 2 deer will be harvested on these new acres and up to 20 squirrels will be harvested. Squirrel hunters can use both rifle and shotgun to harvest squirrel. Most hunters choose to use shotguns for squirrel hunting and non-toxic shot is already the requirement for this method of take. All harvested squirrels are removed from the premises and deer hunters are encouraged to remove gut piles as well, reducing the amount of lead entering the refuge environment. The amount of lead that could enter the environment until the proposed lead-free requirement takes effect would be from up to four years of hunting, including up to and estimated 8 deer harvested and 80 squirrels potentially harvested. Lead that would enter the environment from these activities would be fragments from ammunition that has left the body of harvested animals. Given the hunting practices and amount of take estimated using lead ammunition, the amount of lead entering the environment is expected to be insignificant. All other hunting that would occur on these acres is lead-free, including waterfowl and turkey, so no additional lead would enter the environment from those activities. At this time, no impacts are anticipated for state listed species associated with the 74.5 acres proposed for opening.

Finally, impacts to migratory birds and eagles from use of lead and hunting activities, mentioned in the section above about wildlife, are likely negligible. As impacts are negligible to migratory birds and gold and bald eagles legal mandates under the Bald and Golden Eagle Protection Act, as amended, 16 U.S.C. 668-668c, 50 CFR 22, Migratory Bird Treaty Act, as amended, and Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, are met through the analysis above. Even though inputs of lead are low as illustrated above, as an agency we are concerned about the potential effects of lead on refuge resources, as illustrated in the purpose and need for this environmental assessment.

Effects of lead for threatened and endangered species are evaluated below in more detail under the two alternatives proposed in this environmental assessment. It should be noted, as land is reviewed for expanding hunting and fishing opportunities in the future through the annual rule making process, each proposal will be reviewed for compliance with National Environmental Policy Act requirements, Endangered Species Act and other laws, regulations and policies. If it is determined that future actions of opening new land to hunting or fishing would

conflict with recovery and/or protection of these species, those lands proposed for expansion would not be open for hunting and/or fishing.

### *Alternative A*

Under the No Action Alternative, lead ammunition and tackle would still be permitted on refuge lands and waters into the future, which would mean a continued and increasing risk to listed species and special status species from lead present in the environment over time. Although the Service has preliminarily determined that the impacts of lead ammunition and tackle from the proposed action are not likely to adversely affect such species, the Service continues to seriously consider the effects of the accumulation of lead in the environment on certain refuge lands from these activities over time. For example, the bald eagle may eat discarded gut piles from animals harvested with lead ammunition or fish that have consumed lead tackle. Additionally, even though whooping cranes have not been sighted on the main refuge unit in recent years where hunting and fishing is allowed, there is a potential that they could forage in or use the refuge in the future, as they have been recorded using these areas in the past. Given the foraging habits of whooping cranes, this possible use of the refuge by whooping cranes for foraging could expose them to potential accidental consumption of lead fragments or tackle, especially if lead tackle and ammunition are allowed indefinitely and more bioavailable. Lead in water is widely recognized as adversely impacting water quality, which in turn could negatively affect listed mussels, as mussels in general can accumulate dissolved lead (Boisson et al. 1998; Mosher et al. 2012). However, most threatened and endangered mussels are not actively found in portions of the Patoka River where the refuge is located so these potential effects are very unlikely to directly occur. Furthermore, where the mussels are found in the Patoka River is far from where lead is used on the refuge, and it is extremely unlikely that the lead would travel through the watershed that far; the small levels of lead would not be enough to change the water quality such that it would adversely affect the mussels. Given that increasing the amount of lead introduced into the environment could lead to these effects over time, the Service concludes that the No Action Alternative would ultimately present a potential risk to these natural resources in the long run with continued use of lead tackle and ammunition.

### *Alternative B*

For the second part of the proposed action (i.e., the proposed phased in non-lead requirement which, if adopted, would take effect in the 2026-2027 season), the action area includes the entire refuge approved boundary and lands that are in current ownership, 10,699 acres including the newly acquired 74.5 acres. Indiana bat, northern long-eared bat, fanshell mussel, fat pocketbook mussel, sheepnose mussel, the experimental population of whooping crane and the monarch butterfly

could all be present on the refuge, and therefore, within this action area. As such, each species is evaluated for impacts associated with the proposed requirement for use of non-lead ammunition and tackle (which if adopted, would become effective for the 2026-2027 hunting and fishing season) and the continued use of lead tackle and ammunition during the phased in four-year time period. The intra-service section 7 intra-Service consultation (Appendix B) determined for all listed species (whooping cranes, Indiana bat and Northern long-eared bat, fanshell mussel, fat pocketbook mussel and sheepsnose mussel) that the activity to phase out lead and eventually require lead free ammunition and tackle *May Affect, but Not Likely to Adversely Affect* them. The consultation also determined that this action is *Not Likely to Jeopardize* the candidate species monarch butterfly. These impacts are detailed in the consultation and summarized below.

In the past six years, as many as twelve whooping cranes from the experimental flock of whooping cranes raised in Wisconsin have begun to use the refuge from October through February as a wintering site. These whooping cranes have primarily been using the Cane Ridge Wildlife Management Area which is closed to hunting and fishing. It is possible that whooping cranes could use the main unit of the refuge, which is open for hunting, but this is unlikely because they have been infrequent visitors to this area. An administrative closure may be warranted if whooping cranes are found to occur on a main refuge unit that is open to hunting and fishing, pursuant to 50 CFR 25.21(e), to reduce any impacts from disturbance of these activities. As whooping cranes could use the main refuge unit, there is a potential for them to be impacted by lead that has entered the environment from hunting and fishing activities of the past and over the phased in period. Once lead-free requirements are implemented, no additional lead will be added to the environment, reducing the potential and risk of whooping cranes picking up lead tackle or ammunition fragments as grit or through bioaccumulation through food sources. There is residual lead in the environment from hunting and fishing activities that they could still be exposed to; however, this is likely an insignificant amount of lead available for direct ingestion for use as grit or mistaken as insects and will decrease over time.

Surveys of the Patoka River that run through the approved refuge acquisition boundary have indicated that sheepsnose and fanshell mussels are not found in the river within the refuge boundary while a single weathered dead fat pocketbook mussel was found during a survey indicating that there may be fat pocketbook mussels present on reaches of the Patoka River. If sheepsnose and fanshell mussels were to be present in the river, the effects of lead and the proposed phase out of lead would be the same to these species as it would be to the fat pocketbook mussel. Other waterbodies on the refuge would not provide sufficient habitat for

the mussels, and therefore, are not found in any other water bodies on the refuge. Specific to potential interim impacts to continued use of lead ammunition and tackle during the phased in period, there is a chance that lead could enter the water where mussels could be present from these activities. Typically, lead is not soluble in water unless the conditions are right, such as the body of water being more acidic than is typical. Lead may be present in the Patoka River from fishing tackle being left in the water or from lead fragments of ammunition being pushed to the river through runoff during rain events. Mussels are suspension-feeders, meaning they siphon water and feed on suspended algae, bacteria, detritus and microscopic animals. Adult mussels are easily harmed by toxins and degraded water quality from pollution because they tend to stay in one place. Contaminants may kill mussels directly if concentrations are high enough, but they may also indirectly harm sheepsnose by reducing water quality, which reduces survival and reproduction and lowers the numbers of host fish. Lead present in the river from breakdown of lead tackle and ammunition fragments is not found in high enough concentrations to impact mussel reproduction, survival or cause death of mussels.

The potential for lead impacts to bats is discountable due to Indiana and northern long-eared bats diets and foraging habits. Lead bullet fragments would have to break down in the soil in order to be taken up by plants near the area in which the fragments fall on or penetrate the soil surface. Concentrations of lead will not reach high enough levels for plants to take up. If lead is taken up by plants, it is mainly through the root system and partly, in minor amounts through the leaves. Inside the plants lead accumulates primarily in the root, but a part of it is translocated to the aerial portions. Larvae of certain herbivorous insect species could ingest some of the lead when they eat the exposed plants. Some of the insects could then be consumed by bats. Northern long eared and Indiana bats' diet are insects such as moths, flies, leafhoppers, caddisflies and beetles, only some of which are herbivorous. In addition, bats are transitory in nature and will not consume their entire diets on the refuge area. In light of the chain of events that are necessary for exposure and the small amount of lead that would contribute to lead concentrations in refuge soils, it seems that many bats that occur on refuges are not likely to consume lead derived from ammunition fired by hunters or left by anglers on the refuge.

The potential for lead impacts to monarchs is discountable due to their diets. Monarch butterfly's diet is nectaring sources as adults, the pollen of which carries less lead contaminants than any other part of the plant. Larvae consume the leaves and stems of milkweeds, where higher concentrations of lead could be present, if lead is absorbed through the plant. This means that, as with bats, bioaccumulation through the plant to the monarch butterfly or larvae could potentially occur.

However, as with bats, it is very unlikely that lead concentrations in the soil from hunting activities would reach high enough levels for uptake by plants, and in this case, it would further require uptake by the specific plants that monarchs rely on for nectar sources.

Overall, this alternative would eliminate the potential long-term risk from the introduction of additional lead ammunition and lead tackle onto refuge lands and waters, after the proposed lead restrictions would take effect in 2026-2027. Additional lead would no longer enter the environment and potentially impact eagles, migratory birds, or any threatened and endangered species that occur on the refuge. Residual lead in the environment from these activities may affect wildlife and aquatic health; however, impacts are expected to be negligible from residual lead left in the environment, and any potential risk of impacts will decrease over time. Under this alternative, the fact that no additional lead will be added to the environment once the non-lead ammunition and tackle requirement takes effect could have some beneficial effects on threatened and endangered species, migratory birds and bald and golden eagles and reduce the overall effects of lead in the environment. In addition, the continued use of lead in the 4-year time period of phasing out is not likely to cause adverse effects to the listed species, given that the additional lead added to the environment over this time period is expected to be minimal given expected early adoption of non-lead tackle and ammunition, encouragement to remove gut piles of deer and use of non-lead hunting methods of take such as archery or shotguns with required non-toxic shot.

### **Habitat and Vegetation (including vegetation of special management concern)**

#### ***Description of Affected Resource, Environmental Trends and Planned Actions***

Habitat types of the refuge can be broadly divided into bottomland forest, shrubland, upland forest, grassland, temporary/seasonal wetlands, emergent wetlands and the Patoka River and its tributaries. All of these habitats as well as proposed management action are described in detail in Chapters two and three of the 2017 Refuge Habitat Management Plan. The Habitat Management Plan can be accessed online: <https://ecos.fws.gov/ServCat/DownloadFile/132128>.

While the use of lead in the Service's current hunting and fishing programs does not affect the traditional quality or characteristics of wildlife habitats such as vegetation cover, the use of lead ammunition, and to a lesser extent lead tackle, can introduce small amounts of lead into the soils and aquatic environments on refuge lands causing negligible negative effects given lead is a toxic pollutant. The typical

scenario is that lead ammunition from a gunshot that misses its target or lead ammunition fragments that exits the target becomes lodged in the ground, introducing lead fragments into the soil. Another scenario of lead being introduced to the soil is from derelict fishing tackle left behind. Lead enters the aquatic environments through lead fragmentation of ammunition or tackle left behind. Lead can become more bioavailable in aquatic environments having potentially more impact in habitats like wetlands and bottomland hardwood forest which are present on the refuge. Although, lead typically has low solubility in water, certain conditions, including high acidity (such as naturally acidic bogs or wetlands downstream of acidic mine drainage), or direct point sources of discharge can increase lead in water (IPCS 1995; Eisler 1998; U.S. Department of Health and Human Services 2007).

It is unlikely that lead tackle would find its way into the soils of refuge lands unless dropped along the shore because it is much more likely to be discarded directly into refuge waters from lost tackle snagged on downed trees or debris in the water, if anywhere. However, some ammunition, including lead ammunition, may become lodged in soils following missed shots by hunters or from fragmentation off single projectile ammunition that penetrates and exits game species. When this does occur, it could lead to metals and other components of the ammunition impacting the composition of soils. In the case of lead ammunition, loose lead fragments may enter the soil after impact, and if the amount of lead reaches high enough concentrations, these lead fragments, if small enough, could be taken up by plants. If taken up by plants, lead can adversely affect plant growth. The introduction of lead in this manner is highly localized and it is unlikely that lead introduced from the Service's hunting and fishing program would introduce sufficient lead to the soils of any area for plants to take it up. There is scientific evidence that lead in soil can adversely impact plants, including inhibiting their growth of roots and cell walls provided concentration of lead is in the correct form and high enough concentration for plant absorption (Balsberg-Pahlsson 1989; Eisler 1998; Tomar et al. 2000; Kumar and Kumari 2015). However, the toxicity of lead from soil absorption to seed germination is very small (Balsberg-Pahlsson 1989) and the migration of lead from soil to roots and other parts of plants generally is considered to be minimal (Sorvari et al. 2006; Rattner et al. 2008). Additionally, uptake of lead varies by plant species (Eisler 1998; Kumar and Kumari 2015; Finster et al. 2004, U.S. Department of Health and Human Services 2007). Nevertheless, in plant species that uptake lead, the lead can bioaccumulate, and at high enough concentrations, it can pose a threat to the animals consuming those plants. This is not an expected outcome, and we are not concerned about the refuge or its habitats, given the small amount of lead that is entering the environment from these activities based solely on elevated trophic position. Although, the introduction of lead through hunting

and fishing activities on the refuge is highly localized and unlikely to result in large amounts of lead being introduced to the soils/sediments or aquatic environments, the presence of lead in large enough quantities in any habitat can result in impacts to habitats.

### ***Impacts on Affected Resource***

#### ***Alternative A and B***

Negligible effect is expected to vegetation from trampling by hunters and anglers on the newly acquired 74.5 acres proposed to open hunting and fishing, because the majority of hunting visits will occur after vegetation is dormant during the fall and winter. Anglers who fish from banks cause localized vegetation impact as they trample and use the same areas repeatedly. The expected additional use days for both activities are only 17 additional days, and this amount of use is not likely to cause more than temporary trampling of vegetation, if it were to occur during the growing season. Some vegetation may be removed through cutting to construct or hide temporary blinds to support hunting however these types of activities required the vegetation to stay on the refuge after it has been used for temporary blind construction. Some vegetation may be trampled or cut down to create access to fishing areas on some of these units, however it is likely this will not happen unless completed by refuge staff as the vegetation is too thick for manual removal by anglers. Harvest of species like deer on these acres is not expected to have impacts to habitat management as the population will remain stable and most of the habitat is more mature forest growth. It is expected that impacts to vegetation and habitats from opening the 74.5 acres to hunting and fishing is likely negligible given its temporary nature and harvest of game species will not change browse habits impacting habitat management needs. There will be no cumulative impacts to habitat or vegetation given the ability for the habitats and vegetation to regenerate annually from use.

#### ***Alternative A***

Although the amount of lead introduced, both annually and cumulatively to date, is unlikely to be enough in any particular area to negatively impact plants and habitats through soil contamination, under this alternative, there would be continued introduction of lead into the soils on refuge lands. In the long run, this increasing amount of lead could be taken up by plants, potentially causing direct negative impacts to vegetation and habitat on the refuge in areas with concentrated hunting fishing activities. Although negative impacts from accumulated lead ammunition or tackle in soils remain a possibility in the future because continued use of lead ammunition would mean increasing lead levels over time, any potential impact is

still likely a negligible impact to habitat and vegetation given the amount of lead annually introduced on the refuge from these activities.

### *Alternative B*

Under this alternative no further introduction of lead into the soils on refuge lands that could be taken up by plants would occur after the non-lead requirement takes effect in the 2026-2027 hunt and fish season. Until the regulation takes effect it is estimated the additional lead entering the environment from these activities will not reach a level that will negatively impact vegetation or habitat on the refuge by 2026-2027. As current lead levels from hunting and fishing activities are likely not sufficient to negatively impact plants or their habitats over the long term, the proposed action would prevent future lead levels in the soil from becoming high enough to potentially negatively impact plants or habitat reducing that future risk of impact or cumulative impacts even more.

## **Geology and Soils**

### ***Description of Affected Resource, Environmental Trends and Planned Actions***

A full description of the refuge geology and soils can be found in chapter 3.6 of the comprehensive conservation plan (USFWS 2008a). Lead is naturally present in all soils. It generally occurs in the range of 15 to 40 parts lead per million parts of soil (ppm), or 15 to 40 milligrams lead per kilogram of soil (mg/kg). Pollution can increase soil lead levels to several thousand ppm (University of Massachusetts Amherst 2022). Soil surveys have not been completed on the refuge to determine exact lead concentrations of soil on the refuge. However, based upon a map showing the spatial distribution of soil lead concentrations (ppm dry weight) across the continental United States it is estimated that the lead concentrations found in the soil of the refuge is between 25-30 ppm (Haig et al. 2014). This range is within the normal range of lead concentration generally found in soils. There is no single threshold that defines acceptable levels of lead in soil, however, the Environmental Protection Agency defines a soil lead hazard as bare soil on residential real property or on the property of a child-occupied facility that contains total lead equal to or exceeding 400 parts per million (ppm) in a play area, or an average of 1,200 parts per million of bare soil in the rest of the yard based on soil samples (EPA 2020).

### ***Impacts on Affected Resource***

#### ***Alternative A and B***

The hunting and fishing programs are unlikely to impact geology and soils on the 74.5 acres proposed to be open to hunting and fishing. Disturbance to habitat is

minimal although some soil compaction and erosion can occur along access areas for hunting and fishing activities. These impacts are generally localized and have little overall negative impact. Access points are subject to erosion from boat and canoe launching and parking, but cumulative impacts are minimal and managed with regular maintenance. Impacts to soil are considered negligible from hunting and fishing activities on the 74.5 acres.

There would be virtually no effect to the geology of the refuge under either alternative from opening the refuge to hunting and fishing on the 74.5 acres or the change in lead regulations.

#### *Alternative A*

Under this alternative there would be continued introduction of lead into the soils and aquatic environments on refuge lands that could further increase concentrations of lead in refuge soils. The amount of lead introduced, both annually and cumulatively to date, is unlikely to be enough in any particular area to result in soil contamination that would reach soil lead hazard levels defined by the Environmental Protection Agency. Yet, negative impacts from lead ammunition in soils remain a possibility in the future because continued use of lead ammunition would continue to increase lead levels over time, however it is still likely negligible given the small amount of lead added annually from these activities.

#### *Alternative B*

Under this alternative no further introduction of lead into refuge soils would occur once the regulations take effect which would further reduce the potential effects of lead accumulation in the soil over the long-term. As lead concentrations are not estimated to reach levels of concerns for soil contamination under Alternative A, the phased in period of continued use of lead for the next four years is expected to have also have negligible impacts on soil.

### **Water Quality**

#### ***Description of Affected Resource, Environmental Trends and Planned Actions***

The Service maintains water quality in the interest of ecological health and impacts to water quality are considered for all hunting and fishing activities on Service lands and waters. Subject to determining it will not adversely impact water quality, the Service permits hunting near and fishing in the Service's waters, including with lead ammunition and tackle. This means lead ammunition and lead tackle may be present in refuge waters. Lead in ammunition and tackle in aqueous environments can dissolve into the surrounding water, under certain water quality conditions, by

weathering and abrasion (Eisler 1988; Rattner et al. 2008). The Service considers the amount of lead ammunition and tackle in Service waters to be minimal, and thus the amount of lead, to be negligible at this current time. Yet, lead may be present in some amount. Lead in water is widely recognized as adversely impacting water quality. At high enough concentrations, lead in water presents a serious ecological and human health threat (U.S. Department of Health and Human Services 2007; Rattner et. al. 2008).

Considering environmental trends in water quality, the most significant changes in the watershed that impact the Patoka River ecosystem are hydrologic alterations undertaken to control flooding and drainage for agriculture and mining activities. Cumulatively, these changes have disrupted natural flooding regimes, increased sedimentation in the bottomlands, increased channel downcutting and decreased bank stability impacting water quality (USFWS 2008b). To reduce potential impacts to water quality from boating that supports hunting and fishing programs the refuge does not permit the use of gasoline powered motorboats in most areas. In the refuge Water Resource Inventory and Assessment Summary Report Section 303d data from the State of Indiana were utilized to identify any impaired streams, rivers, or lakes on or in close proximity to Patoka River National Wildlife Refuge and Conservation Area. Table 5.6.1 lists the water bodies with known designated use(s) impaired along with the cause(s) of those impairment(s). Lead in refuge waters has not been indicated as a pollutant of concern in addressing impairments of waterbodies as of the date of that report (Stack and Hamilton 2018). For more information on the water quality of the refuge and table 5.6.1 see the Water Resource Inventory and Assessment Summary Report online at <https://ecos.fws.gov/ServCat/DownloadFile/156833>.

### ***Anticipated Impacts***

#### ***Alternative A and B***

It is estimated that opening the 74.5 acres to hunting and fishing will have virtually no effects to water quality beyond the potential lead impacts which are described below for each alternative.

#### ***Alternative A***

The No Action Alternative would allow for hunting and fishing activities to continue adding lead ammunition fragments and derelict tackle to refuge waters. The lead ammunition and tackle may then release lead into the surrounding water, decreasing water quality. Although future expansions to the hunting and fishing programs could also increase the amount of lead contamination of refuge waters, impacts to water quality are negligible given the small amount of lead added to

refuge waters from lead ammunition fragments and abandoned derelict fishing tackle.

### *Alternative B*

Under this alternative, no additional lead ammunition or tackle would be introduced to Service waters from future hunting and fishing activities beyond fall 2026, even if the Service's hunting and fishing programs are expanded. This would prevent lead contamination of refuge waters, even if the amount of lead contamination prevented is negligible. Thus, the proposed action would have a positive, if minor, benefit to water quality in refuge waters. Continued use of lead ammunition and tackle over the four-year phased in period will have negligible impacts as long-term impacts of this continued use in Alternative A is considered negligible.

## **Visitor Use and Experience**

### **Description of Affected Resource, Environmental Trends and Planned Actions**

The refuge is open to wildlife observation, photography, interpretation, education, and other public uses. From 2017-2021 the refuge had an average of 30,289 visitors per year. Over this five-year period, the refuge had an average of 9,258 hunting visitors, 5,099 fishing visitors and 15,810 wildlife observation visitors per year. This visitor usage was geographically spread across all 10,699 acres and throughout the entire year averaging out to 83 people using the refuge per day over (USFWS 2022).

In an effort to minimize conflicts with priority non-hunting recreational uses outlined in the Refuge Improvement Act and for public safety, the refuge designates areas open to hunting and enforces refuge-specific regulations. The boundaries of most lands owned or managed by the Service are posted with refuge boundary signs. Areas administratively closed to hunting are clearly marked with "No Hunting Zone" or "Area Beyond This Sign Closed" signs. Additional mitigation measures like creating safety zones around trails or closing areas also occurs.

### **Anticipated Impacts**

#### ***Alternative A and B***

All other public uses on the refuge would not change and would continue to be managed as described in current plans. Overall, hunting impacts of Alternative A and B to visitor services or other recreation opportunities are considered short-term, minor and local since other parts of the refuge are available for use by other wildlife-dependent recreational users. Conflicts between hunters and anglers and

non-hunters are anticipated to be similar to the impacts between other user groups (i.e., like that between hikers and photographers) and will be negligible. Under this alternative, current refuge hunting opportunities for specific small game, big game, furbearer and migratory bird species would expand on the 74.5 acres. The refuge would continue to serve as habitat for fish and wildlife as well as provide outdoor recreational opportunities for all six priority wildlife-dependent public uses, hunting, fishing, wildlife observation, photography, environmental education and interpretation. Opportunities to create additional outdoor recreation experiences by adding lands would be gained under both alternatives.

### **Alternative A**

Under the No Action Alternative, there would be no change to visitor uses and no change is expected to the experience of any visitors. Hunters and anglers would remain able to use lead ammunition and tackle so their satisfaction with participating in these activities will stay the same as it is today, although that exact level of satisfaction is unknown. As there will be no change to experience or visitation under this alternative, it is determined that there are no effects to visitor experience and use.

As lead ammunition and tackle will continued to be used there will be continued adverse risks to hunters and anglers' health by consuming harvested game or using lead tackle. Other users will likely not face risks associated with exposure to lead from lead ammunition or tackle discarded on the refuge as the additional lead added is expected to stay under contaminated soil levels that would adversely impact human health. If continued, this could potentially negatively impact visitor health, although this impact is likely negligible.

### **Alternative B**

Under this alternative it is estimated that there would be no substantial change to visitor uses from hunting and fishing and no change is expected to the experience of non-hunting and fishing refuge visitors from the phased in non-lead requirement. Hunters and anglers would be required to use non-lead ammunition and tackle, the activity of hunting and fishing would not change, except hunters and anglers may have a harder time finding equipment that meets this new requirement potentially reducing their quality of experience if they are not able to partake in the activity. It should be noted that over the last few years availability of any ammunition or tackle has been in short supply, impacting hunter and angler satisfaction in general around the sport. It is expected that requiring lead ammunition and tackle would result in similar satisfaction levels of hunter and anglers based on current market availability of these resources being comparable to other ammunition and tackle choices. However, quality of experience may increase

over time as these resources become more available as demand for non-lead ammunition and tackle increases. To prevent the loss of hunters and anglers from being able to participate in these activities the phased in approach is proposed to allow hunters and anglers time to replace fishing tackle and find suitable ammunition alternatives. Hunters can purchase non-lead ammunition in most gun stores and sporting goods retailers. If the bullet size, caliber or gauge is unavailable, most retail stores will special order ammunition or it can be ordered through the mail or online. There are many companies that sell lead-free tackle that can be ordered directly through mail or online if not available in local bait shops. If anglers and hunters are not able to find non-lead alternatives there may be a slight decrease in these activities for a short time period after regulations take effect. However, non-lead ammunition and tackle is becoming more widely available for anglers and hunters to purchase so it is likely hunting and fishing visits will not appreciably decline as a result of this regulation change. The refuge will provide a list of companies that sell lead-free ammunition and tackle and may also offer tackle and ammunition exchanges as part of the phased in approach to help mitigate the impact. The phased in approach also allows anglers and hunters to acclimate and prepare for participating in hunting and fishing activities in compliance with the new regulations.

This action could produce positive human health benefits for all visitors to the refuge. Hunters and anglers who currently do not use non-lead ammunition and tackle and consume their harvests will no longer face the demonstrated risks of lead exposure from doing so. Other visitors will not face a risk of exposure to lead ammunition or tackle discarded on refuge land and waters in the future, although this human health risk is much more remote. Thus, the proposed action will have a potentially positive effect, if any effect, on visitor's health.

## **Cultural Resources**

### **Description of Affected Resource, Environmental Trends and Planned Actions**

The Service is charged with the responsibility, under Section 106 of the National Historic Preservation Act of 1966, of identifying historic properties (cultural resources that are potentially eligible for listing on the National Register of Historic Places) that may be affected by our actions. The regional historic preservation officer advises the regional director about procedures, compliance and implementation of these and other cultural resource laws. The actual determinations relating to cultural resources are to be made by the regional historic preservation officer for undertakings on Service fee title lands and for undertakings funded in whole or in part under the direct or indirect jurisdiction of

the Service. Undertakings include those carried out by or on behalf of the Service, those carried out with federal financial assistance, and those requiring a federal permit, license or approval.

It is the responsibility of the refuge manager to identify undertakings that could affect cultural resources and coordinate the subsequent review process as early as possible with the regional historic preservation officer and state, Tribal, and local officials. Also, the refuge manager assists the regional historic preservation officer by protecting archeological sites and historic properties on Service managed and administered lands, by monitoring archaeological investigations by contractors and permittees, and by reporting Archaeological Resources Protection Act violations.

The analysis below meets compliance requirements for the following laws and regulations:

- American Indian Religious Freedom Act, as amended, 42 U.S.C. 1996 – 1996a; 43 CFR Part 7
- Antiquities Act of 1906, 16 U.S.C. 431-433; 43 CFR Part 3
- Archaeological Resources Protection Act of 1979, 16 U.S.C. 470aa – 470mm; 18 CFR Part 1312; 32 CFR Part 229; 36 CFR Part 296; 43 CFR Part 7
- National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470-470x-6; 36 CFR Parts 60, 63, 78, 79, 800, 801, and 810
- Paleontological Resources Protection Act, 16 U.S.C. 470aaa – 470aaa-11
- Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001-3013; 43 CFR Part 10
- Executive Order 11593 – Protection and Enhancement of the Cultural Environment, 36 Fed. Reg. 8921 (1971)
- Executive Order 13007 – Indian Sacred Sites, 61 Fed. Reg. 26771 (1996).

### **Anticipated Impacts**

#### ***Alternative A and B***

The action to open and expand hunting to 74.5 acres and lead regulation determinations associated with these alternatives will not have any impacts to cultural resources. No buildings or structures exist on-site that are listed on the National Register of Historic Places. Hunting and fishing activities are not expected to cause ground disturbance. Any activity that might cause an effect to a historic property would be subject to a case-by-case Section 106 review.

## **Refuge Management and Operations**

### **Land Use**

#### ***Description of Affected Resource, Environmental Trends and Planned Actions***

The refuge provides valuable habitat for migratory birds as well as numerous species of resident mammals, birds, reptiles, amphibians, and fish. Surrounding lands inside and outside of the refuge authorized acquisition boundary are utilized for timber, energy production and agriculture.

#### ***Anticipated Impacts***

##### ***Alternative A and B***

The refuge will continue to engage in habitat management activities during the hunting season to ensure the refuge meets its other management objectives (see 2017 Habitat Management Plan). Impacts would be minimized by ensuring hunters, cooperators, and partners are aware of each other's activities and timed to minimize conflict when possible. No impacts are anticipated under Alternative A or B to habitat, buildings, infrastructure, traffic or roadways with no substantial increased cost or impacts to infrastructure or industry.

### **Administration**

#### ***Description of Affected Resource, Environmental Trends and Planned Actions***

The hunting and fishing programs are designed to be administered with minimal refuge resources. The costs of administering and enforcing the refuge hunting and fishing programs comes out of the refuge's annual budget. Expenses include program management, staff resources, boundary posting, signage, brochures, parking lot construction, facility maintenance, gate installation and other hunting and fishing specific activities.

The Service has many management and operation tasks involved in the hunting and fishing programs, including some management and operations efforts based around allowing the use of lead ammunition and tackle. The Service provides education to hunters and anglers about the use of lead ammunition and tackle and recommending the use of non-lead options. The Service also employs other mitigation measures for the hunting and fishing programs, including creating buffer zones between hunting and fishing activities and certain species and habitats. The use of lead ammunition and tackle also creates additional internal planning work for the Service, as personnel must evaluate each hunting and fishing opportunity to

ensure it will not create significant adverse impacts from the use of lead ammunition or tackle. Law enforcement of refuge and state hunting regulations, trespass and other violations associated with management of the refuge is the responsibility of a refuge law enforcement officer. Refuge officers cooperate with, and are assisted by, state and county officers as well as state conservation officers. Ongoing coordination and communication between refuge staff and law enforcement officers is conducted throughout the year. These are all built into current station budgets. The Service has determined that the proposed action is compatible with the purposes of Patoka River National Wildlife Refuge and Management Area and the mission of the National Wildlife Refuge System. See Patoka River National Wildlife Refuge and Management Area Migratory Game Bird, Upland Game, and Big Game Hunt and Sport Fish Plan for the Compatibility Determination (Appendix A, Attachment 2).

### ***Anticipated Impacts***

#### ***Alternative A***

No additional increase in costs for administration, law enforcement, biological monitoring and research or annual maintenance is anticipated for Alternative A beyond posting signage for new acres added to the hunting and fishing program.

#### ***Alternative B***

In addition to the minor cost to post signs for new acres added to the hunting and fishing program noted in Alternative A, implementation of the new non-lead ammunition and tackle requirement will require additional management and operation costs, especially up-front costs. The Service will update signage, brochures, and other informational materials at all refuge units to reflect the non-lead ammunition and tackle requirements. The Service's law enforcement personnel will also need additional training on the new requirement. These costs can be managed with current personnel and budgets with assistance from regional resources. Importantly, the Service updates informational materials regularly and law enforcement personnel are already acquainted with enforcing non-lead ammunition and tackle requirements due to other stations' regulations and the prohibition of lead shot for migratory bird hunting and upland game hunting.

The new requirement will also carry management benefits. The elimination of the need for hunter and angler education and other mitigation measures around the use of lead will allow for the redeployment of funds and personnel to other management activities. Also, Service conservation planning staff will no longer need to evaluate each individual hunting and fishing opportunity for its potential adverse impacts stemming from the use of lead. This represents a significant amount of

personnel time that can be redeployed to other conservation planning work. Importantly, as noted under the no action alternative, these costs that the proposed action alternative eliminates could otherwise increase in future years, so eliminating these costs could represent even more substantial savings in funds and staff time in future years.

## **Socioeconomics**

### **Local and Regional Economies and Environmental Justice**

#### ***Description of Affected Resource, Environmental Trends and Planned Actions***

There are distinct differences between Gibson and Pike counties in terms of economic activities. Pike County is largely dependent for jobs on coal mining and public utilities, while most jobs in Gibson County are dependent on manufacturing and public utilities. Access to nearby coalfields account for the above-average importance of public utilities. Although 45 percent of Pike County and 79 percent of Gibson County is in farmland, farmers and those employed in agriculture make only 2 percent and 1.6 percent respectively of the total employed in those two counties. Fewer, but larger, farms relying on increased mechanization is a continuing trend (USFWS 2008b; Deloitte 2022).

The 2017 report, “Banking on Nature: The Economic Contributions of National Wildlife Refuge Recreational Visitation to Local Communities” identified average daily expenditures for different recreational visits to refuges nationwide. The expenditures included food, drinks, lodging, transportation, equipment and other expenses. Based on the findings of this report, in 2017, 7.5 million recreational visits to refuges in the Midwest Region generated almost 457 million dollars to regional economies. This in turn led to the employment of over 5,800 people and an estimated 152 million dollars in generated employment income. Patoka River National Wildlife Refuge and Management Area had 35,894 visitors in 2017, generating \$623,000 to the local economy. This in turn led to the employment of 8 people and an estimated \$243,000 in employment income (Caudill and Carver 2019). This area is an attraction for hunters and outdoor enthusiasts. Hunting and fishing opportunities provide benefits to the local economy through the sales of food, gas, supplies and lodging.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires all Federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and

communities. As of 2019, the population within Pike and Gibson County predominately identified as white alone (Pike 96.8%, Gibson 94.7%). Black and African American alone is the next highest race and ethnicity that individuals identify as with 2.2% of the population in Gibson County and 0.9% of the population in Pike County. This is followed closely by individuals that identify as Hispanic or Latino of any race with 1.7% of the population in Gibson County and 0.9% of the population in Pike County. The remainder of the population identifies as Asian (Gibson 0.4%, Pike 0.9%), some other race (Gibson 0.4%, Pike 0.5%) or two or more races (Gibson 2.2%, Pike 1%). Families in poverty was reported as 6.0% in Gibson County and 7.2% in Pike County. In comparison, the United States average is 9.5% of families that report being in poverty. Data for poverty by race and ethnicity has low reliability in the report, but most families that reported being in poverty identified as being two or more races or Black or African American alone. Combined county data is most reliable for these facts, which reports 15.8% of those identifying as Black and 29.3% of those identifying as two of more races fall below the income levels that are defined as the poverty level (Headwater Economics 2022).

### ***Anticipated Impacts***

#### ***Alternative A and B***

The Service has not identified any potential high and adverse environmental or human health impacts from this proposed action. Minority or low-income communities will not be disproportionately affected by any impacts from this proposed action. Impacts to the local economy and regional economy are likely to have a negligible impact from the increase of visitation from opening the 74.5 acres. Impacts of lead regulations under each alternative is evaluated separately below.

#### ***Alternative A***

There is a possibility of human health impacts from the current hunting and fishing program allowing and continuing to allow the use of certain types of lead ammunition for the harvest of certain species and lead tackle. However, minority and/or low-income communities are not disproportionately at risk or impacted. The Service has found these impacts negligible for all opportunities in the current hunting and fishing programs, but there is strong scientific evidence of impacts to human health from consuming animals hunted with lead ammunition or using lead tackle for fishing.

#### ***Alternative B***

The Proposed Action Alternative would have a positive, but negligible, effect on human health. It would eliminate the risk of human health impacts that would

follow if the Service continued to allow the use of certain lead ammunition for certain species and lead tackle on current and future Service lands and waters within the authorized boundary of the refuge. The Service has found these impacts negligible for all opportunities in the current hunting and fishing programs, which makes the benefit negligible, but there is strong scientific evidence of impacts to human health from consuming animals hunted with lead ammunition or tackle used for fishing such as higher blood lead levels (Frank et al. 2019; Fisher et al. 2006; Tsuji et al. 2008; Iqbal et al. 2009; Grade et al. 2019, Sahmel et al. 2015).

There is, however, some possibility of negative economic impacts for socioeconomically disadvantaged hunters and anglers who must comply with the requirements. While non-lead ammunition has become essentially equivalent in price to lead ammunition, certain types of non-lead ammunition can cost more than certain types of lead ammunition. However, the price of non-lead ammunition is the same or less than that of premium lead ammunition. For some calibers and gauges even the difference between cheaper lead ammunition and non-lead ammunition can be less than \$10 per box (State of California 2022). There are non-lead alternatives to leaded tackle; however, in 2006, it was estimated that an angler's annual increase in cost from transitioning to lead-free tackle would be between \$5.00 to \$25.00 (MOEA 2006; Rattner et al. 2008). Today, the cost of lead tackle is still much less than the lead-free alternatives potentially making the transition more difficult for low-income anglers (Marohn 2020). The minor economic burden involved in transitioning between ammunition and/or tackle types could be more impactful to low-income hunters and anglers. In order to prevent the negative impacts of this switch, the refuge has begun and will continue specific outreach about the requirement to these groups and has put in place measures to mitigate the economic input beyond the phased implementation, which already affords hunters and anglers time to gradually transition their supplies of ammunition and tackle. In order to mitigate economic impacts to hunters and anglers who previously used lead ammunition or tackle, in addition to implementing the requirement in phases, the Service will continue educating hunters and anglers on the use of non-lead ammunition and tackle during the phased in time period, provide resources on companies that produce non-lead ammunition and tackle for purchase and work with partner organizations on non-lead ammunition and tackle giveaways or exchanges if possible. With these mitigation measures, minority and/or low-income communities are not disproportionately impacted from this alternative.

## Monitoring

The refuge manager may establish specific regulations for individual species or portions of the refuge depending on conflicts with other wildlife dependent recreation priorities. Permanent or periodic hunting and fishing closures for specific species or closures of portions of the refuge may be necessary if the refuge manager determines that there is specific habitat, wildlife protection and/or public safety requirements. The need to implement mitigation measures will be evaluated annually; at this time there is no perceived conflict and need for mitigation measures. All hunting would be conducted in accordance with all applicable state, refuge and federal regulations. Coordination with the public and refuge stakeholders including the Indiana Department of Natural Resources will promote continuity and understanding of refuge and Service resource goals and objectives and will help assure that the decision-making process takes into account all interests. Continued annual biological monitoring of both resident and migratory wildlife and their habitats is done on the refuge in conjunction with our state partners provided adequate staff are available. In addition, the station will stay apprised on the status of threatened and endangered species on the refuge through consultation and local monitoring.

## Summary of Analysis

An objective of this environmental assessment is to briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

### **Expansion of hunting and fishing to the 74.5 acres considered under both alternatives excluding impacts of lead**

The impacts of hunting and fishing activities to wildlife and aquatic species, threatened and endangered species and habitat are expected to be negligible based on the minimal chance of overlap with the potential hunting and fishing activities and temporary nature of these activities (which occur predominantly in off peak seasons for vegetation growth and most wildlife use). There would be take of individual wildlife and fish species from hunting and fishing activities, but it was determined not to negatively impact populations of these species on the refuge. It was determined there would be no effects to water quality, geology and cultural resources. Refuge management and operations would face a slight increase in cost to sign the new acres however this additional cost can be addressed with the existing refuge budget. There is likely negligible impact to socioeconomics of the area from an increase of hunting and fishing access as the increase in use is minor at an estimated 17 additional days of use for both fishing and hunting on these

acres. Visitor use and experience will increase slightly as a result of opening the land to hunting and fishing. Overall, the action to open the 74.5 acres to hunting and fishing will likely not cause any significant short, long-term, or cumulative positive or negative impacts to the human environment.

### **Alternative A – Current Hunting and Fishing Program with continued use of lead tackle and ammunition – [No Action Alternative]**

As described above in the alternatives section, this alternative will continue to expand hunting opportunities for migratory game birds, upland game and big game under the 2020 Hunt Plan and 2017 Fishing Plan which allows the continued use of lead ammunition and tackle. As described in the Affected Environment and Environmental Consequences section, this proposed action is not likely to adversely affect endangered or threatened species or their critical habitat. Overall, the effects on other wildlife and habitat would be negligible, but there may be some slight negative effects because lead could be present and bioavailable for wildlife and aquatic species to consume, which would continue to occur under this alternative, even if that lead entering the environment from hunting and fishing activities is estimated to be small. The refuge would still be able to manage for species of concern and meet the refuge purpose to manage for migratory birds. Water quality and soil impacts are likely negligible from continued use of lead ammunition and tackle as the addition of lead from these activities are small and will not reach levels of contaminating these resources as levels that may affect human and wildlife health. There will be no impacts to special designations of the refuge. There would be no effect to cultural resources and impacts to the socioeconomics of the area are negligible.

This alternative helps meet the purpose and needs of the Service as described above, because it provides additional wildlife-dependent recreation opportunities on the refuge meeting the Service's priorities and mandates. However, it continues to pose a threat to human health and the environment by continuing to allow the use of lead ammunition and tackle. There would be no new authorizations under this alternative, but the nature of discarded lead means that continuing to allow the use of lead ammunition and tackle on Service lands and waters would mean adding newly deposited lead to the current amount of lead in the environment on Service lands and waters. This would mean the risk of adverse impacts from lead available in the environment would continue and even increase for natural resources and for human health under the No Action Alternative, as described throughout this document.

## **Alternative B – Phase in the required use of lead-free ammunition and tackle for all hunting and fishing activities by the 2026–2027 hunting season – [Preferred Action Alternative]**

As described above, this alternative is the Service's preferred action because it offers the best opportunity for public hunting and fishing that would reduce the potential impacts on physical and biological resources from lead entering the environment, while meeting the Service's mandates under the Refuge System Administration Act. This proposed action is not likely to adversely affect endangered or threatened species. Effects on other wildlife and habitat would be negligible and could be slightly positive as no additional lead would enter the environment. The refuge would still be able to manage for species of concern and meet the refuge purpose to manage for migratory birds. There will be no impacts to special designations of the refuge. Impacts to the socioeconomics of the area and cultural resources are negligible. Economic impacts to hunters and anglers due to required use of non-lead ammunition and tackle will be mitigated by a phased in approach and outreach programs. The best available science indicates that that lead ammunition and tackle may have negative impacts on both wildlife and human health. Therefore, the Service concludes that hunting and fishing on Patoka National Wildlife Refuge and Management Area lands and waters should be done without lead ammunition or tackle in order to be sustainable, especially if access is further expanded in the long term. The proposed requirement is also critical for the Service to best serve its conservation mission.

## **List of Sources, Agencies and Persons Consulted**

Indiana Department of Natural Resources

U.S. Fish and Wildlife Service Personnel:

- Angela Matz - Fish and Wildlife Biologist/Environmental Contaminants Specialist, Alaska Region
- Cathy Nigg - Refuge Area Supervisor, Midwest Region
- Carl Millegan - Refuges Deputy Assistant Refuge, Midwest Region
- Christian Myers - Policy Advisor, Headquarters National Wildlife Refuge System
- Cindy Hall - National Coordinator, Integrated Pest Management Program
- Jeanne Holler - Branch of Conservation Planning Lead, Midwest Region
- Kate Harrigan - Senior Policy Advisor, Headquarters National Wildlife Refuge System
- Kimberly Dickerson - Ecological Services Biologist, Wyoming Field Office

- Nancy Golden – Fish and Wildlife Biologist, Headquarters Ecological Services
- Suzanne Baird – Refuges Assistant Regional Director, Midwest Region

## **State Coordination**

National wildlife refuges, including Patoka River National Wildlife Refuge and Management Area, conduct hunting programs within the framework of state and federal regulations. All authorized hunts are regulated by the State of Indiana, but the refuge may elect to be more restrictive to support refuge management goals. Formal correspondence with the Indiana Department of Natural Resources, letting them know the preferred alternative for this assessment and that a draft of this environmental assessment and associated plan was made available to them when the public comment period opened on June 9, 2022. The state was provided the opportunity to provide comment about this alternative prior to the public review period through a letter sent on April 19, 2022, but a formal response was not received. The refuge moved forward with developing this Environmental Assessment and Hunt Plan based upon earlier formal coordination with the Indiana Department of Natural Resources, as well as informal discussions.

The results of this coordination are reflected in this Environmental Assessment and 2022 Hunt and Fish Plan. Patoka River National Wildlife Refuge and Management Area will continue to consult and coordinate with the Indiana Department of Natural Resources annually to maintain regulations and programs that are consistent with the State; as well as, to monitor populations of game species and set harvest goals. The refuge will strive to maintain consistent regulations with the Indiana Department of Natural Resources whenever applicable.

## **Tribal Consultation**

Formal tribal consultation was not required during this process as there are no federally recognized tribes active in Indiana near the refuge to consult with. Tribes and tribal members are welcome to provide comment during the public comment period.

## **Public Outreach**

Public input was sought regarding hunting opportunities on the refuge as a recreational opportunity many times since the establishment of the refuge; as part of public outreach and open comment period during the planning stages for previous hunt and fish plans and the 2008 Comprehensive Conservation Plan.

A draft of this environmental assessment, draft hunt and fish compatibility determinations and draft 2022 Hunt and Sport Fish Plan were available for public

review and comment during the federal register public comment period for the 2022-2023 proposed refuge hunting and fishing rule. The public comment period opened June 9, 2022 and lasted for 60 days, ending August 30, 2022. The public was made aware of this comment opportunity through the federal register (Docket No. FWS-HQ-NWRS-2022-0055), newspapers and on the refuge website. A local news release was made available to newspapers in Gibson and Pike Counties. A hard copy of this document was available at the Patoka River National Wildlife Refuge and Management Area office at 510 1/2 W. Morton St. Oakland City, IN 47660 and the document was made available online on the refuge's website at <https://www.fws.gov/refuge/patoka-river-and-management-area>. Alternative accessible formats were available upon request. Public comments were solicited through the federal register. Comments were submitted through the federal register review process. The Service's full responses to comments received through the Federal Register rulemaking process will be published in the final rule in the Federal Register.

See Appendix D for an analysis of the public comments received specific to the refuge and our response to comment. No changes to this document were made as a result of comments received

## **List of Preparers**

- Kristin Rasmussen – Conservation Planner
- Richard Speer – Refuge Manager
- Heath Hamilton – Wildlife Refuge Specialist

## Determination

☒ The Service's action will not result in a significant impact on the quality of the human environment. See the attached "**Finding of No Significant Impact**".

☐ The Service's action **may significantly affect** the quality of the human environment and the Service will prepare an Environmental Impact Statement.

## Signatures

Submitted By:

RICHARD SPEER Digitally signed by RICHARD  
SPEER  
Date: 2022.09.08 06:36:11  
-05'00'

Project Leader/Date

Concurrence:

CATHERINE NIGG Digitally signed by CATHERINE  
NIGG  
Date: 2022.09.08 07:15:59 -05'00'

Refuge Supervisor/Date

Approved:

CARL MILLEGAN Digitally signed by CARL  
MILLEGAN  
Date: 2022.09.08 07:21:42 -05'00'

Acting Regional Chief, National Wildlife Refuge System/Date

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## **Appendix A**

### **Patoka River National Wildlife Refuge and Management Area Upland Game, Migratory Game Bird, and Big Game Hunt and Sport Fish Plan**

See separate attached document, which includes hunt unit maps and compatibility determination in attachments.

## **Appendix B**

### **Intra-Service Section 7 Biological Evaluation Form**

See separate attached document

## **Appendix C**

### **Letters of Correspondence with State**

See separate attached document

## **Appendix D**

### **Public Comment Analysis and Response to Comment**

On June 9, 2022 the Service released the draft Environmental Assessment, draft Compatibility Determinations and draft Hunt and Fish Plan for public review via a national notice in the Federal Register (Federal Register docket number: FWS-HQ-NWRS-2022-0055). In addition to the notification in the Federal Register, members of the public were notified of the availability of the draft documents through a press release sent to Indiana news entities and posting this information on the refuge's website. The public was encouraged to submit their comments regarding the draft documents via email, phone, or by mail on or before August 8, 2022.

#### **Nature of Comments Received**

Seven total comments specific to the refuge were received by the Federal Register during public comment period. Six comments expressed support of the proposed action outlined in this Environmental Assessment and the elimination of lead ammunition and tackle throughout the National Wildlife Refuge System. One of these commenters proposed a shorter (18 month) timeframe for the phase out of lead ammunition and tackle.

A seventh comment was received that expressed support for opening and expanding hunting opportunities on refuges and named Patoka in the subject along with all the others included in the national proposed rule, while expressing opposition generally to non-lead ammunition requirements.

#### **Response to Comments Received**

The Service's responses to comments received through the Federal Register rulemaking process will be published in totality the final rule in the Federal Register. No changes were made to this Environmental Assessment or the 2022 Migratory Game Bird, Upland Game and Big Game Hunt and Sport Fishing Plan as a result of these comments.



# **Finding of No Significant Impact and Decision to Open New Hunting and Fishing Opportunities on Recently Acquired Lands and Require Non-Lead Ammunition and Tackle on All Refuge Lands for the 2026-2027 Seasons per 2022 Hunt-Fish Plan**

Patoka National Wildlife Refuge and Management Area  
Pike and Gibson Counties, Indiana

The Service is adopting the 2022 Patoka River National Wildlife Refuge and Management Area Migratory Game Bird, Upland Game and Big Game Hunt and Sport Fish Plan (plan) and opening approximately 75 acres of recently acquired land to current hunting and fishing opportunities. The plan requires non-lead ammunition and tackle on all acquired refuge lands open to hunting and fishing starting with the 2026-2027 hunting and fishing seasons. Voluntary phase-in prior to this time is encouraged.

## **Selected Action**

### **Alternative B—Preferred Action Alternative:**

Under the preferred action alternative the refuge would require the use of non-lead ammunition and tackle by the 2026-2027 hunting and fishing season for all species open to hunting and fishing on the refuge. This alternative also opens 74.5 acres recently acquired by the refuge to the hunting and fishing opportunities currently offered on Patoka National Wildlife Refuge and Management Area (refuge). Hunting and fishing on these acres would continue to allow the use of lead ammunition and tackle until the refuge-wide non-lead ammunition and tackle requirement takes effect in the 2026-2027 hunting and fishing season. Until the 2026-2027 season, the refuge will continue to manage the hunting program in compliance with the 2020 Hunt Plan and the fishing program in compliance with the 2017 Fishing Plan as a phased in approach to implementing the regulation change. As land is added during the interim period between publishing the final 2022-2023 Hunt-Fish Rule and implementing the lead-free regulations in 2026-2027, the new land will be opened consistent to the current regulations which do not require non-lead single projectile hunting methods or non-lead tackle until the phased in approach is complete. Additional lands will be evaluated annually for NEPA and ESA compliance prior to opening land for hunting or fishing activities and will be subject to the same timeline for phase out of lead tackle and ammunition use. After the 2026-2027 hunting and fishing regulation change takes effect, any land acquired and opened to that date and all future land opened to hunting and fishing activities will be subject to the non-lead requirement.

This alternative was selected over the other alternatives because it comprehensively addresses concerns about the adverse impacts on wildlife, human and ecological health from the bioavailability of lead on Service lands and waters from the use of lead ammunition and tackle for hunting and fishing on the refuge. This alternative also would increase safety for trail users through addition of the administrative regulation change to develop safety zones around designated trails. In addition, this alternative would allow the refuge to manage wildlife populations, allow the public to harvest a renewable resource, promote a wildlife-oriented recreational opportunity, increase awareness of the refuge and meet public demand. The preferred alternative is compatible with the general Service policy regarding the establishment of hunting and fishing on National Wildlife Refuges and is consistent with the purpose for which Patoka National Wildlife Refuge and Management Area was established.

## **Other Alternatives Considered and Analyzed**

### **Alternative A—No Action Alternative**

The no action alternative would be to expand hunting on the 74.5 acres newly acquired in 2021. It would also continue to provide the current refuge hunting and fishing opportunities that allow the use of lead ammunition and fishing tackle on the refuge on lands currently open and yet to be acquired. No change in ammunition or fishing tackle regulations are proposed. Some hunters and anglers will continue to make the personal choice to switch to non-lead ammunition and tackle while hunting and fishing and this trend is expected to continue among portions of the hunting and fishing communities.

Hunting activities would be conducted as described in the 2020 Migratory Game Bird, Upland Game and Big Game Hunt Plan. Hunting for all game species is open on all refuge land except for 463 acres within the Cane Ridge Wildlife Management Area, which is closed to all public access in order to provide a disturbance free sanctuary for migrating waterfowl, and the 62-acre Maxey Marsh area, which is closed to limit conflict with other refuge trail users. The Columbia Mine Special Regulations area has different regulations than the main refuge unit. Fishing activities would be conducted as described in the 2017 Fishing Plan. Fishing is open on 10,455 easement, fee-title and FSA managed refuge acres. Fishing is not allowed at the 463 acres within the Cane Ridge Wildlife Management Area but is open on the Maxey Marsh area and special regulations on size limits of certain species applies on the Columbia Mine Special Regulations area.

This alternative was not selected, because it would not comprehensively address concerns about adverse impacts to wildlife, human and ecological health from the bioavailability of lead on Service lands and waters. It also would not or increase safety for trail users through addition of the administrative regulation change to develop safety zones around designated trails.

## **Summary of Effects of the Selected Action**

An Environmental Assessment, further referred to as EA, was prepared in compliance with the National Environmental Policy Act, further referred to as NEPA, to provide decision-making framework that 1) explored a reasonable range of alternatives to meet project objectives, 2) evaluated potential issues and impacts to the refuge, resources and values, and 3) identified mitigation measures to lessen the degree or extent of these impacts. The EA analyzed the potentially affected environment and evaluated the degree of the effects associated with two alternatives.

Implementation of the agency's decision would be expected to result in the following environmental, social, and economic effects:

- The potential for adverse impacts to human health due to the inadvertent consumption of lead from use of lead tackle or the individual animals that are successfully harvested with lead ammunition would still exist during the next four years, however it will likely be reduced as some hunters make the personal choice to use non-lead ammunition and anglers use non-lead tackle. As non-lead requirements for ammunition and tackle take full effect in 2026-2027, health impacts to sport fish and huntable wildlife species from discarded lead in the environment and the potential for adverse human health impacts decreases substantially and becomes negligible.
- No further introduction of lead into the soils on refuge lands that could be taken up by plants would occur after the non-lead requirement takes effect in the 2026-2027 hunt and fish season. The proposed action would prevent future lead levels in the soil from becoming high enough to potentially negatively impact plants or habitat reducing that future risk of impact or cumulative impacts even more.
- No additional lead ammunition or tackle would be introduced to Service waters from future hunting and fishing activities beyond fall 2026, even if the Service's hunting and fishing programs are expanded. This would prevent lead contamination of refuge waters, even if the amount of lead contamination prevented is negligible. Thus, the proposed action would have a positive, if minor, benefit to water quality in refuge waters.
- No substantial change to visitor uses from hunting and fishing and no change is expected to the experience of non-hunting and fishing refuge visitors from the phased in non-lead requirement.
- Hunters and anglers may have a harder time finding equipment that meets this new non-lead requirement potentially reducing their quality of experience if they are not able to partake in the activity. However, quality of experience may increase over time as these resources become more available as demand for non-lead ammunition and tackle increases.
- A positive, but negligible, effect on human health. It would eliminate the risk of human health impacts from continued use of lead ammunition and tackle currently allowed. The Service has found these impacts negligible for all opportunities in the current hunting and fishing programs, which makes the benefit negligible, but there

is strong scientific evidence of impacts to human health from consuming animals hunted with lead ammunition or tackle used for fishing such as higher blood lead levels.

- Some possibility of negative economic impacts for socioeconomically disadvantaged hunters and anglers who must comply with the requirement for non-lead ammunition and tackle due to cost and availability. Certain types of non-lead ammunition can cost more than certain types of lead ammunition. However, the price of non-lead ammunition is the same or less than that of premium lead ammunition. The cost of lead tackle is still much less than the lead-free alternatives, potentially making the transition more difficult for low-income anglers. In order to prevent the negative impacts of this switch, the refuge has begun and will continue specific outreach about the requirement to these groups and has put in place measures to mitigate the economic input beyond the phased implementation, which already affords hunters and anglers time to gradually transition their supplies of ammunition and tackle. These measures include continued education of hunters and anglers on the use of non-lead ammunition and tackle during the phased in time period, providing resources on companies that produce non-lead ammunition and tackle for purchase and working with partner organizations on non-lead ammunition and tackle giveaways or exchanges if possible. With these mitigation measures, minority and/or low-income communities are not disproportionately impacted from this alternative.

In summary, this alternative is the Service's preferred action because it offers the best opportunity for public hunting and fishing that would reduce the potential impacts on physical and biological resources from lead entering the environment, while meeting the Service's mandates under the Refuge System Administration Act. This proposed action is not likely to adversely affect endangered or threatened species. Effects on other wildlife and habitat would be negligible and could be slightly positive as no additional lead would enter the environment. The refuge would still be able to manage for species of concern and meet the refuge purpose to manage for migratory birds. There will be no impacts to special designations of the refuge. Impacts to the socioeconomics of the area and cultural resources are negligible. Economic impacts to hunters and anglers due to required use of non-lead ammunition and tackle will be mitigated by a phased in approach and outreach programs. The best available science indicates that that lead ammunition and tackle may have negative impacts on both wildlife and human health. Therefore, the Service concludes that hunting and fishing on Patoka National Wildlife Refuge and Management Area lands and waters should be done without lead ammunition or tackle in order to be sustainable, especially if access is further expanded in the long term. The proposed requirement is also critical for the Service to best serve its conservation mission.

## **Public Review**

The proposal was thoroughly coordinated with all interested and/or affected parties. A formal letter dated April 19, 2022 was sent to the State of Indiana requesting review of the formal documents. No comments were received in response. The refuge moved forward with developing this Environmental Assessment and Hunt Plan based upon earlier formal coordination with the Indiana Department of Natural Resources, as well as informal discussions. The refuge will continue to coordinate with Indiana Department of Natural Resources to address annual implementation of hunting activities and ensure safe and enjoyable hunting opportunities.

A draft of this environmental assessment, draft compatibility determinations for hunting and fishing and draft 2022 Hunt and Sport Fish Plan were available for public review and comment during the federal register public comment period for the 2022-2023 proposed refuge hunting and fishing rule. The public comment period opened June 9, 2022 and lasted for 60 days, ending August 30, 2022. The public was made aware of this comment opportunity through the federal register (Docket No. FWS-HQ-NWRS-2022-0055), newspapers and on the refuge website. A local news release was made available to newspapers in Gibson and Pike Counties. A hard copy of this document was available at the Patoka River National Wildlife Refuge and Management Area office at 510 1/2 W. Morton St. Oakland City, IN 47660 and the document was made available online on the refuge's website at <https://www.fws.gov/refuge/patoka-river-and-management-area>. Alternative accessible formats were available upon request. Public comments were solicited through the federal register. Comments were submitted through the federal register review process.

Seven total comments specific to the refuge were received by the Federal Register during public comment period. Six comments expressed support of the proposed action outlined in this Environmental Assessment and the elimination of lead ammunition and tackle throughout the National Wildlife Refuge System. One of these commenters proposed a shorter (18 month) timeframe for the phase out of lead ammunition and tackle. A seventh comment was received that expressed support for opening and expanding hunting opportunities on refuges and named Patoka in the subject along with all the others included in the national proposed rule, while expressing opposition generally to non-lead ammunition requirements.

The Service's responses to comments received through the Federal Register rulemaking process will be published in totality the final rule in the Federal Register. No changes were made to this Environmental Assessment or the 2022 Migratory Game Bird, Upland Game and Big Game Hunt and Sport Fishing Plan based on the comments received.

## **Finding of No Significant Impact**

Based upon a review and evaluation of the information contained in the Environmental Assessment as well as other documents and actions of record affiliated with this proposal, the Service has determined that the proposal to implement the 2022 Patoka River National Wildlife Refuge and Management Area Migratory Game Bird, Upland Game and Big Game Hunt and Sport Fish Plan (plan) and open 74.5 new acres to hunting and fishing does not constitute a major Federal action significantly affecting the quality of the human environment under the meaning of section 102 (2) (c) of the National Environmental Policy Act of 1969 (as amended). As such, an environmental impact statement is not required.

## **Decision**

The Service has decided implement the plan which requires non-lead ammunition and tackle on all acquired refuge lands open to hunting and fishing starting with the 2026-2027 hunting and fishing seasons. Further the Service has decided to open 74.5 acres of recently acquired land to current hunting and fishing opportunities for the 2022-2023 seasons. This action is compatible with the purposed of the refuge and the mission of the National Wildlife Refuge System. See attached Compatibility Determination found in Appendix B of the EA. The action is consistent with applicable laws and policies regarding the establishment of hunting on National Wildlife Refuges. Refuge-specific regulations promulgated in conjunction with this action are in the process of being finalized. This action will not be implemented until the date of public inspection by the Federal Register and regulations are finalized. The action is consistent with applicable laws and policies.

## **Signature and date**

**CHARLES**  
**WOOLEY**

Digitally signed by  
CHARLES WOOLEY  
Date: 2022.09.08  
14:49:37 -05'00'

Charles M. Wooley

Regional Director, Midwest Region

**UNITED STATES FISH AND WILDLIFE SERVICE****ENVIRONMENTAL ACTION STATEMENT**

Within the spirit and intent of the Council of Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA) and other statutes, executive orders, and policies that protect fish and wildlife resources, I have established the following administrative record and have determined that the action of expanding the current hunting and fishing program to include 74.5 acres newly acquired in 2021 and adopting the Patoka River National Wildlife Refuge and Management Area Migratory Game Bird, Upland Game and Big Game Hunt and Sport Fish Plan. Specifically, this plan would require the use of non-lead ammunition and tackle by the 2026-2027 hunting and fishing season for all species across the refuge that are hunted or fished.

- ☐ is a categorical exclusion as provided by 43 CFR §46.210 and/or 516 DM 8.5 and 43 CFR §46.215. No further NEPA documentation will therefore be made. The proposed action falls under categorical exclusion \_\_\_\_\_.
- ☒ is found not to have significant environmental effects as determined by the attached Environmental Assessment and Finding of No Significant Impact.
- ☐ is found to have significant effects, and therefore, further consideration of this action will require a notice of intent to be published in the Federal Register announcing the decision to prepare an environmental impact statement.
- ☐ is not approved because of unacceptable environmental damage, or violation of Fish and Wildlife Service mandates, policy, regulations, or procedures.
- ☐ is an emergency action within the context of 40 CFR §1506.11. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

**Other supporting document (list):**

- ☒ Project Map(s) - REQUIRED
- ☒ Intra-Service Section 7 Evaluation Form (Endangered Species Act Compliance) - REQUIRED
- ☒ Regional National Historic Preservation Act (NHPA) Clearance - Evaluated in the EA
- ☒ Compatibility Determination and Finding of Appropriateness
- ☒ NEPA Document (if CatEx attach CatEx Checklist, EA/FONSI, or EIS/ROD) - REQUIRED
- ☒ Public Comments - summary provided in EA
- ☐ CCP ( date)\_\_\_\_\_
- ☒ Other coordination letter sent to State of Indiana

**Signature Approval:**

(1) **RICHARD SPEER** Digitally signed by RICHARD SPEER  
Date: 2022.09.07 16:01:29 -05'00'  
\_\_\_\_\_  
Refuge Manager Date

(2) \_\_\_\_\_  
Project Leader Date

(3) **CATHERINE NIGG** Digitally signed by CATHERINE NIGG  
Date: 2022.09.07 16:17:58 -05'00'  
\_\_\_\_\_  
Refuge Supervisor Date

(4) **CARL MILLEGAN** Digitally signed by CARL MILLEGAN  
Date: 2022.09.08 07:17:59 -05'00 ' '  
\_\_\_\_\_  
Regional Chief, NWRS Date

(5) **CHARLES WOOLEY** Digitally signed by CHARLES WOOLEY  
Date: 2022.09.08 14:50:59 -05'00 ' '  
\_\_\_\_\_  
Regional Director Date

# **Patoka River National Wildlife Refuge and Management Area Migratory Game Bird, Upland Game and Big Game Hunt and Sport Fish Plan**

*September 2022*

*U.S. Fish and Wildlife Service*

*Patoka River National Wildlife Refuge and Management Area*

*510 ½ West Morton Street*

*Oakland City, IN 47660*

## Signatures of Approval

**Submitted By:**

**RICHARD  
SPEER**  Digitally signed by  
RICHARD SPEER  
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Refuge Manager Signature and Date

**Concurrence:**

**CATHERINE  
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Refuge Supervisor Signature and Date

**Approved:**

**CARL  
MILLEGAN**  Digitally signed by CARL  
MILLEGAN  
Date: 2022.09.08 07:17:20  
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Assistant Regional Director, National Wildlife Refuge System Signature and Date

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## I. Introduction

National wildlife refuges are guided by the mission and goals of the National Wildlife Refuge System (Refuge System), the purposes of an individual refuge, U.S. Fish and Wildlife Service (Service) policy, and laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, Refuge Recreation Act of 1962, and selected portions of the Code of Federal Regulations and Fish and Wildlife Service Manual.

Patoka River National Wildlife Refuge and Management Area was established in 1994 in part to protect one of two remaining intact floodplain forest systems within Indiana. Patoka River National Wildlife Refuge and Management Area (refuge) was created under the legislative authority of:

- *The Emergency Wetlands Resources Act of 1986 for “...the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions.” (16 USC Sec. 3901).*
- *An Act Authorizing the Transfer of Certain Real Property for Wildlife which shows “...particular value in carrying out the national migratory bird management program.” (16 U.S.C. 667b).*
- *The North American Wetlands Conservation Act “...(1) to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America; (2) to maintain current or improved distributions of migratory bird populations; and (3) to sustain an abundance of waterfowl and other migratory birds consistent with the goals of the North American Waterfowl Management Plan and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries.” (16 U.S.C. 4401-4413).*

The refuge authorized boundary, which delineates where the U.S. Fish and Wildlife Service can acquire property from willing sellers, encompasses 22,472 acres of wetlands, floodplain forest, grasslands, shrublands and upland forest along 20 miles of the Patoka River corridor in southwestern Indiana. Land for inclusion in the refuge is acquired from willing sellers on a continual basis. Approximately 10,699 acres within the refuge acquisition boundary have been purchased in fee title or are

managed under a conservation easement. The staff of the refuge also administer two satellite units in addition to the main body of the refuge. The Cane Ridge Wildlife Management Area (463 acres, fee title, closed to all public access except non-consumptive uses in designated areas) and White River Bottoms Unit (219 acres, fee title) are all considered part of the national wildlife refuge from a management perspective. The White River Bottoms Unit is a Farm Service Agency unit that we administratively manage, but is outside the authorized refuge boundary. This unit is open for hunting and fishing. The refuge currently has management capability on the 10,918 acres that have been acquired to date. Management objectives are identical for the National Wildlife Refuge, authorized at 7,005.5 acres and the Management Area, authorized for the remaining 15,466.5 acres. The separate designations avoid legal conflicts with the Surface Mining Control and Reclamation Act of 1977; however, it has no implications for the management of these areas.

The mission of the Refuge System, as outlined by the National Wildlife Refuge System Administration Act, as amended by the National Wildlife Refuge System Improvement Act (16 U.S.C. 668dd et seq.), 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.”

The Refuge System Administration Act mandates the Secretary of the Interior in administering the System to (16 U.S.C. 668dd(a)(4):

- Provide for the conservation of fish, wildlife, and plants, and their habitats within the Refuge System;
- Ensure that the biological integrity, diversity, and environmental health of the Refuge System are maintained for the benefit of present and future generations of Americans;
- Ensure that the mission of the Refuge System described at 16 U.S.C. 668dd(a)(2) and the purposes of each refuge are carried out;
- Ensure effective coordination, interaction, and cooperation with owners of land adjoining refuges and the fish and wildlife agency of the States in which the units of the Refuge System are located;
- Assist in the maintenance of adequate water quantity and water quality to fulfill the mission of the Refuge System and the purposes of each refuge;

- Recognize compatible wildlife-dependent recreational uses as the priority general public uses of the Refuge System through which the American public can develop an appreciation for fish and wildlife;
- Ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses; and
- Monitor the status and trends of fish, wildlife, and plants in each refuge.

It is a priority of the Service to provide for wildlife-dependent recreation opportunities, including hunting and fishing, when those opportunities are compatible with the purposes for which the refuge was established and the mission of the National Wildlife Refuge System. Hunting and fishing were identified in the 2008 Patoka River National Wildlife Refuge and Management Area Comprehensive Conservation Plan (CCP) as being priority public uses that would be authorized on most units of the refuge. The Service has determined that these uses are compatible with the purposes of the refuge and the mission statement of the National Wildlife Refuge System (Attachment 2). Hunting and Fishing activities have occurred on Patoka National Wildlife Refuge and Management Area since 1996, two years from when the refuge was established. The first hunt and fish plans were developed that same year. These uses have likely occurred within the area of the refuge for a long time as it is a historical and traditional pastime of residence in the area. Hunting and fishing were again identified in the 2008 refuge Comprehensive Conservation Plan as being priority public uses that would be authorized on most units of the refuge. The Service has determined that these uses are compatible with the purposes of the refuge and the mission statement of the National Wildlife Refuge System through compatibility determinations (2020 hunting, 2008 fishing). As part of this plan, compatibility is being re-evaluated and determinations can be found in Attachment 2. The Fishing Plan was updated in 2017 and the Hunt Plan was updated in 2020 to better align with State of Indiana hunting and fishing seasons, method of take and species.

This 2022 Hunt and Sport Fish Plan reassesses the existing refuge hunting and fishing programs and incorporates regulation changes to phase in the required use of lead-free ammunition and tackle for all hunting and fishing activities on the refuge by the 2026-2027 hunting and fishing season. This plan is being written as if it were the 2026-2027 hunting and fishing season and for full phased in lead free regulations. Until this time, the refuge will continue to manage the hunting program in compliance with the 2020 Hunt Plan and the fishing program in compliance with the 2017 Fishing Plan. This will allow the continued use of lead

single projectile ammunition for furbearer (squirrel, rabbit, opossum, fox, coyote, skunk, and raccoon) hunting, lead ammunition for deer hunting (both single projectile and buck shot), and tackle fishing activities; however, the refuge will encourage hunters and anglers to transition to non-lead ammunition and tackle through outreach. As land is added during the interim period between publishing the final draft of this plan and implementing the lead-free regulations for hunting and non-commercial fishing during the 2026-27 season, the land will be opened consistent to how the rest of the refuge is operating during the phased in approach. The refuge will remain open consistent with state of Indiana hunting and fishing regulations for all state regulated game species. The 2020 Environmental Assessment associated with the hunt plan evaluates the proposal for potential take of game species on future lands to be acquired from willing landowners. As land is acquired amendments to this plan and appropriate National Environmental Policy Act compliance will be completed. An additional administrative regulation change is also being proposed to allow the refuge to designate trails, parking lots and other recreational facilities with a 50-yard no shooting zone to address potential safety concerns. Other actions the refuge may take to address safety and overlap of users include closing areas to hunting, requiring trail users to wear hunter orange during hunting seasons or other potential mitigation measures if conflicts are detected.

## **II. Statement of Objectives**

The following hunting and fishing objectives for the Patoka River National Wildlife Refuge and Management Area were contained in the Final Environmental Impact Statement, approved by Regional Director Sam Marler in the Record of Decision dated September 7, 1994 (USFWS, 1994):

- To open Project (refuge) lands to recreational hunting as soon as sufficient land has been acquired and biological data collected to properly manage wildlife populations.
- To open all suitable Project (refuge) lands to waterfowl hunting, other than those lands needed to provide essential sanctuary.
- To open Project (refuge) lands to all forms of traditional resident game hunting after coordination with the Indiana Division of Fish and Wildlife.
- To assure, either spatially or chronologically, that hunting and other priority public uses of the Refuge do not conflict or encroach upon each other.
- To allow sport fishing within the framework of Indiana Division of Fish and Wildlife regulations, subject to additional regulation by the Service if needed to provide protection for sensitive wildlife species within the refuge.
- To encourage additional use of the Patoka River's fisheries resource by

providing increased/improved access to the river and its oxbows.

Additional objectives specific to the hunting and fishing programs on the refuge include:

- Provide the public with safe and enjoyable hunting and fishing that are compatible with the refuge purposes.
- Provide quality hunting and fishing opportunities that minimize conflict with other public use activities.
- Provide opportunities to fish and hunt for species consistent with laws and regulations of the state of Indiana, that do not adversely affect localized wildlife populations and are consistent with the 1997 National Wildlife Refuge Improvement Act.
- Promote better understanding and appreciation of refuge habitats and their associated fish and wildlife resources.

Hunting and fishing activities are consistent with the refuge's larger goals to restore native plant communities for wildlife, to maintain the refuge through active management programs and to provide educational and recreational opportunities for visitors to understand the value of wildlife and native habitats of southwestern Indiana. Additional information about these goals can be found in the Comprehensive Conservation Plan (U. S. Fish and Wildlife Service 2008) and Habitat Management Plan (U. S. Fish and Wildlife Service 2017).

### **III. Description of Hunting and Fishing Program**

Most of the refuge supports fishable and huntable populations of game species. Most of the refuge is open to the public for some type of recreational use (hunting, fishing, wildlife observation, photography, environmental interpretation and or environmental education).

#### **A. Areas to be Opened to Hunting and Fishing**

Total huntable land is currently about 10,393 acres of easement, fee-title and FSA managed refuge acres. This total includes the newly acquired acres. Hunting for all game species is open on all refuge land except for:

- 463 acres within the Cane Ridge Wildlife Management Area; which is closed to all public access in order to provide a disturbance free sanctuary for migrating waterfowl,
- the 62 acre Maxey Marsh area, which is closed to limit conflict with other

- refuge trail users, and
- the Columbia Mine Special Regulations area has different regulations than the main refuge unit and is only open to white-tailed deer during the first week of the state defined seasons for archery, firearm and muzzleloader and spring turkey hunting. See the section on regulations for more details.

Fishing is open on 10,455 easement, fee-title and FSA managed refuge acres. Fishing is not allowed at the 463 acres within the Cane Ridge Wildlife Management Area but is open on the Maxey Marsh and Columbia Mines Special Regulations areas.

New lands to be opened during the 2022-23 hunting and fishing season to both hunting and fishing include:

- Poehlein– 1 acre in Pike County; includes bottomland forest and marsh habitat north of the Patoka River near the State HWY 57. TSR –T.1S, R 8W, sec 32 (Attachment 1, Figure 4)
- Friends (Smith) – 16.78 acres in Pike County, abandoned bottomland agricultural field currently in early successional forested habitat West of Cup Creek, near the Dillin Bottoms moist soil management area. TSR - T.2S, R6W, sec 30 (Attachment 1, Figure 5)
- Conservation Partners – 56.64 acres in Gibson County, includes bottomland forest and oxbow habitat south of the Patoka River off CR 150 N. TSR – T.1S, R 9W, sec 36 (Attachment 1, Figure 4)

These units have been incorporated into the main Patoka River National Wildlife Refuge and Management hunt and fish unit and are open to all game species. See Attachment 1 for maps of all refuge hunt units. Figure 1 shows all main refuge units and outlines the authorized refuge acquisition boundary. There are three hunt and fish units in this map that show most of the refuge is open to hunting and fishing, while a small portion at Maxey Marsh is closed to all hunting and the Columbia Mine special regulations unit allows hunting of spring turkey and has a weeklong special deer hunt. Figure 3 shows the White River FSA unit that is open to hunting and fishing. Figure 4 shows the new acres added of the Poehlein and Conservation Partners tracts or units to the main refuge unit that is open to hunting and fishing. Figure 5 shows the new acres added of the Smith/Friends tract/unit to the main refuge unit that is open to hunting and fishing.

It should be noted, acres reported are documented acres and may differ slightly from what is reported in the 2022-2023 U.S. Fish and Wildlife Service Hunt Units map as these are depicted in geospatial acres. Documented acres are the acres as stated on the recorded deed and considered the official reporting acres acquired

and under management. It is common for documented and geospatial acres to not match perfectly. The easement and FSA tracts under the refuge are not depicted in the Service's online hunt unit map accounting for approximately 1,262 acres in difference. The refuge evaluated the cumulative impacts of opening all lands within the designated acquisition boundary that may be purchased from willing sellers in the future (up to approximately 12,400 additional acres) to hunting and fishing in the Environmental Assessment (U.S. Fish and Wildlife Service 2022) associated with this plan and the 2020 hunt plan. As land is acquired amendments to this plan will be made specifically with regards to a new map and any refuge specific regulations that may change. Additional environmental compliance will be completed for all future expansion packages including evaluation of impacts to threatened and endangered species.

## **B. Species to be Taken, Hunting and Fishing Periods and Access**

The refuge is open to all hunting game species (except frog and turtle) consistent with Indiana Department of Natural Resources Hunting Regulations and Seasons.

- Migratory Game Bird Hunting: open to duck, goose, merganser, coot, woodcock, dove, crow, rail and snipe.
- Upland Game Hunting: open to squirrel, rabbit, bobwhite quail, pheasant, raccoon, opossum, red fox, gray fox, coyote and striped skunk.
- Big Game Hunting: open to white-tailed deer and wild turkey.

Hunters may only use or possess approved non-lead shot shells and ammunition while in the field. This applies to all species huntable on the refuge including migratory game birds, upland game and big game. See the regulations section for a note about implementing this regulation. Dogs may be used for hunting small game and migratory birds. The refuge may not be used for dog training not associated with an actual hunt. We prohibit deer drives, by person or animal, and participating in deer drives on all refuge units. No motorized vehicles are allowed within the refuge unless authorized through a Special Use Permit issued by the refuge.

The refuge follows state regulations which allows hunting after legal sunset for raccoon, opossum, red and gray fox, coyote and striped skunk. There is no special entry or access procedures for hunters using the refuge. Access is provided for hunting through parking lots and boat ramps. Seventeen parking areas have been designated throughout the refuge and four boat ramps provide access to the Patoka River. Utility and all-terrain vehicles are not permitted.

The refuge is open to all sport fishing game species (except mussel (clams), leech, minnow, crawfish, frogs and turtles) consistent with Indiana Department of Natural Resources Fishing regulations and seasons. Size limits for fish are consistent with state of Indiana regulations, except the minimum size limit for largemouth bass on Snakey Point Marsh and on the Columbia Mine Unit is 14 inches (35.6 centimeters). Anglers may only use or possess approved non-lead tackle while in the field. Fishing activities allowed are with rod and reel, pole and line, bow and arrow, or crossbow. Fishing on the refuge must occur from legal sunrise to legal sunset; night fishing is prohibited.

### **C. Hunter and Angler Permit Requirements**

There is no refuge-specific permit requirement for hunting or fishing on the refuge. Hunters must have all federal and state licenses or stamps required for specific huntable species to hunt at Patoka River National Wildlife Refuge and Management Area. Anglers must have in their possession a valid fishing license and any species-specific permits or stamps as outlined by State of Indiana regulations.

### **D. Consultation and Coordination with the State**

National wildlife refuges, including Patoka River National Wildlife Refuge and Management Area, conduct hunting and fishing programs within the framework of state and federal regulations. All authorized hunts and fishing activities are at least as restrictive as those regulated by state of Indiana. By maintaining hunting and fishing regulations that are as, or more, restrictive than the state, the refuge ensures that they are maintaining seasons which are supportive of management of game species on a local and regional basis.

The Environmental Assessment (U.S. Fish and Wildlife Service 2022) associated with this Hunt and Sport Fish Plan and the Preferred Alternative discussed in that document, has been reviewed by the Indiana Department of Natural Resources. No formal response was received.

Consultations with the Indiana Department of Natural Resources regarding hunt and fish plans, opportunities and management were conducted during the development of the refuge's Comprehensive Conservation Plan and environmental assessment in 2008 (U.S. Fish and Wildlife Service 2008). All Compatibility Determinations for hunting and fishing are reviewed and renewed at 15-year intervals. The state is notified of all compatibility determination reviews and renewals for hunting and fishing activities. The refuge moved forward with the

2020 Hunt Plan and 2017 Fishing Plan based upon earlier formal coordination with the Indiana Department of Natural Resources as well as many informal discussions. The results of this coordination are reflected in those plans and are continued in this 2022 Hunt and Fish Plan. Patoka River Refuge and Management Area will continue to consult and coordinate with the Indiana Department of Natural Resources annually to maintain regulations and programs that are consistent with the state; as well as to monitor populations of game species and set harvest goals.

## **E. Law Enforcement**

Law enforcement of refuge and state hunting regulations, trespass and other public use violations associated with management of the refuge is the responsibility of a commissioned refuge law enforcement officer. In absence of a full-time refuge officer at this refuge, law enforcement assistance is provided by the Big Oaks and Muscatatuck National Wildlife Refuge officer and Indiana Department of Natural Resources conservation officers. Ongoing coordination and communication are conducted throughout the year. The following methods are used to control and enforce hunting regulations:

- Refuge and hunt area boundaries will be clearly posted where possible.
- The refuge will provide an annual brochure outlining hunting and fishing rules and regulations as well as a map depicting areas open to the lawful take of game species. The hunt and fish brochure will be made available at the refuge office, on the refuge's website and at kiosks located at most parking lots and boat ramps on the refuge. Regulation signs will be posted at every parking lot and boat ramps on the refuge.
- Refuge law enforcement staff will randomly check hunters for compliance with refuge specific regulations, Federal and State Laws.
- Refuge staff and refuge law enforcement officers will coordinate with Indiana Department of Natural Resources Law enforcement and other law enforcement agencies to enforce regulations.

Procedures for obtaining law enforcement assistance are based on legal jurisdiction, pending where the incident occurred. Refuge law enforcement officers have developed good working relationships with other State, local and Federal law enforcement agencies to develop enforcement strategies and coordinate investigations and operations as appropriate.

## **F. Funding and Staffing Requirements**

The hunting and fishing program is designed to be administered with minimal refuge resources. The costs of administering and enforcing the refuge hunting and fishing program comes out of the refuge's annual budget. Expenses include program management, staff resources, boundary posting, signage, brochures, parking lot construction, facility maintenance, gate installation and other hunting specific activities. Funding is expected to continue to be sufficient to continue the hunting and fishing programs at the refuge in the future.

## **IV. Implementation of the Hunting and Fishing Program**

The refuge manager may establish specific regulations for individual species or portions of the refuge depending on conflicts with other wildlife-dependent recreation priorities. Permanent or periodic hunting closures for specific species or closures of portions of the refuge may be necessary if the refuge manager determines that there is specific habitat, wildlife protection or public safety requirements that require sanctuary areas. The need to implement mitigation measures will be evaluated annually and determinations for each unit will be made based on the following criteria:

- The unit is large enough to support the anticipated quantity, frequency, and duration of hunter and angler use without adversely affecting game populations or habitat conditions within the area.
- Public access to the unit does not require travel across private lands or closed government lands.
- Sites are available for hunters and anglers to park their vehicles legally and in a manner that will not adversely affect the habitat in the unit or existing public travel routes.
- Public hunting and fishing will not have adverse effects on any federally listed or proposed species of concern.
- Hunting and fishing can be conducted without jeopardizing public safety.

To prevent potential conflict and provide safety for users of Buck's Marsh Boardwalk Trail a regulation change will take effect to create safe shooting zones around designated trails requiring a 150-yard buffer on either side. Besides this administrative change, at this time there is no perceived conflict and need for mitigation measures. All hunting would be conducted in accordance with all applicable refuge, state and federal regulations. Coordination with the public and refuge partners including the Indiana Department of Natural Resources and

Sycamore Land Trust will promote continuity and understanding of refuge and Service resource goals and objectives and will help assure that the decision-making process takes into account all interests and requirements as outlined in memorandum of agreements and federal laws.

#### **A. Hunter and Angler Permit Application, Selection and/or Registration Procedures**

For general hunting and fishing activities, no special application, selection, or registration process is required beyond what is required by the state of Indiana. Resident and non-resident hunters and anglers who are eligible to hunt and fish under Indiana law are allowed to hunt and fish on the refuge.

The refuge does not require hunters to report on hunting activities or harvest separately from the Migratory Bird Harvest Information Program (HIP) requirement or Indiana State permit reporting requirements. State permit requirements are defined in state regulations printed in the State of Indiana Hunting Regulations that is printed annually. Should an additional reporting program be implemented, the refuge will use appropriate forms approved by the Office of Management and Budget. There are no reporting requirements for fish harvested.

#### **B. Refuge-Specific Hunting and Fishing Regulations**

Until the time that the non-lead regulations take effect in 2026-2027 hunt and fishing season, the refuge will follow regulations as described in the 2021-2022 hunt and fish code of federal regulations, with the addition for the 2022-23 season that the refuge may prohibit hunting and the discharge of a weapon within 50 yards (45 meters) of all designated public use facilities, including, but not limited to, parking areas and established hiking trails listed in the refuge hunting and fishing brochure. The refuge would continue to allow the use of lead single projectile ammunition for furbearer (squirrel, rabbit, opossum, fox, coyote, skunk, and raccoon) hunting, lead ammunition for deer hunting (both single projectile and buck shot), and lead tackle can be used for fishing. All shot-gun shells for hunting of any species must be non-lead including waterfowl, furbearer and turkey. Those regulations are as follows:

(c) Patoka River National Wildlife Refuge and Management Area - [84 FR 47675, Sept. 10, 2019, as amended at 85 FR 54110, Aug. 31, 2020]

- 1) Migratory game bird hunting. We allow hunting of duck, goose, merganser, coot, woodcock, dove, snipe, rail, and crow on designated areas of the refuge and the White River Wildlife Management Area subject to the following

conditions:

- (i) You must remove all boats, decoys, blinds, and blind materials after each day's hunt (see §§ 27.93 and 27.94 of this chapter).
  - (ii) We prohibit hunting and the discharge of a weapon within 150 yards (137 meters) of any dwelling or any building that may be occupied by people, pets, or livestock.
- 2) Upland game hunting. We allow hunting of bobwhite quail, pheasant, cottontail rabbit, squirrel (gray and fox), red and gray fox, coyote, opossum, striped skunk, and raccoon subject to the following conditions:
  - (i) We allow the use of dogs for hunting, provided the dog is under the immediate control of the hunter at all times.
  - (ii) The conditions set forth at paragraphs (c)(1)(i) and (ii) of this section apply.
  - (iii) You may only use or possess approved nontoxic shot shells (see § 32.2(k)) while in the field.
- 3) Big game hunting. We allow hunting of white-tailed deer and wild turkey on designated areas of the refuge subject to the following conditions:
  - (i) The condition set forth at paragraph (c)(2)(iii) applies while turkey hunting.
  - (ii) On the Columbia Mine Unit, you may only hunt white-tailed deer during the first week (7 days) of the following seasons, as governed by the State: archery, firearms, and muzzleloader.
  - (iii) On the Columbia Mine Unit, you may leave portable tree stands overnight only when the unit is open to hunting and for a 2-day grace period before and after the special season.
  - (iv) On the Columbia Mine Unit, if you use a rifle to hunt, you may use only rifles allowed by State regulations for hunting on public land.
  - (v) The conditions set forth at paragraphs (c)(1)(i) and (ii) of this section apply.
- 4) Sport fishing. We allow sport fishing on designated areas of the refuge subject to the following conditions:
  - (i) We allow fishing from legal sunrise to legal sunset.
  - (ii) We allow fishing only with rod and reel, pole and line, bow and arrow, or crossbow.
  - (iii) The minimum size limit for largemouth bass on Snakey Point Marsh and on the Columbia Mine Unit is 14 inches (35.6 centimeters).
  - (iv) We prohibit the taking of any turtle, frog, leech, minnow, crayfish, and mussel (clam) species by any method on the refuge (see § 27.21 of this chapter).
  - (v) You must remove boats at the end of each day's fishing activity (see §

27.93 of this chapter).

Listed below are refuge-specific regulations that pertain to hunting on Patoka River National Wildlife Refuge and Management Area effective no later than the 2026-2027 hunting and fishing season. These regulations may be modified as conditions change or if refuge expansion occurs. The following regulations will be printed in the electronic code of federal regulations under part 50 section 32.33 (c) Patoka National Wildlife Refuge and Management Area during the 2022-2023 rule making period but will not take full effect until the 2026-2027 season. Regulations in 50 C.F.R Part 32.2, part 35.5, part 26 and part 27 also apply.

- 1) Migratory game bird hunting. We allow hunting of duck, goose, merganser, coot, woodcock, dove, snipe, rail, and crow on designated areas of the refuge and the White River Wildlife Management Area subject to the following conditions:
  - (i) You must remove all boats, decoys, blinds, and blind materials after each day's hunt (see §§ 27.93 and 27.94 of this chapter).
  - (ii) We prohibit hunting and the discharge of a weapon within 150 yards (137 meters) of any dwelling or any building that may be occupied by people, pets, or livestock and within 50 yards (45 meters) of all designated public use facilities, including, but not limited to, parking areas and established hiking trails listed in the refuge hunting and fishing brochure.
  - (iii) You may only use or possess approved non-lead shot shells and ammunition while in the field.
- 2) Upland game hunting. We allow hunting of bobwhite quail, pheasant, cottontail rabbit, squirrel (gray and fox), red and gray fox, coyote, opossum, striped skunk, and raccoon subject to the following conditions:
  - (i) We allow the use of dogs for hunting, provided the dog is under the immediate control of the hunter at all times.
  - (ii) The conditions set forth at paragraphs (c)(1)(ii-iii) of this section apply.
- 3) Big game hunting. We allow hunting of white-tailed deer and wild turkey on designated areas of the refuge subject to the following conditions:
  - (i) The condition set forth at paragraph (c)(1)(i-iii) of this section apply.
  - (ii) On the Columbia Mine Unit, you may only hunt white-tailed deer during the first week (7 days) of the following seasons, as governed by the State: archery, firearms, and muzzleloader.
  - (iii) On the Columbia Mine Unit, you may leave portable tree stands overnight only when the unit is open to hunting and for a 2-day grace period before and after the special season.

- (iv) On the Columbia Mine Unit, if you use a rifle to hunt, you may use only rifles allowed by State regulations for hunting on public land.
- 4) Sport fishing. We allow sport fishing on designated areas of the refuge subject to the following conditions:
  - (i) We allow fishing from legal sunrise to legal sunset.
  - (ii) We allow fishing only with rod and reel, pole and line, bow and arrow, or crossbow.
  - (iii) The minimum size limit for largemouth bass on Snakey Point Marsh and on the Columbia Mine Unit is 14 inches (35.6 centimeters).
  - (iv) We prohibit the taking of any turtle, frog, leech, minnow, crayfish, and mussel (clam) species by any method on the refuge (see § 27.21 of this chapter).
  - (v) You must remove boats at the end of each day's fishing activity (see § 27.93 of this chapter).
  - (vi) We prohibit the use of fishing tackle containing lead.

### **C. Relevant State Regulations**

Hunting and fishing on the refuge is conducted in accordance with Indiana hunting and fishing regulations unless noted in Title 50 of the Code of Federal Register as refuge specific regulations or outlined in the hunting and fishing brochure.

State regulations incorporated into the refuge hunting program include all methods of take legal in Indiana except trapping, (i.e., firearms, archery, falconry), all weapons and ammunition restrictions (e.g., caliber and loads) and all state-regulated special seasons (e.g., youth deer, youth turkey, youth waterfowl) unless otherwise restricted by refuge-specific regulation. State regulations, such as seasons, bag limits and general methods of take, are published annually in the Indiana Hunting and Trapping Guide. Beyond these specific regulations hunters using the refuge should be aware of additional state regulations that apply to hunting on the refuge.

State regulations incorporated into the refuge fishing program include rod and reel, pole and line, bow and arrow, or crossbow as approved methods of take legal in Indiana, all size limitations except largemouth bass on Snakey Point Marsh and on the Columbia Mine Unit is 14 inches (35.6 centimeters) and regulated fishing seasons unless otherwise restricted by refuge-specific regulation. Use of limb lines, jug lines, trot lines and snares are prohibited.

## **D. Other Refuge Rules and Regulations for Hunting and Fishing**

Hunting and fishing are conducted in accordance with state regulations subject to refuge specific regulation listed above in Section IV. B and C in addition to the following activities that are not permitted on the refuge:

- Use or possession of alcoholic beverages
- Constructing pits or permanent blinds
- Camping, overnight parking and open campfires
- Cutting vegetation (trees, etc.)
- Target practice
- Marking trails with paint, flagging, reflectors, tacks or other manmade materials
- Riding horses, bicycles, or mules except on roads open to vehicle traffic
- Spot-lighting for wildlife
- Searching for or removing any object of antiquity (e.g. arrowheads, pottery, artifacts)
- Blocking gates or roadways with vehicles
- Inserting a screw, nail, spike or other metal object into a tree or to hunt from any tree in which such an object has been driven; or using climbing spikes
- Off-road vehicles on refuge lands
- Taking or attempting to take any wildlife not authorized in these regulations.
- Tacking, cutting or destroying any plants or parts thereof including flowers, fruits, nuts, fungi, herbs, shrubs or trees other than specified for temporary blind construction.

Other refuge rules and regulations specific to use of boats on the refuge:

- On refuge property, motorboats are only permitted on Snakey Point Marsh east of the South Fork and on Patoka River.
- Motorboats on Snakey Point Marsh are restricted to slow speed/minimum wake.
- To minimize disturbance to wildlife, gasoline powered motorboats are not permitted on other refuge waters.
- Air boats are prohibited on all refuge waters.
- Boats may not be left on refuge property overnight.
- At the discretion of the refuge manager, additional areas adjacent to the Patoka River may be closed to motorboat access to prevent disturbance to wildlife or protect safety of users.

## **V. Public Engagement**

### **A. Outreach for Announcing and Publicizing the Hunting and Fishing Program**

The refuge maintains a mailing list of local newspapers, radio and websites for news release purposes. Special announcements and articles may be released in conjunction with hunting and fishing seasons. Additionally, information about the hunting and fishing programs will be available on the refuge's website and occasionally on social media.

Specific to the accessibility of this plan being available to the public for review, a public notice was sent to all local newspapers in Pike and Gibson Counties upon publishing the proposed 2022-2023 Hunting and Fishing Refuge Specific Regulation in the federal register. Comments were accepted through the federal register for the duration of the 60-day public review period that began June 9, 2022. All draft and final documents associated with this plan and rule changes will be posted at the refuge office and website for review by the public.

### **B. Public Reaction to the Hunting and Fishing Program**

Hunting and fishing are two of the six priority public uses required by the Refuge Improvement Act to receive enhanced consideration on refuges. These are popular and traditional activities in the area. Since refuge establishment, hunting and fishing have been an accepted and popular activity. User conflicts between consumptive (hunter and anglers) and non-consumptive wildlife recreational visitors have been minimal; however, adjacent private landowners have had issues with trespassing. These concerns have been dealt with by law enforcement and management on a case-by-case basis. Additionally, boundaries of lands owned or managed by the Service are posted with refuge boundary signs. Areas administratively closed to hunting or fishing are clearly marked with "No Hunting Zone" or "Area beyond This Sign Closed" signs. Overall, public hunting and fishing on the refuge is viewed as a positive and accepted use of refuge property.

Based on the comments received during the comprehensive conservation plan (2008) and during updates to the hunting (2020) and fishing (2017) programs, little negative public reaction was expected in regard to continuing hunting and fishing programs on the refuge. The change to require use of non-lead ammunition for all species (including furbearer and big game hunting which currently bans only lead shot) and non-lead tackle for fishing starting with the 2026-2027 seasons was

announced in the Federal Register ((Federal Register docket number: FWS-HQ-NWRS-2022-0055)) on June 9, 2022 and publicized in local and national media as well as the refuge's website. The public was encouraged to submit their comments regarding the draft documents during a 60-day comment period via email, phone, or by mail on or before August 8, 2022. The Service's responses to comments received through the Federal Register rulemaking process will be published in the final rule in the Federal Register. See the 2022-2023 Final Hunt and Fish rule for response to the comments outlined below.

A total of seven comments were received, all through the Federal Register, Six of these comments expressed support of the proposed action to eliminate lead ammunition and tackle on this refuge and throughout the National Wildlife Refuge System. One of these commenters proposed a shorter (18 month) timeframe for the phase out of lead ammunition and tackle. The seventh comment expressed support for opening and expanding hunting opportunities on refuges, while expressing opposition generally to non-lead ammunition requirements.

### **C. How the Public Will Be Informed of Relevant Rules and Regulations**

General information regarding hunting and other wildlife-dependent public uses can be obtained at Patoka River National Wildlife Refuge and Management Area office at 510 ½ West Morton St. Oakland City, IN 47660 or by calling (812) 749-3199. Refuge maps and regulations will be available on the refuge website at: <https://www.fws.gov/refuge/patoka-river-and-management-area>.

Regulations pertaining to hunting and fishing on all national wildlife refuges are found in the Code of Federal Regulations (CFR) at 50 CFR 32. Copies of the Code of Federal Regulations can be found online and in area libraries; in addition, refuge-specific regulations are available on the refuge's website.

## **VI. Compatibility Determinations**

Hunting and fishing and all associated program activities proposed in this plan are compatible with the purposes of the refuge. See the attached Compatibility Determination for Hunting Migratory Game Birds, Upland Game and Big Game at Patoka River National Wildlife Refuge and Management Area and Compatibility Determination for Non-commercial Fishing at Patoka River National Wildlife Refuge and Management Area (Attachment 2).

## **VII. References**

U.S. Fish and Wildlife Service. 1994. Final Environmental Impact Statement Patoka River National Wetlands Project. U.S. Dept. of Interior, Fish and Wildlife Service, Region 3, Fort Snelling, MN.

U. S. Fish and Wildlife Service. 2008. Patoka River National Wildlife Refuge and Management Area Comprehensive Conservation Plan. U.S. Dept. of Interior, Fish and Wildlife Service, Region 3, Fort Snelling, MN.

U. S. Fish and Wildlife Service 2016. Patoka River National Wildlife Refuge and Management Area Fishing Plan. U.S. Dept. of Interior, Fish and Wildlife Service.

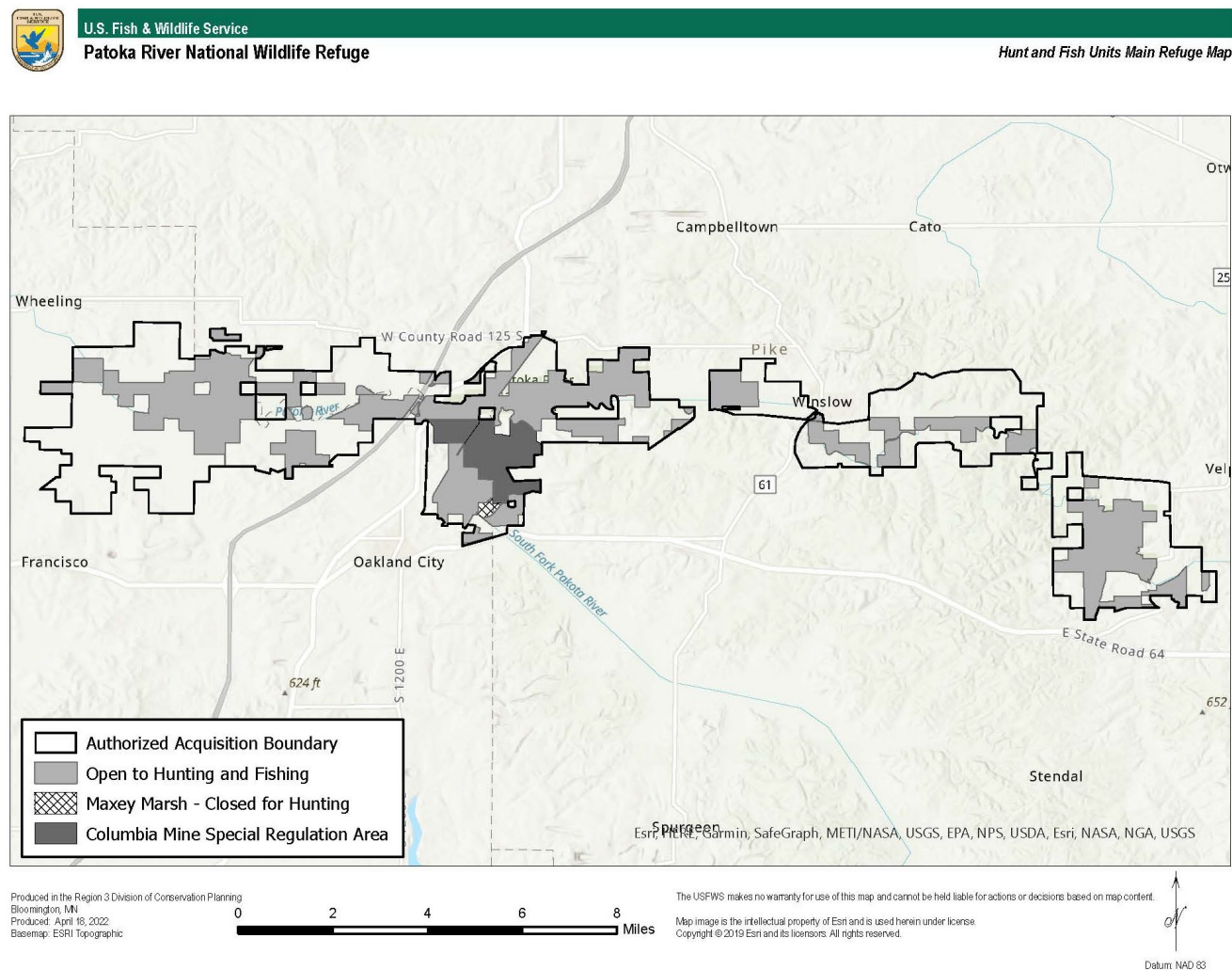
U. S. Fish and Wildlife Service 2017. Patoka River National Wildlife Refuge and Management Area Habitat Management Plan. U.S. Dept. of Interior, Fish and Wildlife Service.

U. S. Fish and Wildlife Service 2020. Patoka River National Wildlife Refuge and Management Area Migratory Game Bird, Upland Game, and Big Game Hunt Plan. U.S. Dept. of Interior, Fish and Wildlife Service.

U. S. Fish and Wildlife Service 2022. Patoka River National Wildlife Refuge and Management Area Migratory Game Bird, Upland Game, and Big Game Hunt and Sport Fishing Programs Regulation Changes. U.S. Dept. of Interior, Fish and Wildlife Service.

# Attachment 1: Patoka National Wildlife Refuge and Management Area Hunting Unit Maps

Figure 1: Patoka River National Wildlife and Management Area Main Refuge Hunt and Fish Unit Map



**Figure 2: Patoka River National Wildlife and Management Area Satellite Refuge  
Hunt and Fish Unit Map: White River FSA Unit**



U.S. Fish & Wildlife Service

Patoka River National Wildlife Refuge

Cane Ridge Satellite Refuge Unit: Closed to Hunting and Fishing

Map showing the Cane Ridge Satellite Refuge Unit, which is closed to hunting and fishing. The closure area is indicated by a cross-hatched pattern. The map includes surrounding roads (W County Road 1200 S, W County Road 1000 S, W County Road 800 S, W County Road 600 S, W County Road 400 S, W County Road 200 S, S County Road 1200 S, S County Road 1000 S, S County Road 800 S, S County Road 600 S, S County Road 400 S, S County Road 200 S) and water bodies (Patoka River, Cane Ridge). The closure area is located near the intersection of W County Road 1200 S and S County Road 1000 S.

Legend: Cane Ridge - Closed to Hunting and Fishing

Scale: 0 to 1.5 Miles

Produced in the Region 3 Division of Conservation Planning  
Bloomington, MN  
Produced: April 18, 2022  
Base map: ESRI Topographic

The USFWS makes no warranty for use of this map and cannot be held liable for actions or decisions based on map content.

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Date: NAD 83

**Figure 4: Patoka River National Wildlife and Management Area New Hunt and Fish Unit Map: Conservation Partners and Poehlein Tracts**

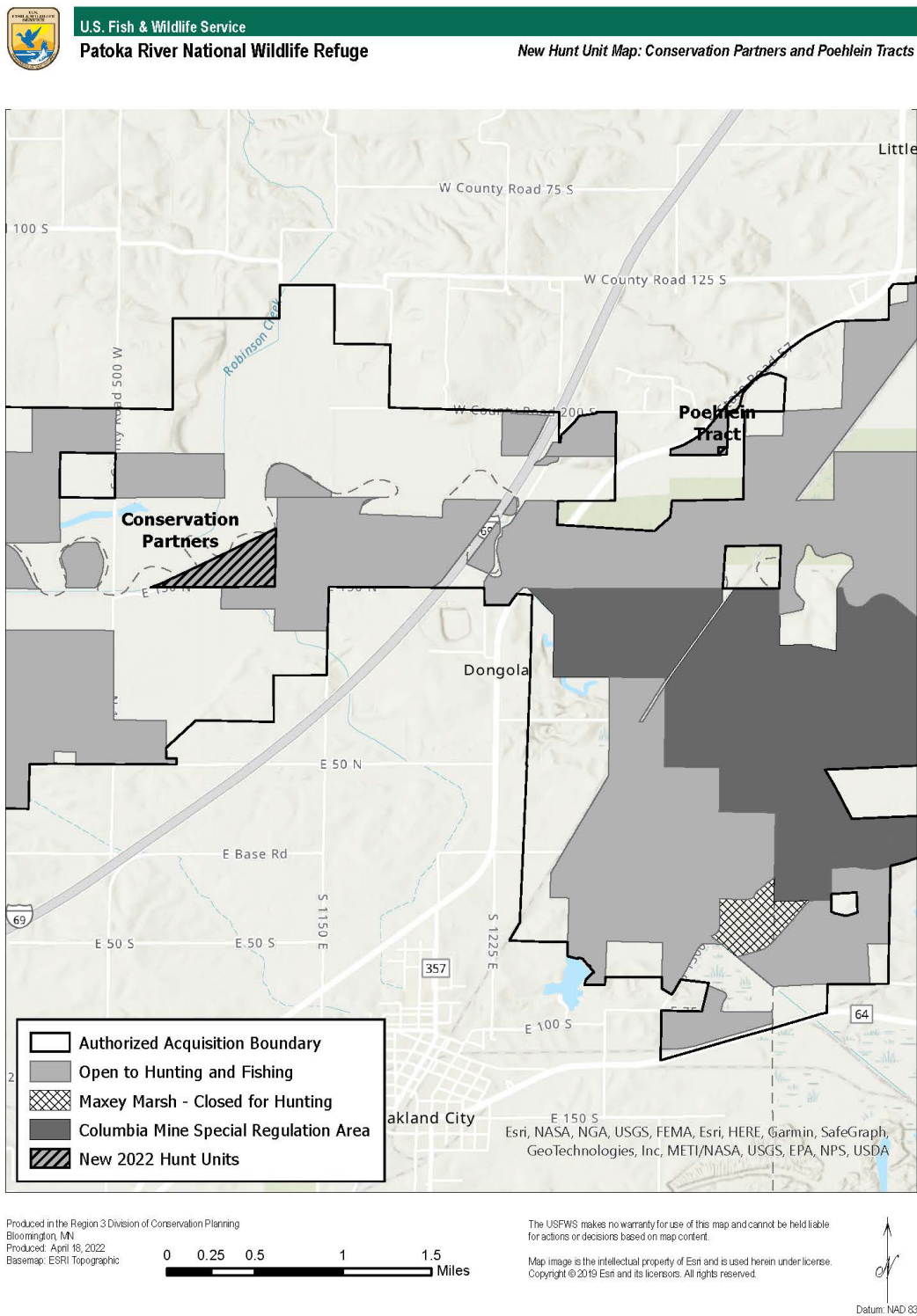
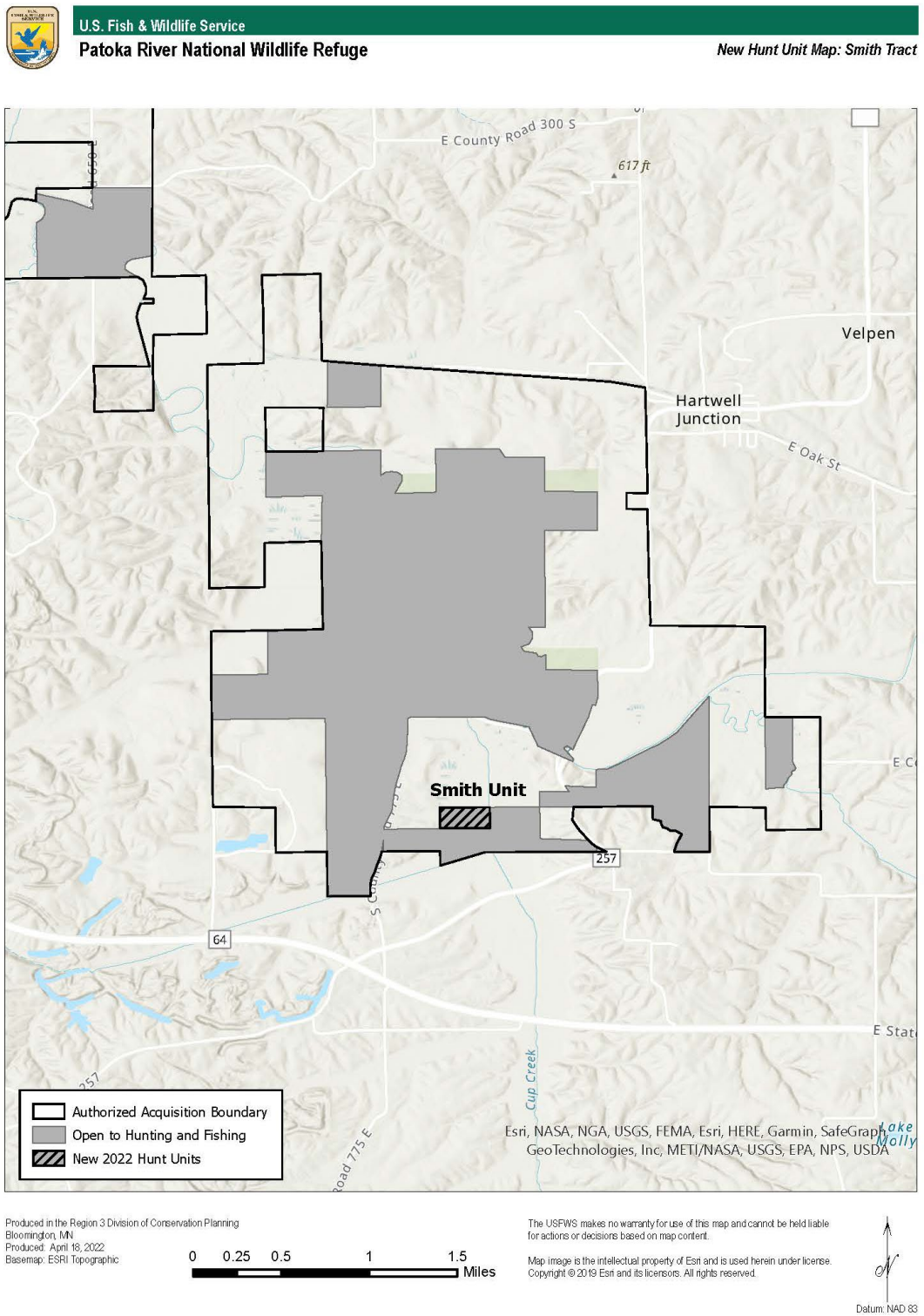


Figure 5: Patoka River National Wildlife and Management Area New Hunt and Fish Unit Map: Smith Unit



## **Attachment 2: Compatibility Determinations**

See separate attached Sport Fishing and Hunting Program Compatibility Determinations

## FINDING OF APPROPRIATENESS OF A REFUGE USE

Use of this form is required for documenting all appropriate use findings (603 FW 1)

Refuge Name: \_\_\_\_\_

Use: \_\_\_\_\_  
\_\_\_\_\_

This is a: \_\_\_\_\_ New Use \_\_\_\_\_ Existing Use

### A. Does this use qualify for an appropriateness review exemption?

(Please Check One)

Some refuge uses are exempted from an appropriateness review [603 FW 1.2; 603 FW 1.2(A)]. Appropriate use finding exemptions are documented through the use of this form.

\_\_\_\_\_ This use is "protected," "conditioned," or otherwise provided for under law or regulation.  
*Examples include the use of snow machines, airplanes, or motorboats on Alaska refuges under certain conditions per the ANILCA. Provide a written justification as to how this use qualifies for this particular exemption.*

\_\_\_\_\_ The Service does not have jurisdiction over the use  
*This could be as a result of treaty rights, court orders, consent decrees, pre-existing rights (such as subsurface Non-Federal oil and gas or mineral rights, grandfathered easements, etc.). Provide a written justification as to how this use qualifies for this particular exemption.*

\_\_\_\_\_ This is a Right-of-Way Permit request  
*Right-of-way requests are subject to 340 FW 3 and compatibility determinations (603 FW 2). Attach a brief explanation as to how this use qualifies for this particular exemption.*

\_\_\_\_\_ This use DOES NOT qualify for an appropriateness review exemption.  
*Proceed to evaluate the use under Part B.*

If the use meets one of the three qualifying exemptions above, then it is exempt from an appropriate use determination. Skip Parts B, C, D and E and complete Parts F and G, sign and date, and submit a copy to the Refuge Supervisor.

### B. Is the use administratively determined as appropriate in law or policy?

(Please Check One)

The following refuge uses are appropriate because they have been administratively determined as appropriate uses by statute or policy [603 FW 1.11(A)(1); 603 FW 1.6(A)(3)].

\_\_\_\_\_ This use is a wildlife-dependent recreational use.  
*Hunting, Fishing, Wildlife Observation, Wildlife Photography, Environmental Education, or Interpretation.*

\_\_\_\_\_ This use involves the take of fish and wildlife under state/territorial regulations.  
*Including other forms of state-regulated take beyond hunting and fishing.*

\_\_\_\_\_ This use HAS NOT been administratively determined as appropriate by statute or policy.  
*Proceed to evaluate the use under Part C.*

If the use meets one of the two qualifying definitions above, then it is appropriate. Complete Parts E, F, and G, sign and date, and submit a copy to the Refuge Supervisor.

**C. Is the use appropriate because it contributes to the refuge's purpose(s), goals, or objectives or Refuge System mission?**

(Please check one.)

Refuge managers, in their sound professional judgement, may determine a refuge use to be appropriate if it contributes to fulfilling the refuge purpose(s), goals, or objectives described in the refuge's comprehensive conservation plan, or the Refuge System mission [603 FW 1.11 (A)(2)]. Urban wildlife refuges have the additional goal of fostering environmental awareness through outreach programs and activities that develop an informed and involved populace that supports fish and wildlife conservation [110 FW 1.5].

\_\_\_\_\_ This use contributes to the refuge purpose(s), goals, or objectives, or Refuge System mission.  
*Provide a written justification of how the use contributes to the qualifying purpose(s), goals, or objectives or Refuge System mission. Complete Parts E, F, and G, sign and date, and submit a copy to the Refuge Supervisor.*

\_\_\_\_\_ This use DOES NOT contribute to refuge purpose(s), goals, objectives, or Refuge System mission.  
*Proceed to evaluate the use under Part D.*

**D. Is this use appropriate?**

Decision Criteria:	YES	NO
(1) Does the use comply with applicable laws and regulations (Federal, State/Territorial, tribal, and local)?		
(2) Is the use consistent with applicable Executive orders and Department and Service policies?		
(3) Is the use consistent with public safety?		
(4) Is the use consistent with the goals and objectives of approved management plans or other management document?		
(5) If this is the first time the use has been proposed or if it was previously found appropriate, check Yes. If the use was previously analyzed but denied, check No.		
(6) Is the use manageable within available budget and staff?		
(7) Will the use be manageable in the future with existing resources? [603 FW 1.11 (A)(3)(h)].		
(8) Does the use contribute to the public's understanding and appreciation of the refuge's natural and cultural resources?		
(9) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality [603 FW 1.6 (D)], compatible, wildlife-dependent recreation into the future?		
(10) Is the use on an urban wildlife refuge [110 FW 1.15] and/or will it help new audiences become familiar and comfortable with fish, wildlife and their habitats?		

If the answer is "NO" to (1), (2), or (3), mark the use as "Not Appropriate" under Part G. If the answer is "NO" to any of (4) through (10), the use will generally be "Not Appropriate." Refuge managers may, however, check one or more of boxes (4) through (10) and still find the use "Appropriate" by providing a written justification of the finding and how the factor(s) are mitigated or of minimal effect.

Complete Parts E, F, and G, sign and date, and submit a copy to the Refuge Supervisor.

## E. Consultation with State/Territorial Fish and Wildlife Agency

(Please check one.)

Refuge managers must consult with the applicable State/Territorial fish and wildlife agency when a request for a use could affect fish, wildlife, or other resources that are of concern to a State fish and wildlife agency [603 FW 1.7E(3) and 1.12].



Consultation WAS required.

Consultation took place on: 6/27/22

(Month/Date/Year)

Proceed to Part F.



Consultation WAS NOT required.

Proceed to Part F.

## F. Is the use significantly complex or potentially controversial?

(Please check one.)



Yes

If Yes, date the Regional Chief was briefed: \_\_\_\_\_

(Month/Date/Year)

Proceed to Part G.



No

Proceed to Part G.

## G. Finding

Based on my review of all relevant factors, I find the refuge use identified above:



Exempted



Not Appropriate



Appropriate\*

[\* Includes findings that a use is administratively determined as appropriate (Section B and C) or is found appropriate through the use of the decision tool (Section D).]

Refuge Manager\* **RICHARD SPEER**

Digitally signed by  
RICHARD SPEER  
Date: 2022.09.06  
06:41:23 -05'00'

Date 9/6/22

\*Upon signature, all fields except date, Refuge Supervisor signature and date, will be locked as "read only".

## H. Concurrence

The Refuge Supervisor MUST concur and sign a finding of "Not Appropriate" for an EXISTING use if the designation is made OUTSIDE of the Comprehensive Conservation Plan process. The Refuge Supervisor MUST concur and sign a finding of "Appropriate" for any proposed NEW use. Signature from the Refuge Supervisor WILL NOT be necessary for a finding of "Not Appropriate" with a proposed NEW use.

Refuge Supervisor\* **CATHERINE NIGG**

Digitally signed by  
CATHERINE NIGG  
Date: 2022.09.06  
07:35:03 -05'00'

Date \_\_\_\_\_

\*Upon signature, all fields except date will be locked as "read only".

**Any use found to be "Appropriate" will require the development of a compatibility determination before the use may be allowed on Refuge lands.**

## JUSTIFICATION FOR FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: \_\_\_\_\_

Use: \_\_\_\_\_

### NARRATIVE:

Note: Include in the Justification narrative:

- *Your reason for checking a box in Section A to exempt the use from appropriateness review.*
- *Your reason for determining in Section C that the use contributes to the refuge's purpose, goals and objectives, or the Refuge System mission.*
- *Your reason for checking each of the boxes in Section D. Include a concise, substantive explanation as to why boxes were checked, either "YES" or "NO", for each decision criteria. Also, for boxes (4) through (10), if any are checked "NO", be sure to describe how the factor(s) are mitigated, or of minimal effect, if use is determined to be "Appropriate."*

# **Final Compatibility Determination**

## **Title**

Compatibility Determination for Hunting Migratory Game Birds, Upland Game and Big Game at Patoka River National Wildlife Refuge and Management Area.

## **Refuge Use Category**

Hunting

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

Hunting of big game, waterfowl, other migratory birds and upland game

## **Refuge**

Patoka River National Wildlife Refuge and Management Area

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

"... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ..." 16 U.S.C. 3901(b) Emergency Wetlands Resources Act of 1986)

"... particular value in carrying out the national migratory bird management program." 16 U.S.C. 667b (An Act Authorizing the Transfer of Certain Real Property for Wildlife)

"... (1) to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America; (2) to maintain current or improved distributions of migratory bird populations; and (3) to sustain an abundance of waterfowl and other migratory birds consistent with the goals of the North American Waterfowl Management Plan and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries." 16 U.S.C. 4401-4413 (North American Wetlands Conservation Act) "... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ..." 16 U.S.C. 3901(b) Emergency Wetlands Resources Act of 1986)

## **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 and replaces the 2020 compatibility determination for Hunting (migratory game birds, upland game and big game). Hunting has been conducted on the refuge since the 1990s and was evaluated in conjunction with the 2008 Comprehensive Conservation Plan (USFWS 2008b) and again in 2020 when the Migratory Game Bird, Upland Game and Big Game Hunt Plan was completed (USFWS 2020). This use is being reevaluated due to proposed changes as described in the 2022 Sport Fish and Hunting plan and associated Environmental Assessment. The use is consistent with the 2008 Comprehensive Conservation Plan and associated Environmental Assessment and Finding of No Significant Impact (USFWS, 2008b).

What is the use?

There are multiple types of hunting that are permitted under this compatibility determination. The recreational, non-commercial hunting types including big game, upland game, waterfowl and other migratory birds. The following categories are defined by what type of species can be hunted under that hunting type. The refuge is open to hunting of all game species (except frog and turtle) consistent with Indiana Department of Natural Resources Hunting Regulations and Seasons. Recreational hunting of big game includes white-tailed deer and wild turkey. Recreational hunting of upland game species includes squirrel, rabbit, bobwhite quail, pheasant, raccoon, opossum, red fox, gray fox, coyote, and striped skunk. Migratory game bird hunting includes both waterfowl and other migratory game birds. Waterfowl hunting is defined as hunting of ducks, geese, merganser, and coot. Other migratory game birds that are also open to hunting include woodcock, dove, crow, sora/rail and snipe.

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?

The described hunting will occur on refuge lands and waters, specifically identified within the congressionally approved boundary as outlined in the 2022 Hunt Plan and as indicated on refuge hunt maps updated annually through publishing of the hunt and fish brochure. Adding new lands, species, or hunts requires submission of an opening package, which includes an announcement in the Federal Register; this is done on an annual basis as new lands are added to the refuge. As described in previous hunt plans allow expanded hunting and fishing on additional acres after the following determinations have been made for each unit:

- 1) The unit is large enough to support the anticipated quantity, frequency, and duration of hunter use without adversely affecting game populations or habitat conditions within the area;
- 2) Public access to the unit does not require travel across private lands or closed government lands;
- 3) Sites are available for hunters to park their vehicles legally and in a manner that will not adversely affect the habitat in the unit of existing public travel routes;
- 4) Public hunting will not have adverse effects on any federally listed or proposed species of concern; and
- 5) Hunting can be conducted without jeopardizing public safety.

Hunting for all species is open on most refuge land designated in the 2022 Hunt plan, approximately 10,393 acres. Hunting is not allowed at Cane Ridge Wildlife Management Area (466 acres) and Maxey Marsh (62 acres). See map in the 2022 Hunt Plan illustrating the full refuge acquisition boundary of 22,472 acres, current refuge lands open and closed for hunting, and public access points.

Access is provided for hunting through parking lots and boat ramps. Seventeen parking areas have been designated throughout the refuge and three boat ramps provide access to the Patoka River. Parking lots, boat ramps, hunting blinds and other infrastructure may be added throughout the lifetime of this compatibility determination and are compatible to assist in facilitating this use. Compliance outside of compatibility will be completed on a project-by-project basis.

Discharge of firearms within 150 yards of the Buck's Marsh Boardwalk Trail on either side and any dwelling or building on or adjacent to the refuge is prohibited. Hunters are cautioned to identify their targets before shooting. In addition to other hunters, non-hunting visitors are present on the refuge throughout the year and may be on the property at any time. Report any injuries or accidents to refuge headquarters at 510 ½ W Morton St., Oakland City, Indiana or phone at 812-749-3199.

## When would the use be conducted?

The hunting season traditionally begins in August on the refuge with the start of squirrel season. All hunting activities are conducted in accordance with the state of Indiana Department of Natural Resources hunting seasons which are updated annually. See the annual publication of state of Indiana hunting and fishing regulations for official season start and end dates. Some of the more popular species and seasons hunted include the following:

- Migratory Waterfowl: ducks, mergansers and coots, mid-October to mid-January; geese, early September to early February
- Big Game: white-tailed deer, early October to mid-January; wild turkey, during the spring and fall state seasons
- Upland Game: Squirrels and rabbits, mid-August through February; mourning doves, beginning of September to early January; bobwhite quail, early- November to mid-January, raccoon, opossum and fox, mid-October to March; coyote and striped skunk, mid-October to mid-March

The refuge is open for hunting from legal sunrise to legal sunset consistent with state of Indiana shooting time regulations for species with the exception of hunting furbearers. The refuge is open for night hunting after legal sunset of furbearers including coyote, raccoon, fox, opossum and skunk. There is no special entry or access procedures for hunters using the refuge. The refuge does not permit camping or overnight parking.

## How would the use be conducted?

To ensure a quality hunt and visitor and staff safety, all hunting activities are in accordance with federal and state regulations, subject to refuge-specific regulations. State regulations incorporated into the refuge hunting program include all methods of take legal in Indiana except trapping. State regulations, such as seasons, bag limits, and general methods of take, are published annually in the Indiana Digest of Hunting and Trapping Regulations. Trapping is not considered a method of take as defined in this compatibility determination and is evaluated through a separate compatibility determination and associated trapping plan.

On average the refuge receives an estimated 9,200 hunting visits per year. Hunters may only use or possess approved non-lead shot shells and ammunition while in the field. This applies to all species huntable on the refuge including migratory game birds, upland game and big game. Target shooting, camping and campfires are prohibited on the refuge. Dogs may be used for hunting small game and migratory birds. The refuge may not be used for dog training not associated with an actual hunt. We prohibit deer drives, by person or animal, and participating in deer drives on all refuge divisions. No motorized vehicles are allowed within the refuge

unless authorized through a Special Use Permit issued by refuge management.

Other than the federal and state licenses required for huntable species there are no additional special requirements to hunt at Patoka River National Wildlife Refuge and Management Area. Individuals accessing the refuge are subject to inspections of permits, licenses, hunting equipment, harvest limits, boats, vehicles and their contents by federal and state officers. Indiana state regulations and refuge specific regulations will be enforced. Refuge specific regulations supersede state regulations. Only the species listed within this compatibility determination and described in the 2022 hunting and sport fish plan may be harvested.

On refuge property, motorboats are only permitted on Snakey Point Marsh east of the South Fork and on the Patoka River. Motorboats on Snakey Point Marsh are restricted to slow speed and minimum wake. To minimize disturbance to wildlife, gasoline powered motorboats are not permitted on other refuge waters. Air boats are prohibited on all refuge waters. Boats may not be left on refuge property overnight.

A Refuge Hunting and Fishing Regulations brochure and map is available to inform the public of hunting opportunities and refuge regulations. Copies of the hunting brochure are available at the refuge's office and on the refuge website. General information regarding hunting and other wildlife-dependent public uses can be obtained at Patoka River National Wildlife Refuge and Management Area office at 510 1/2 W Morton St, Oakland City, IN 47660, by calling (812)749-3199, or visiting <https://www.fws.gov/refuge/patoka-river-and-management-area>. Regulations pertaining to hunting on all National Wildlife Refuges are found in the Code of Federal Regulations (CFR) 50 CFR including, but not limited to, sections 32.5, 32.33 and parts 26 and 27. Copies of the CFR can be found online and in area libraries; in addition, refuge-specific regulations are available on the refuge's website. The refuge manager may establish specific regulations for an individual unit to ensure the above requirements are met. Certain units or portions of units may remain closed or be periodically closed to hunting if the refuge manager determines that there is specific habitat, wildlife protection, and/or public safety needs that require establishing sanctuary areas. Hunting would be conducted in accordance with all applicable state, refuge, and federal regulations.

### Why is this use being proposed or reevaluated?

Hunting is a priority public use identified in the National Wildlife Refuge Improvement Act of 1997 and it has traditionally occurred at the refuge without adverse impacts to the purpose for which the refuge was established. The refuge is reevaluating this use to provide a priority wildlife-dependent recreation, provide safe hunting activities, and to aid in control of the deer population. Per FWS Policy 603 FW 2.11H. 1 "We will reevaluate compatibility determinations for existing

wildlife-dependent recreational uses when conditions under which the use is permitted change significantly, or if there is significant new information regarding the effects of the use, or concurrently with the preparation or revision of a comprehensive conservation plan, or at least every 15 years, whichever is earlier...” In this instance, the addition of a lead-free regulation for ammunition is a condition that triggered the need to re-evaluate compatibility.

The 2022 Hunt and Sport Fish Plan reassesses the existing refuge hunting and fishing programs and incorporates regulation changes to phase in required use of lead-free ammunition and tackle for all hunting and fishing activities on the refuge by the 2026-2027 hunting and fishing season. The Plan is written as if it were the 2026-2027 hunting and fishing season and for full phased in lead free regulations. Until this time, the refuge will continue to manage the hunting program in compliance with the 2020 Hunt Plan and the fishing program in compliance with the 2017 Sport Fishing Plan. This will allow the continued use of lead ammunition and tackle for hunting and fishing activities; however, the refuge will encourage hunters and anglers to transition to non-lead ammunition and tackle through outreach. As land is added during the interim period between publishing the final draft of this plan and implementing the lead-free regulations the land will be opened consistent to how the remainder of the refuge is operating during the phased in approach. The refuge will remain open consistent with state of Indiana hunting and fishing regulations for all state regulated game species.

Additionally expanding hunting opportunities and aligning regulations with state agencies implements Secretarial Order (S.O.) 3347 Conservation Stewardship and Outdoor Recreation and S.O. 3356 Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories. The hunt program is administered in accordance with sound wildlife management principles and the utmost concern for public safety.

### **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.

#### **Special equipment, facilities or improvements necessary to support the use**

Facilities that are already present (boat ramps, parking lots, signs) will support the use. The refuge will increase and improve hunting access as necessary and as funds are available through the establishment of new infrastructure such as accessible piers, docks, additional boat launches, hunt blinds and parking areas. However, existing refuge resources are adequate to properly and safely administer the use

with existing infrastructure and facilities. Infrastructure and facilities improvements would be a one-time cost that varies depending on the cost of materials. Recurring annual expenses to maintain infrastructure and facilities are covered within existing refuge budget.

### **Maintenance costs**

Roads, parking lots, trail maintenance, mowing, cleaning, and repair are part of the managing station's funding. These costs are part of routine maintenance of public use areas. The refuge does not collect fees associated with offsetting revenues. The Service will update signage, brochures, and other informational materials at all refuge units to reflect the non-lead ammunition and tackle requirements. The Service's law enforcement personnel will also need additional training on the new requirement. These costs can be managed with current personnel and budgets. Importantly, the Service updates informational materials regularly and law enforcement personnel are already acquainted with enforcing non-lead ammunition and tackle requirements due to other stations' regulations and the prohibition of lead shot for migratory waterfowl hunting.

### **Monitoring costs**

Refuge staff spends approximately 3% of their time monitoring this use. State partners at the Indiana Department of Natural Resources are the primary party monitoring wild game populations and health on the refuge.

### **Staff time**

Numerous facilities are currently present to provide access to hunters including existing networks of roads, parking lots, boat ramps and signage. The refuge provides staff and funding to maintain facilities, disseminate information to visitors and enforce regulations as a part of routine management duties.

The biologist and biological program will continue to aid in managing and monitoring wild game species and work with the state to ensure sustainable levels of wild game populations provided staff are available. Refuge management staff or biologist staff may spend a small portion of their time issuing special use permits for accessible access to support hunting use on the refuge.

Law enforcement of refuge and State hunting regulations, trespass and other violations associated with management of the refuge is the responsibility of a Refuge Law Enforcement Officer. Refuge Officers cooperate with, and are assisted by, state and county officers as well as state conservation officers. Ongoing coordination and communication between refuge staff and law enforcement officers is conducted throughout the year. Chronic Wasting Disease (CWD) is present in deer in neighboring states and to monitor this the Indiana DNR has

instituting check stations and opened additional deer seasons. Currently there is not CWD, nor a check station present on the refuge but could occur in the future. If a check station were created on the refuge it would increase the staff time involved in administering hunting use. If this were to occur we anticipate that there will be adequate resources to staff the sampling station.

As the refuge transitions to the lead-free requirements for ammunition additional staff time will be required for education and outreach. Adequate resources are available to manage the existing hunting program and the phased in approach at the current level of participation. It is not anticipated that the level of participation in hunting will increase during the lifetime of this compatibility determination.

### **Anticipated Impacts of the Use**

#### **Potential impacts of a proposed use on the refuge's purpose(s) and the Refuge System mission**

Hunting was evaluated in the environmental assessment associated with the comprehensive conservation plan (USFWS 2008a). Additionally, hunting has been evaluated through hunting plans (USFWS 2020) and associated environmental assessments. In both cases hunting has been found to not significantly impact the human environment through Findings of No Significant Impacts. Additionally, hunting was evaluated through the 2022 Hunt and Sport Fish plan and associated environmental assessment for implementation of lead-free regulations. 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.

Recreational hunting has been a priority use on the refuge since the 1990s and has not shown significant impacts to the refuge, wildlife or habitat. From 2017-2021 the refuge had an average of 30,289 visitors per year. Over this five-year period the refuge had an average per year of 9,258 hunting visitors, 5,099 fishing visitors, and 15,810 wildlife observation visitors. This visitor usage was spread across the entire year averaging out to average of 83 people using the refuge per day (from Refuge RAPP 2017-2021). No substantial increase in hunter visits is expected.

Accommodating this wildlife-dependent use has and is expected to result in minimal impacts to the refuge.

#### **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, floodplains, cultural resources, wilderness, refuge management and operations, and socioeconomics are not further described as there would be no effects from hunting. A more detailed analysis of all impacts can be found in the 2020 Hunting Program Environmental Assessment and the 2022 Hunt and Fish program Environmental Assessment.

### ***Wild Game Species***

Although hunting causes mortality and temporary disturbance to wildlife, harvesting populations to stay within the carrying capacity of existing habitat ensures long term health and survival of the species. Staff monitors species population and harvest trends to ensure that target species can be hunted at the refuge without appreciably adversely affecting these species populations. These monitoring activities include direct observation, consultation with State and Service species specialists, and review of current species survey information and research. Recent assessments of species hunted in the vicinity of the refuge indicate that those species are not facing a general decline. For waterfowl, the annual assessments are based upon the distribution, abundance, and flight corridors of migratory birds. The State of Indiana manages resident game across broad landscapes and allows harvest of annual surpluses through recreational hunting. Hunting does cause mortality and disturbance to those species hunted, but bag limits, season dates, and other regulation, such as closed areas, are set to protect the long-term health and survival of those species. Populations of most species are regularly monitored by state agencies and USFWS refuge staff and have determined that a controlled wild game harvest would not adversely affect overall wild game population levels.

### ***Wildlife and Aquatic Species***

Temporary disturbance to wildlife and aquatic species may result from hunting activity including accessing hunting areas, discharge of firearms or archery equipment, putting up temporary blinds and presence of hunters on refuge land and waters. There could be impacts to sensitive non-target species through excessive disturbance. Disturbance to wildlife is limited to occasional flushing of non-target species during the open hunting season and is estimated to be a short-term disturbance. There are no foreseen long-term impacts to sensitive non-target species from disturbance by hunters. The activity is not expected to cause impacts because, at current use levels, there is sufficient refugia for wildlife adjacent to hunting areas. All motor vehicle use associated with hunting is restricted to designated roads and parking areas which reduces disturbance to wildlife. Littering including trash and ammunition and shot shells can potentially impact wildlife, but existing resources and maintenance are used to mitigate this impact. Furthermore, requirement of lead-free ammunition and shot reduces potential adverse effects to

wildlife and aquatic species. Required use of lead-free ammunition and shot eliminates lead entering the environment on the refuge and potential taken up in plants from the soil or water. Reducing impacts to wildlife and habitat that rely on these resources.

### ***Threatened and Endangered Species***

Federally threatened and endangered species do occur on the refuge, but it is expected that this use will not conflict with recovery or protection of these species. There have been no traceable issues to date. Federally listed species that occur within the acquisition boundary of the refuge include Indiana bat, northern long-eared bat, fanshell, fat pocketbook, sheepnose mussel and the experimental population of whooping crane. The monarch butterfly is the only candidate species known to occur on the refuge. There is no critical habitat for these species on the refuge. Temporary disturbance to listed bats and whooping cranes may result from hunting activity including boat usage, access by hunters including installation and use of temporary blinds, and the activity of hunting including discharge of firearms. The activity is not expected to cause impacts because, at current use levels, there is sufficient refugia for listed bats and whooping cranes adjacent to hunting areas. Whooping cranes are mostly found on the Cane Ridge Wildlife Management Area which is closed to all recreation use including hunting. They may use the rest of the refuge for foraging. Fanshell, fat pocketbook and sheepnose mussels will likely not be impacted by future hunting activities as lead risk will be reduced and most areas where the activity is occurring mussels will not be present. A Section 7 Intra-Service consultation resulted in a *May Affect, Not Likely to Adversely Affect* determination for effects of hunting on all the federally listed and *Not Likely to Jeopardize* all federal candidate species known to be found within the acquisition boundary of the refuge. Details can be found in the Section 7.

### ***Habitat and Vegetation***

Disturbance to terrestrial vegetation and wildlife may result from hunting activity on all refuge habitats. Vegetation may be disturbed during hunting activities or when visitors are gaining access to hunting areas. Given that only light foot travel from hunters accessing the area is expected to occur, we anticipate that any potential long-term damage to plants from foot traffic will be extremely unlikely, and therefore considered inconsequential. Disturbance of vegetation is typically limited in area. Some aquatic vegetation may be disturbed in shallow areas during harvest of wild game. Because this disturbance is expected to be limited in scope and duration the habitat will recover quickly from use.

### ***Geology and Soils***

Disturbance to habitat is minimal although some soil compaction and erosion can occur along access areas. These impacts are generally localized and have little

overall negative impact. Access points are subject to erosion from boat and canoe launching and parking, but cumulative impacts are minimal and managed with regular maintenance.

### ***Water Quality***

Hunting activity and supporting boating activity is not expected to change the existing water quality on the refuge. No additional lead ammunition or tackle would be introduced to Service waters from future hunting, even if the Service's hunting program are expanded. This would prevent lead contamination of Service waters, even if the amount of lead contamination prevented is negligible, and would have a positive, if minor, benefit to water quality in refuge waters.

### ***Visitor Use and Experience***

Recreational hunting by individuals or small groups on the refuge may indirectly impact other recreational users as the use occurs concurrently in places of other recreation (boating, wildlife observation, photography). These indirect impacts are expected to be negligible. From 2017-2021 the refuge had an average of 30,289 visitors per year. Over this five-year period the refuge had an average per year of 9,258 hunting visitors, 5,099 fishing visitors, and 15,810 wildlife observation visitors. This visitor usage was spread across the entire year averaging out to average of 83 people using the refuge per day (from Refuge RAPP 2017-2021). In places where there is conflict between users, hunting may be closed or there are mitigation measures in place for providing safety of users such as safe shooting zones. These areas are indicated in the refuge hunt and fish brochure.

### **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." Fish species/fisheries, 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 analysis. No detrimental long-term impacts from hunting are anticipated as long as wildlife populations are monitored through the Refuge biological program or by the state. Long-term beneficial impacts would be the ability to manage certain wildlife populations that would otherwise prove to be detrimental to habitat critical to other native wildlife.

## Public Review and Comment

A draft of this compatibility determination was available for public review and comment during the federal register public comment period for the 2022-2023 proposed refuge hunting and fishing. The public comment period was open for 60 days from June 9, 2022 through August 8, 2022. The public was made aware of this comment opportunity through newspapers and on the refuge website. A hard copy of this document was available at the Patoka River National Wildlife Refuge and Management Area office at 510 1/2 W. Morton St. Oakland City, IN 47660 and made available online at <https://www.fws.gov/refuge/patoka-river-and-management-area>. Comments were submitted through the federal register review process and not directly to the refuge. Concerns expressed during the public comment period were addressed in this final document.

## Determination

Is the use compatible?

Yes

## Stipulations Necessary to Ensure Compatibility

1. This use must be conducted in accordance with state and federal regulations, and special Refuge regulations published in the refuge brochure and in Title 50 of the Code of Federal Register, 50 U.S.C. §32.2 and 50 U.S.C.32.32.
2. Administrative Closed Areas are closed to all hunting. Hunting is permitted only in designated areas shown on the refuge map found in the refuge hunt and fish brochure and defined in the refuge specific approved hunt and fish plan and associated plan amendments.
3. The unit is large enough to support the anticipated quantity, frequency, and duration of hunter use without adversely affecting game populations or habitat conditions within the area.
4. Public access to the unit does not require travel across private lands or closed government lands.
5. Sites are available for hunters to park their vehicles legally and in a manner that will not adversely affect the habitat in the unit of existing public travel routes.

6. Public hunting will not have adverse effects on any federally listed or proposed species of concern.
7. This use is subject to modification if on-site monitoring by refuge personnel or other authorized personnel results in unanticipated negative impacts to public safety, wildlife species, or their habitats
8. Hunting can be conducted without jeopardizing public safety. Discharge of firearms within 150 yards of designated trails and of any dwelling or building on or adjacent to the refuge is prohibited.
9. Harvest occurs only in populations that can support the removal of individuals.
10. Hunting may be more restrictive than state seasons and regulations to ensure compliance with visitor safety and reduce wildlife disturbance.
11. Hunting hours are determined by state regulations except as restricted by refuge specific regulations.
12. Use of motorized vehicles is limited to maintained roads and parking areas. Utility and all-terrain vehicles are not permitted. The refuge manager may provide approval for exceptions to provide access to hunters with disabilities in designated areas.
13. On refuge property, motorboats are only permitted on Snakey Point Marsh east of the South Fork and on the Patoka River. Motorboats on Snakey Point Marsh are restricted to slow speed and minimum wake. Additional areas adjacent to the Patoka River may be closed to motorboat access to prevent disturbance to wildlife or protect safety of users. Non-motorized boats may be used to support this use.

## **Justification**

In view of the above and with the provided stipulations implemented this use has been determined to be compatible at Patoka National Wildlife Refuge and Management Area. Based on available science and best professional judgement, the Service has determined that recreational non-commercial hunting, in accordance with the stipulations provided here, will not materially interfere with or detract from the purposes of the refuge or the mission of the National Wildlife Refuge System. Allowing this use supports the mission of the National Wildlife Refuge System by providing renewable resources for the benefit of the American public while conserving fish, wildlife and plant resources on the refuge. Hunting is one of the six priority wildlife-dependent recreational uses identified in the National Wildlife Refuge System Improvement Act of 1997. As a priority use, the U.S. Fish and Wildlife Service directs us to provide recreational

hunting opportunities when compatible with the original purpose of the refuge as a resting and wintering area for migrating waterfowl and other migratory birds. Hunting inherently provides visitors with education of native wildlife and habitat while fostering an appreciation for the Refuge Systems lands and waterways. Allowing recreational Hunting is a goal for the refuge outlined in the Comprehensive Conservation Plan (U.S. Fish and Wildlife Service, 2008a).

Hunting seasons and limits are established by state agencies and adopted by the refuge. These restrictions ensure the continued well-being of overall populations of wild game species. Hunting does result in the taking of many individuals within the overall population, but restrictions are designed to safeguard adequate population and recruitment from year to year. On-going habitat restoration and enhancement projects are also improving overall wildlife habitat and increasing the carrying capacity of the refuge. Recreational hunting, 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. Specific refuge regulations address equity and quality of opportunity for hunters and help safeguard refuge habitat. Disturbance to other fish and wildlife does occur, but this disturbance is generally local, short-term and does not adversely impact overall populations. Loss of plants or increases in water turbidity from boat motors is extremely minor to nonexistent. Necessary stipulations limit the effect of hunting on non-target wildlife species and natural habitats. Conflicts between other various user groups are minor given the season of the year for hunting, the location of most hunting away from public use facilities, and the system of administrative closed areas.

### **Signature of Determination**

**RICHARD SPEER** Digitally signed by RICHARD SPEER  
Date: 2022.09.07 16:04:47 -05'00'

Refuge Manager Signature and Date

### **Signature of Concurrence**

**CARL MILLEGAN** Digitally signed by CARL  
MILLEGAN  
Date: 2022.09.08 10:23:27 -05'00'

Assistant Regional Director Signature and Date

### **Mandatory Reevaluation Date**

2037

## **Literature Cited/References**

U. S. Fish and Wildlife Service. 2008a. Patoka River National Wildlife Refuge and Management Area Comprehensive Conservation Plan. U.S. Dept. of Interior, Fish and Wildlife Service, Region 3, Fort Snelling, MN. Available from: <https://ecos.fws.gov/ServCat/DownloadFile/1502>.

U. S. Fish and Wildlife Service. 2008b. Environmental Assessment and Finding of No Significant Impact associated with the Patoka River National Wildlife Refuge and Management Area Comprehensive Conservation Plan. U.S. Dept. of Interior, Fish and Wildlife Service, Region 3, Fort Snelling, MN. Available from: <https://ecos.fws.gov/ServCat/DownloadFile/168995>.

U. S. Fish and Wildlife Service 2020. Patoka River National Wildlife Refuge and Management Area Migratory Game Bird, Upland Game and Big Game Hunt Plan. U.S. Dept. of Interior, Fish and Wildlife Service.

## FINDING OF APPROPRIATENESS OF A REFUGE USE

Use of this form is required for documenting all appropriate use findings (603 FW 1)

Refuge Name: Patoka River National Wildlife Refuge and Management Area

Use: Non- Commercial Fishing

This is a: ☐ New Use

☒ Existing Use

### A. Does this use qualify for an appropriateness review exemption?

(Please Check One)

Some refuge uses are exempted from an appropriateness review [603 FW 1.2; 603 FW 1.2(A)]. Appropriate use finding exemptions are documented through the use of this form.

☐

This use is "protected," "conditioned," or otherwise provided for under law or regulation.

*Examples include the use of snow machines, airplanes, or motorboats on Alaska refuges under certain conditions per the ANILCA. Provide a written justification as to how this use qualifies for this particular exemption.*

☐

The Service does not have jurisdiction over the use

*This could be as a result of treaty rights, court orders, consent decrees, pre-existing rights (such as subsurface Non-Federal oil and gas or mineral rights, grandfathered easements, etc.). Provide a written justification as to how this use qualifies for this particular exemption.*

☐

This is a Right-of-Way Permit request

*Right-of-way requests are subject to 340 FW 3 and compatibility determinations (603 FW 2). Attach a brief explanation as to how this use qualifies for this particular exemption.*

☒

This use DOES NOT qualify for an appropriateness review exemption.

*Proceed to evaluate the use under Part B.*

If the use meets one of the three qualifying exemptions above, then it is exempt from an appropriate use determination. Skip Parts B, C, D and E and complete Parts F and G, sign and date, and submit a copy to the Refuge Supervisor.

### B. Is the use administratively determined as appropriate in law or policy?

(Please Check One)

The following refuge uses are appropriate because they have been administratively determined as appropriate uses by statute or policy [603 FW 1.11(A)(1); 603 FW 1.6(A)(3)].

☒

This use is a wildlife-dependent recreational use.

*Hunting, Fishing, Wildlife Observation, Wildlife Photography, Environmental Education, or Interpretation.*

☐

This use involves the take of fish and wildlife under state/territorial regulations.

*Including other forms of state-regulated take beyond hunting and fishing.*

☐

This use HAS NOT been administratively determined as appropriate by statute or policy.

*Proceed to evaluate the use under Part C.*

If the use meets one of the two qualifying definitions above, then it is appropriate. Complete Parts E, F, and G, sign and date, and submit a copy to the Refuge Supervisor.

**C. Is the use appropriate because it contributes to the refuge's purpose(s), goals, or objectives or Refuge System mission?**

(Please check one.)

Refuge managers, in their sound professional judgement, may determine a refuge use to be appropriate if it contributes to fulfilling the refuge purpose(s), goals, or objectives described in the refuge's comprehensive conservation plan, or the Refuge System mission [603 FW 1.11 (A)(2)]. Urban wildlife refuges have the additional goal of fostering environmental awareness through outreach programs and activities that develop an informed and involved populace that supports fish and wildlife conservation [110 FW 1.5].

\_\_\_\_\_ This use contributes to the refuge purpose(s), goals, or objectives, or Refuge System mission.  
*Provide a written justification of how the use contributes to the qualifying purpose(s), goals, or objectives or Refuge System mission. Complete Parts E, F, and G, sign and date, and submit a copy to the Refuge Supervisor.*

\_\_\_\_\_ This use DOES NOT contribute to refuge purpose(s), goals, objectives, or Refuge System mission.  
*Proceed to evaluate the use under Part D.*

**D. Is this use appropriate?**

Decision Criteria:	YES	NO
(1) Does the use comply with applicable laws and regulations (Federal, State/Territorial, tribal, and local)?		
(2) Is the use consistent with applicable Executive orders and Department and Service policies?		
(3) Is the use consistent with public safety?		
(4) Is the use consistent with the goals and objectives of approved management plans or other management document?		
(5) If this is the first time the use has been proposed or if it was previously found appropriate, check Yes. If the use was previously analyzed but denied, check No.		
(6) Is the use manageable within available budget and staff?		
(7) Will the use be manageable in the future with existing resources? [603 FW 1.11 (A)(3)(h)].		
(8) Does the use contribute to the public's understanding and appreciation of the refuge's natural and cultural resources?		
(9) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality [603 FW 1.6 (D)], compatible, wildlife-dependent recreation into the future?		
(10) Is the use on an urban wildlife refuge [110 FW 1.15] and/or will it help new audiences become familiar and comfortable with fish, wildlife and their habitats?		

If the answer is "NO" to (1), (2), or (3), mark the use as "Not Appropriate" under Part G. If the answer is "NO" to any of (4) through (10), the use will generally be "Not Appropriate." Refuge managers may, however, check one or more of boxes (4) through (10) and still find the use "Appropriate" by providing a written justification of the finding and how the factor(s) are mitigated or of minimal effect.

Complete Parts E, F, and G, sign and date, and submit a copy to the Refuge Supervisor.

## E. Consultation with State/Territorial Fish and Wildlife Agency

(Please check one.)

Refuge managers must consult with the applicable State/Territorial fish and wildlife agency when a request for a use could affect fish, wildlife, or other resources that are of concern to a State fish and wildlife agency [603 FW 1.7E(3) and 1.12].



Consultation WAS required.

Consultation took place on: 6/27/22

(Month/Date/Year)

Proceed to Part F.



Consultation WAS NOT required.

Proceed to Part F.

## F. Is the use significantly complex or potentially controversial?

(Please check one.)



Yes

If Yes, date the Regional Chief was briefed: \_\_\_\_\_

(Month/Date/Year)

Proceed to Part G.



No

Proceed to Part G.

## G. Finding

Based on my review of all relevant factors, I find the refuge use identified above:



Exempted



Not Appropriate



Appropriate\*

[\* Includes findings that a use is administratively determined as appropriate (Section B and C) or is found appropriate through the use of the decision tool (Section D).]

Refuge Manager\* **RICHARD SPEER**

Digitally signed by  
RICHARD SPEER  
Date: 2022.09.06  
06:39:29 -05'00'

Date 9/6/22

\*Upon signature, all fields except date, Refuge Supervisor signature and date, will be locked as "read only".

## H. Concurrence

The Refuge Supervisor MUST concur and sign a finding of "Not Appropriate" for an EXISTING use if the designation is made OUTSIDE of the Comprehensive Conservation Plan process. The Refuge Supervisor MUST concur and sign a finding of "Appropriate" for any proposed NEW use. Signature from the Refuge Supervisor WILL NOT be necessary for a finding of "Not Appropriate" with a proposed NEW use.

Refuge Supervisor\* **CATHERINE NIGG**

Digitally signed by  
CATHERINE NIGG  
Date: 2022.09.06  
07:32:37 -05'00'

Date \_\_\_\_\_

\*Upon signature, all fields except date will be locked as "read only".

**Any use found to be "Appropriate" will require the development of a compatibility determination before the use may be allowed on Refuge lands.**

## JUSTIFICATION FOR FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: \_\_\_\_\_

Use: \_\_\_\_\_

### NARRATIVE:

Note: Include in the Justification narrative:

- *Your reason for checking a box in Section A to exempt the use from appropriateness review.*
- *Your reason for determining in Section C that the use contributes to the refuge's purpose, goals and objectives, or the Refuge System mission.*
- *Your reason for checking each of the boxes in Section D. Include a concise, substantive explanation as to why boxes were checked, either "YES" or "NO", for each decision criteria. Also, for boxes (4) through (10), if any are checked "NO", be sure to describe how the factor(s) are mitigated, or of minimal effect, if use is determined to be "Appropriate."*

# Final Compatibility Determination

## Title

Compatibility Determination for Non-commercial Fishing at Patoka River National Wildlife Refuge and Management Area

## Refuge Use Category

Fishing

## Refuge Use Type(s)

Fishing (non-commercial)

## Refuge

Patoka River National Wildlife Refuge and Management Area

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

"... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ..." 16 U.S.C. 3901(b) Emergency Wetlands Resources Act of 1986)

"... particular value in carrying out the national migratory bird management program." 16 U.S.C. 667b (An Act Authorizing the Transfer of Certain Real Property for Wildlife)

"... (1) to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America; (2) to maintain current or improved distributions of migratory bird populations; and (3) to sustain an abundance of waterfowl and other migratory birds consistent with the goals of the North American Waterfowl Management Plan and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries." 16 U.S.C. 4401-4413 (North American Wetlands Conservation Act) "... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ..." 16 U.S.C. 3901(b) Emergency Wetlands Resources Act of 1986)

## **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 and replaces the 2008 compatibility determination for recreational sport fishing. Fishing has been conducted on the refuge since the 1990s and was evaluated in conjunction with the 2008 Comprehensive Conservation Plan (USFWS 2008b) and again in 2017 when the sport fishing plan was completed (USFWS 2016). This use is being reevaluated at least every 15 years per policy. Additionally, this use is being reevaluated due to proposed changes as described in the 2022 Sport Fish and Hunting Plan and associated Environmental Assessment. The use is consistent with the 2008 Comprehensive Conservation Plan and associated Environmental Assessment and Finding of No Significant Impact (USFWS, 2008b) and the 2022 Hunting and Sport Fish Plan.

**What is the use?**

Fishing (non-commercial) is defined as the harvest of fish, shellfish, or other aquatic organisms for recreational purposes and/or personal consumption (includes collection of bait for personal use) in accordance with State seasons and regulations. The refuge is open to all sport fishing game species (except mussel (clams), leech, minnows, crawfish, frogs and turtles) consistent with Indiana Department of Natural Resources Fishing regulations and seasons.

**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?**

The Refuge provides both bank and boat fishing opportunities on the Patoka River, its oxbows and tributaries and at various lakes. The Patoka River and its tributaries total 33 miles within the Refuge and flow through bottomland hardwoods, marshes, and cropland. The Patoka River is classified as navigable water; state regulations govern the type and amount of fishing and water traffic. Three boat ramps within

the refuge acquisition boundary provide access to the Patoka River. Stream fishing occurs at low levels on the Refuge and is most common at the eight county road bridge crossings along the Patoka River as well as the four bridge crossings along the South Fork Patoka River. There are 19 miles of cutoff oxbows that are surrounded by one or more of the following habitats: bottomland forest, scrub-shrub wetlands, and shallow marsh. Fishing in these oxbows occurs mainly on areas accessible from nearby roads. Fishing is primarily for panfish, crappie, bass and catfish.

The described fishing will occur on refuge lands and waters, specifically identified within the congressionally approved boundary as outlined in the 2022 Hunt and Sport Fish Plan and as indicated on refuge hunt and fish maps updated annually through publishing of the hunt and fish brochure. Adding new lands, species, or fishing opportunities requires submission of an opening package, which includes an announcement in the Federal Register; this is done on an annual basis as new lands are added to the refuge. As described in previous fishing plans expanded fishing is allowed on additional acres after the following determinations have been made for each unit:

- 1) The unit is large enough to support the anticipated quantity, frequency, and duration of angler use without adversely affecting game populations or habitat conditions within the area;
- 2) Public access to the unit does not require travel across private lands or closed government lands;
- 3) Sites are available for anglers to park their vehicles legally and in a manner that will not adversely affect the habitat in the unit of existing public travel routes;
- 4) Public fishing will not have adverse effects on any federally listed or proposed species of concern; and
- 5) Fishing can be conducted without jeopardizing public safety.

#### When would the use be conducted?

Indiana fishing regulations allow fishing year-round for many species, but most fishing activity occurs from March through May. The take of specific fish species on the refuge are subject to the seasons defined by the Indiana Department of Natural Resources and through refuge-specific regulations. Refuge-specific regulations are defined in the Code of Federal Regulations under 50 U.S.C. Part 32.5 and 32.32. Fishing is open from legal sunrise to legal sunset. No night fishing is permitted.

## How would the use be conducted?

Approximately 5,100 visitors fish annually on the refuge. Peak seasons are spring and fall, but fishing occurs year-round. Fishing activity is dispersed throughout the day and throughout the refuge waters. All parking areas that support dispersed fishing are gravel surface. Fishing regulations at the refuge follow the State of Indiana fishing regulations for impounded waters and refuge-specific regulations and limits the traditional taking of fish to rod and reel, pole and line, bow and arrow or crossbow from shore or boats from legal sunrise until legal sunset. Limb lines, jug lines, trot lines and snares are prohibited as the method of catching fish in refuge waters other than the Patoka River channel. All recreational fishing use at the refuge is limited to the taking of sport fish. The take of all other aquatic species, (minnows, leech, turtle, frogs, crawfish and mussels/clams) although allowed by state regulation is prohibited on the refuge. Additionally, the minimum size limit for largemouth bass on Snakey Point Marsh and on the Columbia Mine Preserve is 14 inches.

On refuge property, motorboats are only permitted on Snakey Point Marsh east of the South Fork and on the Patoka River. Motorboats on Snakey Point Marsh are restricted to slow speed and minimum wake. To minimize disturbance to wildlife, gasoline powered motorboats are not permitted on other refuge waters. Air boats are prohibited on all refuge waters. Boats may not be left on refuge property overnight.

Other than the state licenses required for sport fish species there are no additional special requirements to fish at Patoka River National Wildlife Refuge and Management Area. Individuals accessing the refuge are subject to inspections of permits, licenses, fishing equipment, harvest limits, boats, vehicles and their contents by federal and state officers. Indiana state regulations and refuge specific regulations will be enforced. Refuge specific regulations supersede state regulations. Only the species listed within this compatibility determination and described in the 2022 hunting and sport fish plan may be harvested. No commercial fishing is allowed.

A Refuge Hunting and Fishing Regulations brochure and map is available to inform the public of fishing opportunities and refuge regulations. Copies of the hunting and fishing brochure are available at the refuge's office and on the refuge website. General information regarding hunting, fishing and other wildlife-dependent public uses can be obtained at Patoka River National Wildlife Refuge and Management Area office at 510 1/2 W Morton St, Oakland City, IN 47660, by calling (812)749-3199, or visiting <https://www.fws.gov/refuge/patoka-river-and-management-area>. Regulations pertaining to fishing on all National Wildlife Refuges are found in the Code of Federal Regulations (CFR) 50 CFR including, but not limited to, sections 32.2, 32.33 and parts 26 and 27. Copies of the CFR can be found online and in area libraries; in addition, refuge-specific regulations are available on the refuge's

website. The refuge manager may establish specific regulations for an individual unit to ensure the above requirements are met. Certain units or portions of units may remain closed or be periodically closed to fishing if the refuge manager determines that there is specific habitat, wildlife protection, and/or public safety needs that require establishing sanctuary areas. Fishing would be conducted in accordance with all applicable state, refuge, and federal regulations.

Additional fishing access and facilities may be increased as outlined in the Comprehensive Conservation Plan (U.S. Fish and Wildlife Service, 2008).

### Why is this use being proposed or reevaluated?

Fishing is a priority public use identified in the National Wildlife Refuge System Improvement Act of 1997 and it has traditionally occurred at the refuge without adverse impacts to the purpose for which the refuge was established. The refuge is reevaluating this use to provide a priority wildlife-dependent recreation and provide safe fishing activities. Per FWS Policy 603 FW 2.11H. 1 “We will reevaluate compatibility determinations for existing wildlife-dependent recreational uses when conditions under which the use is permitted change significantly, or if there is significant new information regarding the effects of the use, or concurrently with the preparation or revision of a comprehensive conservation plan, or at least every 15 years, whichever is earlier...” In this instance, the addition of a lead-free regulation for tackle is a condition that triggered the need to re-evaluate compatibility.

The 2022 Hunt and Sport Fish Plan reassesses the existing refuge hunting and fishing programs and incorporates regulation changes to phase in required use of lead-free ammunition and tackle for all hunting and fishing activities on the refuge by the 2026-2027 hunting and fishing season. This plan is written as if it were the 2026-2027 hunting and fishing season and for full phased in lead free regulations. Until this time, the refuge will continue to manage the fishing program in compliance with the 2017 Sport Fishing Plan. This will allow the continued use of lead tackle for fishing activities until regulations take full effect in 2026-2027; however, the refuge will encourage anglers to transition to non-lead tackle through outreach. As land is added during the interim period between publishing the final draft of this plan and implementing the lead-free regulations the land will be opened consistent to how the remainder of the refuge is operating during the phased in approach. The refuge will remain open consistent with state of Indiana fishing regulations for all state regulated sport fish species.

Additionally expanding fishing opportunities and aligning regulations with state agencies implements Secretarial Order (S.O.) 3347 Conservation Stewardship and Outdoor Recreation and S.O. 3356 Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and

Territories. The fishing program is administered in accordance with sound wildlife management principles and the utmost concern for public safety.

### **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.

#### **Special equipment, facilities or improvements necessary to support the use**

Facilities that are already present (boat ramps, parking lots, signs) will support the use. The refuge will increase and improve fishing access as necessary and as funds are available through the establishment of new infrastructure such as accessible fish piers, docks, additional boat launches and parking areas. However, existing refuge resources are adequate to properly and safely administer the use with existing infrastructure and facilities. Infrastructure and facilities improvements would be a one-time cost that varies depending on the cost of materials. Recurring annual expenses to maintain infrastructure and facilities are covered within the existing refuge budget.

#### **Maintenance costs**

Roads, parking lots, trail maintenance, mowing, cleaning, and repair are part of the managing station's funding. These costs are part of routine maintenance of public use areas. The refuge does not collect fees associated with offsetting revenues. The Service will update signage, brochures, and other informational materials at all refuge units to reflect the non-lead tackle requirements. The Service's law enforcement personnel will also need additional training on the new requirement. These costs can be managed with current personnel and budgets. Importantly, the Service updates informational materials regularly and law enforcement personnel are already acquainted with enforcing non-lead tackle requirements.

#### **Monitoring costs**

Refuge staff spends approximately 1% of their time monitoring this use. State partners at the Indiana Department of Natural Resources are the primary party monitoring fish populations and health on the refuge.

#### **Staff time**

Numerous facilities are currently present to provide access to anglers including existing networks of roads, parking lots, boat ramps and signage. The refuge

provides staff and funding to maintain facilities, disseminate information to visitors and enforce regulations as a part of routine management duties. The biologist and biological program will continue to aid in managing and monitoring aquatic species and work with the state to ensure sustainable levels of fish populations. As the refuge transitions to the lead-free requirements for tackle additional staff time will be required for education and outreach. Adequate resources are available to manage the existing fishing program and the phased in approach at the current level of participation. It is not anticipated that the level of participation in fishing will increase dramatically during the lifetime of this compatibility determination.

### **Anticipated Impacts of the Use**

Non-commercial fishing was evaluated in the environmental assessment associated with the comprehensive conservation plan (USFWS 2008a). Additionally, fishing has been evaluated through fishing plans (USFWS 2017) and associated environmental assessments. In both cases fishing has been found to not significantly impact the human environment through Findings of No Significant Impacts. Additionally, fishing was evaluated through the 2022 Hunt and Sport Fish plan and associated environmental assessment for implementation of lead-free regulations. 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.

Recreational fishing has been a priority use on the refuge since the 1990s and has not shown significant impacts to the refuge, wildlife or habitat. From 2017-2021 the refuge had an average of 30,289 visitors per year. Over this five-year period the refuge had an average per year of 9,258 hunting visitors, 5,099 fishing visitors, and 15,810 wildlife observation visitors. This visitor usage was spread across the entire year to an average of 83 people using the refuge per day (from Refuge RAPP 2017-2021). This trend is expected to continue over the lifetime of this compatibility determination. No substantial increase in angler visits is expected. Accommodating this wildlife-dependent use has and is expected to result in minimal impacts to the refuge.

### **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, floodplains, cultural resources, wilderness, refuge management and operations, and socioeconomics are not further described as there would be no effects from fishing. A more detailed analysis of all impacts can

be found in the 2016 Fishing Program Environmental Assessment and the 2022 Hunt and Fish Program Environmental Assessment.

### ***Fish Species***

Although fishing causes mortality to fish, season dates and limits are set with the long-term health of populations in mind. Populations of most species are regularly monitored by state agencies and USFWS fisheries staff and have determined that a controlled sport fishing harvest would not adversely affect overall fish population levels. Species commonly taken on the refuge through fishing activities include bluegill, largemouth bass, crappie, and catfish.

### ***Wildlife and Aquatic Species***

Temporary disturbance to wildlife and aquatic species may result from fishing activity including non-motorized and electric-motor boat usage and bank fishing. There could be impacts to sensitive non-target species through excessive disturbance. Disturbance to wildlife is limited to occasional flushing of non-target species during the open fishing season and is estimated to be a short-term disturbance. There are no foreseen long-term impacts to sensitive non-target species from disturbance by anglers. The activity is not expected to cause impacts because, at current use levels, there is sufficient refugia for wildlife adjacent to fishing areas. All motor vehicle use associated with fishing is restricted to designated roads and parking areas which reduces disturbance to wildlife. Littering including trash, derelict fishing tackle and fishing line can potentially impact wildlife, but existing resources and maintenance are used to mitigate this impact. Furthermore, requirement of lead-free tackle reduces potential adverse effects to wildlife and aquatic species. Required use of lead-free tackle eliminates lead entering the environment on the refuge and potentially taken up in plants from the soil or water reducing impacts to wildlife and habitat that rely on these resources.

### ***Threatened and Endangered Species***

Federally threatened and endangered species do occur on the refuge, but it is expected that this use will not conflict with recovery or protection of these species. There have been no traceable issues to date. Species that occur within the acquisition boundary of the refuge include Indiana bat, northern long-eared bat, fanshell, fat pocketbook, sheepsnose mussel and the experimental population of whooping crane. The monarch butterfly is a candidate species that occurs within the acquisition boundary of the refuge. There is no critical habitat for these species. Temporary disturbance to listed bats may result from fishing activity including non-motorized and electric-motor boat usage and bank fishing. The activity is not expected to cause impacts because, at current use levels, there is sufficient refugia for listed bats and whooping cranes adjacent to fishing areas. Whooping cranes are mostly found on the Cane Ridge Wildlife Management Area which is closed to all

recreation use including hunting and fishing. They may use the rest of the refuge for foraging. Fanshell, fat pocketbook and sheepsnose mussels will likely not be impacted by future fishing activities as lead risk will be reduced and most areas where the activity is occurring mussels will not be present. A Section 7 Intra-Service consultation resulted in a *May Affect, Not Likely to Adversely Affect* determination for effects of non-commercial fishing on all the federally listed and *Not Likely to Jeopardize* determination for all federal candidate species known to be found within the acquisition boundary of the refuge. Details can be found in the Section 7.

### ***Habitat and Vegetation***

Disturbance to terrestrial vegetation and wildlife may result from fishing activity on stream, pond, and ditch banks. Vegetation may be disturbed during bank fishing activities or when visitors are gaining access to fishing areas. Given that only light foot travel from anglers accessing the area is expected to occur we anticipate that any potential long-term damage to plants from foot traffic will be extremely unlikely, and therefore considered inconsequential. Some aquatic vegetation may be disturbed in shallow areas during fishing activities or boating. This type of disturbance to vegetation is typically limited in area. Because this disturbance is expected to be limited in scope and duration, the habitat will recover quickly from use.

### ***Geology and Soils***

Disturbance to habitat is minimal although some soil compaction and erosion can occur along bank fishing areas. These impacts are generally localized and have little overall negative impact. Access points are subject to erosion from boat and canoe launching and parking, but cumulative impacts are minimal and managed with regular maintenance.

### ***Water Quality***

Fishing activity and supporting boating activity is not expected to change the existing water quality on the refuge. No additional lead tackle would be introduced to Service waters from future fishing activities, even if the Service's fishing programs are expanded. This would prevent lead contamination of Service waters, even if the amount of lead contamination prevented is negligible, and would have a positive, if minor, benefit to water quality in refuge waters.

### ***Visitor Use and Experience***

Recreational fishing by individuals or small groups on the refuge may indirectly impact other recreational users as the use occurs concurrently in places of other recreation (hunting, boating, wildlife observation, photography). These indirect

impacts are expected to be negligible. From 2017-2021 the refuge had an average of 30,289 visitors per year. Over this five-year period the refuge had an average per year of 9,258 hunting visitors, 5,099 fishing visitors, and 15,810 wildlife observation visitors. This visitor usage was spread across the entire year averaging out to 83 people using the refuge per day (from Refuge RAPP 2017-2021). Conflicts are not expected between user groups as the uses are spread out across 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.” Fish species/fisheries, 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 analysis.

## Public Review and Comment

This draft compatibility determination was made available for public review and comment during the federal register public comment period for the 2022-2023 proposed refuge hunting and fishing rule. The public comment period was open for 60 days from June 9, 2022 through August 8, 2022. The public was made aware of this comment opportunity through newspapers and on the refuge website. A hard copy of this document was available at the Patoka River National Wildlife Refuge and Management Area office at 510 1/2 W. Morton St. Oakland City, IN 47660 and made available online at <https://www.fws.gov/refuge/patoka-river-and-management-area>. Documents in an alternative accessible format were available upon request. Concerns expressed during the public comment period were addressed in this final document. Comments were able to be submitted through the federal register review process and not directly to the refuge.

## Determination

Is the use compatible?

Yes

## Stipulations Necessary to Ensure Compatibility

1. This use must be conducted in accordance with state and federal regulations, and applicable special refuge regulations published in the refuge brochure and in Title 50 of the Code of Federal Register, 50 U.S.C. §32.5 and 50 U.S.C. §32.32.
2. Administrative Closed Areas are closed to all fishing. Fishing is permitted only in designated areas shown on the refuge map found in the refuge hunt and fish brochure and defined in the refuge specific approved hunt and fish plan and associated plan amendments.
3. The unit is large enough to support the anticipated quantity, frequency, and duration of hunter and angler use without adversely affecting game populations or habitat conditions within the area.
4. Public access to the unit does not require travel across private lands or closed government lands.
5. Sites are available for anglers to park their vehicles legally and in a manner that will not adversely affect the habitat in the unit of existing public travel routes.
6. Public fishing will not have adverse effects on any federally listed or proposed species of concern.
7. Fishing can be conducted without jeopardizing public safety.
8. This use is subject to modification if on-site monitoring by refuge personnel or other authorized personnel results in unanticipated negative impacts to public safety, wildlife species, or their habitats.
9. Harvest occurs only in populations that can support the removal of individuals.
10. Fishing may be more restrictive than state seasons and regulations to ensure compliance with visitor safety and reduce wildlife disturbance.
11. Night fishing is prohibited. Fishing will only occur from legal sunrise to legal sunset.
12. Use of motorized vehicles is limited to maintained roads and parking areas. Utility and all-terrain vehicles are not permitted. The refuge manager may provide approval for exceptions to provide access to hunters with disabilities in designated areas.
13. On refuge property, motorboats are only permitted on Snakey Point Marsh east of the South Fork and on the Patoka River. Motorboats on Snakey Point Marsh are restricted to slow speed and minimum wake. Non-motorized boats may be used to support this use.

## Justification

In view of the above and with the provided stipulations implemented this use has been determined to be compatible at Patoka River National Wildlife Refuge and Management Area. Based on available science and best professional judgement, the Service has determined that recreational non-commercial fishing, in accordance with the stipulations provided here, will not materially interfere with or detract from the purposes of the refuge or the mission of the National Wildlife Refuge System. Allowing this use supports the mission of the National Wildlife Refuge System by providing renewable resources for the benefit of the American public while conserving fish, wildlife, and plant resources on the refuge. Fishing is one of

In view of the above and with the provided stipulations implemented this use has been determined to be compatible at Patoka River National Wildlife Refuge and Management Area. Based on available science and best professional judgement, the Service has determined that recreational non-commercial fishing, in accordance with the stipulations provided here, will not materially interfere with or detract from the purposes of the refuge or the mission of the National Wildlife Refuge System. Allowing this use supports the mission of the National Wildlife Refuge System by providing renewable resources for the benefit of the American public while conserving fish, wildlife, and plant resources on the refuge. Fishing is one of the six priority wildlife-dependent recreational uses identified in the National Wildlife Refuge System Improvement Act of 1997. As a priority use, the U.S. Fish and Wildlife Service directs us to provide recreational fishing opportunities when compatible with the original purpose of the refuge. Fishing inherently provides visitors with education of native wildlife and habitat while fostering an appreciation for the Refuge System's lands and waterways. Allowing recreational fishing is a goal for the refuge outlined in the Comprehensive Conservation Plan (U.S. Fish and Wildlife Service, 2008a).

Fishing seasons and limits are established by state agencies and adopted by the refuge. These restrictions ensure the continued well-being of overall populations of fish. Fishing does result in the taking of individuals within the overall population, but restrictions are designed to safeguard adequate population and recruitment from year to year. On-going habitat restoration and enhancement projects are also improving overall fish habitat and increasing the carrying capacity of the refuge for fish. Recreational fishing, 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. Specific refuge regulations address equity and quality of opportunity for anglers and help safeguard refuge habitat. Disturbance to other fish and wildlife does occur, but this disturbance is generally local, short-term and does not adversely impact overall populations. Loss of plants or increases in water turbidity from boat motors is extremely minor to nonexistent. Necessary stipulations limit the effect of fishing on non-target wildlife species and natural habitats.

## Signature of Determination

**RICHARD  
SPEER**

Digitally signed by  
RICHARD SPEER  
Date: 2022.09.07  
16:03:29 -05'00'

Refuge Manager Signature and Date

## Signature of Concurrence

**CARL  
MILLEGAN**

Digitally signed by CARL  
MILLEGAN  
Date: 2022.09.08 10:24:15  
-05'00'

Assistant Regional Director Signature and Date

## Mandatory Reevaluation Date

2037

## Literature Cited/References

- U. S. Fish and Wildlife Service. 2008a. Patoka River National Wildlife Refuge and Management Area Comprehensive Conservation Plan. U.S. Dept. of Interior, Fish and Wildlife Service, Region 3, Fort Snelling, MN. Available from: <https://ecos.fws.gov/ServCat/DownloadFile/1502>.
- U. S. Fish and Wildlife Service. 2008b. Environmental Assessment and Finding of No Significant Impact associated with the Patoka River National Wildlife Refuge and Management Area Comprehensive Conservation Plan. U.S. Dept. of Interior, Fish and Wildlife Service, Region 3, Fort Snelling, MN. Available from: <https://ecos.fws.gov/ServCat/DownloadFile/168995>.
- U. S. Fish and Wildlife Service 2016. 2017 Patoka River National Wildlife Refuge and Management Area Sport Fishing Plan. U.S. Dept. of Interior, Fish and Wildlife Service.

## Intra-Service Section 7 Biological Evaluation Form

Originating Person: Heath Hamilton

Telephone Number: 812-749-3199

Date Submitted: 4/7/2021

For assistance with Section 7 reviews, go to Region 3's Section 7 Technical Assistance website:  
<http://www.fws.gov/midwest/endangered/section7/s7process/>

- I. Region: Midwest Region 3
- II. Service Activity (Program) and Geographic Area or Station Name: Patoka River National Wildlife Refuge and Management Area

- III. List Species (including proposed and candidate Species) or critical habitat (including proposed) found within action area:

Patoka River National Wildlife Refuge and Management Area uses the Information for Planning and Consultation tool (IPAC) to identify threatened and endangered species, including for purposes of this Biological Evaluation. This is done because the IPAC database is the better of the Service's databases for refuge and may contain the best available information on species presence. Nevertheless, in order to ensure a thorough review, this Biological Evaluation considers all threatened and endangered species identified by both the IPAC and ECOS databases. Note, however, that these databases are updated regularly, approximately every 90 days, and, thus, it is possible that the specific threatened and endangered species identified as present on or near the refuge may change between the finalization of this Biological Evaluation and its publication and/or between finalization and your reading this document.

We understand that reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law), and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

Federally listed Threatened and Endangered Species that occur within the acquisition boundary of the refuge include Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), fanshell mussel (*Cyprogenia stegaria*), fat pocketbook mussel (*Potamilus capax*), sheepnose mussel (*Plethobasus cyphus*) and the experimental population of whooping crane (*Grus Americana*). Candidate species include the monarch butterfly (*Danaus plexippus*). Critical habitat is not designated within action area.

Although the interior least tern (*Sterna antillarum*) was mentioned in previous biological evaluations associated with hunting and fishing opening packages, in 2021, the U.S. Fish and Wildlife Service (Service) removed this species from the Federal List of Endangered and Threatened Wildlife due to recovery.

IV. Describe Location including County, State and Township, Section & Range or other specific location information

(\*\*attach map):

There are two parts to this proposed action: (1) the opening of 74.42 acres for hunting and fishing for the 2022-2023 season, and (2) the proposed requirement to use non-lead ammunition and tackle across the entire refuge, which will take effect for the 2026-2027 hunting and fishing season.

The specific action for part one is comprised of 74.42 acres in three tracts/units as described below. These acres will be allowed to continue to use lead ammunition and tackle until the requirement to use non-lead ammunition and tackle throughout the entire refuge takes effect for the 2026-2027 hunting and fishing season. The three units that comprise the 74.42 acres include:

1. Poehlien— 1 acre in Pike County; includes bottomland forest and marsh habitat north of the Patoka River near the State HWY 57. TSR –T.1S, R 8W, sec 32
2. Friends (Smith) – 16.78 acres in Pike County, abandoned bottomland agricultural field currently in early successional forested habitat West of Cup Creek, near the Dillin Bottoms moist soil management area. TSR - T.2S, R6W, sec 30
3. Conservation Partners – 56.64 acres in Gibson County, includes bottomland forest and oxbow habitat south of the Patoka River off CR 150 N. TSR - T.1S, R 9W, sec 36

The area associated with the second portion of this action is the entire refuge approved acquisition boundary of 22,472 acres. However, the area that is being evaluated for impacts in this Section 7 is what is in current Service ownership (approximately 10,625 acres, excluding the newly acquired 74.42 acres). A new Section 7 Intra-Service Consultation will be performed each year that new acres are proposed opened for hunting and fishing to account for the possibility of new species being listed or delisted and the possibility for new occurrences of the currently listed species. A map of the refuge boundary, existing land in Service ownership, and new acres as defined in the first part of this action area can be found in the 2022 Hunt and Fish Plan.

V. Description of proposed action (*attach additional pages as needed*):

The first part of this action is focused on expanding hunting and fishing opportunities as described in the 2019 fishing plan and 2020 hunting plan to the newly acquired 74.42 acres. The refuge will open an additional 74.42 acres to fishing and the hunting of migratory game birds, upland game and big game in accordance with existing State, local, and refuge-specific regulations. Opening these lands to fishing and hunting will provide additional opportunities for the public to enjoy wildlife-oriented recreation. The refuge will continue to allow use of lead ammunition and tackle to occur on these acres until the refuge-wide non-lead ammunition and tackle requirement takes effect in the 2026-2027 hunting and fishing season, as described in the second part of this proposed action. There will be no changes to targeted species for hunting and fishing activities, method of take, or timing on hunting and fishing. Upon the non-lead regulation taking full effect in 2026-2027, the entire refuge will be completely lead-free for all hunting and fishing activities. Non-lead tackle, ammunition and shot will be required to conduct these activities. This analysis evaluates the effects of the continued use of lead on the 74.42 acres and the non-lead ammunition and tackle requirement.

As described in previous Hunt Plans and Fishing Plans, in addition to current authorized hunting and fishing opportunities, we allow expanded hunting and fishing on 74.42 additional acres after the following determinations have been made for each unit:

1. The unit is large enough to support the anticipated quantity, frequency, and duration of hunter and angler use without adversely affecting game populations or habitat conditions within the area;

2. Public access to the unit does not require travel across private lands or closed government lands;
3. Sites are available for hunters and anglers to park their vehicles legally and in a manner that will not adversely affect the habitat in the unit or existing public travel routes;
4. Public hunting and fishing will not have adverse effects on any federally listed or proposed species of concern; and
5. Hunting and fishing can be conducted without jeopardizing public safety.

The Refuge Manager may establish specific regulations for an individual unit to ensure the above requirements are met. Certain units or portions of units may remain closed or be periodically closed to hunting or fishing, pursuant to 50 C.F.R. § 25.21(e), if the Refuge Manager determines that there are specific habitat, wildlife protection (including ESA-listed species), and/or public safety needs that require establishing sanctuary areas. Hunting and fishing are also conducted in accordance with all applicable State, Refuge, and Federal regulations.

- VI. Description of effects (*attach additional pages as needed*):  
*Explain the anticipated effects of the action on species and critical habitats listed in item III. Beneficial and adverse effects, as well as actions to avoid or minimize adverse effects, should be identified.*

The description of effects is divided into two sections as the proposed rulemaking will include two proposed actions: (1) the opening of the 74.42 acres for hunting and fishing, and (2) the requirement to use non-lead ammunition and tackle across the refuge, which will take effect in the 2026-2027 hunting and fishing season. Under the first proposed action, we evaluate the hunting and fishing opening as well as the use of lead ammunition and tackle for species that are present on the 74.42 acres. The second proposed action focuses solely on the evaluation of effect of the lead-free requirement taking effect on the refuge in the 2026-2027 season. As land is acquired and proposed for opening to fishing and activity in future years, we will evaluate those openings and interim use of lead or prohibited use of lead ammunition and tackle on an annual basis.

### **Summary of Hunting and Fishing Activities on the Refuge**

The Indiana hunting season for most popular game species hunted on the refuge falls between October 1 and February 28. Hunting for some species is open year-round; however, those species are not typically pursued on-station but rather on private properties for nuisance management. A few species such as squirrel (mid-August opening), teal (mid-September opening) and dove (September 1 opening) have seasons that begin before October 1, but most hunters utilizing Refuge land pursue either deer (October opening) or waterfowl (all species except early teal, open in late October or early November). Hunting activities are driven by State of Indiana regulated shooting times. Night hunting is allowed for some species, such as furbearers, and hunters can access the refuge prior to sunrise to set up for other game species hunting, such as deer, turkey or waterfowl. Fishing activities can happen all year long on the refuge but are only allowed from legal sunrise to sunset. No nighttime fishing is allowed. Most fishing occurs in the late spring through early fall time period and is predominately focused in areas where there is Patoka River access.

### **(A) Opening of 74.42 acres for hunting and fishing**

- (1) Analysis of Impacts to Listed Species from Lead Use on 74.42 Acres Before Non-Lead Requirement Takes Effect for 2026-2027 Season

We estimate that on an annual basis an additional 17 days of use (15 for hunting, 2 for fishing) will

occur from the hunting and fishing expansion on the 74.5 new acres. Although these acres will be fully open to all species for hunting and fishing consistent with State of Indiana regulations, there are some species that will not be harvested due to limited opportunity based on habitat availability and size of parcels for hunting. The refuge staff, using their best professional judgement, estimates that these acres will be hunted predominately for white tailed deer, waterfowl, squirrel and turkey. In addition to those species, there is a limited chance that hunting of snipe, woodcock and dove would also occur opportunistically. Pass-through access for raccoon hunting on the 56-acre or the 17-acre tracts may occur as they are adjacent to larger areas that support raccoon hunting, which occurs during nighttime hours November through January. Only 56.5 acres would support sport fishing activities that anglers would find easy to access for bank fishing. On the other 18 acres there are fisheries present, but the access to the sites is challenging.

Lead single-projectile ammunition can be used for furbearer hunting, including squirrel, rabbit, opossum, fox, coyote, skunk and raccoon and all ammunition for deer hunting (single projectile or buck shot ) can be used during the hunting season until the second part of this action takes effect, and all ammunition will be required to be non-lead for the 2026-2027 hunting season. The amount of lead introduced to the environment because of deer and squirrel hunting on the 74.42 acres, however, is negligible given expected participation levels, encouragement on removing gut piles and spent shells, and potential use rates of non-lead ammunition as some hunters may make the transition earlier than the required date. We estimate that each year only 2 deer and up to 20 squirrels will be harvested on these new acres. Squirrel hunters can use both rifle and shotgun to harvest squirrel. Most hunters choose to use shotguns for squirrel hunting, and non-toxic shot is already required for this method of take. All harvested squirrels are removed from the premises and deer hunters are encouraged to remove gut piles as well, reducing the amount of lead entering the refuge environment. The amount of lead that could enter the environment until the lead-free requirement takes effect would be from up to four years of hunting, including up to 8 deer and 80 squirrels harvested using approved methods of take where lead ammunition could potentially be used. Lead that would enter the environment from these activities would be from missed shots and fragments from ammunition that has left the body of harvested animals. Given the hunting practices may not result in lead ammunition use, encouragement of hunters to transition to early adoption of non-lead ammunition and amount of take estimated using lead ammunition, the lead that would enter the environment is insignificant. All other hunting that would occur on these acres is lead-free, including waterfowl and turkey, so no additional lead would enter the environment from those activities.

Lead tackle can be used during the fishing season. The amount of lead introduced to the environment because of sport fishing, however, is negligible, given expected participation levels and potential use rates of non-toxic tackle from anglers adopting an early transition to required use of lead-free tackle. We expect only an additional 2 days of use per year, and anglers may or may not use lead tackle during the years leading up to the non-lead requirement. The amount of lead introduced to the environment because of sport fishing, however, is insignificant given that minimal fishing will occur on these units due to the limited access to water to support the use, and most lead that enters the environment is from derelict fishing tackle being left in the environment. Effects of the newly opening hunting and fishing activities and use of lead until lead-free requirements take effect is outlined below for species that are found on or could use the 74.42 acres.

*(a) fanshell mussel, pocketbook mussel, sheepsnose mussel and whooping crane*

Staff present on the refuge and conducting this evaluation generally have the best available

information about the presence of fish and wildlife species within the action area. Thus, where species are identified by either database, but the refuge has information that the species is not actually present within the action area, we consider that in our analysis. Fanshell mussel, fat pocketbook mussel, sheepnose mussel and whooping crane have been documented to occur within the refuge acquisition boundary but have not been specifically documented on the properties within the specific action area of the 74.42 acres, so the chance of these species encountering lead from this area is extremely unlikely and, therefore, discountable. In the unlikely event that a whooping crane does enter the action area, the amount of lead in the environment is so small that any potential effects to the whooping crane are expected to be insignificant, such that it would never rise to the level of take. For the mussel species, the impacts are extremely unlikely to occur and, therefore, discountable because the species are not present in this area, and where they are present in the Patoka River is far from these units, where lead effects will not likely reach them, even through the watershed. Thus, the potential effects from opening these areas and allowing the use of lead ammunition and tackle in the interim are not likely to adversely affect the whooping crane, fanshell mussel, fat pocketbook mussel and sheepnose mussel.

The potential impacts on the Indiana bat, Northern long-eared bat and the monarch butterfly specific to the opening of hunting and fishing to the 74.45 acres are presented below as they have been documented to occur on these acres.

*(b) Indiana bat, northern long-eared bat and monarch butterflies*

Lead ammunition can be used during the deer, squirrel, and furbearer hunting seasons until 2026-27 hunt and fish season on the 74.42 acres. Fishing with lead tackle on these acres is also allowed until the non-lead requirement takes effect. The amount of lead introduced to the environment because of deer and squirrel hunting and fishing activities, however, is insignificant, given the facts described earlier in the background section. We also encourage the use of non-lead ammunition and tackle and educate hunters about impacts of lead during the four-year transition period. The bioaccumulation of lead is a potential concern, but it does not present a significant issue for this activity on this refuge because lead added to the environment from this activity is in such small quantity that there is a low probability of accumulation of lead from food sources of bats and monarchs, and there would be no direct consumption of lead by these species. Lead bullets typically retain 90-95% of their weight after being shot from a weapon. Only a small portion of the lead bullets enter the environment, in part because lead bullets and fragments often remain in harvested animals that are removed from the environment and missed shots by hunters where the entire bullet enters the environment are infrequent.

The potential for lead impacts to bats is discountable due to Indiana and northern long-eared bats' diets and foraging habits. Lead bullet fragments would have to break down in the soil in order to be taken up by plants near the area in which the fragments fall on or penetrate the soil surface. Typically, however, plants do not take heavy metals up until they have reached critical thresholds in the soil (Sharma Dubey 2005). If lead is taken up by plants, it is mainly through the root system and partly, in minor amounts through the leaves. Inside the plants lead accumulates primarily in the root, but a part of it is translocated to the aerial portions. Larvae of certain herbivorous insect species could ingest some of the lead when they eat the exposed plants. Some of the insects could then be consumed by bats. Northern long eared and Indiana bats' diet is insects such as moths, flies, leafhoppers, caddisflies and beetles, only some of which are herbivorous. In addition, bats are transitory in nature and will not consume their entire diets on the refuge area. Considering the chain

of events that are necessary for exposure and the small amount of lead that would contribute to lead concentrations in refuge soils, it seems likely that many bats that occur on refuges will not consume lead derived from ammunition fired by hunters or left by anglers on the refuge.

The potential for lead impacts to monarchs is discountable due to their diets. Adult monarch butterflies feed on nectar. Nectar typically carries less lead contaminants than other parts of the plant if lead is absorbed through the plant. Larvae consume the leaves and stems of milkweeds, where higher concentrations of lead could be present, if lead is absorbed through the plant. Lead absorption by plants typically occurs first through roots and only makes its way into other plant parts if concentrations are high enough. This means that, as with bats, bioaccumulation through the plant to the monarch butterfly or larvae could potentially occur. However, as with bats, it relies on the very unlikely occurrence that lead concentrations in the soil from hunting activities reach high enough levels for uptake by plants, and in this case, it would further require uptake by milkweed and the specific plants that monarchs rely on for nectaring sources.

The lead introduced on these 74.42 acres through authorized hunting and fishing activities is not likely to adversely affect the monarch butterfly, northern long-eared bat, and Indiana bat because the species only have a transitory presence on the refuge and the potential lead exposure is discountable, as provided above.

## (2) Analysis of Other Impacts from Opening 74.42 Acres to Hunting & Fishing

### *(a) Indiana bat and Northern long-eared Bat*

Indiana bats and Northern long-eared bats may be present in the 74.42 acres through October, following their summer presence, but are not likely to be adversely affected by a relatively small group of hunters pursuing species like squirrel, dove, woodcock and crows when bat and hunter use could overlap. During the peak of hunting use from October through early spring, both bat species are expected to be in hibernation in caves (off the refuge) and not found on the refuge. Because most hunting will occur during daylight hours when bats could be roosting, although night hunting is allowed for furbearer species, we do not expect hunting to occur on these acres when bats would be present given the type of hunting expected to occur on these acres. If bats are present on the refuge during earlier hunting seasons that open in August or September, like squirrel hunting, there may be temporary disturbance to bats that may be roosting in trees from dog barking and gun use. This disturbance is an insignificant impact as it is temporary in nature and lasts only for the duration of the noise; it is likely that the effects will be limited to bats vocalizing and not flushing from roost trees during daylight hours. Although hunter presence on these acres could disturb the bats during roosting times, any other potential disturbance due to walking through the habitat or use of the tree stands from deer hunting activity is expected to have discountable or insignificant effects. Trees that bats select for roosting typically are dead or dying, with large, thick slabs of peeling bark. These trees are typically not the same trees that hunters will select to put tree stands in for safety reasons or lack of coverage for camouflage. Thus, the likelihood of bats and hunters using the same trees is very low. If a hunter used a tree that a bat happened to be roosting in to put their tree stand on, the bats would likely not leave the roost tree during daylight hours. As a result, the potential for overlapping presence is discountable and the impacts if bats and hunters are both present in the action area are insignificant.

Anglers will be able to use a portion of these lands, but their impacts will be concentrated to areas around water as that is where use will occur. There is no nighttime fishing allowed, so any potential impacts would be limited to anglers walking through the unit to gain access to water banks for fishing. The effects to bats by anglers walking through the habitat where bats may be roosting is discountable given the bats and anglers are likely not to overlap in space or time of day and walking activities will not rouse bats from roosting habitat. As a result, the effects from fishing access or activities would be insignificant. Effects of hunting and fishing activities, including the continued use of lead ammunition and tackle until the non-lead requirements take effect on the 74.42 acres, are not likely to adversely affect the northern long eared bat or the Indiana bat.

*(b) Monarch Butterfly*

Surveys have not formally been completed to indicate monarch presence on these units, but monarchs are present throughout most of Indiana from Late April/May through September/October, so it can be assumed that monarchs could be found on these acres. Limited hunting occurs from May through September when monarchs are reproducing, although this is the time period when anglers will use the refuge. Monarch butterfly use of areas from August-October when hunters are using the refuge is predominately by adult butterflies seeking nectaring sources for the migration south. In order to access the 74.42 acres opening for hunting and fishing, hunters and anglers are most likely to use tracts through forested parts of the refuge, where monarchs and their nectaring plants generally do not occur. Furthermore, given that only light foot travel from hunters and anglers accessing the area is expected to occur on these acres, we anticipate that any potential damage to nectaring plants from foot traffic disturbance will be extremely unlikely, and therefore considered discountable. Hunting and fishing also does not result in the removal of vegetation, including nectaring sources or milkweed, and so it would have negligible impacts to habitat resources important for monarchs. We expect that use of the area subject to the proposed hunting and fishing opening will be limited to an additional 17 days of use by hunters and anglers. As there will be limited hunters and anglers present, encounters with monarch butterfly or caterpillars will be infrequent and presence of humans will likely not disturb the monarchs, given they are fairly tolerant of human presence. Noise disturbance from discharging of a firearm while hunting may startle the species resulting in change in flight pattern or freezing in place of caterpillars, but this impact will not result in long-term negative impacts and is considered discountable as this type of noise is not frequent enough to result in habituation to noise that could cause butterfly or caterpillar to not respond to natural threats like parasitism (Taylor and Yack, 2019). Adults change flight patterns and caterpillars momentarily stop in response to many other natural stimuli throughout a typical day. Therefore, the effects of opening the 74.42 acres for hunting and fishing, including the continued use of lead ammunition and tackle until non-lead requirements take effect, are Not Likely to Jeopardize the monarch butterfly.

*(c) fanshell mussel, pocketbook mussel, sheepnose mussel and whooping crane*

Fanshell mussel, fat pocketbook mussel, sheepnose mussel and whooping crane have been documented to occur within the refuge acquisition boundary but have not been specifically documented on the properties within the specific action area of the 74.42 acres, so the chance of these species overlapping with hunter and angler use in this area is extremely unlikely and, therefore, discountable. Use by anglers and hunters along the Patoka River where mussels may be found is concentrated to banks where mussels would likely not be present or impacted by foot traffic for accessing and participating in hunting and fishing activities. In the unlikely event that a whooping crane does enter the action area, the amount of potential overlap with hunters and anglers is so small that any potential effects to the whooping crane

are expected to be insignificant given it would be limited to temporary disturbance for foraging and not nesting activities, such that it would never rise to the level of take. Furthermore, the type of hunting that will occur on the refuge would likely not result in the mistaken harvest of whooping cranes as swan and sandhill crane hunting, species which could be mistaken for whooping cranes, are not open for hunting.

**(B) Analysis of Impacts to Listed Species After Non-lead Ammunition and Tackle Requirement Takes Effect for 2026-2027 Season**

Indiana bat, northern long-eared bat, fanshell mussel, fat pocketbook mussel, sheepsnose mussel, the experimental population of whooping crane, and the monarch butterfly could all be present on the refuge associated with the second portion of the analysis. Although the Environmental Assessment, analyzes impacts to lands in current Service ownership and lands that could potentially be protected within the entire refuge approved acquisition boundary which totals 22,472 acres, this Section 7 is limited to evaluating the lands currently in Service ownership within the authorized boundary (10,699 acres including the 74.42 acres proposed for hunt expansion in part one). A new Section 7 intra-service consultation will be performed each year for new acres that are proposed to be opened for hunting and fishing. This accounts for the possibility of new species being listed or delisted and the possibility for new occurrences of the currently listed species. Therefore, we evaluated each species for impacts associated with the required use of non-lead ammunition and tackle, effective the 2026-2027 hunting and fishing season. Until the refuge requires lead-free ammunition and tackle, lead can enter the environment through lead-ammunition use for white-tailed deer, furbearer, and squirrel hunting. Lead typically enters the environment as fragments from bullets or from gut piles or lead fishing tackle being left on the refuge. Lead-free shot has been required for all upland, furbearer and turkey hunting since 2015 and for waterfowl hunting since 1991, reducing the amount of lead entering the environment through shotgun shell use over the years. Over the next few years, the refuge will encourage all anglers and hunters to adopt lead-free ammunition and tackle use, prior to the 2026-2027 hunting season, when it will be a requirement to use lead-free ammunition and tackle to participate in any hunting or fishing activity on the refuge. This could result in hunters and anglers reducing lead entering the environment earlier. There may be some effect on all species in the interim as discussed below for each species, but that lead will be phased out completely by 2026-2027. Therefore, by 2026-2027, there will be no new introduction of lead, and the only potential effects would be from the bioaccumulation of lead from previous years.

*(1) Whooping Crane*

In the past six years, as many as twelve whooping cranes from the experimental flock of whooping cranes raised in Wisconsin have begun to use the refuge from October through February as a wintering site. These whooping cranes have primarily been using the Cane Ridge Wildlife Management Area. This area is managed as a sanctuary and is closed to all public use, except for public roadways and the observation deck. Cane Ridge WMA will continue to be closed to public access and managed to provide suitable habitat for wintering/migrating whooping cranes and other species like waterfowl. This proposed action will not change that, and hunting and fishing will not be allowed on these acres. Cane Ridge WMA is located near the Wabash River over 20 miles west of the main Patoka River National Wildlife Refuge and Management Area that is open for hunting and fishing activities. The refuge prepared three interpretive signs with pictures of the whooping crane and other similar appearing species for which cranes could be mistakenly identified such as snow geese, swans, white pelicans and sandhill cranes that are now displayed on refuge information boards in the field. Refuge staff will continue to educate the public about the presence of these birds and the care which must be taken to avoid accidentally shooting a protected species. It's possible that whooping cranes could

use the main unit of the refuge, which is open for hunting, but this is unlikely because they have been infrequent visitors to this area. An administrative closure may be warranted if whooping cranes are found to occur on a main refuge unit that is open to hunting and fishing, pursuant to 50 CFR 25.21(e), to reduce any impacts from disturbance of these activities.

As whooping cranes could use the main refuge unit, there is a potential for them to be impacted by lead that has entered the environment from hunting and fishing activities of the past and over the phased in period. Once lead-free requirements are implemented, no additional lead will be added to the environment, reducing the potential and risk of whooping cranes picking up lead tackle or ammunition fragments as grit or through bioaccumulation through food sources. There is residual lead in the environment from hunting and fishing activities that they could still be exposed to; however, this is likely an insignificant amount of lead available for direct ingestion and will decrease over time. Whooping cranes forage for food in shallow water or along the ground and use their long bills to capture prey or root around in soil or mud for insects. Whooping crane diet is composed of large nymphal or larval forms of insects, frogs, rodents, small birds, minnows and berries. In addition to these food sources, whooping cranes will collect stones or pebbles to fill their gizzards. There have been instances where whooping crane mortality is linked to lead poisoning from ingestion of lead shot (Fisher et al., 2006) or tackle (Synder et al., 1992), but not from single-projectile ammunition. There is a very small chance that lead tackle or ammunition fragments left on the refuge could be picked up by this species for use in the gizzard. As lead entering the environment from these activities is limited and spread across the entire refuge, there is a very low likelihood that cranes that could be foraging on a given area of the refuge would come across these sources of lead while looking for food or grit.

The bioaccumulation of lead is a potential concern, but it does not present a significant issue for this activity on this refuge because lead currently in the environment will become less bioavailable over time, and lead that will be added in the interim across the refuge until the regulations take effect in 2026-2027 will be spread across a large geography and limited to deer and furbearer hunting where ammunition is used and when lead tackle is left accidentally in the environment. Furthermore, bioaccumulation is not of concern for this species within the food chains of the species given the types of food it eats begin in lower trophic levels (nymphal or larval forms of insects, frogs, rodents, small birds, minnows and berries). These food species are too small to ingest lead themselves and do not themselves consume food sources likely to contain lead from ammunition or tackle. The effects of lead entering the environment on the rest of the refuge on an interim basis, until completely being prevented by implementing lead-free requirements, will have discountable and insignificant impacts to the whooping cranes. They are not likely to use the refuge for foraging in areas open for hunting and fishing, as they have not been noted to do so in the last six years. Moreover, if they were to forage in areas open to these activities, existing and additional lead added to the environment is minimal and spread across a large area, making overlap of foraging area and lead use unlikely. After the non-lead requirement goes into effect, there will be no new sources of lead and residual lead left in the environment will be less bioavailable for direct consumption through grit as it is buried in sediment. Thus, the non-lead requirement may result in some beneficial impacts. Therefore, the proposed action to ultimately require lead free ammunition and tackle will not likely adversely affect the whooping crane.

## *(2) Fanshell, Fat Pocketbook and Sheepnose Mussels*

Surveys of the Patoka River that runs through the approved refuge acquisition boundary have indicated that sheepnose and fanshell mussels are not found in the river within the refuge boundary, while a single weathered, dead fat pocketbook mussel was found during the survey. As the survey indicates that there may be fat pocketbook mussels present on reaches of the Patoka River, The impacts of lead on this species and mussels in general during the period of

time until the non-lead requirement takes place is evaluated in the paragraph below. If sheepsnose and fanshell mussels were found to be present in the river, the effects of lead and the lead ban would be the same to these species as it would be to the fat pocketbook mussel. Other waterbodies on the refuge would not provide sufficient habitat for the mussels, and therefore we conclude that they are not found in any other water bodies on the refuge.

There is a chance that continued use of lead ammunition and tackle during the period before the non-lead requirement takes effect could result in lead entering the water where mussels could be present. Typically, lead is not soluble in water unless the conditions are right, such as the body of water being more acidic. Lead may be present in the Patoka River from fishing tackle being left in the water or from lead fragments of ammunition being pushed to the river through runoff during rain events. Most hunting occurs near the Patoka River. Deer and furbearer hunting occur on larger tracts of land, which are typically associated with the Patoka River. These activities may be a source of lead entering the environment in the upland from spent ammunition but could enter the Patoka River in small amounts from runoff events. Historically, the Patoka River has been impacted by acidic waters from abandoned coal mines, leading to a higher chance of lead becoming soluble in events where acidic waters is carried into the Patoka River during heavy rain events and bioavailable for mussel uptake. However, more recent water quality surveys (1991 to present) show the Patoka River has remained in a fairly neutral range for pH (between 7.0 and 8.0) over this timeframe, which would prevent lead from becoming soluble in water and available to mussels.

Mussels are suspension-feeders, meaning they siphon water and feed on suspended algae, bacteria, detritus and microscopic animals. Adult mussels are easily harmed by toxins and degraded water quality from pollution because they tend to stay in one place. Contaminants may kill mussels directly if concentrations are high enough, but they may also indirectly harm sheepsnose by reducing water quality, which reduces survival and reproduction and lowers the numbers of host fish. Lead present in the river from breakdown of lead tackle and ammunition fragments is not in high enough concentrations to impact mussel reproduction or survival, or cause death of mussels. We expect the effects from authorized lead use during the time leading up to the refuge switch to lead-free ammunition to be discountable and insignificant due to the small amounts of lead that are expected to enter the environment and the specific circumstances that would need to occur for lead to have a measurable effect on the species (e.g., water acidity and lead at high enough concentrations). Therefore, any potential lead added to the watershed in this interim time period, before the non-lead requirement takes effect, is also not likely to adversely affect mussels. When the non-lead requirement takes effect in 2026, only legacy lead will enter the aquatic environment and cause even less potential risk of impacting this species and potentially some beneficial impacts. Therefore, the proposed action to ultimately require lead-free ammunition and tackle is not likely to adversely affect the fat pocketbook mussel or the fanshell or sheepsnose mussels if they are present in the Patoka River.

### *(3) Indiana bat, northern long-eared bat and Monarch butterfly*

Impacts to these species during the interim period, before the non-lead requirement takes effect, are similar to those described in the section analyzing the effects of opening the 74.42 acres. After the non-lead requirement goes into effect in 2026, any potential effect will continue to be reduced to an even further discountable and insignificant level. There may also be some beneficial impacts from the non-lead requirement because the proposed action would prevent additional lead ammunition and tackle from entering the environment. As the circumstances are similar on the rest of the refuge, the determination does not change under this scenario, and the proposed action to ultimately require lead free ammunition and tackle is not likely to adversely affect Indiana and northern long-eared bats and is not likely to jeopardize the monarch butterfly candidate species. .

## References

This determination is based upon the science referenced in the environmental assessment associated with the proposed action described in this analysis. Where there is not an overlap in literature cited, specific references have been included.

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**B. Determination** *(Select one and corresponding response if applicable)*

Determination	Response request from Ecological Services
<input type="checkbox"/> No Effect on species/critical habitat list species/critical habitat:	<input type="checkbox"/> Concurrence <i>(optional)</i>
<input checked="" type="checkbox"/> Not Likely to Adversely Affect species/critical habitat list species/critical habitat: Indiana bat, northern long-eared bat, fanshell mussel, fat pocketbook mussel, sheepnose mussel and whooping crane	<input checked="" type="checkbox"/> Concurrence
<input type="checkbox"/> Likely to Adversely Affect species/critical habitat list species/critical habitat:	<input type="checkbox"/> Formal Consultation
<input type="checkbox"/> Likely to Jeopardize candidate or proposed species/critical habitat list species/critical habitat:	<input type="checkbox"/> Formal Conference
<input checked="" type="checkbox"/> Not Likely to jeopardize candidate or proposed species/critical habitat. List species/critical habitat: monarch butterfly	<input type="checkbox"/> Concurrence <i>(optional)</i>

**RICHARD SPEER** Digitally signed by RICHARD SPEER  
Date: 2022.09.02 07:51:43 -05'00'

9/2/2022

Signature

Date

*[Supervisor at originating station]*

**Reviewing Ecological Services Office Evaluation** *(check all that apply):*

A. ☒ **Concurrence**

☐ **Nonconcurrence**

*Explanation for nonconcurrence below:*

B. ☐ **Formal Consultation Required**

*List species or critical habitat unit below:*

C. ☐ **Conference Required**

*List species or critical habitat unit below:*

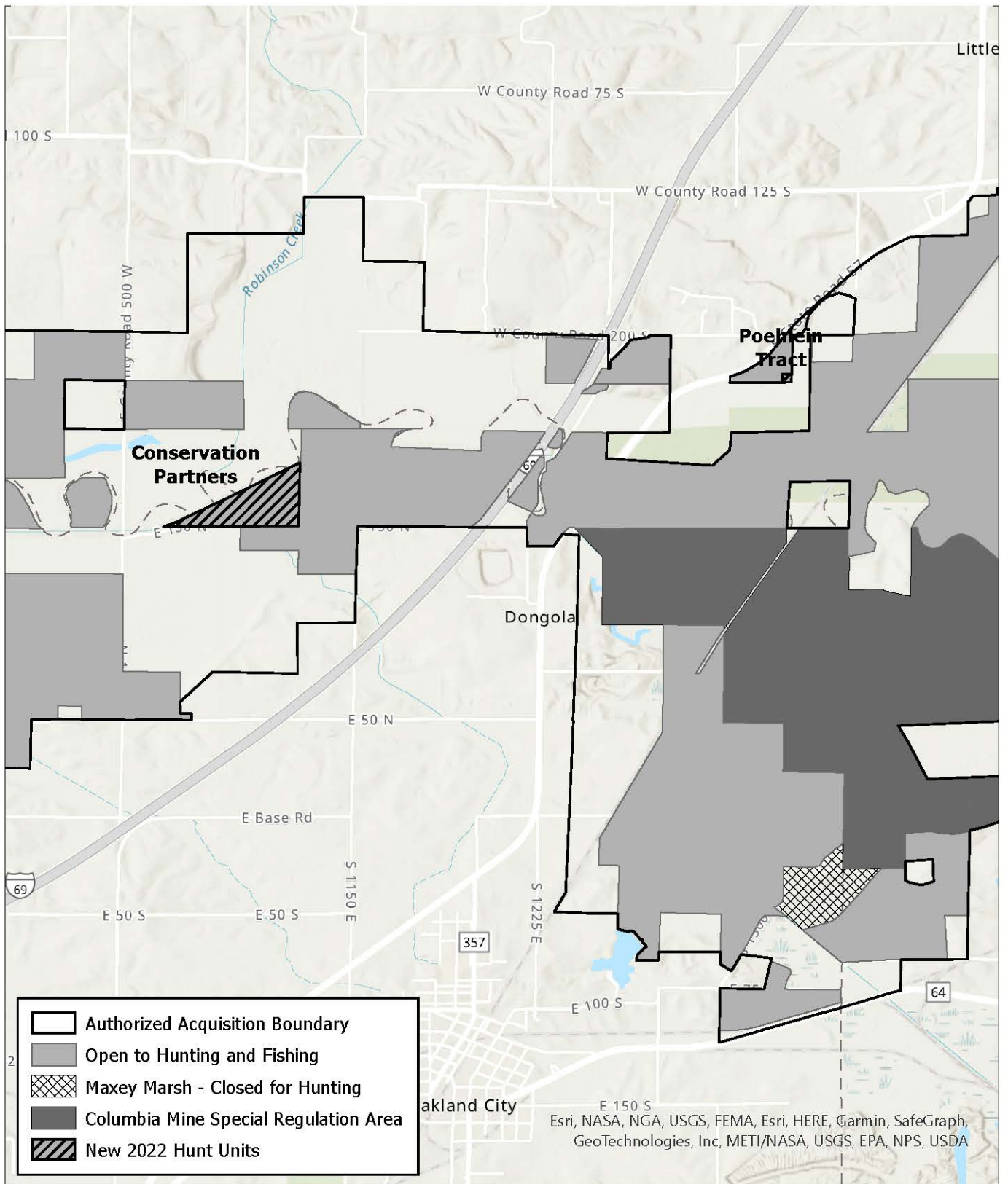
Name of Reviewing ES Office: \_\_\_\_\_

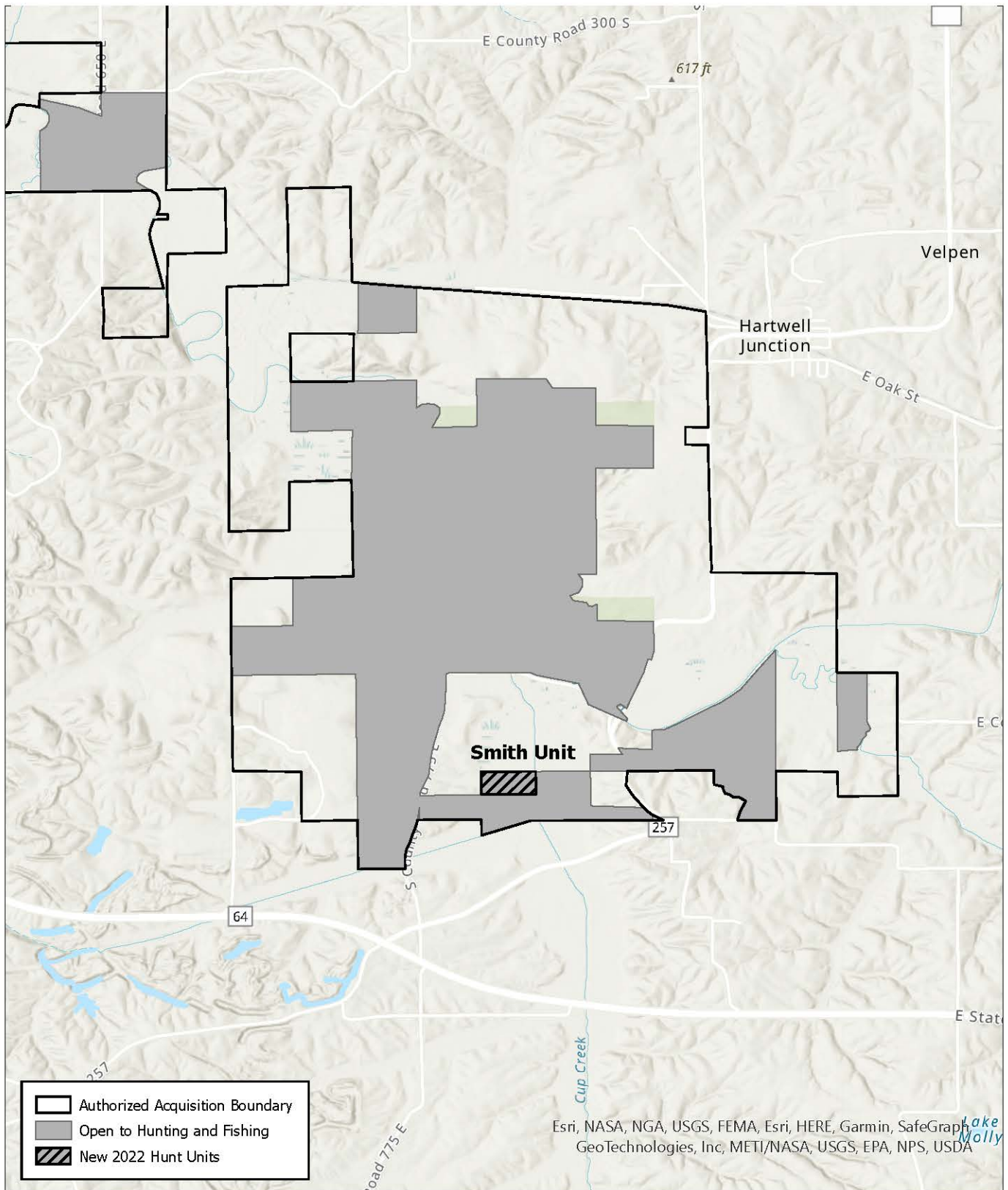
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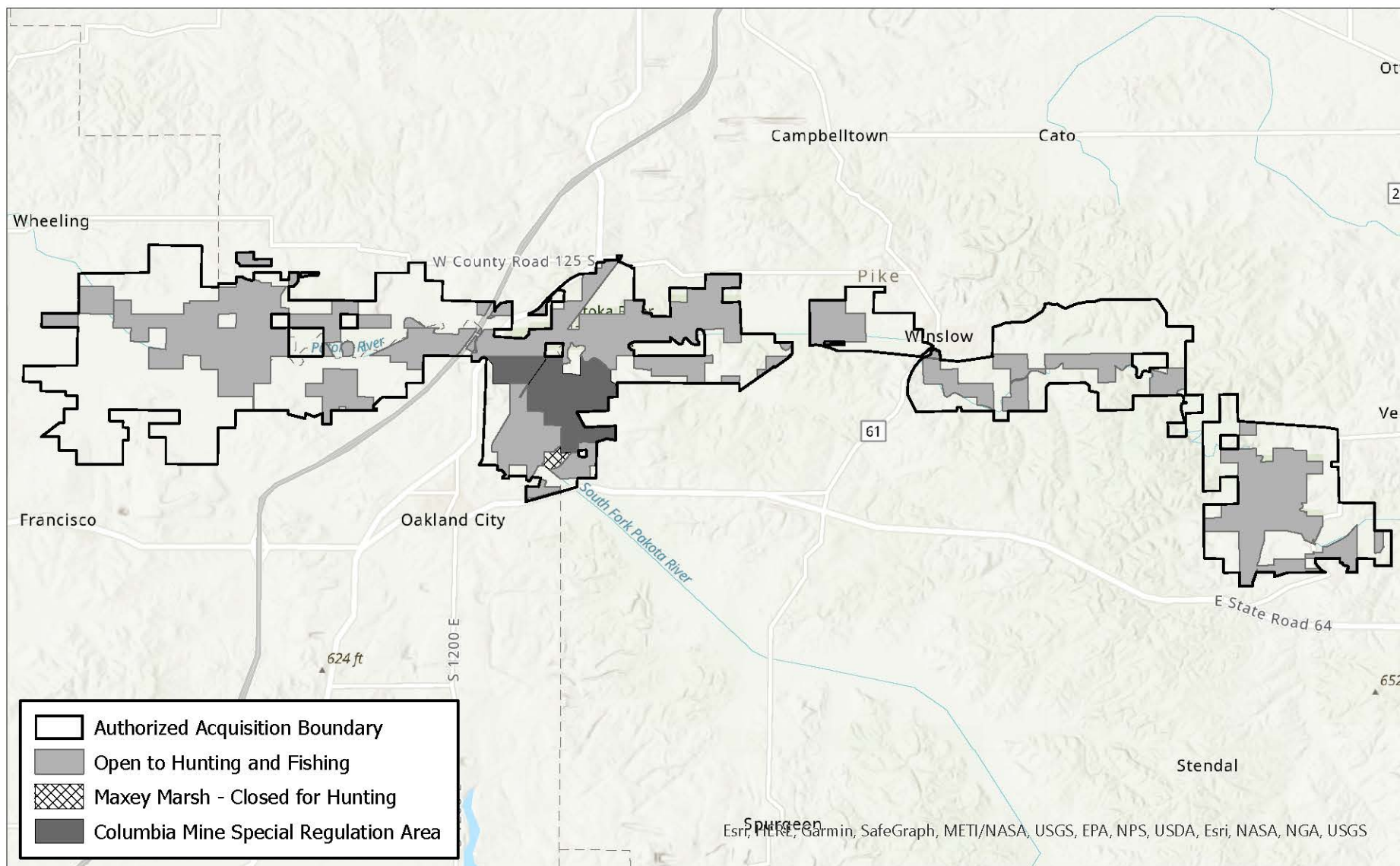
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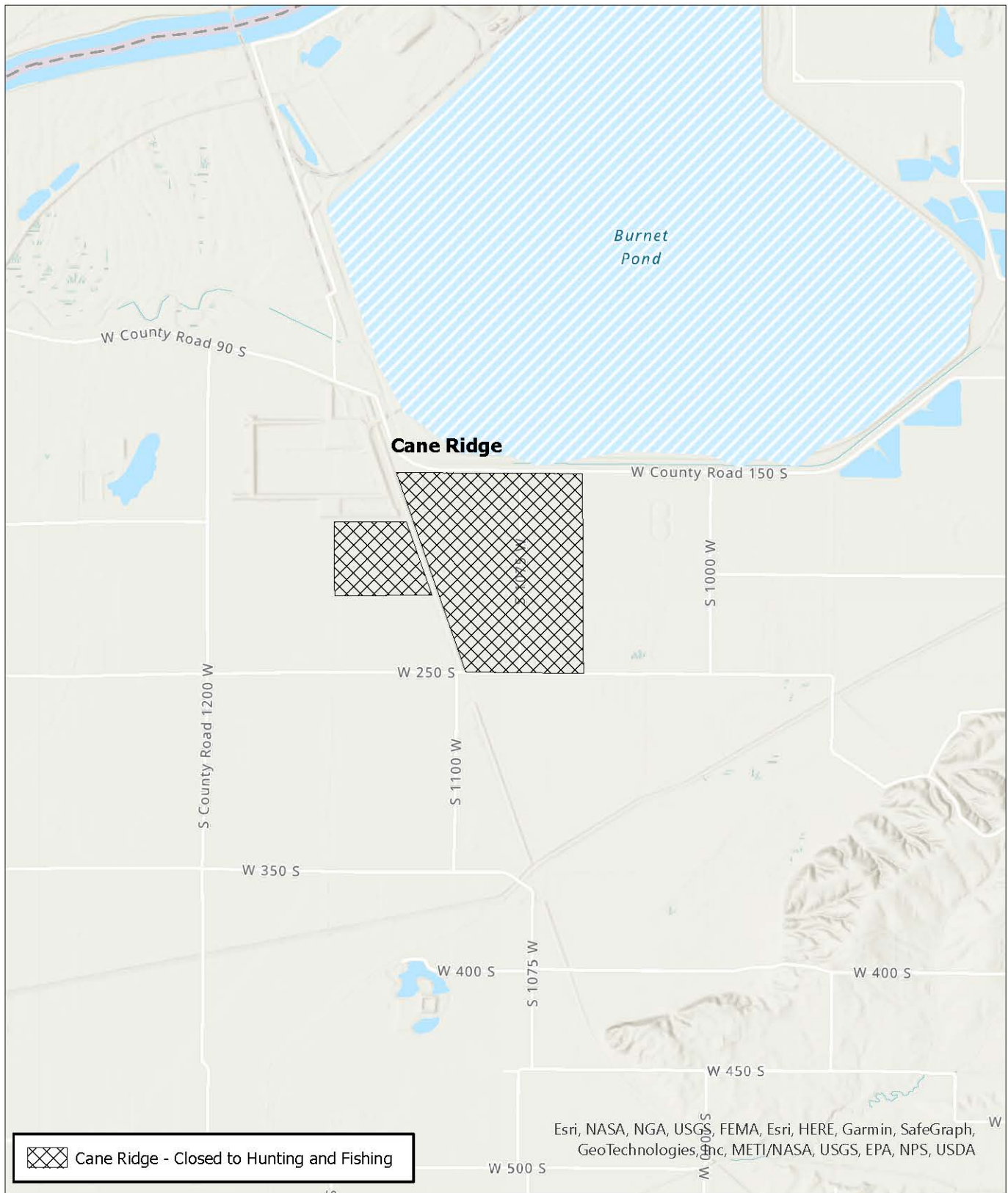




U.S. Fish & Wildlife Service

## Patoka River National Wildlife Refuge

*Cane Ridge Satellite Refuge Unit: Closed to Hunting and Fishing*



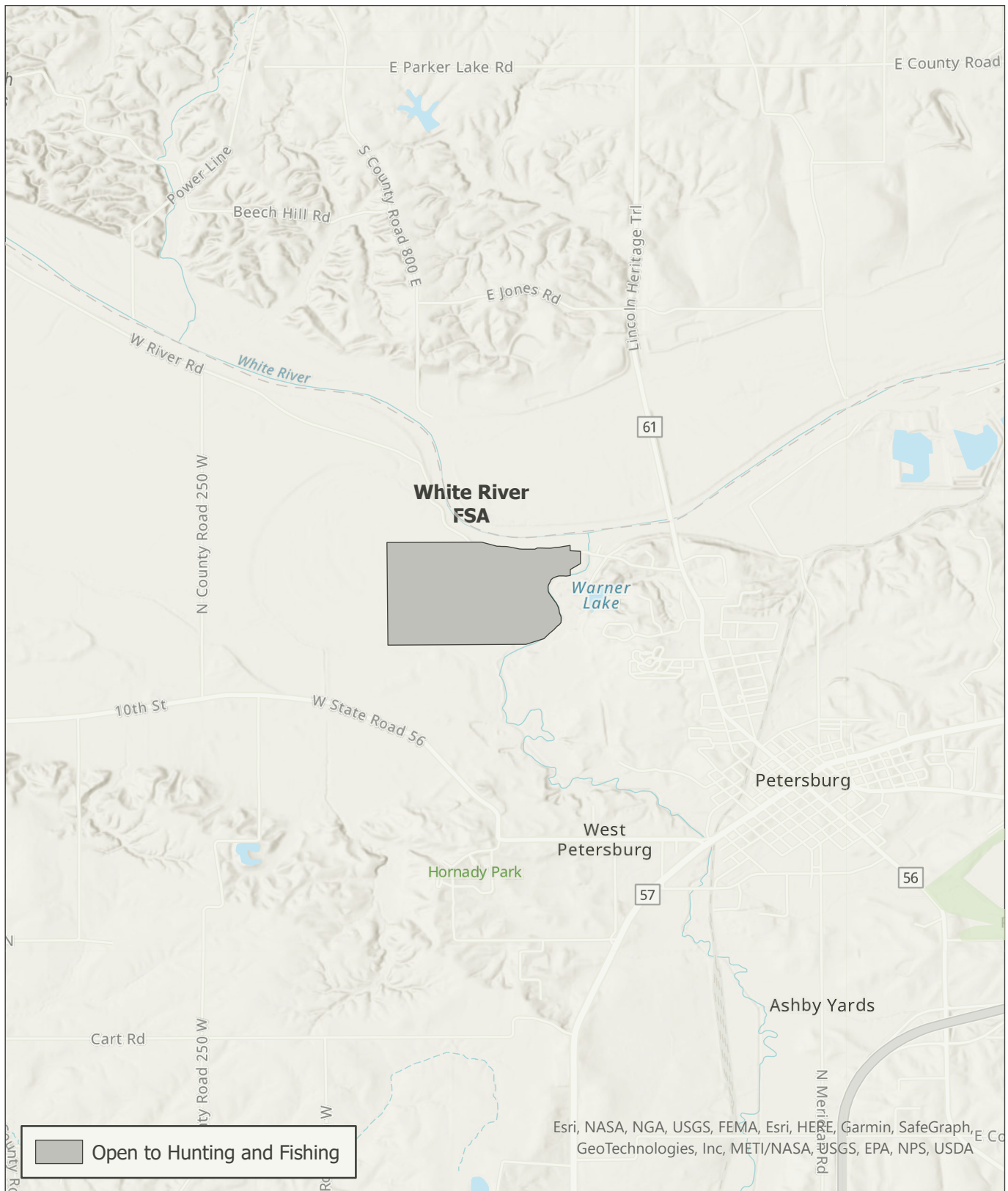
Produced in the Region 3 Division of Conservation Planning  
Bloomington, MN  
Produced: April 18, 2022  
Basemap: ESRI Topographic

0 0.5 1 1.5 Miles

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Datum: NAD 83





# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

5600 American Boulevard West, Suite 990  
Bloomington, Minnesota 55437-1458

IN REPLY REFER TO:

FWS/R3/RD

APR 18 2022

Amanda Wuestefeld, Director  
402 W. Washington St., Room W273  
Indianapolis, Indiana 46204

Dear Director Amanda Wuestefeld:

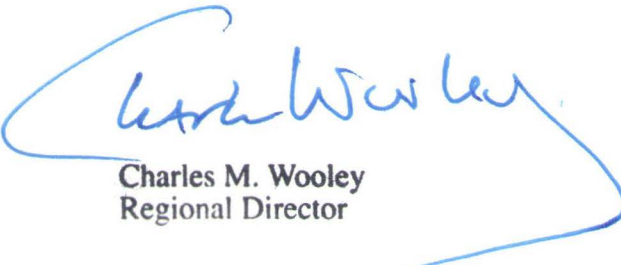
We are seeking input from the Indiana Department of Natural Resources on the U.S. Fish and Wildlife Service's proposal to phase in the required use of lead-free ammunition and tackle on Patoka National Wildlife Refuge and Management Area for all hunting and fishing activities by the 2026-2027 hunting season.

Currently, the refuge allows the use of all tackle and ammunition types to support hunting and fishing activities on Patoka National Wildlife Refuge and Management Area. The refuge is open to all species for hunting and fishing consistent with State of Indiana regulations. We would phase the use of lead-free tackle and ammunition requirements in so that we can provide sufficient outreach, signage and develop standards for law enforcement between our agencies. The administrative draft of the environmental assessment, hunt and fish plan amendment and compatibility determinations for the proposed regulation change to phase in requirement of lead-free ammunition and tackle by 2026-2027 hunting season is currently being reviewed by regional and headquarters staff as part of the national hunting and fishing opening package process that happens each year.

You are invited to provide comments about the proposed action prior to issuance of draft documents for public review planned for May 2021. Written comments can be sent to Kristin Rasmussen at U.S. Fish and Wildlife Service, 5600 American Blvd West, Suite 990 Bloomington, MN 55437-1458 or by email [kristin\\_rasmussen@fws.gov](mailto:kristin_rasmussen@fws.gov) by April 22, 2022. We invite you to provide comments during the public review period as well and will share that information with you as soon as it is available.

Please contact me at 612-713-5304 if you have any questions regarding the proposed actions.

Sincerely,

  
Charles M. Wooley  
Regional Director