



Interim Plans

Big Oaks National Wildlife Refuge



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Part 1:

Interim Comprehensive Conservation Plan for Big Oaks National Wildlife Refuge



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**INTERIM COMPREHENSIVE CONSERVATION PLAN
FOR BIG OAKS NATIONAL WILDLIFE REFUGE**

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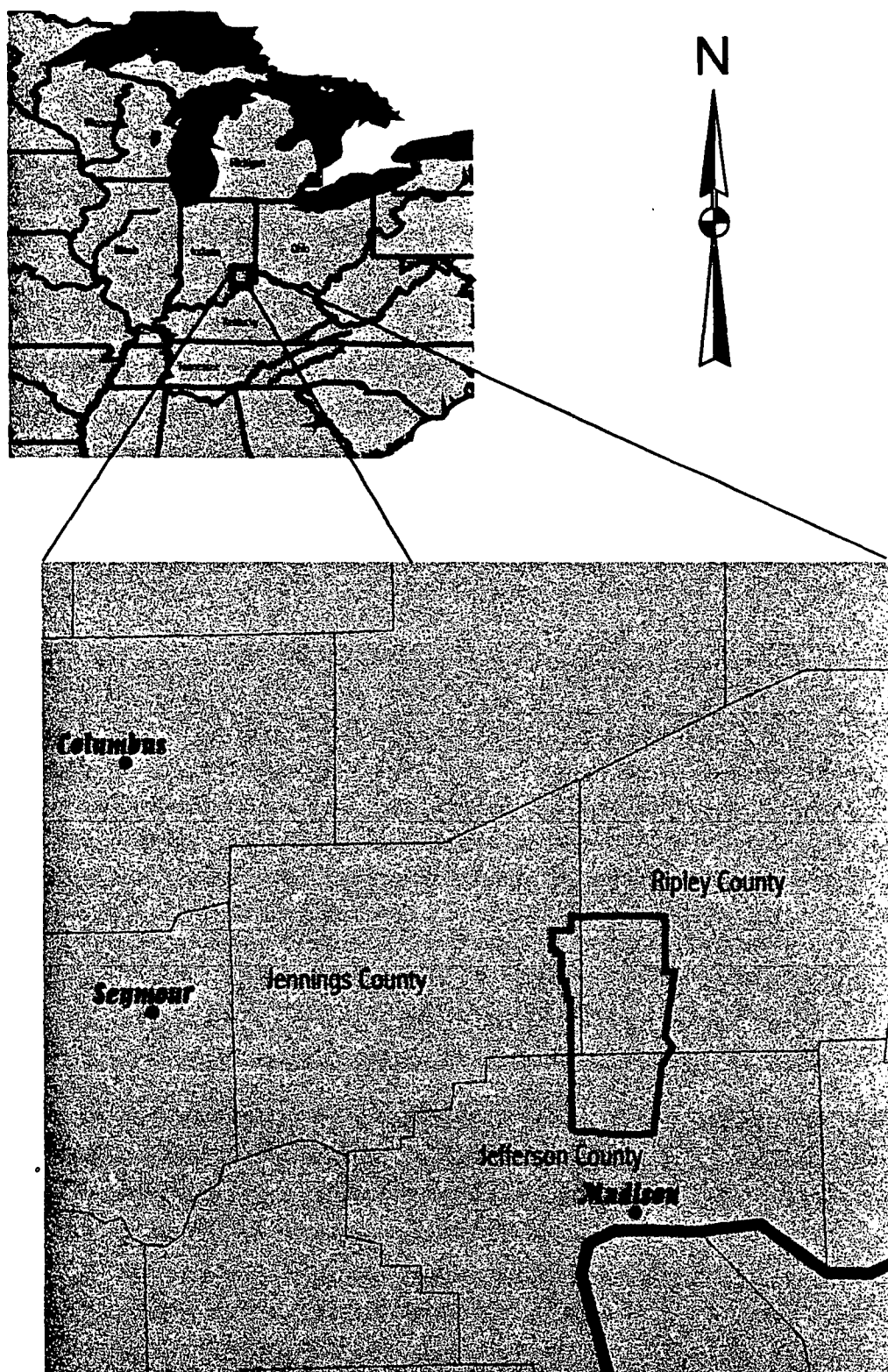


FIG 1. LOCATION OF BIG OAKS NATIONAL WILDLIFE REFUGE

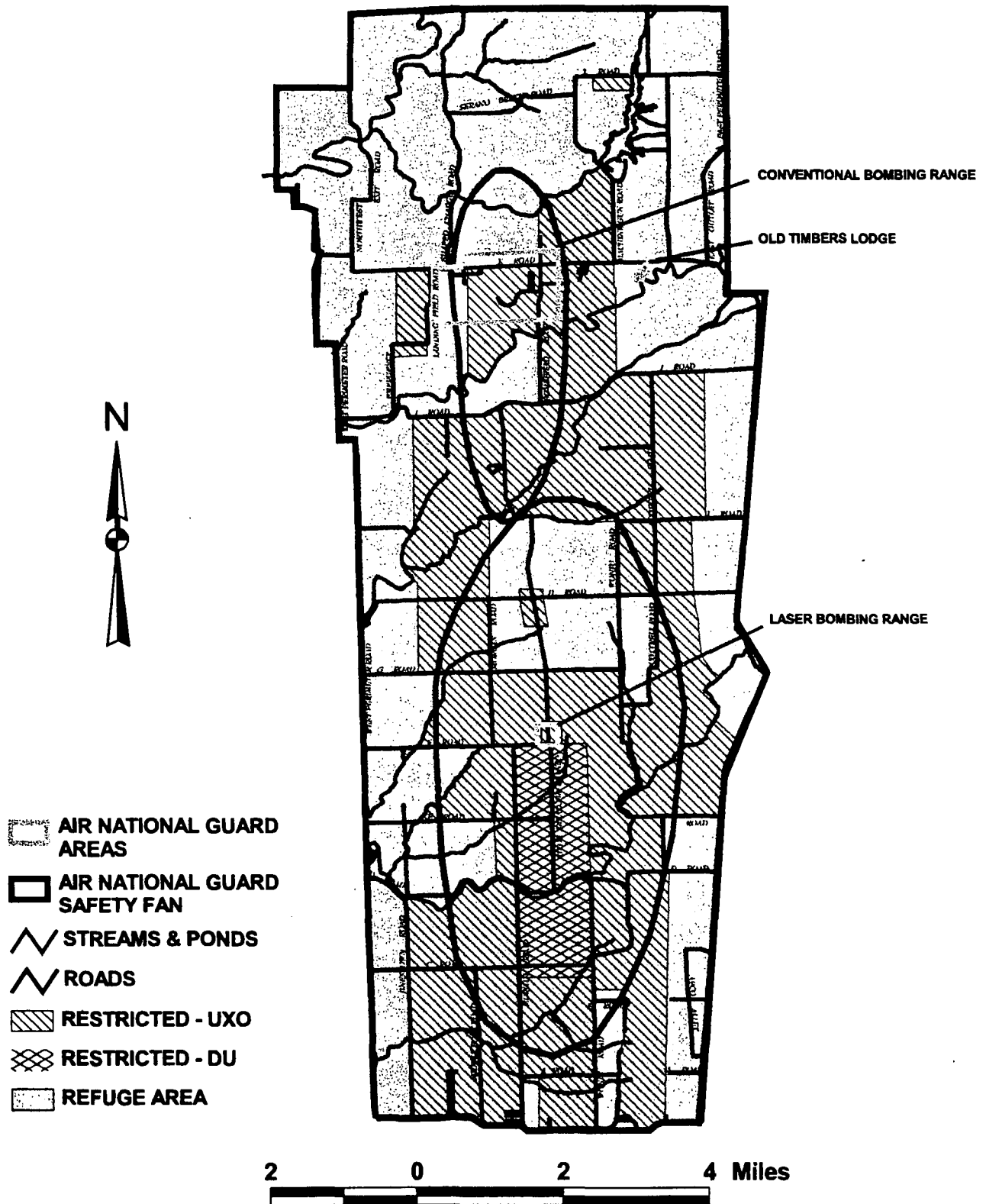


FIG. 2 JEFFERSON PROVING GROUND SITE MAP

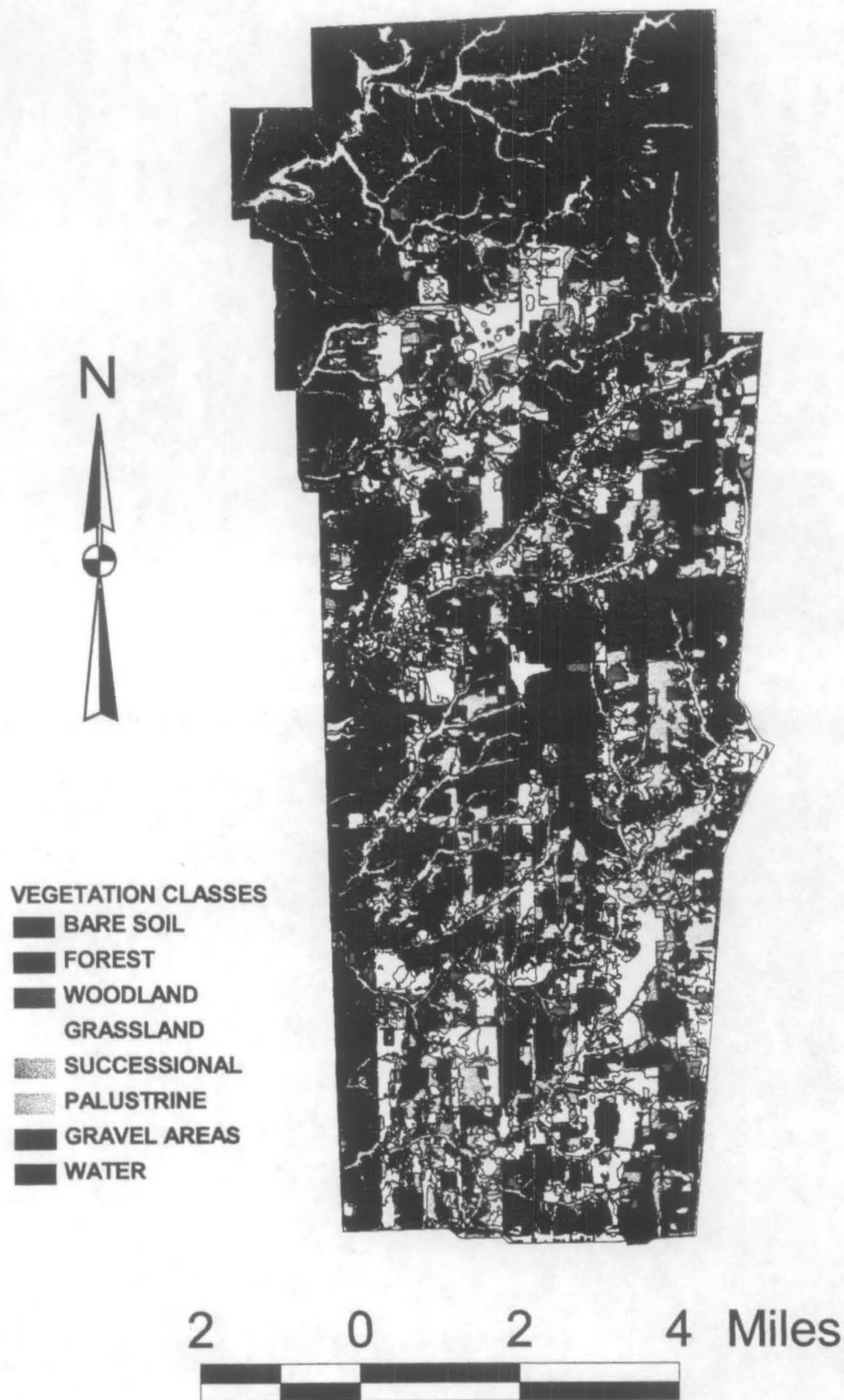


FIG 3. VEGETATION CLASSES AT THE BIG OAKS NATIONAL WILDLIFE REFUGE

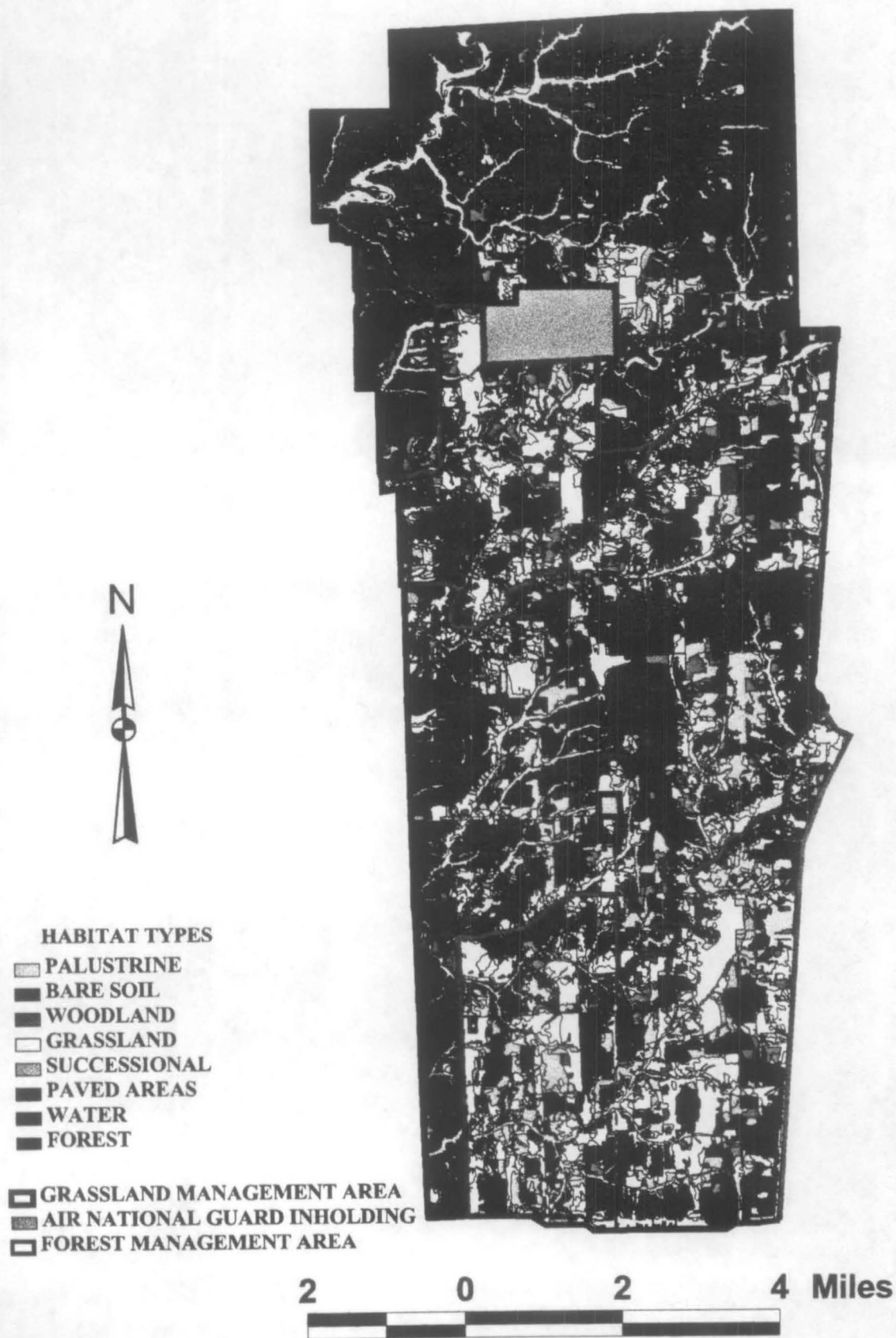


FIG. 4 GENERALIZED HABITAT MANAGEMENT FOCUS AREAS AT
BIG OAKS NATIONAL WILDLIFE REFUGE

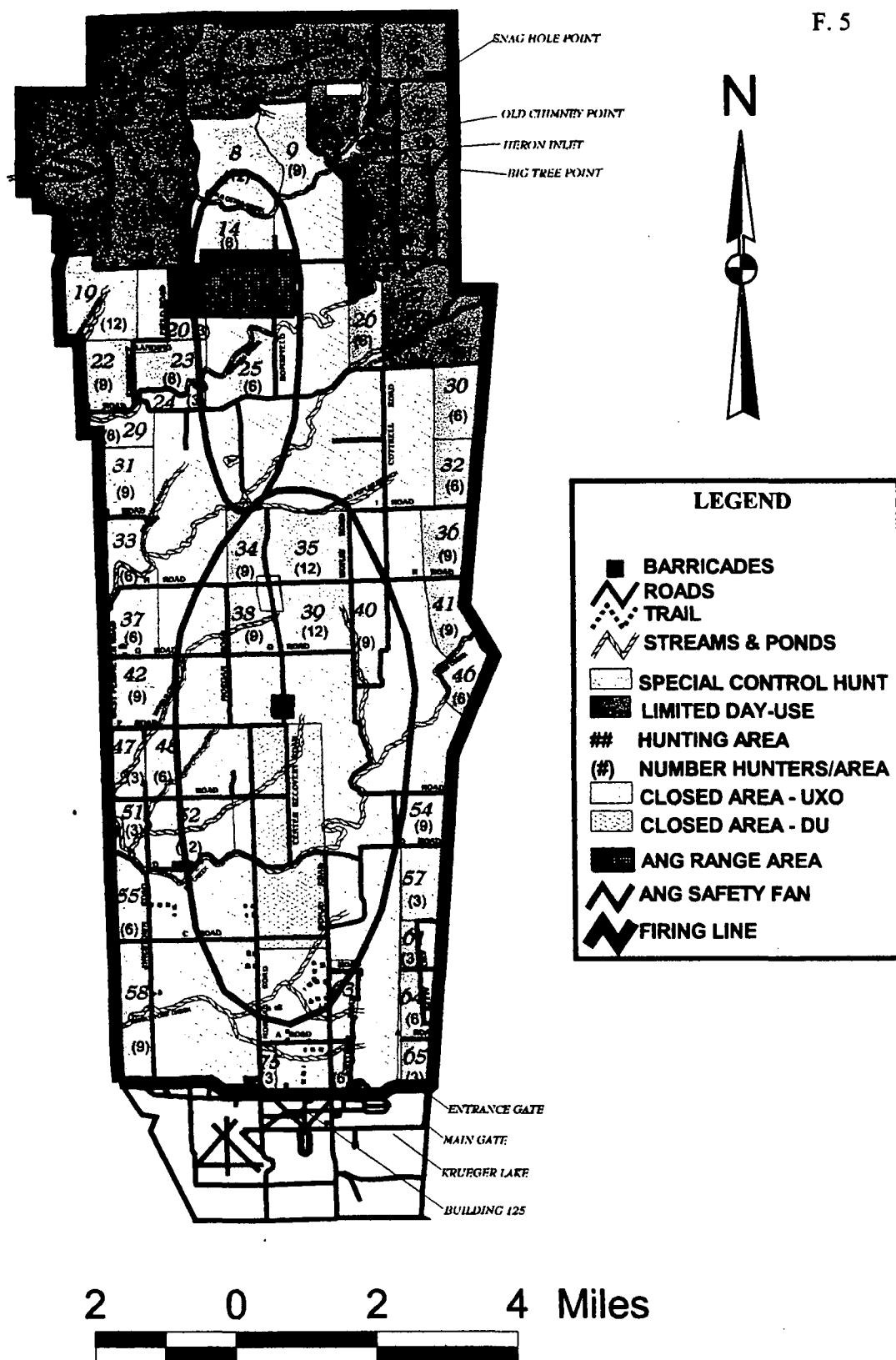


FIG. 5 BIG OAKS NATIONAL WILDLIFE REFUGE PUBLIC USE MAP

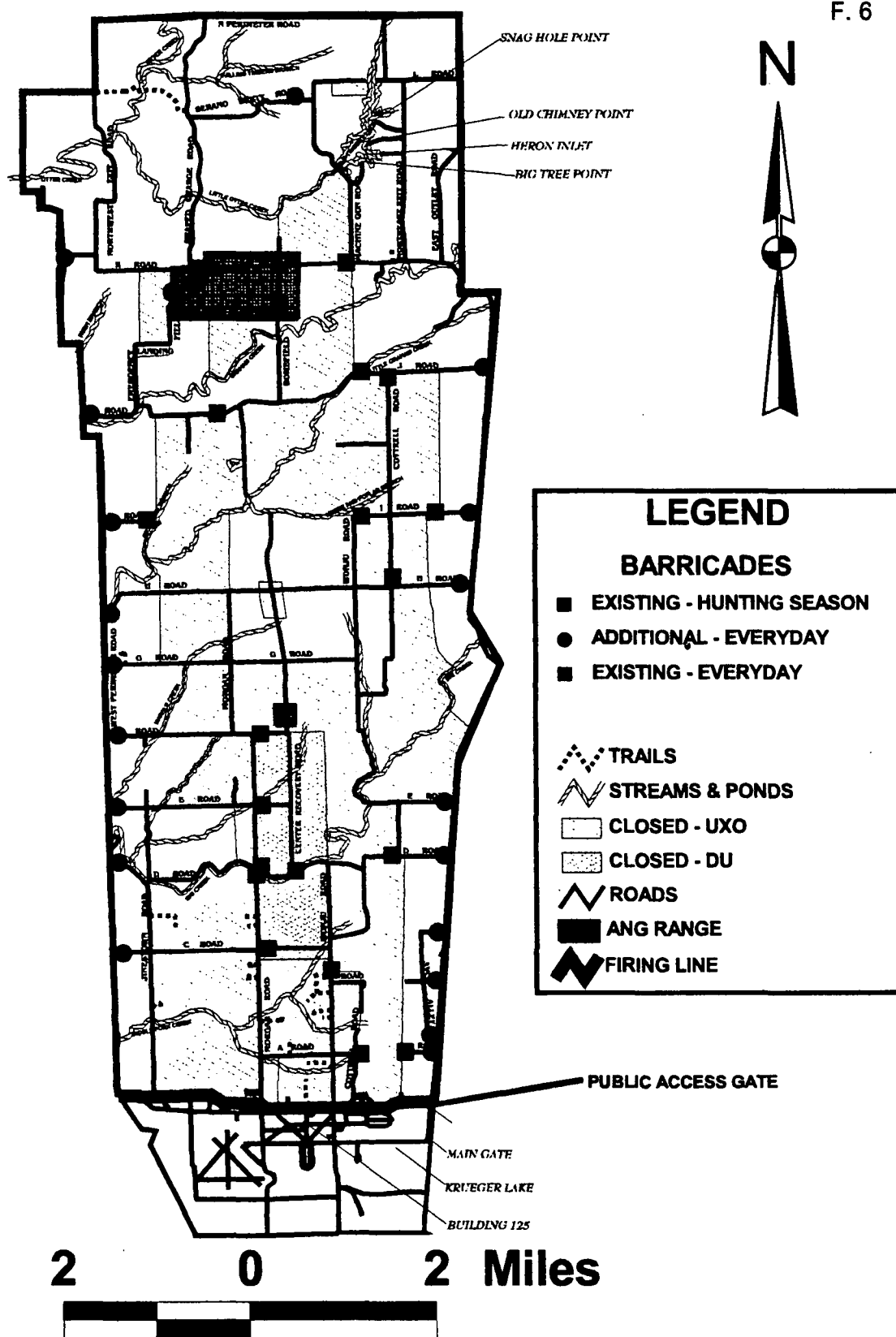


FIG. 6. BIG OAKS NATIONAL WILDLIFE REFUGE BARRICADES AND ACCESS GATE

I. Introduction

Through a Memorandum of Agreement (MOA) between the U. S. Fish and Wildlife Service (Service), U.S. Army (Army) and U. S. Air Force (Air Force), the Service obtained a 25-year real estate permit, with renewal options, from the Army for the establishment of a National Wildlife Refuge on a portion of the closed military base known as Jefferson Proving Ground (JPG). This portion of JPG became Big Oaks National Wildlife Refuge (NWR), overlaid on property that would remain in Army ownership (Fig. 1 and 2) on June 30, 2000, with the signing of the real estate permit. The Air Force will continue to maintain a presence at JPG. Jefferson Range, an Indiana Air National Guard (ANG) training facility, is located in the center of JPG (Fig. 1).

The following Interim Comprehensive Conservation Plan (ICCP) was developed as a general guideline for how Big Oaks NWR could be managed over the course of the next several years until a Comprehensive Conservation Plan can be completed. The ICCP does not present extensive detail about where facilities would be located, the timing of habitat restoration activities, hunting opportunities, etc. These details are part of step-down interim plans, and are attached to this document (e.g., the draft Interim Hunting and Fishing Plan). A Comprehensive Conservation Plan will be developed with public input and in compliance with the National Environmental Policy Act and Service policies. This ICCP attempts to answer some basic questions that may be posed by the general public, area landowners, and others concerning future refuge management.

Much of Big Oaks NWR contains unexploded ordnance (UXO), depleted uranium (DU), and other contaminants. The existence of these contaminants causes safety, management and funding concerns specific to Big Oaks NWR. Because of safety issues specific to Big Oaks NWR, due to the Army's former mission at JPG and the ANG training facility located on the interior of JPG, there will be specific refuge regulations required to be followed during a refuge visit. Most are summarized in the Hunting and Fishing Plan or the Interim Public Access Plan (Part 2; Attachment 1).

II. Establishing Authorities and Mission of Big Oaks National Wildlife Refuge

The Mission of the National Wildlife 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."

This overlay refuge will be established by the statutory authority of 2 specific Acts:

- 1) The Fish and Wildlife Act of 1956 [16 USC 742a-742j] as amended authorizes the Secretary of the Interior to acquire interests in property "...for the

development, advancement, management, conservation, and protection of fish and wildlife resources..."

2) The Endangered Species Act authorizes the Secretary of Interior to acquire interests in lands "to conserve fish, wildlife, and plants, including those which are listed as endangered or threatened..." [16 USC 1534].

This refuge establishment fulfills a public need for the development, advancement, management, conservation, and protection of forest interior habitat and large contiguous blocks of grassland and shrubland habitat. It also conserves and protects an area known for its high quality summer habitat for the Indiana bat (*Myotis sodalis*).

The purpose of Big Oaks NWR (NWR) is for the development, advancement, management, conservation, and protection of fish and wildlife resources and to conserve fish, wildlife, and plants, including those which are listed as endangered or threatened. This purpose statement is derived directly from the authorities that established the refuge. The concise mission statement of Big Oaks NWR derives from this purpose and is:

"To preserve, conserve, and restore biodiversity and biological integrity for the benefit of present and future generations of Americans."

III. Goals of the Big Oaks National Wildlife Refuge

1. To preserve, conserve, and restore fish, wildlife, and plants listed as endangered and threatened and those species of management concern whose populations are declining.
2. To preserve, conserve, and restore a natural diversity and abundance of fish, wildlife, and plants by protecting, restoring, and managing large blocks of forest, grassland, shrubland habitats.
3. To provide interpretive, educational and research opportunities with the emphasis on resource conservation, restoration, and enhancement, and on biodiversity and biological integrity.
4. To provide the public with opportunities for high quality wildlife-oriented recreation to the extent these activities are compatible with the mission of the refuge, public safety and the terms of the Army's real estate permit for use of the property.

IV. Site Information

A. Location and History

The refuge is situated on over 50,000 acres in southeastern Indiana within Jefferson, Ripley and Jennings Counties. The refuge is about 55 miles north/northeast of Louisville, Kentucky just north of the Ohio River (Fig. 2). The nearest communities are Madison, Indiana, about 5 miles south of the southern boundary of the refuge, and Nebraska and Holton, Indiana, just north of the northern boundary. The refuge is rectangular with the approximate dimensions of 15 miles in the north-south direction by about 6 miles in the east-west direction. The refuge occupies land north of the firing line of Jefferson Proving Ground.

Army use of the site began in late 1940 with procurement of the land. Prior to purchase by the Army, this land was used for farming and grazing at levels of use similar to what can be found outside the boundaries of the property today. The Army mission at JPG was to test and evaluate conventional production line acceptance munitions. JPG performed this function virtually continuously until September 1994 when the last round was fired. Active use of the base by the Army ceased on September 30, 1995, when it officially closed.

The Service began to manage the natural resources of the base on October 1, 1996 under a three-year Memorandum of Agreement (MOA) with the Army. The Service expanded its role to make the area a national wildlife refuge through a new MOA (signed May 19, 2000) with both the Army and the Air Force that authorizes the issuance of a real estate permit (signed June 30, 2000) from the Army that allowed the Service to establish the refuge.

B. Physical Resources

1. Climate

The area has a typical midwestern continental climate and the weather is quite variable, because of the influx of high and low pressure systems and warm moist air from the Gulf of Mexico. Summers are generally quite warm, while the winters are moderately cold. Precipitation is fairly uniform throughout the year, averaging 3 - 4 inches per month. Spring and summer thunderstorms push the monthly average over 4 inches for the March-June period, while the fall of the year has monthly rainfalls close to 3 inches. Measurable snowfall can be experienced throughout the November to March period, and averages about 16 inches annually.

Approximately 39 days per year see temperatures exceeding 90° F, with occasional occurrences in excess of 100° F. The record high of 105° F occurred in July 1954.

Winter temperatures are mild, with occasional periods of very cold temperatures. Although temperatures less than zero are uncommon, the record low temperature in the area is -25° F occurring in January 1994. Winds vary from about 6 - 10 miles per hour from the south throughout the year, except for the months of February, March and August when the direction is from the north-northwest. Wind gusts up to 78 miles per hour have been recorded at the Louisville Station, the nearest source of long term climatological data. The strongest gusts are normally associated with thunderstorms. The area can experience occasional severe weather, including tornadoes.

2. Topography/Soils/Water

Ground elevations at the refuge are generally between 850 - 900 feet Net Geodetic Vertical Datum (NGVD), with elevations along the numerous streams flowing through the area being about 30 - 50 feet lower. Site drainage is generally to the west and southwest. The area is in the headwaters of the White River Basin (which includes the Muscatatuck River area), a major tributary of the Wabash River, which in turn is a major tributary of the Ohio River. Small to moderate size streams flowing through the Jefferson Proving Ground site include: Otter, Graham, Little Graham, Big and Middle Fork Creeks.

The refuge is located in the Till Plains section of the Central Lowlands physiographic province. The topography is dominated by gently rolling hills as a result of glacial processes. The bedrock exposed in Jefferson and Ripley counties belongs to the Ordovician, Silurian, and Devonian Systems of the Paleozoic era. These rocks were deposited about 450 to 350 million years ago as fine grained sediments in shallow marine waters. The strata dip 20 to 25 feet per mile to the west. In the site area the rocks at the surface are the Silurian rocks. The Devonian bedrock is composed predominantly of limestones that exhibit karst features in some areas.

The site is underlain by deep, nearly level and gently sloping, poorly drained and somewhat poorly drained soils formed in a thin mantle of loess and in the underlying glacial drift. The surface layer of the soil is generally dark grayish brown or grayish brown, mottled, silty sandy clay, to a depth of 12 inches. The subsoil layer is composed of silty sandy clay that is light gray, yellowish brown, mottled, and friable. The subsoil layer extends below a depth of 6 feet. The available water capacity of the soil is very high and the permeability is slow. There is a perched, seasonal high water table at or near the surface during the winter and spring months.

C. Biological Resources

1. Vegetation

The following habitat types were derived from 1995 and 1997 aerial photos. Photo interpretation was completed in 1998. Classifications are comparable to those used in the US GAP Analysis Project. Individual classifications were based on a minimum detection size of 0.05 acre area. The distinction between forest and woodland is based on the amount of canopy closure. Forest areas have 60% or greater canopy closure and woodlands have 20% to 40% canopy closure.

Upland forests comprise 27,000 acres (54%) of the 50,000 acre refuge (Fig. 3). The upland forest classification includes both evergreen and deciduous species ranging in age from young (~15-30 years) to mature (≥ 50 years). The primary evergreen species at the site is eastern red cedar (*Juniperus virginiana*). Dominant deciduous trees include sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*) and black gum (*Nyssa sylvatica*) on poorly drained upland depression sites. Tulip poplar (*Liriodendron tulipifera*) and white ash (*Fraxinus americana*) are the species making up the young upland forests on well drained sites. White oak (*Quercus alba*), red oak (*Quercus rubra*) and shagbark hickory (*Carya ovata*) are the dominant species on intermediate and within some mature upland forests. American beech (*Fagus grandifolia*) and sugar maple (*Acer saccharum*) dominate the remainder of the mature upland forests.

Our second most abundant habitat at the refuge is grasslands. This habitat type makes up 8,500 acres (17%) of the area. The dominant grassland species at the site appears to be broomsedge (*Andropogon* sp.).

Other habitat types at the refuge include 5,000 acres (10%) palustrine wetland, 3,000 acres (6%) woodland, 6,000 acres (12%) early successional shrubland, 250 acres (0.5%) of open water, and 250 acres (0.5%) of bare soil and paved areas. Woodland species composition is comparable to that of upland forest. The palustrine wetland category includes all growth stages of palustrine vegetation including early successional and forested wetland. A total of 46 state-listed plant species are found on the refuge.

2. Fish and Wildlife

The refuge provides habitats for, and subsequently attracts, an abundance of wildlife species. Eight freshwater mussels species, 41 fish species, 24 species of amphibians, 17 species of reptiles, 46 species of mammals, and 201 species of birds have either been recorded or can reasonably be expected to be present on the refuge for a portion of the year. The state-endangered river otter was reestablished on JPG in 1996.

Habitat management activities at the refuge could emphasize numerous goals which include; enhancement of existing wetlands, active management of grassland and shrubland areas and the protection of late second-growth forests and wooded wetlands. All of these habitat management activities are designed to benefit populations of native fish and wildlife species.

The wide array of both resident and migratory species found on the refuge is due to the grassland/forest/wetland complex found within the landscape of JPG. These large habitat blocks of forests, shrublands, grasslands, forested wetlands, and occasional emergent marsh contribute to the increased biodiversity of the natural communities found at the refuge. Biodiversity is increased at the site by the presence of area-sensitive species; for example, species such as Henslow's sparrow and cerulean warblers, which respectively require large blocks of grassland and mature forest, are relatively common on JPG.

The value of the habitat within the refuge has been recognized at both the state and national levels. The area that became Big Oaks NWR was named a Globally Important Bird Area by the American Bird Conservancy due to large Henslow's sparrow populations within the grassland areas. The Indiana Department of Natural Resources states that, "JPG is indeed a natural treasure that contains a full array of the region's natural communities and species assemblages."

D. Social/Economic/Cultural Resources

Based on previous research, the aboriginal cultural history of the region may be subdivided into five broad temporal periods: Paleo-Indian (10,500 - 8000 B.C.), Archaic (8000 - 1500 B.C.), Woodland (1500 B.C. - A.D. 1050), Upper Mississippian/Fort Ancient (A.D. 1000 - 1700), and Historic Native American (A.D. 1675 - 1773) (Mbutu et. al. 1996). Several sedentary Native American groups lived in the Ohio River valley until they were driven out in the late seventeenth century by the Beaver Wars, fought among Native

Americans over access to the European fur trade (Hunter 1978). Beginning in the seventeenth century, other Native American groups migrated or were forced west and southward into what is now Indiana (Brasser 1978:84; Hunter 1978:590; Peckham 1978:1).

By the eighteenth century several Native American groups including the Miami, Wea, Piankawahaw, and Shawnee inhabited eastern Indiana, where they lived in summer agricultural villages and winter temporary hunting/trapping camps. Later arrivals in the area included the Delaware, Potawatomi, and Kickapoo groups (Stafford 1985:2-15). The Delaware and the Potawatomi are reported to have occupied the land east of Butlerville in Jennings County (Leland et al. 1956:89) that is today part of JPG (Mbutu et. al. 1996).

Indiana Territory was created by an Act of Congress on May 7, 1800 (Muncie 1932:2). When Indiana Territory was established, there were no Euro-American settlements on the land that later became Jefferson, Jennings, and Ripley counties. The land on which JPG is situated today was acquired from Native Americans as part of the Grouseland Purchase of 1811 (Hawkins and Walley 1995:III-12).

Euro-American settlement of JPG and its vicinity can be traced back to about 1811 (Baker 1991:7). The earliest Euro-American families in Jefferson, Jennings, and Ripley counties were subsistence farmers. Subsistence farming remained the principal occupation during the early half of the nineteenth century. By 1940, the portions of Jefferson, Jennings, and Ripley counties on which the refuge is located consisted of an area of dispersed farmsteads, schools, churches, cemeteries, and small crossroad communities.

The population within the three counties totaled 78,074 based on the 1990 census. From 1990 to 1999, population increased an estimated 12% to 87,394 within the 3 county area. Land use within the 3 county's 758,914 acre area is predominantly agriculture (67%). In 1989, the primary employment sector was manufacturing followed by government, retail trade and services sectors.

V. Habitat and Wildlife Management

Habitat and wildlife management refers to all aspects of refuge operations that include habitat restoration, conservation, manipulation, and preservation, and wildlife reestablishment, restoration, wildlife monitoring, surveys, and population management. A brief summary of these activities is described in the following sections.

A. Forest, Grassland, and Shrubland Management

A major component of land management is managing grasslands, early successional shrublands, and forest. Habitat continuity and diversity will ultimately be addressed to ensure healthy populations of wildlife, especially the declining species of grassland and forest-dwelling birds and animals. Where appropriate, a landscape mosaic of habitats comprised of grasslands, shrubland, and forests as well as wetlands will serve to provide wildlife the appropriate habitats for survival and reproduction. Existing habitat conditions will be managed for large contiguous blocks of forest, grassland and early successional habitats (Figs. 3 and 4).

Grasslands at Big Oaks NWR are composed mainly of *Andropogon* spp. and are maintained by carrying out an extensive burn program. Historically, fire was a relatively infrequent natural ecological process within the refuge. Fire was introduced by the Army to decrease fuel levels and lessen the chance of wildfires associated with the Army's munitions testing mission prior to 1995. A by-product of the Army's management by fire has been the establishment of many large areas of early successional habitats used by many species of management concern within the region. Consequently, the area has been named a Globally Important Bird Area by the American Bird Conservancy due to large Henslow's sparrow populations within the site's grassland areas. Grasslands would be maintained in "Grassland Management Areas" primarily with prescribed fire (Fig. 4). Since these areas are maintained by fire, species dependent on early successional grasslands benefit from these management practices. White-tailed deer, bobwhite, many nongame species, and rare plants thrive in the habitats maintained by periodic fire.

Early successional habitat and shrublands are scattered throughout the area and provide habitat for floral and faunal species of concern. These areas are also maintained by prescribed fire and are usually found in areas during the later portion of the burn rotation. They would primarily be maintained in association with Grassland Management Areas (Figs. 3 and 4). Forests or wooded and savannah areas are presently scattered throughout the area south of K road. Woodlands and savannah-like areas would also be maintained in these Grassland Focus Areas.

The area north of K road contains one of the largest contiguous blocks (approximately 14,000 acres) of forest in Indiana and provides breeding habitat for a variety of declining populations of neotropical migrant birds. Additional forested areas would develop in Forest Management Areas which would be managed for large contiguous blocks of forest, a habitat rare in the present landscape of Indiana (Figs. 3 and 4). Interior forest species, those that require large forest blocks, would benefit from this management. Examples of these species include, cerulean warblers, wood thrush, worm-eating warblers, and wild turkey.

B. Wetland Management

The 50,000 acres of the refuge include approximately 6,000 acres (8.5 %) of wetlands (delineated from National Wetland Inventory maps) and 45,000 acres (91 %) of uplands. The remaining 0.5 % of the area is in riverine or deepwater habitats. Jurisdictional (Section 404 Clean Water Act) wetlands probably constitute a higher percentage of JPG's area; a large proportion (> 30 %) of the area has soil types classified as hydric. The release of river otters and the subsequent cessation of trapping following the 1995 base closure has allowed the local beaver population to reoccupy much of their historical habitat. These new beaver impoundments are rapidly and naturally increasing the area of permanent water and diversity of wetlands found on the refuge area. Beaver will be allowed to naturally reestablish in drainages on the refuge, but problems caused by animals on the refuge that flood roads or interfere with private landowners drainage would be addressed.

C. Fire Management and Fire Suppression

Fire is a critical ecological process in the management of early successional habitats required by many species of wildlife that are of management concern within the Region. Fire is a useful tool for managers to reduce woody and undesirable vegetation and "setback" ecological succession. Safety aspects of using prescribed fire are of the utmost importance. For this reason, biologists and managers are extensively trained and use special equipment for any prescribed fire or controlled burning. Staffed refuges have their own fire equipment including such items as pumper units, hand tools, drip torches and radio systems. Fire management plans specify the parameters for who, when, why, where, and how the burn will be conducted. Smoke management and contingency plans are described in detail. Every effort for the protection of life and property is made during planning and implementation of fire activities.

Wildfires, however, are unplanned fires that are caused by lightning strikes, railroads, humans, etc. that require quick response from professional fire fighters. The fire management plan addresses wildfire initial attack and incident response. Cooperative agreements coordinated with local and volunteer fire departments will be arranged before a need arises. Due to personnel safety concerns, wildfires within the JPG property north of the firing line are not fought within the impact area, but are fought to prevent fires from leaving the facility.

D. Biological Monitoring and Adaptive Management of Habitats and Wildlife Populations

All management decisions will be based within an ecosystem concept using the most current, scientifically validated, management techniques. The monitoring of populations and habitats will be used to periodically validate or improve management techniques currently being used. Cooperative research and monitoring studies will be developed with specialists to increase and improve the Service's knowledge and ability to manage the resources found on Big Oaks NWR.

VI. Law Enforcement

Law enforcement is a cooperative effort by several agencies. Some Service employees are commissioned to conduct law enforcement duties on Federal property and enforce certain Federal laws. Because the State of Indiana has concurrent legal jurisdiction on Jefferson Proving Ground, cooperative relationships and strategies will be developed with state conservation officers and county sheriff departments. Additional details on law enforcement strategies and emergency response are found in the Interim Public Access Plan (Attachment 1).

VII. Refuge Administration

In the beginning when staff size would be limited (and additional staffing funds are limited), a new refuge would be managed administratively as a satellite refuge of Muscatatuck National Wildlife Refuge, located 20 miles west near Seymour, Indiana. As funding increases and the complexity of administration increases, the new refuge would generally be assigned its own funding, equipment, and staff.

VIII. Public Use Opportunities and Management

The following is a discussion of potential recreational uses that will be available to the public when the refuge is initially established. We do not describe future public use activities in detail, or pinpoint exact locations of facilities or access points that will be needed to facilitate public uses. Rather, this discussion will paint a general picture of the kinds of activities that the public can expect to enjoy, and the approximate locations where these activities would occur as facilities are developed. Decisions about exact locations for facilities and programs will be made with public input, and will be described in a detailed Comprehensive Conservation Plan.

An Interim Public Access Plan was developed in consultation with the Army to allow some

recreational uses to continue when the refuge is initially established (Attachment 1). Details on restrictions, initial public use/access limits and safety precautions can be found within this interim plan. As on all national wildlife refuges, before any public use can be allowed on the Big Oaks NWR, the use must be determined to be compatible with the refuge's purposes; most of these determinations will be made during the Comprehensive Conservation Planning process. A consultation with Endangered Species specialists within the Service has already occurred to ensure no negative impacts are associated with these management proposals (Attachment 2). An interim compatibility determination for these initial uses has also been prepared as a part of the supporting documentation (Part 3).

While national wildlife refuges are managed first and foremost for the conservation of fish, wildlife, and plants, through careful planning and regulation, refuges can provide the public with a variety of diverse and rewarding opportunities for wildlife-dependent recreation. Wildlife-dependent recreation includes hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation. These are the priority public uses of the National Wildlife Refuge System, and of Big Oaks NWR. Through participation in these activities, visitors to the refuge will gain an appreciation for healthy habitats and the fish and wildlife populations they support.

In broad terms, the northern portion of the refuge (north of K road) will be the focal point for the majority of public uses (Fig. 5). The southern portion (south of K road) will not be available for recreational activities on a regular basis but will be available for special controlled hunting. Fishing opportunities will be available at Old Timbers Lake. Areas historically closed to any activities due to UXO and DU will remain closed to all activities except for ingress and egress on established roads and emergency activities.

More specific details on the hunting and fishing program are found in the Interim Hunting and Fishing Plan (Part 2), but we list some general information in the following brief descriptions of these programs.

A. Hunting

Hunting for white-tailed deer and wild turkey will occur on many areas of the refuge. Informational signs and maps would be available to direct hunters to the appropriate area. The refuge would institute a permit system for all visitors to ensure safe and enjoyable experience. Annual deer harvests will be needed to prevent an overabundance of deer on the refuge. The refuge would cooperate with the Indiana Department of Natural Resources in the establishment of hunting seasons and permit quotas as needed.

B. Fishing

Fishing opportunities will be provided at Old Timbers Lake. Initially, office hours and open periods for fishing would be determined by personnel limits. Demand for public fishing at Old Timbers Lake is expected to exceed parking and boat ramp facilities, especially during the initial opening for the public. Public access would be limited to specific periods when fishing would be allowed. Consultation will be made with Service Fishery Biologists as well as State District Fishery and Wildlife Biologists to discuss the merit and success of the refuge's hunting/fishing program, the status of the area's fish and game resources, and to consider recommendations for program modifications.

C. Wildlife Observation and Photography

The refuge will offer many scenic vistas of hardwood forest, wetland, grassland and shrubland habitat. Wildlife inhabiting the refuge will include many types of plants, fish, and animals including some that are rare to the state. The combination of diverse wildlife and landscape beauty will create excellent wildlife viewing and photographic opportunities at several sites around the refuge.

The refuge staff will work with local communities and private conservation groups to develop special public wildlife celebrations, such as National Wildlife Refuge Week and International Migratory Bird Day. These events will help build community awareness and pride in the refuge and help provide an additional flow of visitors to the area.

D. Interpretation

The major interpretive themes for Big Oaks NWR include the following concepts: habitat restoration and management on the refuge; Big Oaks NWR's place in the National Wildlife Refuge System. These themes will be the core messages of the interpretive program of the refuge, and will be included in different forms of interpretive signs, leaflets, and exhibits.

Visitor Contact Station: A visitor contact station could be developed on the refuge, near a main highway access. This facility would contain information and exhibits about the refuge. This would be the first stop (and only access into the refuge) for visitors. Space would provide for refuge staff, refuge orientation displays, interpretive exhibits and diorama's of local wildlife, information desk, restrooms, a multipurpose room, and small interpretive bookstore sales area. Possible partnerships with local conservation groups

and other state and Federal conservation agencies could allow this visitor contact station to serve as an information station for people interested in learning about other wildlife and natural resources in the surrounding community. However, due to issues concerning unexploded ordnance, the construction of a visitor contact station would have to be cleared of UXO. The Army has agreed to make a good faith effort to request UXO removal in connection with Army Reserve and/or Army National Guard Training exercises to support Refuge operations. If the Army is unable to obtain non-emergency UXO removal support as part of a training exercise within 2 years of the initial request, the Service has agreed to withdraw its request and terminate plans requiring non-emergency UXO support.

Interpretive Wayside: Interpretive signs may be provided at key wildlife observation areas. These signs would reinforce the refuge's interpretive themes and provide site specific information that will help visitor's appreciate the refuge's resources.

Interpretive Trail: There are several potential sites for interpretive loop trails. However, due to issues concerning unexploded ordnance, the installation of foot trails would have to be cleared of UXO. The Army has agreed to make a good faith effort to request UXO removal in connection with Army Reserve and/or Army National Guard Training exercises to support Refuge operations. If the Army is unable to obtain non-emergency UXO removal support as part of a training exercise within 2 years of the initial request, the Service has agreed to withdraw its request and terminate plans requiring non-emergency UXO support.

IX. Environmental Education

The refuge staff will seek partnerships with local schools, and state and local organizations to provide site-based learning about the restoration of habitat for wildlife and people. Outdoor classroom sites would be developed for the delivery of environmental education lessons and activities to instill a land ethic among tomorrow's stewards. Partnership projects could include hosting teacher workshops and youth leader programs. The refuge may also be able to provide on-site facilities for hosting intensive teacher training. Activities would be coordinated closely with local schools to be sure any activities offered by the refuge would assist the teachers/students with meeting graduation standards or required curriculum components.

X. Refuge Regulations, Enforcement, Hours and Signs

Because the Big Oaks NWR, like the other 520+ existing refuges, are places where the needs of wildlife come first, some general public uses allowed on other public lands are not appropriate on

a refuge, and will not be allowed. The following regulations are typical of most National Wildlife Refuges and are published in the Code of Federal Regulations:

- Vehicles are only allowed on designated roads
- Camping is not allowed
- Camp or cooking fires are not allowed
- Some wildlife sensitive areas may be seasonally closed to all public entry and use
- Snowmobiles are not allowed on the refuge
- Refuge use is limited to posted hours and days
- Possession or discharge of firearms is prohibited except during established hunting seasons in areas open to hunting
- Dogs and pets must be kept on a leash
- Disturbing or collecting plants or animals is prohibited
- Searching for, or removal of objects of antiquity or historical importance is not allowed

Because of safety issues specific to Big Oaks NWR, due to the Army's former mission at JPG and the ANG training facility located on the interior of JPG, there will be specific refuge regulations to ensure a safe refuge visit. Most are summarized in the Hunting and Fishing Plan or the Interim Public Access Plan (Part 2; Attachment 1).

All visitors will be required to obtain an annual/daily Public Access Permit based on participation in a safety briefing. Specific regulations related to UXO and DU (e.g., no ground disturbing activities are allowed on the refuge) will be detailed in this briefing besides other information concerning the refuge. All visitors will be required to sign a waiver (see example below) acknowledging their awareness to the hazards. The completion of the safety briefing to obtain the Public Access Permit/liability waiver would be required annually.

The Service will not tolerate individuals who violate safety regulations. For this reason, anyone who does not comply with refuge safety regulations will forfeit his/her refuge access privileges as determined by the Refuge Manager or by a court of law. Enforcement of refuge trespass and other public use violations will be vigorously enforced.

**ACKNOWLEDGMENT OF DANGER: RELEASE AND HOLD HARMLESS AGREEMENT
AND ACCESS PERMIT APPLICATION FOR BIG OAKS NATIONAL WILDLIFE REFUGE**

(This form is subject to the Privacy Act of 1974)

Issuing Agency: USFWS/Army

PERMIT #

AUTHORITY: 10 U.S.C. ———; AND 50 CFR

PRINCIPAL PURPOSE: Indicates certification by an individual or corporation to hold the United States Government, Department of Defense, and Department of Interior harmless in consideration of permission granted by the U.S. Government to visit Big Oaks National Wildlife Refuge (BONWR). Indicates an individual or corporation will make an informed decision regarding what each believes is an acceptable level of potential risk before being granted access.

ROUTINE USES: Used to gain access to the BONWR.

DISCLOSURE IS VOLUNTARY: Failure to provide this information would result in an individual or corporation being denied access to the BONWR.

TERM OF AGREEMENT: This agreement is valid from April 1 through March 31 for BONWR. The issued access permit does not grant you access to Jefferson Range (conventional, Precision Guided Munitions ranges) or closed areas on the refuge or other areas you are unauthorized to enter. The access permit allows you only to enter areas as directed by authorized BONWR personnel. You must check in and check out of the refuge at the refuge office (bldg. 125).

PLEASE READ AND INITIAL EACH BLANK

____ 1. BONWR contains the danger of property damage and permanent, painful, disabling, and disfiguring injury or death due to falling objects such as aircraft, live ammunition, and practice munitions due to the proximity of Jefferson Range. There are also physical injury and health dangers from ground and aerial LASER (Light Amplification by Stimulated Emission of Radiation) and other electromagnetic emissions from training exercises at Jefferson Range.

____ 2. BONWR contains the danger of property damage and permanent, painful, disabling, and disfiguring injury or death due to the presence of expended, but still live, bombs, rockets, cannon rounds, flares, and other types of warheads. Unexploded munitions may be encountered anywhere within BONWR: lying on the ground or partially or completely buried. These munitions can still explode though they may have lain in the ground for decades. I have been instructed NOT to approach or disturb any military equipment or ordnance discovered on

BONWR. IF encountered, please report to BONWR office. **DO NOT** touch any metal object.

____ 3. BONWR contains the danger of injury or death from the presence of old cisterns, wells, natural sinkholes, and other openings or weaknesses in the earth, as well as other natural and/or man-made conditions which are too numerous to list herein.

____ 4. Although signs exist to identify recreation and closed areas, BONWR cannot feasibly be marked to warn of the location and nature of each danger. Be aware of where you are and make sure you are in an area that you are authorized to be in. Watch your step.

____ 5. BONWR occupies one of the more remote areas in Indiana. I have been advised to guard against the dangers presented by the remoteness of BONWR, occasional extreme temperatures, and other threats such as venomous snakes. BONWR contains no source of safe drinking water. I have been advised to pack sufficient water, food, and first aid supplies with me for any visit.

____ 6. BONWR has limited services. If my vehicle breaks down, or in the case of any emergency, I understand that I will pay for emergency road services. There are regular patrols of BONWR, but it is advisable to possess a cell phone for emergency use. When using a cell phone, stay away from unexploded ordnance. It is advisable to call from a road surface. I will bear the full cost of all search and rescue activities resulting from my actions on the BONWR.

____ 7. I have been warned that I am responsible for knowing and abiding by all federal, state, refuge, and military rules and regulations pertaining to use of BONWR.

____ 8. I recognize that Big Oaks is a national wildlife refuge. I have read and understand the applicable rules and regulations.

____ 9. When on BONWR, I will possess a valid daily registration pass at all times and present it upon request to any authorized law enforcement officer or U.S. military personnel. Any person without a valid daily registration pass may be fined and/or barred from BONWR.

Upon my own initiative, therefore, and at my own risk, I accept permission to enter this area and in consideration of such permission do, for myself, my spouse, my children, my heirs, personal representatives, and assignees of the same, remise, release, and forever discharge as well as agree to indemnify and hold harmless the United States Government, any lessee therefrom, any individual officer, agent, employee, or director thereof from any claim of liability for injury, death, or property damage arising out of my usage of or presence upon said Big Oaks National Wildlife Refuge in accordance with permission to enter thereon.

I further affirm that I will never prosecute or assist in prosecuting any civil action against the United States Government, U.S. Army, the Indiana Air National Guard, U.S. Air Force, U.S. Fish and Wildlife Service, or U.S. Department of Interior, or any of their agents, employees, service members, contractors, or lessees for claim or liability arising from my entry to BONWR.

Please fill in the following:

Name (Print or Type)

Street Address

Date of Birth

City/State/Zip Code

Home Telephone

Work Telephone

Drivers License Number and State of Issuance: _____



Each adult individual (18 yrs or older) in the group must complete and sign and submit a separate HOLD HARMLESS AGREEMENT AND PERMIT APPLICATION.

I have received a map and rules and regulations for requirements and procedures for legal access to BONWR. I understand that non-compliance with any state and federal laws, and BONWR rules and regulations by myself, or anyone accompanied by myself, is a violation of this permit. My access may be revoked or suspended for violations or conduct inconsistent to the management goals of the BONWR. I CERTIFY THAT BEFORE SIGNING BELOW, I RECEIVED, READ, AND UNDERSTAND THE HOLD HARMLESS AGREEMENT, THE BOWNR RULES, REGULATIONS, AND MAP.



Signature

Date

Front

BIG OAKS NATIONAL WILDLIFE REFUGE Annual (Daily) Safety Training Verification and Public Access Permit	
	
Valid 1 April 2000 through 31 March 2001	
Name: _____ is authorized to enter the Limited Day Use Recreation Zone and/or the Special Control Hunt Zone with the appropriate permit and state licenses.	
Annual Fee: \$15.00	Permit No. _____

Back

Big Oaks National Wildlife Refuge	
	
Condition of Entry and Liability Waiver	
I, the undersigned, hereby agree to observe all applicable Refuge regulations and circulars and all Indiana Wildlife and Fish laws. I am fully aware that all activities are at my own risk, and in consideration for the permission to participate, I relieve the Government of all responsibility and liability for any damage or injuries that may occur.	
I am fully aware that there are hazards, including depleted uranium and unexploded ordnance, which may be encountered.	
I further agree not to enter any area except those that I have been authorized to enter.	
I certify that I have received a map and applicable regulations.	
_____ Signature Applicant	_____ Date
_____ Signature Guardian (if applicant < 18 yr.)	_____ Date

1. Fee Assessed With Public Access Permit

An annual fee (e.g., \$15.00 per person) will be charged for public use at Big Oaks NWR. Visitors can also opt for a single visit fee (e.g., \$3.00 per person). A single visit is defined as 1 calendar day. A permit may be terminated or revoked at any time under the conditions of 50 Code of Federal Regulations (CFR) Subchapter C Subpart C 25.43 and follow the appeals procedure described in 50 CFR Subchapter C Subpart C 25.45. Exceptions to 50 CFR Subchapter C Subpart C 25.55 and 25.57 at Big Oaks NWR are as follows; 1) there will be no permits at Big Oaks NWR that allow the occupants of the vehicle entry into the refuge under one fee, and 2) persons accompanying holders of Public Access Permits (and those holders of Golden Eagle, Golden Age, and Golden Access Passports, and Federal Migratory Bird Hunting and Conservation Stamps) need to undergo safety training and will be charged an entry fee unless they individually qualify for a fee waiver (see below). These restrictions are necessary because of the safety briefing requirements at Big Oaks NWR.

2. When Entrance Fee is Waived

Entrance fees for Public Access Permits will be waived for official visitors, contractors, Service staff, Air Force staff, Army staff, and others designated by the Refuge Manager who are considered on official duty. Everyone will be required to receive a safety briefing before access to the refuge will be allowed (Air Force and their visitors will receive briefings via their site access plan). Entrance Fees will be waived for:

- a. Official visitors
- b. Contractors performing work
- c. U. S. Fish and Wildlife Service staff on official duty
- d. Air Force staff on official duty
- e. Army staff on official duty
- f. Federal Migratory Bird Hunting and Conservation Stamp holders
- g. Golden Eagle, Golden Age, or Golden Access Passports holders
- h. Persons under 16 years of age
- i. Others as determined by the Refuge Manager

3. Refuge Hours

Refuge hours will be initially set at 7:00 AM - 4:30 PM on Mondays and Fridays, and the second and fourth Saturdays of each month from April through November except during special events (e.g., hunts). If a Visitor Center is developed, extended hours could be scheduled during the weekends and through the week to accommodate additional use. Until staff size is expanded and can provide personnel available for office duty, office hours will vary with staff schedules. Refuge office hours will be from 8:00 AM - 4:30 PM on Monday through Friday throughout the year; the refuge office will also be closed on federal holidays.

4. Hunting Periods

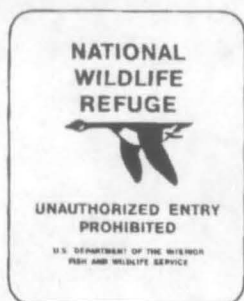
Refuge hours would change in response to special hunts with earlier and later hours to accommodate shooting hours and travel time necessary for these events. For example, during deer hunting seasons, hunter check-ins could commence as early as 5:00 AM and check-outs as late as 7:00 PM. With limited personnel, the number of days available for special hunts would be limited to specific days similar to the state regulated hunting seasons (Attachment 1).

5. Fishing Periods

Refuge hours for fishing will be initially set at 7:00 AM - 4:30 PM on Mondays and Fridays, and the second and fourth Saturdays of each month from April through November except during special events. Demand for public fishing at Old Timbers Lake is expected to exceed parking and boat ramp facilities, especially during the initial opening for the public.

6. Refuge Signs

Maps and pamphlets provided to visitors will notify visitors of specific refuge regulations and the general location of closed areas. Additional marking by signs of specific boundaries of areas will be a necessity. Examples of some of the signs and their potential use at Big Oaks NWR are shown below. Two additional signs the Army uses as warnings for UXO at JPG are also shown below.



Boundary sign; used on outside of perimeter fence



No hunting zone sign used for safety zones around office, etc.



Closed area sign used for areas closed to public access



Physically-impaired accessible



Public parking area



Boats with trolling motors or row boats allowed on Old Timbers Lake



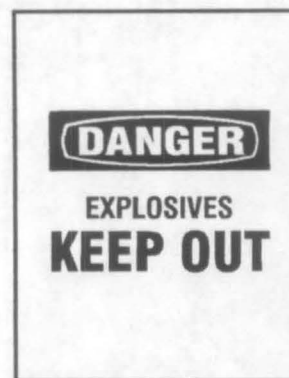
Hiking on trails permitted (If trail system cleared)



First Aid available, at Office



Army sign used on perimeter boundary



Army sign used on boundaries of closed areas

REFERENCES

- Baker, S. 1990. *For Defense of Our Country: Echoes of Jefferson Proving Ground*. Guild Literary Services, Indianapolis.
- Brasser, T. J. 1978. Early Indian-European Contacts. In *Northeast*, edited by B. G. Trigger, pp. 78-88. *Handbook of North American Indians*, Vol. 15, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.
- Hawkins, R. A., and Scott A. Walley. 1995. *Chert Source and Phase I Archaeological Surveys on the U.S. Army Jefferson Proving Ground, Jefferson, Jennings, and Ripley Counties, Indiana*. Draft Report. Algonquin Archaeological Consultants, Inc., Cincinnati.
- Hunter, W. A. 1978. History of the Ohio Valley. In *Handbook of North American Indians*, Vol. 15: NE, edited by B. G. Trigger, pp. 588-593 (Series editor W. C. Sturtevant). Smithsonian Institution, Washington, D.C.
- Leland, H., D. Goldberg, R. Calli, and R. Besel. 1956. *History of Jennings County, Indiana*.
- Mbutu, S., P. Waite, D. Peter, and F. Largent. 1996. *Jefferson Proving Ground Cultural Resources Management Plan*. U.S. Army Corps of Engineers, Louisville, Kentucky.
- Miller, Stephen A. Draft. *Fire Management Plan for Big Oaks National Wildlife Refuge*. U. S. Fish and Wildlife Service
- Muncie, E. O. 1932. *A History of Jefferson County Indiana*. Unpublished Master's thesis, Indiana University. Bloomington, Madison, Indiana.
- Peckham, H. H. 1978. *Indiana: A Bicentennial History*. W. W. Norton, New York.
- Pruitt, Lori, S. Pruitt, M. Litwin. 1994. *Jefferson Proving Ground Fish and Wildlife Management Plan*. U.S. Fish and Wildlife Service, Bloomington, Indiana.
- Stafford, C. R., and M. Cantin. 1992. *Test Excavations at the Poffey Creek in the Ohio River Valley, Harrison County, Indiana*. Technical Report No. 11, Anthropology Laboratory, Indiana State University. Terre Haute.

UNITED STATES FISH & 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, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and have determined that the action of (*describe action*): Providing for hunting, fishing and other limited wildlife-dependent recreation as described in the Interim Comprehensive Conservation Plan.

— is a categorical exclusion as provided by 516 DM 2, Appendix 1 and 516 DM 6, Appendix 1. No further documentation will therefore be made.

XX 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 EIS.

— 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 documents (list):

- Environmental Assessment and FOMSI
- Compatibility Determination
- Public comments

Rollin Lyford 7/17/00
(1) Initiator Date

J. P. Smith 7-26-00
(3) REC Date

[Signature] 7/29/00
Regional Director Date

[Signature] 7-25-00
(2) RHPO Date

John M. Zuck 7.27.00
(4) GARD Date

Regional Chief
National Wildlife Refuge



Part 2

Interim Hunting and Fishing Plan for

Big Oaks National Wildlife Refuge



Prepared by:

[Signature]
Refuge Operations Specialist

Date: 7-12-00

Reviewed by:

[Signature]
Refuge Manager

Date: 7-12-00

Reviewed by:

[Signature]
ORP

Date: 7/17/00

Reviewed by:

[Signature]
Refuge Program Supervisor-GEO 1

Date: 7/17/00

Reviewed by:

[Signature]
Regional Chief - NWR System

Date: 7-27-00

Approved by:

[Signature]
Regional Director

Date: 7-29-00

I. Introduction

Through a Memorandum of Agreement (MOA) between the U. S. Fish and Wildlife Service (Service), U.S. Army (Army) and U. S. Air Force (Air Force), the Service will obtain a 25-year real estate permit, with renewal options, from the Army for the purpose of establishing a National Wildlife Refuge on a portion of the closed military base known as Jefferson Proving Ground (JPG). The primary goal in designating a portion of JPG as Big Oaks NWR is to preserve and manage significant wildlife habitats found on the site (Figs. 3 and 4), there is also a potential for limited public hunting and fishing in areas designated for such activities in consultation with the Army. This Hunting and Fishing Plan (Plan) was developed to provide direction and continuity to guide all interim hunting and fishing activities on Big Oaks NWR.

Much of Big Oaks NWR contains unexploded ordnance (UXO), depleted uranium (DU), and other contaminants. The existence of these contaminants causes safety, management and funding concerns specific to Big Oaks NWR. Because of these safety issues specific to Big Oaks NWR, due to the Army's former mission at JPG and the ANG training facility located on the interior of JPG, there will be specific refuge regulations required to be followed during a refuge visit. Most are summarized in this Hunting and Fishing Plan or within the Interim Public Access Plan (Part 2; Attachment 1).

II. Conformance with Statutory Authorities

This overlay refuge will be established by the statutory authority of 2 specific Acts:

- 1) The Fish and Wildlife Act of 1956 [16 USC 742a-742j] as amended authorizes the Secretary of the Interior to acquire interests in property "...for the development, advancement, management, conservation, and protection of fish and wildlife resources..."
- 2) The Endangered Species Act authorizes the Secretary of Interior to acquire interests in lands "to conserve fish, wildlife, and plants, including those which are listed as endangered or threatened..." [16 USC 1534].

This refuge establishment fulfills a public need for the development, advancement, management, conservation, and protection of forest interior habitat and large contiguous blocks of grassland and shrubland habitat. It also conserves and protects an area known for its high quality summer habitat for the Indiana bat (*Myotis sodalis*).

The purpose of Big Oaks NWR (NWR) is for the development, advancement, management, conservation, and protection of fish and wildlife resources and to conserve fish, wildlife, and plants, including those which are listed as endangered or threatened. This purpose statement is derived directly from the authorities that established the refuge.

Funding for the hunting and fishing program will be part of the refuge's annual budget. Additional funds will be raised through the access fee required for hunting and fishing on the refuge. It is anticipated that the hunting and fishing program will require the expenditure of \$52,000 for staffing and maintenance above the general operational costs of the refuge.

III. Statement of Goals

The concise mission statement of Big Oaks NWR derives from the purpose of the refuge and is "to preserve, conserve, and restore biodiversity and biological integrity for the benefit of present and future generations of Americans."

A. Refuge Goals:

1. To preserve, conserve, and restore fish, wildlife, and plants listed as endangered and threatened and those species of management concern whose populations are declining.
2. To preserve, conserve, and restore a natural diversity and abundance of fish, wildlife, and plants by protecting, restoring, and managing large blocks of forest, grassland, shrubland habitats.
3. To provide interpretive, educational and research opportunities with the emphasis on resource conservation, restoration, and enhancement, and on biodiversity and biological integrity.
4. To provide the public with opportunities for high quality wildlife-oriented recreation to the extent these activities are compatible with the mission of the refuge, public safety and the terms of the Army's real estate permit for use of the property.

B. Hunting and Fishing Program Objectives:

Big Oaks NWR will provide for public recreational opportunities in a manner which is compatible with the purpose for which the refuge was established and consistent with safety considerations specific to this refuge. The Refuge Improvement Act of 1997 finds in Section 2, "When managed in accordance with principles of sound fish and wildlife management and administration, fishing, hunting, wildlife observation, and environmental education in national wildlife refuges have been and are expected to continue to be generally compatible uses."

A goal of Big Oaks NWR is the provision of high quality, wildlife-dependent recreation opportunities that are consistent with the mission of the refuge. The refuge would increase the accessibility of the area to the public for hunting and fishing and will promote

activities relevant to Big Oaks NWR's management of natural resources.

IV. Assessment

- A. Federal and State regulations permit hunting of species to maximize utilization of harvestable surpluses of resident game and to tailor harvest opportunities to local needs. These regulations permit harvests that are consistent with the well being of migratory and resident animal populations that use the area. Permit drawn hunts for the general public have been conducted for deer (since the 1960's) and turkey hunting (since 1984) on some areas of JPG. The general public hunts were coordinated with the Indiana Department of Natural Resources, Division of Fish and Wildlife (IDFW).

Turkeys are present throughout the refuge and their population is still increasing due to the maturation of forested areas on JPG (Ken Knouf, Pers. Comm.). Turkey harvests at JPG have been approximately 50 toms per 720 hunter use-days during the past several years. Harvest of male turkeys at such low levels would obviously be sustainable considering the large area of suitable habitat and the large proportion of the refuge area that would not be hunted.

Deer populations at JPG were extremely high in the 1960's and 1970's. Habitat became degraded and a browse line developed before adjustments in harvest brought the population to lower levels (Ken Knouf, Pers. Comm.). Prehunt densities were estimated at approximately 30 deer/sq. mi. by the IDFW in the mid-1990's. A past goal stated by IDFW biologists was to stabilize success rates during the gun season to 15 - 20 % (Fig. 2.1). Dressed weights of known-age deer or antler beam diameters of known-age bucks can monitor the nutritional health of the herd; these dressed weights increased in the 1990's, indicating that the quality of the habitat on JPG has improved since the 1970's (Fig. 2.1). Harvest ratios of bucks and does should be roughly equivalent, but in recent years, bucks have made up the majority of the harvest (Fig. 2.2). Since JPG was closed in 1995, harvest has decreased with the lower recreational use at the site (Fig. 2.2). Additional indices such as the number of antlered bucks harvested per sq. mi. per 1000 gun hunter use-days could be used to monitor the population trend of the deer herd (Fig. 2.3); biological data from harvested deer should be collected periodically to reconstruct basic information on the deer herd. Presently, the deer herd appears to be increasing slightly, but with continued harvests the population level could be stabilized (Figs. 2.1 and 2.3). Refuge staff will consult with IDWF biologists to adjust harvest recommendations for future hunts.

Fishery populations present on the Big Oaks NWR are considered healthy enough to support recreational fishing at a higher level than what occurred prior to refuge establishment. The 1997 Fishing Report (Sims and Suprenant 1998) indicated insufficient recruitment of bass and recommended the implementation of a 12 to 15-inch slot limit combined with increased fishing pressure. Upon establishment of Big Oaks

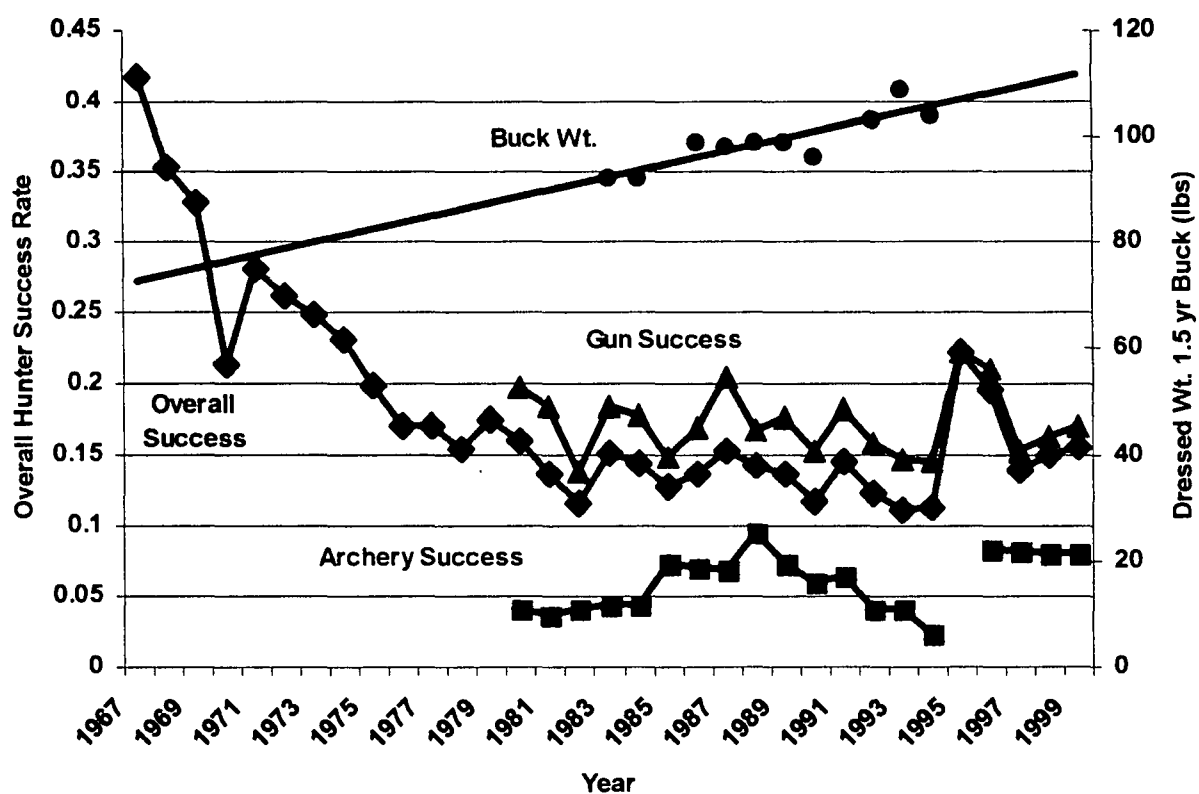


Fig. 2.1. Hunter success rate for deer hunting and dressed weight of 1.5 year old bucks on Jefferson Proving Ground, 1967-1999.

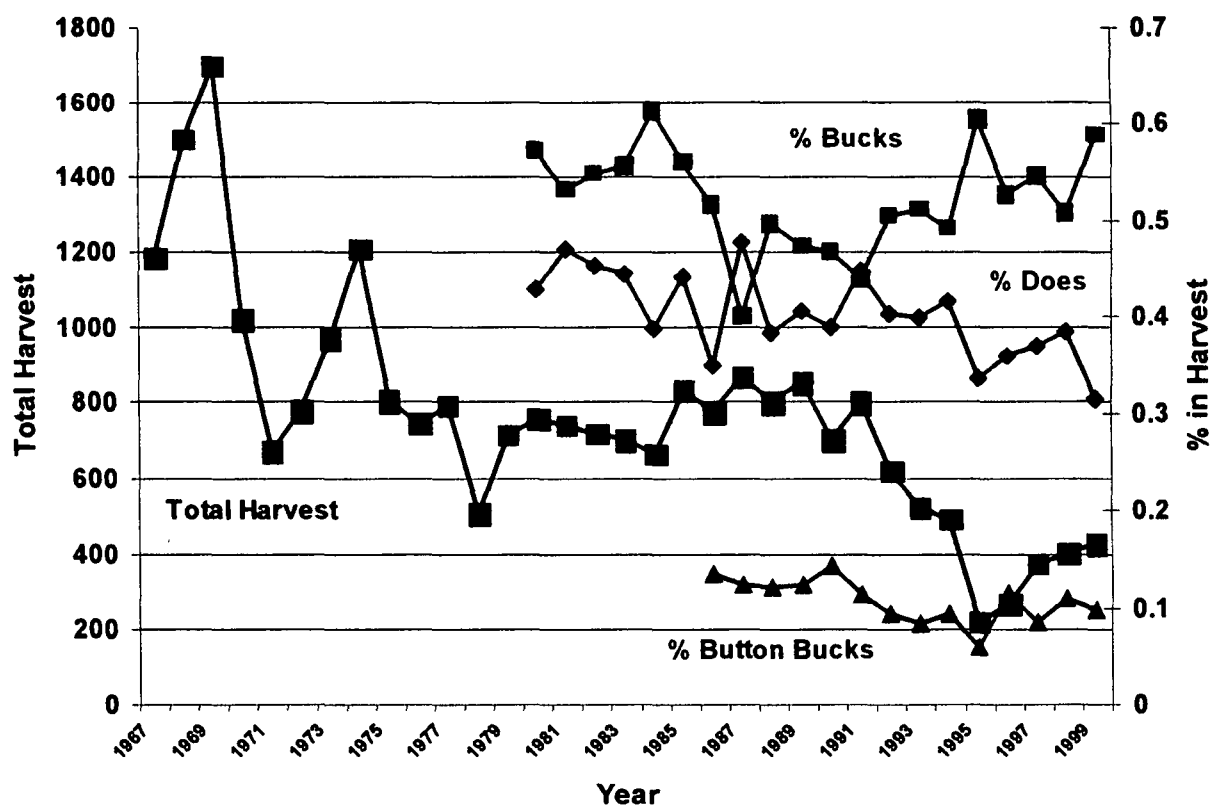


Fig. 2.2. Total deer harvest (1967-1999) and percentages of antlered bucks, button bucks, and does in the harvest (1980-1999) at Jefferson Proving Ground.

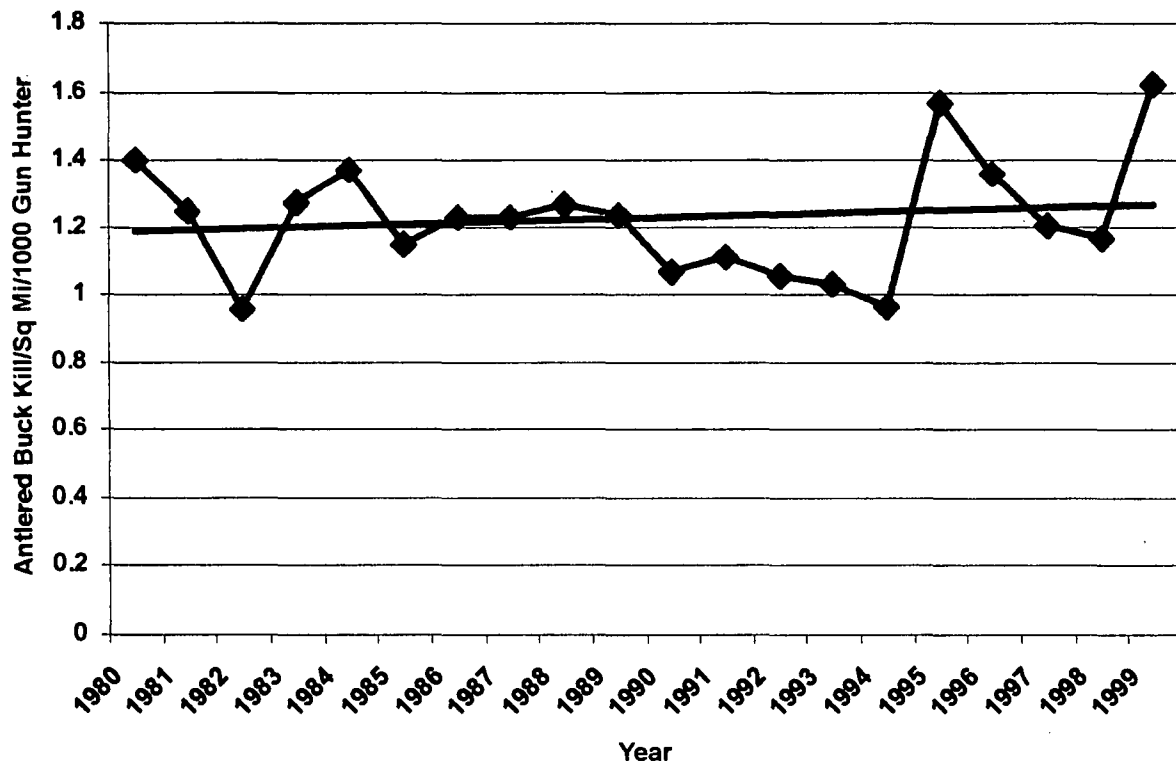


Fig. 2.3. An index to the white-tailed deer population on Jefferson Proving Ground; the number of antlered bucks killed per square mile per 1,000 gun hunters, 1980-1999.

NWR, access will be made available to the general public on a limited basis and annual fishing pressure should increase.

- B. Use conflicts: potential public use conflicts will be minimized by seeking a balance between the consumptive (hunting and fishing) and nonconsumptive uses such as wildlife observation, environmental education and interpretation. This could entail the adjustment of hunting/fishing areas and dates and/or the number of public entries (consumptive and nonconsumptive users).
- C. Administrative conflicts: There are no known administrative conflicts associated with the proposed hunting and fishing program. All features of the program are in compliance with the state and Federal objectives for the region. Current staff is adequate to support limited public use.

V. Description of Hunting and Fishing Program

- A. Areas to be opened for recreational hunting and fishing support harvestable populations of resident species.
- B. Areas to be opened for hunting and fishing presently include delineated blocks of varying size in controlled access areas of the refuge (Fig 5).
- C. Primary species to be taken include:

Big game

White-tailed deer

Woodland game

Wild turkey

Fish

Bass, bluegill, sunfish, crappie, and catfish.

- D. All hunters and anglers will be required to obtain an annual/daily Public Access Permit at Big Oaks NWR based on participation in a safety briefing. These permits will involve a fee and will serve the purpose of tracking individuals entering/exiting the refuge. Big Oaks NWR differs from typical refuges because of the past Army mission at JPG. Much of Big Oaks NWR contains unexploded ordnance (UXO), depleted uranium (DU), and other hazards, such as open cisterns. Education and training are recognized as valuable tools in preventing injuries from UXO. Like other potential hazards inherent in natural area recreation such as venomous snakes, rough terrain, poisonous mushrooms, and hunting accidents, visitor safety awareness, education, and training can help prevent accidents from occurring. Specific regulations related to UXO and DU (e.g., no ground disturbing activities are allowed on the refuge) will be detailed in this briefing besides other information concerning the refuge. The completion of the safety briefing to obtain the

Public Access Permit / liability waiver would be required annually. Because of the additional staff time required for these briefings, gate attendants, and the monitoring of

visitor activities, the access fee/permit would cover some of the additional costs associated with the hunting and fishing program at Big Oaks NWR.

- E. Consultation will be made with FWS Fishery Office as well as IDFW Fishery and Wildlife Biologists to discuss the merit and success of the refuge's hunting and fishing program, the status of the area's fish and game resources, and to consider recommendations for program modifications. Law enforcement activities will be conducted jointly by Refuge Officers and local Conservation Officers of the IDFW.

VI. Measures Taken to Avoid Conflicts with Other Management Goals

Big Oaks NWR is within the known range of several species of concern. Those species of concern on a national basis include 2-federally threatened or endangered species on the refuge. The protection of endangered or threatened species is carefully reviewed in this planning process and in the promulgation of state hunting and fishing regulations. A summary of this review, by species, follows.

1. **Indiana bat** – Summer maternity roost sites were identified prior to refuge establishment through biological work conducted by FWS staff. No hibernacula are known to exist on the property. Summering bats are not likely to be affected by hunting and fishing activities.
2. **Bald eagle** - Potential nesting habitat does exist on the refuge but nesting has not been documented for the area. The bald eagle does use refuge habitats during migration. Fishing and hunting programs administered by the refuge, consistent with state hunting and fishing regulations, would not be considered detrimental to the species. In the event that eagle nests are found on the refuge, the hunting and fishing plan will be modified to minimize disturbance.

The opening of Big Oaks NWR to hunting and fishing will not conflict with the recovery of these species. The Environmental Assessment that dealt with the establishment of Big Oaks NWR analyzed alternatives that included allowing hunting and fishing on the refuge. In addition, an Intra-Service Section 7 Consultation (Attachment 2) was conducted for those listed species that may occur or be effected by the establishment, management or public use (including hunting and fishing) of the refuge.

VII. Conduct of the Hunting and Fishing Program

A. Refuge-specific hunting and fishing regulations

Hunting and fishing on Big Oaks NWR will conform to state regulations whenever

possible. Any differences between state and refuge regulations will be detailed in leaflets and/or posted. In addition to state regulations, the following hunting regulations are enforced on all National Wildlife Refuges, including Big Oaks NWR:

- The use of nails, wire, screws or bolts to attach a stand to a tree, or hunting from a tree into which a metal object has been driven to support a hunter is prohibited on Big Oaks NWR.
- The use or possession of alcoholic beverages while hunting on Big Oaks NWR is prohibited.

Subsequent modifications in hunting and fishing regulations will be addressed in an amendment process as needed, and the public will be informed through leaflets or postings. Hunter success, observations or measurements of animal health and measurements of habitat conditions may all be used to determine if changes in hunting regulations are necessary. The refuge will continue to cooperate with the IDFW's deer and turkey check station that has historically been operated at JPG. This check station has been instrumental in the monitoring of hunter success and biological data for these harvested populations at JPG. Periodic monitoring of angler success and fishery sampling will allow the refuge staff to determine the health of the fishery resources of the refuge and any needed changes.

B. Anticipated public reaction

The historic minimal use of the facility by the general public has long been perceived negatively by local residents not able to participate. For this reason, it is believed that the general public will view the refuge establishment and subsequent public hunting and fishing program as a positive event. However, sponsors and their guests that had exclusive hunting and fishing privileges will probably view a general public hunting and fishing program as undesirable. Sponsors and guests will be allowed to use the refuge but, as members of the general public, they will be governed by the same public use policies as the general public.

C. Hunter application and registration procedures

The refuge will participate in IDFW random draw hunts. Those hunters wishing to be considered for refuge hunts must fill out a hunt registration card found in the Indiana Hunting and Trapping Guide and send it to the appropriate address as outlined in the guide. A hunter's failure to abide by the IDFW registration rules and regulations will result in a application being disqualified from the draw. In addition, opportunities for a daily lottery or drawing to fill no-shows and for dates other than those allotted for IDFW random drawings, may be available.

D. Description of angler selection process

Anglers will gain access to the public fishing area on a first come-first served basis. Due to limited parking and safety concerns the numbers of boats and anglers will be regulated

(see Table 1). However, if this selection method proves difficult or cumbersome for refuge staff, alternative angler selection procedures will be developed.

E. Media selection for announcing and publicizing hunting and fishing opportunities

An announcement of the availability of public hunting and fishing opportunities, the areas which are open, which species may be taken and how to obtain additional information relative to the hunting and fishing program will be made available through the local media and the IDFW.

Table 1. Public use limits for hunting and fishing on Big Oaks NWR ^a.

Activity	Description of where use will occur	Maximum one-time capacity	When allowed
Deer Hunting	See Public Access Map	423	November (6 days archery and 9 days gun)
Turkey Hunting	½ of the number hunters/area given on Public Access Map	212	April to Mid- May (15 Days)
Fishing	Max. 10 boats and Max. 40 on shore at Old Timbers Lake. No fishing allowed on any other body of water.	60 ^b	5 - 10 days per month; April through October

^a Based on staff and available funds

^b Based on available parking

F. Description of hunter and angler orientation, including scouting

Hunters and anglers will be given a safety briefing and orientation prior to participating in public use activities. Hunter and angler orientations will utilize hunting regulation leaflets with maps delineating areas open for hunting and fishing. The leaflets will be available at Big Oaks NWR Office. These leaflets will be updated as needed.

G. Hunter and angler requirements

(1) Age:

Visitors under the age of 18 must be accompanied by an adult.

(2) Allowable equipment:

State regulations will govern all equipment used for hunting and fishing on the refuge. No all-terrain-vehicles (ATV) or permanent stands will be allowed on the refuge.

(3) Use of open fires:

No open fires will be allowed at anytime on the refuge.

(4) License and permits:

Hunters will be required to have appropriate valid state hunting and fishing licenses as well as valid refuge access and hunting permits.

(5) Reporting harvest:

Hunters will be required to report their harvest to the refuge staff at the time of check-out.

(6) Hunter training and safety:

Hunters will be required to undergo an unexploded ordnance and depleted uranium safety briefing before being permitted to access the refuge. State regulations will determine which hunters must have valid hunter safety certification.

Suggested Regulations for the Federal Register for Big Oaks National Wildlife Refuge:

Hunting of white-tailed deer and wild turkey is permitted on designated areas of the refuge subject to the following conditions:

- (a) Public Access and hunting permits and all applicable state licenses are required.
- (b) Hunting is permitted by shotgun, muzzle loader, or archery as regulated by specific areas and refuge seasons.
- (c) Bagged game must be legally tagged and taken to the refuge check station.

Sport fishing is permitted on designated areas of the refuge subject to the following conditions:

- (a) A Public Access Permit and all applicable state licenses are required
- (b) Fishing will be permitted at Old Timbers Lake during specific days and times and within approved levels of use.
- (c) Only boats powered by a trolling motor or those that are rowed or paddled are allowed on the lake.
- (d) All boats must be legally registered and contain approved flotation devices as determined by state law.

Literature cited

Sims, B. and C. Surprenant. 1997. Old Timbers Lake Fishery Report. U.S. Fish & Wildlife Service, Marion, IL. 8pp.



Part 3:



**Interim Compatibility Determination
For Big Oaks National Wildlife Refuge**

INTERIM COMPATIBILITY DETERMINATION

USE:

Wildlife-dependent uses such as hunting, fishing, wildlife observation, photography, environmental education, and interpretation.

REFUGE NAME:

Big Oaks National Wildlife Refuge

ESTABLISHMENT DATE:

June 30, 2000

ESTABLISHING AND ACQUISITION AUTHORITIES:

This overlay refuge will be established by the statutory authority of 2 specific acts:

1) The Fish and Wildlife Act of 1956 [16 USC 742a-742j] as amended authorizes the Secretary of the Interior to acquire interests in property "...for the development, advancement, management, conservation, and protection of fish and wildlife resources..."

2) The Endangered Species Act authorizes the Secretary of Interior to acquire interests in lands "to conserve fish, wildlife, and plants, including those which are listed as endangered or threatened..." [16 USC 1534].

This refuge establishment fulfills a public need for the development, advancement, management, conservation, and protection of forest interior habitat and large contiguous blocks of grassland and shrubland habitat. It also conserves and protects an area known for its high quality summer habitat for the Indiana bat (*Myotis sodalis*).

REFUGE PURPOSES:

The purpose of Big Oaks NWR (NWR) is for the development, advancement, management, conservation, and protection of fish and wildlife resources and to conserve fish, wildlife, and plants, including those which are listed as endangered or threatened. This purpose statement is derived directly from the authorities that established the refuge. The concise mission statement of Big Oaks NWR derives from this purpose and is "to preserve, conserve, and restore biodiversity and biological integrity for the benefit of present and future generations of Americans."

A. Refuge Goals:

1. To preserve, conserve, and restore fish, wildlife, and plants listed as endangered and threatened and those species of management concern whose populations are declining.
2. To preserve, conserve, and restore a natural diversity and abundance of fish, wildlife, and plants by protecting, restoring, and managing large blocks of forest, grassland, shrubland habitats.
3. To provide interpretive, educational and research opportunities with the emphasis on resource conservation, restoration, and enhancement, and on biodiversity and biological integrity.
4. To provide the public with opportunities for high quality wildlife-oriented recreation to the extent these activities are compatible with the mission of the refuge, public safety and the terms of the Army's real estate permit for use of the property.

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

"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."

DESCRIPTION OF USE:

- (A.) Use: Big Oaks NWR will provide for public recreational opportunities in a manner which is compatible with the purpose for which Big Oaks NWR will be established. The Refuge Improvement Act of 1997 finds in Section 2, "When managed in accordance with principles of sound fish and wildlife management and administration, fishing, hunting, wildlife observation, and environmental education in national wildlife refuges have been and are expected to continue to be generally compatible uses."
- (B.) Where: The proposed hunting and fishing areas, with applicable maps, are discussed in the Hunting and Fishing Plan and the Interim Public Access Plan. Areas open to wildlife observation and photography, and environmental education and interpretation are outlined in the Interim Public Access Plan.
- (C.) Timing: A goal of the proposed Big Oaks NWR is the provision of high quality, wildlife-dependent recreation opportunities that are consistent with the mission of the refuge. The proposed refuge would increase the accessibility of the area to the public for hunting and

fishing and will promote activities relevant to Big Oaks NWR's management of natural Resources.

- (D.) Why: Allowing recreational opportunities such as hunting, fishing, wildlife observation and photography, and environmental education and interpretation will allow Big Oaks NWR to realize one of its four major goals, i.e., to provide public opportunities for wildlife-oriented recreation. Deer hunting will not only meet the public wildlife-oriented recreation goal, but it will serve to prevent the deer herd from exceeding the carrying capacity of the refuge and to conserve and protect wildlife and plants listed as endangered or threatened or of management concern.

AVAILABILITY OF RESOURCES:

Funding required to Administer and Manage the Recreational Uses:

Cost (\$) to conduct Wildlife-dependent Public Use

	Wildlife Observation and Photography	Environmental Education and Interpretation	Hunting	Fishing	TOTAL
Staff time	\$ 7,000	\$ 7,000	\$ 10,000	\$ 11,000	\$ 35,000
Equip. Cost	750	750	1,000	1,000	3,500
Maintenance	12,500	12,500	12,500	12,500	50,000
Administration	1,875	1,875	1,875	1,875	7,500
Total Costs	- \$ 22,125	- \$ 22,125	- \$ 25,375	- \$ 26,375	- \$ 96,000
User Fees (Access Permit)	+ \$1,000	+ \$1,000	+ \$ 25,000	+ \$ 25,000	+ \$ 52,000
Net Cost of Use	- \$ 21,125	- \$ 21,125	- \$ 375	- \$ 1,375	- \$ 44,000

Staff costs could be reduced by using volunteers and other cooperative measures. Cost of these wildlife-dependent uses might be absorbed by existing and anticipated annual budgets.

ANTICIPATED IMPACTS OF THE USE:

The historical limited use of the facility by the general public has long been perceived negatively

by local residents not able to participate. For this reason, it is believed that the general public will view the establishment of Big Oaks NWR and subsequent public recreational opportunities as a positive event. The demand for public use will likely exceed the limits described in the Interim Public Access Plan, thus, use will be regulated on a first-come, first-served basis or lottery system. A negative impact could be perceived by the former military recreation users; these participants that previously had recreational privileges at JPG will likely view the public recreational program negatively. Former military recreation users will be allowed to use Big Oaks NWR but will be treated in the same manner as the general public.

- (A.) **Direct Positive Impacts:** The uses proposed will help to maximize the full realization of Big Oaks NWR goals to increase opportunities for outdoor recreation and to protect, restore, and manage forest interior habitat and large contiguous blocks of grassland and shrubland habitat. Also, the increases in public use of Big Oaks NWR will help develop an appreciation of the natural character of the area. Threatened and endangered species and their habitats will not be jeopardized because all traffic within recreational areas will be on established roads or by foot only, and refuge staff will monitor these habitats to ensure a minimum of disturbance.
- (B.) **Indirect Positive Impacts:** Develop an appreciative and informed base of public support for Big Oaks NWR programs, increase success of refuge habitat restoration activities (grassland and shrubland restoration, and protecting forest interior habitat), and foster a cooperative relationship with adjacent landowners.
- (C.) **Long-term Negative Impacts:** Recreational users of the refuge could over time become habituated to safety hazards caused by unexploded ordnance (UXO) and depleted uranium (DU). These safety hazards on Big Oaks NWR will remain a concern and need to be addressed through annual safety briefings and continuous law enforcement. Off road vehicle use would cause negative habitat damage and would be a safety hazard due to the presence of UXO and DU.
- (D.) **Short-term Negative Impacts:** JPG is relatively free of trash associated with visitors (e.g., aluminum cans, fast food wrappers, etc.). The incidence of littering could be a short-term impact associated with new recreation use at the site. Visitors should be advised of other short-term hazards such as the potential for deer-vehicle collisions.

PUBLIC REVIEW AND COMMENT:

The public was notified by newspapers and other media about the compatibility determination process and the opportunity to review and comment on the initial determination proposed by the Service. The comment period lasted from June 5, 2000 to June 24, 2000. There were 3 public meetings/open houses scheduled and held in the surrounding counties to answer questions and to review the compatibility determination process with the public. There were 234 individuals who commented in writing on 59 topics during the comment period. Public comments primarily were

concerned with access opportunities, entrance locations, interest in guided tours and the lack of small game hunting opportunities and gathering activities. The public was informed that the availability or compatibility of these and other activities will be most likely be reviewed during the Comprehensive Conservation Planning process. The comments are summarized below.

Public Comment	No. of Comments
Gate on north end only	175
Guided/ self guided tours (29 say historic tours)	31
Mushroom Hunting	10
Small game hunting	9
More boats on lake at one time	7
Lake open on Monday	6
Minimum 2 people per boat	6
Special privileges wanted for veterans/jpg employees	5
Too few hours/days	4
Berry Picking	4
No special privileges to select groups	3
Fishing at other ponds/streams	3
Inadequate safety measures	3
Deer drawing for minimum of 2 days	3
Antler hunting	3
Better road maintenance	3
Lottery draw (night prior to hunt) in addition to state draw	3
Require hunter ed	3
Buddy system for hunts	3
Select areas by phone only after draw (1 said just select area in advance)	3
Make speed limit slower	2
NO pre-scouting or tree stand placement prior to day of hunt	2
Vehicles on roads only	2
No cruising allowed during hunt day	2
Women only hunt day	2
After check-in allow hunter to go to area immediately	2
Keep Ken Knouf to run hunting and fishing program	2
Service personnel doing great job, keep them	2
Make hunt a bonus hunt (in addition to deer/turkey taken outside)	2
Control predators	2

Public Comment	No. of Comments
Not enough activities allowed	1
Not enough areas accessible	1
Muzzleloader deer season	1
Persimmon gathering	1
Outdoor Interpretive person on staff during week	1
Charge fees	1
More rest rooms	1
Better map of roads/special interest areas	1
Wildlife observation	1
Wildlife photography	1
Rent boats	1
Simplify check-in/out procedures	1
Hunting through December	1
Institute a quality deer mgmt program	1
Gate on north end & south end	1
Hisotric Markers	1
Have Army clear areas of UXO to ensure safety	1
NO ATV's	1
Better research on deer and turkey pop'ns	1
Volunteer information	1
Re-introduce elk	1
Ice fishing	1
Grape gathering	1
Require background/criminal check on all hunters	1
Get IDNR to help on hunts and assume some liability	1
IDNR/Service personnel not allowed to enter draw for hunts	1
Shooting Range	1
Control beaver	1
Public involvement in fire program	1

USE IS COMPATIBLE OR NOT COMPATIBLE:

Compatible

JUSTIFICATION

The proposed uses are compatible because they are within the establishing authority language, fulfill the intent of the Refuge Improvement Act of 1997 concerning wildlife-dependent public use, and there are no federal regulations prohibiting the uses. The uses do not jeopardize the fulfillment of any of Big Oaks NWR's other primary purposes or goals.

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

- (A.) Safety briefing and regulations pertaining to Big Oaks NWR will address hazards inherent for recreational use at the site. These briefings and enforcement of refuge regulations will continue to emphasize hazards related to the site. Recreational use will be closely monitored.
- (B.) Vehicular traffic off of established roadways will not be allowed, thus reducing the impact recreational activities will have on sensitive habitat types. Speed limits will be posted to keep vehicle speeds within appropriate road conditions, especially with regards to deer.
- (C.) Visitors will be notified that littering is a refuge violation and to haul out all trash associated with their visit.
- (D.) Control of various wildlife populations, especially white-tailed deer, will enhance the ability of the refuge staff to conserve healthy communities of fish, wildlife, and plants necessary to fulfill Big Oaks NWR purposes.

CONSULTATION WITH REFUGE SUPERVISOR:

Consulted with Refuge Supervisor (Rollin Siegfried) by phone on July 12, 2000, and received concurrence on compatibility determination.

SIGNATURE: Refuge Manager:

Lee Herzberger 7-12-00
(Signature/Date)
Nita M. Zwick 7-27-00
Rollin Siegfried 7/17/00

MANDATORY 10 or 15-year REEVALUATION DATE: Will be reviewed during the initial Comprehensive Conservation Planning process

Attachment 1:

**Interim Public Access Plan for the Proposed
Big Oaks National Wildlife Refuge**

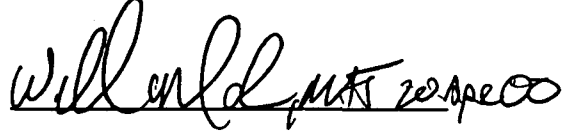
Interim Public Access Plan for the Proposed Big Oaks National Wildlife Refuge

**Prepared by:
U. S. Fish and Wildlife Service**



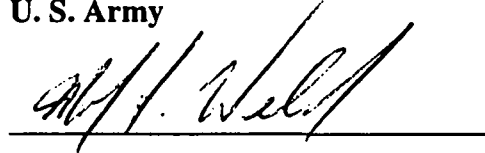
**Lee Herzberger
Refuge Manager
Muscatatuck National Wildlife Refuge**

**Reviewed by:
Air National Guard**



**Maj. William Nolen
Commander
Jefferson Range**

**Approved by:
U. S. Army**



**Maj. Mark A. Welch
Commander
Jefferson Proving Ground**

Introduction

Approximately 50,000 acres of the decommissioned military base known as Jefferson Proving Ground (JPG) is proposed for inclusion into the National Wildlife Refuge (NWR) System via a Memorandum of Agreement (MOA) with the U.S. Army (Army). The area will become Big Oaks NWR. The primary purposes for this overlay NWR are derived from 2 specific acts:

- 1) The Fish and Wildlife Act of 1956 [16 USC 742a-742j] as amended authorizes the Secretary of the Interior to acquire interests in property "...for the development, advancement, management, conservation, and protection of fish and wildlife resources..."
- 2) The Endangered Species Act authorizes the Secretary of Interior to acquire interests in lands "to conserve fish, wildlife, and plants, including those which are listed as endangered or threatened..." [16 USC 1534].

The mission of Big Oaks NWR derives from these two purposes and is "to preserve, conserve, and restore biodiversity and biological integrity for the benefit of present and future generations of Americans." There is also a potential for limited public use in areas designated for such activities. This Interim Public Access Plan (Plan) was developed to allow the Army to review and approve safety procedures prior to public use occurring on Big Oaks NWR. This Plan is in accordance with the terms and conditions of the MOA between the U. S. Fish and Wildlife Service (FWS), Army, and Air Force (AF), and in the event of a conflict between the MOA and this agreement, the MOA shall be the controlling document.

Much of the proposed Big Oaks NWR contains unexploded ordnance (UXO), depleted uranium (DU), and other contaminants. The existence of these contaminants causes safety, management and funding concerns specific to Big Oaks NWR. The FWS accepts that there is no Army plan or budget authority to remove UXO in the Firing Range. However, the Army has agreed to make a good faith effort to request UXO removal in connection with Army Reserve and/or Army National Guard training exercises to support refuge operations. To facilitate the support process, the FWS will incorporate building designs that minimize ground disturbance and will provide the Army a minimum 2-year advance notice of their request to complete UXO removal. If the Army is not able to obtain UXO removal support as part of a training exercise, the FWS agrees to withdraw its request and terminate any plans/operations requiring non-emergency UXO support.

In the central portion of JPG is an active 1,033-acre AF training area known as Jefferson Range. Jefferson Range is composed of a 983-acre air-to-ground bombing and strafing range and a 50-acre Precision Guided Munitions (PGM) range. Both the 983-acre range and the 50-acre range have associated safety fans that extend over a portion of the area proposed as Big Oaks NWR (Fig. 1). A composite footprint of approximately 5,100 acres supports the primary target area and a composite footprint of approximately 14,860 acres supports the PGM target area. During flight operations no personnel other than AF personnel will be allowed access inside the weapons

footprints. The use of both footprints will be coordinated with the Refuge Manager through monthly scheduling or as necessary to meet mission requirements. When not in use, FWS personnel will have access to the safety footprints. Safety fans and other closed areas will be barricaded as a precaution. The scheduling of public use on Big Oaks NWR that may conflict with AF activities will be coordinated through periodic meetings between the Refuge Manager and the AF Range Commander designed to eliminate conflicts and ensure safety.

In the event of an aircraft accident, the Jefferson Range Control Officer (RCO) will be the on-scene commander in charge until relieved by the appropriate military authority. Fire and medical support will be directed to the perimeter gate most advantageous to the crash site. Due to the dangers posed by military aircraft, no persons will be allowed access to a crash site until deemed appropriate by the on-scene official. The Jefferson Range Access Plan protocols concerning aircraft accidents will be adhered to by the FWS, and the Refuge Manager will coordinate and cooperatively work with the Jefferson RCO or other on-scene commander.

Safety Briefing Protocols

To ensure visitor safety, the Army will provide safety briefing materials that contain basic information on site history, the hazards of UXO, and the appropriate action when UXO or DU is encountered. The FWS will require all staff and visitors to undergo a safety briefing and will provide safety pamphlets containing this information and a map of Big Oaks NWR. FWS will also brief visitors on other hazards based on local site conditions. All Public Access Permits will be tracked by a permit number. An annual database will be maintained that records individual permit information (e.g., name, address, date of birth, date of safety briefing, etc.). An annual fee or daily fee will be charged for recreational use at Big Oaks NWR. Entrance fees will be waived for official duties conducted by contractors, FWS staff, AF staff, Army staff, and others designated by the Refuge Manager, but everyone will receive a safety briefing (AF visitors will receive briefings in accordance with the AF site access plan).

Entry Procedures

Visitors will check-in and undergo an appropriate safety briefing at the refuge office (presently in Building 125) and be issued a Public Access Permit. The visitor will then be given directions to the access gate controlled by a gate attendant. The gate location will be the sole access point for unescorted FWS visitors and is located adjacent to Gate 1a on the East Perimeter Road (Gate "1b"; Fig. 2). Visitor check-out will also occur at the refuge office. AF visitors, including Old Timbers Lodge guests, will be checked-in and out in accordance with the AF site access plan.

Types of Public Use

The FWS will provide staffing at a level consistent with the safe operation of the refuge. With the expectation of limited or no UXO cleanup in the future, public use levels will be low and limited to hunting, fishing, wildlife observation and photography, and guided tours (Table 1).

Activities not covered within the Plan will not be allowed unless first reviewed and approved by the Army and declared compatible by the FWS.

Access

All public activities on the refuge will be controlled and limited within 2 zones identified in consultation with the Army. These areas are 1) Limited Day Use Recreation and 2) Special Control Hunt Zones; a third zone would have no public access and would be considered closed to all types of entry except on established roads or under emergency conditions (Fig. 1). The Limited Day Use Zone will be used for hunting (deer and turkey), fishing (Old Timbers Lake), and limited opportunities for wildlife observation and photography, and guided (accompanied by FWS staff) environmental education and interpretation tours. The Special Control Hunt Zone will only have public access during a limited deer and turkey hunting season, and limited guided tours. All of these recreational units were previously used in the Army recreation program (Fig. 1).

Public use areas will be delineated by maps and by signs placed on their boundaries as required by NWR policies. Recreational opportunities during posted hours and periods will be available to the general public provided they have completed all necessary safety requirements, proper state licenses, appropriate permits for lottery seasons, and there are areas/staff available for the requested activity. Unescorted access will be limited to April through November (Table 1). Recreation units will have maximum capacity limits at any one time for all off-road visitor activities (Table 1, Fig. 1). Guided tours oriented toward environmental education, wildlife observation, interpretation, and the unique story of the property will be scheduled and completed without exposing the public participants to undue risk.

Protocols on How Public Use will be Monitored, Limited, and Controlled

Public access will be limited to specific days of the week and by seasonal periods (e.g., fishing, deer, and turkey seasons) (Table 1). The Army and the FWS will periodically reevaluate public access to determine if different limits are more appropriate.

The standard protocol for public access will be a check-in/check-out procedure to specific areas (e.g., Area 1, see Fig. 1) for those members of the public that have undergone a safety briefing. They will be allowed in areas identified as suitable for that type of activity (e.g., deer hunting in a Special Control Hunt Area; fishing in Old Timbers Lake). A daily entrance log/database will be kept of all public use on Big Oaks NWR. Information on types and locations of public use will be compiled in an annual report that will be distributed to the Army, AF and the FWS Region 3 Office.

Prior to unescorted public access occurring (June 3, 2000), the AF will install road barricades on the East Perimeter Road and the FWS will place closed area signs on these barricades to limit public access into interior areas of the refuge (Fig. 2). A total of 19 barricades will be placed

around the periphery of the southern Special Control Hunt Zone. These barricades will be located at the point where all interior roads leave the East and West Perimeter Roads. The barricades on the West Perimeter Road will be in place by deer season (November 1, 2000). Other than during the limited deer and turkey hunts, these barricade gates will remain closed and locked at all times. FWS will control access into these areas during the annual turkey and deer hunts with the previously described protocols. Besides these hunt periods, only AF and FWS personnel or required contractors will be allowed access to these interior areas and the safety fan footprints. Closed area signs will also be placed alternating with the warning signs placed by the Army for closed access areas, especially for those areas adjacent to recreation units. Signs will be placed on existing structures (i.e., fence posts, buildings, etc.), live trees, or on posts with weighted bases to avoid ground intrusion of sign posts.

As described in the MOA, the FWS will work closely with the AF on controlling visitor access and monitoring refuge visitors. The AF will be responsible for maintaining the perimeter fence and overall site security at JPG. The FWS will notify the AF of any damage to the perimeter fence in a timely manner.

The FWS will not tolerate individuals who violate safety regulations. For this reason, anyone who does not comply with safety regulations will forfeit his/her refuge access privileges as determined by the Refuge Manager or by a court of law. The FWS will also continue access restrictions made by the Army to specific individuals because of documented safety violations.

Enforcement of refuge trespass and other public use violations will be the primary responsibility of commissioned Refuge Law Enforcement Officers and cooperatively by Indiana Conservation Officers and other law enforcement agencies. General trespass, poaching, and other violations will be cooperatively enforced by these agencies. The FWS will meet with local law enforcement agencies and develop coordinated law enforcement strategies (these strategies will be in place by June 3, 2000) that will be coordinated with the AF. Procedures for obtaining law enforcement assistance will be based on legal jurisdiction where the incident occurs (e.g., in Ripley County the Ripley County Communication Supervisor will be contacted, likewise, in Jefferson or Jennings Counties the appropriate Communication Radio Dispatch Centers will be contacted). For emergency response situations, the cooperating agency will coordinate activities with a 24 hr point of contact (POC) listed in Attachment 1.

Fire suppression capabilities will be negotiated with a local Volunteer Fire Department and will be in place by June 3, 2000. The agreement will include protocols on suppression of wild fires and on-call assistance during prescribed fires. Protocols will instruct fire fighters to not leave roadways and to follow other Army safety directives. For fire department response after hours, the local fire department will be instructed to coordinate with the POC and to cut the lock on the gate most advantageous to their response. In this case, the fire department response will only occur if it is apparent that the fire could cause loss of life or property damage outside the perimeter fence.

Key Control

The AF will change all locks on the perimeter fence and will issue an appropriate number of perimeter and interior gate keys to the FWS for official use. These keys will be controlled in accordance with standard lock and key control protocols (Air National Guard 181st Fighter Wing Instruction 32-1003). All keys will be signed for on the Jefferson Range key control log. The FWS will inventory these keys quarterly in accordance with these key control protocols. The FWS will coordinate distribution of keys with law enforcement and emergency response agencies. The FWS will be responsible for the control of these keys. The party responsible for missing keys shall bear the cost for the re-coring of locks as applicable. The Jefferson Range Commander has the ultimate responsibility for lock and key control on the range and refuge.

Use of Refuge by Old Timber's Lodge (AF) Guests

The FWS will schedule priority refuge events for Old Timbers Lodge with the Jefferson Range AF Commander; at all other times the Old Timbers Lodge area will be off limits for refuge visitors. The refuge will allow Old Timbers Lodge guests access to refuge recreational activities on days/times those activities are available to the general public. Old Timbers Lodge guests must obtain a valid Big Oaks NWR Public Access Permit to participate in these activities and these guests must participate in an AF safety briefing. While on the refuge, all rules and regulations of the refuge will apply to Old Timbers Lodge guests.

Old Timbers Lodge guests must check-in and check-out at the refuge office to participate in recreational opportunities (e.g., fishing at Old Timbers Lake). If guests do not check-in, especially for fishing at Old Timbers Lake, they cannot be guaranteed the opportunity to participate in the recreational activity. For permitted deer or turkey hunts, Old Timbers Lodge guests must either have a valid state lottery permit for the specific hunt or participate in a reserved hunt drawing during the hunting season at the refuge office.

Table 1. Public use limits (use-days) for activities on Big Oaks NWR ^a.

Activity	Description of where use will occur	Maximum one-time capacity	When allowed
Deer Hunting	See Public Access Map	423	November (6 days archery and 9 days gun)
Turkey Hunting	½ of the number hunters/area given on Public Access Map	212	April to Mid- May (15 Days)
Fishing	Max. 10 boats and Max. 40 on shore at Old Timbers Lake. No fishing allowed on any other body of water.	60 ^b	5 - 10 days per month; April through October
Wildlife Observation and Photography	½ of the number persons/area given on Public Access Map; only within Limited Day Use Zone	78 ^b	5 - 10 days per month; April through October
Guided tours (interpretation and environmental education)	Dependent on conveyances available and activity. By definition, accompanied by FWS staff.	12-50	By reservation

^a Based on staff and funds available in FY 2000.

^b Based on parking and trail availability

Attachment 1

24 Hour Contact List

Joseph R. Robb
Refuge Operations Specialist
Office: 812-273-0783
Home: 812-265-6633
Cell Phone: 812-498-1154

Donna Stanley
Refuge Law Enforcement Officer
Office: 812-522-4352
Home: 812-523-3414
Cell Phone: 812-528-1998

Stephen A. Miller
Refuge Operation Specialist
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Home: 812-358-4413
Cell Phone: 812-498-1155

Jason Lewis
Wildlife Biologist
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Home: 812-574-6015
Cell Phone: 812-498-1156

Teresa Vanosdol-Lewis
Wildlife Biologist
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Home: 812-574-6015
Cell Phone: 812-498-1157

Attachment 2:

**Section 7 Endangered Species Intra-Service
Consultation for the Proposed
Big Oaks National Wildlife Refuge**

**Big Oaks National Wildlife Refuge
INTRA-SERVICE SECTION 7 EVALUATION FORM**

Originating Person: Steve Miller, Refuge Operations Specialist

Telephone Number: (812) 273-0783

Date: 12 April 2000

I. Region: 3

II. Service Activity: Refuges and Wildlife

III. A. Listed species and/or their critical habitat.

Indiana bat (*Myotis sodalis*). No critical habitat.

bald eagle (*Haliaeetus leucocephalus*). No critical habitat

B. Proposed species and/or proposed critical habitat. NOT APPLICABLE

C. Category 1 candidate species. NOT APPLICABLE

D. Include species/habitat occurrence on a map. All forested areas shown on Figure 3, Vegetation classes at the Proposed Big Oaks NWR, may provide summer habitat for Indiana bats. Old Timbers Lake provides migration stopover habitat for Bald eagles.

IV. Geographic area or station name and action. Big Oaks National Wildlife Refuge, Ripley, Jefferson, and Jennings Counties, Indiana. The proposed action is to establish Big Oaks National Wildlife Refuge and provide for the management of its natural resources and compatible public uses.

V. Location (attach maps): The Refuge is situated on over 50,000 acres in southeastern Indiana about 55 miles north/northeast of Louisville, Kentucky and just north of the Ohio River (Fig. 1). The Refuge is rectangular with the approximate dimensions of 15 miles in the north-south direction by about 6 miles in the east-west direction. The Refuge occupies land north of the firing line of the former Jefferson Proving Ground.

A. County and State: Jefferson, Jennings, and Ripley Counties, Indiana

B. Section, township, and range (or latitude and longitude): Latitude: 38° 56.53' North Longitude: 85° 25.19' West

C. Distance (miles) and direction to nearest town: Madison is 6 miles south of the Refuge and Holton is 0.5 miles north.

VI. Action objectives: Big Oaks National Wildlife Refuge will be established on or about June 3, 2000, "...for the development, advancement, management, conservation, and protection of fish

and wildlife resources..." [16 U.S.C. § 742f(a)(4)] and "to conserve fish, wildlife, and plants, including those which are listed as endangered or threatened" [16 U.S.C. § 1534]. Its purpose is to fill a public need to preserve, conserve, and restore large blocks of forest, shrubland, and grassland habitats and manage these habitats for fish and wildlife as well as provide for compatible public use. This action under consideration consists of establishing and managing Big Oaks NWR and opening designated areas to public recreation (Fig. 5).

These proposed actions would fulfill the Fish and Wildlife Service's commitment to provide these activities and is in accordance with the National Wildlife Refuge Administration Act of 1966 as amended [16 U.S.C. § 668 et. seq.]. Specifically we propose to:

1. Provide for the establishment of Big Oaks National Wildlife Refuge.
2. Provide for natural resource management activities on Big Oaks National Wildlife Refuge in accordance with natural resource management objectives.
3. Provide continued opportunities for wildlife-dependent outdoor recreation.
4. Provide for wildlife management activities on Big Oaks National Wildlife Refuge in accordance with wildlife management objectives. This would include the control of species, primarily white-tailed deer, that could have a negative impact on Refuge wildlife habitat conditions and on adjacent farmlands.

VII. Determination of effects:

A. Explanation of impacts of action on listed species/critical habitat

Under Section 7 (a) of the Endangered Species Act, the U.S. Fish and Wildlife Service is required to consider any species, listed or proposed to be listed, which may be present in the area of the proposed action. There is 1-Federally threatened species, bald eagle (*Haliaeetus leucocephalus*), and 1-Federally endangered species, Indiana bat (*Myotis sodalis*), which may occur in the area recently approved for inclusion. The proposed actions will not adversely impact these species.

1. Indiana bat:

The U.S. Fish and Wildlife Service (Service), Bloomington Field Office, surveyed bats on Jefferson Proving Ground (JPG) during the summers of 1993, 1994, 1995. In 1998 & 1999, bat surveys were conducted by Service staff at JPG. Documenting the presence or absence of populations of Indiana bats was the primary objective of survey efforts.

Twenty-seven of the 28 sampling sites surveyed during the 5-year period were located within the 50,000 acres north of the firing line (which is currently proposed to become a

National Wildlife Refuge). Sites at which Indiana bats were captured were distributed throughout the base.

At JPG, 26 of 34 Indiana bats captured were adult females or juveniles, and the remaining 8 were adult males. We estimate that JPG supports a minimum of 7 Indiana bat maternity colonies; colonies are distributed across the base. This is a conservative estimate; additional mist netting would likely yield evidence of additional maternity colonies.

Indiana bats were captured at 50% of the sites sampled on JPG at a rate of .44 Indiana bats per net night from 1993-1995. A total of 18 sites was sampled in 1998 and 1999 and Indiana bats were captured at 50% of the sites sampled at a rate of 0.16 Indiana bats per net night (129 net nights). Capture rates from 1993 - 1995 are as high or higher than rates in other recent surveys in Indiana. Brack (1983) captured Indiana bats at 33% of riparian sites sampled at a rate of .36 bats/net night during 3 years of mistnetting in Indiana. Whitaker (1994) captured 1 Indiana bat in 10 net nights (1 net night at each of 10 different sites) in Jennings County. Capture rates can not be used to estimate population size. However, the relatively high capture rates and the fact that captures were well distributed across the property suggests that JPG provides a concentration of suitable Indiana bat summer habitat.

Fourteen adult Indiana bats were fitted with radio transmitters during the 5-year study period. Radio-tagged bats included 10 reproductive females, 3 nonreproductive female, and a male. Roost locations of radio-tagged bats were determined to the extent feasible; some were located in restricted areas or never located. We were able to identify 10 roost trees (for the other bats, we were only able to determine a general roost tree location or they were never relocated). Roost trees identified on JPG included 2 black locusts (dead), 4 American elms (dead), 3 shagbark hickories (live), and 1 red maple (dead).

We were able to document use of 8 roost trees for 5 radiotagged Indiana bats during the 1998 and 1999 field seasons. Exit counts were obtained for both radiotagged bats in 1998 but for only 1 of 3 bats in 1999. Of the 3 radiotagged females where exit counts were obtained in 1998 and 1999 the number of individuals roosting averaged 4, 6 and 12. An additional count at a roost tree in 1998, 3 weeks after transmitter failure, documented 40 bats exiting the tree. We assume that these additional bats were juvenile Indiana bats but, due to transmitter failure, we were unable to verify the species of bat and this count was not used in our averages.

Indiana bat roosts are ephemeral, frequently associated with dead or dying trees. Most roost trees may be habitable for only 2-8 years (depending on the species and condition of the roost tree) under natural conditions. Gardner et al. (1991) evaluated 39 roost trees and found that 31% were no longer suitable the following summer, and 33% of those remaining were unavailable by the second summer. A variety of suitable roosts are needed within a colony's traditional summer range for the colony to continue to exist

(Kurta et al. 1993). Bats move among roosts within a season and when a particular roost becomes unavailable from one year to the next. It is not known how many alternate roosts must be available to assure retention of a colony within a particular area.

Callahan (1993) noted: "Larger forest tracts probably increase the chances that a suitable range of roost trees will be present in the stand. Large forest components also provide an additional benefit to a philopatric species that uses an ephemeral resource (snags) for roosting." Kurta et al. (1996) noted that a relatively large area is needed to meet the roosting requirements of Indiana bats; young, highly fragmented forests, typical in the midwestern United States, can not meet these requirements. JPG is the largest forested block available to Indiana bats over a large geographic area. The availability of roost trees on JPG was not quantitatively evaluated. However, based on visual inspection, most areas of JPG appear to provide a good supply of potential roost trees. In the immediate area of all of the roost trees which were identified, there were numerous potential alternate roost trees.

The establishment of Big Oaks NWR would have a positive impact on Indiana bat summer habitat. Refuge management and public recreation activities would not be considered detrimental to summering Indiana bats. Annual prescribed burns will be conducted during seasons not associated with Indiana bat breeding activity and would be subject to any subsequent conditions determined through an annual Prescribed Fire Intra-service Section 7 Consultation.

2. Bald Eagle:

Bald eagles are periodically sighted using Old Timbers Lake for wintering and migratory stopover habitat. Big Oaks NWR establishment, management and public use activities would be beneficial to eagle habitat by continuing to provide habitat suitable for this species.

B. Explanation of impacts of action on proposed species/critical habitat. NOT APPLICABLE

C. Explanation of actions to be implemented to reduce adverse effects.

1. An annual Intra-service Section 7 consultation will be conducted on prescribed fire activities at Big Oaks National Wildlife Refuge to insure these activities do not negatively impact endangered species.
2. Old Timbers Lake will be monitored for the presence of bald eagles and appropriate public access controls will be implemented to protect this species from disturbance.

VIII. Effect determination and response requested.**A. Listed species/critical habitat**DeterminationResponse☐ no effect☐ concurrence☒ beneficial effect☐ concurrence☐ is not likely to adversely affect☒ concurrence☐ is likely to adversely affect☐ formal consultation**B. Proposed species/proposed critical habitat: NOT APPLICABLE****Project Leader:**

Lee Herzberger
Lee Herzberger

Date: 4-14-00**IX. Field Office evaluation.**A. Concur ☒Do not concur ☐

B. Comments:

Field Supervisor:

Scott Pruitt
Scott Pruitt

Date: 4/17/00

Literature Cited:

- Brack, V., Jr. 1983. The nonhibernating ecology of bats in Indiana with emphasis on the endangered Indiana bat, *Myotis sodalis*. Ph.D. dissertation, Purdue Univ., West Lafayette, Ind. 280pp.
- Callahan, E.V., III. 1993. Indiana bat summer habitat requirements. M.S. Thesis. University of Missouri Columbia. 84pp.
- Gardner, J.E., J.D. Garner, and J.E. Hofmann. 1991. Summer roost selection and roosting behavior of *Myotis sodalis* (Indiana bat) in Illinois. Final Report. Ill. Nat. Hist. Survey and Ill. Dep. Conserv., 56pp.
- Kurta, A., D. King, J.A. Teramino, J.M. Stribley, and K.J. Williams. 1993. Summer roosts of the endangered Indiana bat (*Myotis sodalis*) on the northern edge of its range. Amer. Midland Nat. 129:132-138.
- Kurta, A., K.J. Williams, and R. Mies. 1996. Ecological, behavioral, and thermal observations of a peripheral population of Indiana bats (*Myotis sodalis*). Pages 102-117 in R.M.R. Barclay and R.M. Brigham, eds. Bats and Forests Symposium. Research Branch, British Columbia Ministry of Forests, Working Paper 23:1-292. Victoria, British Columbia, Canada.
- Whitaker, J.O., Jr. 1994. Survey of bats and search for endangered bat species, particularly the Federally endangered Indiana bat (*Myotis sodalis*) and the State endangered evening bat (*Nycticeius humeralis*), in the area of the proposed Zenas Lake project along the Muscatatuck River in Jennings County, Indiana. Report to Algonquin Consultants, Inc. 20pp.