United States Department of the Interior

FISH AND WILDLIFE SERVICE

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August 21, 2015

Mr. Mark W. McCarty
Chief, Natural Resources Branch
Environmental Division
Directorate of Public Works
2171 South 8th Avenue
Ft. McCoy, Wisconsin 54656-5136

Re: 03E19000-2015-F-0188 – Military Smoke and Obscurants Training
Fort McCoy, Monroe County, Wisconsin

Dear Mr. McCarty:

This letter transmits the U.S. Fish and Wildlife Service's (Service) biological opinion and is based on our review of the U.S. Army's Biological Assessment of Military Smoke and Obscurants Training on the Northern Long-Eared Bat at Fort McCoy, Wisconsin. The biological assessment, received July 7, 2015, constitutes Ft. McCoy's request to initiate formal consultation on the subject action under section 7(a)(2) of the Endangered Species Act.

This biological opinion is based on the best available scientific and commercial data including electronic mail and telephone correspondence with Ft. McCoy officials, information in the Service's files, pertinent scientific literature, discussions with recognized species authorities, and other scientific sources. A complete administrative record is on file at the Service's Twin Cities Ecological Services Field Office.

Please contact the Service if the project changes or new information reveals effects of the proposed action to proposed or listed species or critical habitat to an extent not covered in your biological assessment. If you have any questions or comments on this biological opinion, please

contact Mr. Phil Delphey, Fish and Wildlife Biologist, at 612-725-3548 x2206, or via email at *phil_delphey@fws.gov*.

Sincerely,

Peter Fasbender
Field Supervisor

Enclosure

BIOLOGICAL OPINION

Effects to the

Northern Long-eared Bat

From the

Military Smoke and Obscurants Training

Ft. McCoy, Wisconsin

TAILS No. 03E19000-2015-F-0188

Prepared by:

U.S. Fish and Wildlife Service

Twin Cities Field Office

August 2015

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INTRODUCTION

This document transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion (BO) based on our review of the U.S. Army's biological assessment, Effects to the Northern Long-eared Bat from the Military Smoke and Obscurants Training Ft. McCoy, Wisconsin (BA). We reviewed the BA with regard to its effects on the northern long-eared bat (*Myotis septentrionalis*) in accordance with Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). A complete administrative record of this consultation is on file at the Service's Twin Cities Ecological Services Field Office.

Interim 4(d) for the northern long-eared bat

On April 2, 2015, the Service published a species-specific rule pursuant to section 4(d) of the ESA for northern long-eared bat (80 FR 17974). Section 4(d) of the ESA states that:

> *Whenever any species is listed as a threatened species ... the Secretary shall issue such regulations as he deems necessary and advisable to provide for the conservation of such species* (16 U.S.C. 1533(d)).

The Service's interim 4(d) rule for northern long-eared bat exempts the take of northern long-eared bat from the section 9 prohibitions of the ESA, as follows:

(1) Take that is incidental to forestry management activities, maintenance/limited expansion of existing rights-of way, prairie management, projects resulting in minimal (<1 acre) tree removal, provided these activities:
   a. Occur more than 0.25 mile (0.4 km) from a known, occupied hibernacula;
   b. Avoid cutting or destroying known, occupied roost trees during the pup season (June 1–July 31); and,
   c. Avoid clearcuts (and similar harvest methods, *e.g.*, seed tree, shelterwood, and coppice) within 0.25 (0.4 km) mile of known, occupied roost trees during the pup season (June 1–July 31).

(2) Removal of hazard trees (no limitations).

(3) Purposeful take that results from:
    a. Removal of bats from and disturbance within human structures and
    b. Capture, handling, and related activities for northern long-eared bats for 1 Year following publication of the interim rule.

Thus, any take of the northern long-eared bat resulting from activities that are implemented in compliance with the conservation measures, as necessary, is exempted from section 9 prohibitions by the interim 4(d) rule, and does not require further incidental take authorization. Note that no conservation measures are required as part of the interim 4(d) rule for forest management actions that would affect only areas with no known roost trees and no known hibernacula.

The interim 4(d) rules do not afford exemption from the ESA's section 7 procedural requirements. Therefore, consultation remains appropriate when actions (even those within the scope of the interim 4(d) rule) are funded, authorized or carried out by a federal agency. The purpose of section 7 consultation is broader than the mere evaluation of take and issuance of an Incidental Take Statement; such consultations fulfill the requirements of section 7(a)(2) of the ESA, which directs that all federal actions insure that their actions are not likely to jeopardize the continued existence of any listed species, or result in the destruction or adverse modification of designated critical habitat.

Consultation History

The U.S. Army submitted its BA to the Twin Cities Ecological Services Field Office (TCFO) on July 7, 2015. The BA contained the Army's determination that the proposed military training activities may affect and are likely to adversely affect the northern long-eared bat. After receipt of the BA, the Service and the Army agreed that if graphite smoke were proposed for use at Ft. McCoy it would be assessed with regard for its potential to affect listed species or critical habitat.

DESCRIPTION OF PROPOSED ACTION

As defined in the ESA Section 7 regulations (50 CFR 402.02), "action" means "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies in the United States or upon the high seas." The "action area" is defined as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." The direct and indirect effects of the actions and activities must be considered in conjunction with the effects of other past and present federal, state, or private activities, as well as the cumulative effects of reasonably certain future State or private activities within the action area.

The following description of the proposed action is adapted from the BA.

At Ft. McCoy, the U.S. Army trains personnel in the use of smoke and obscurants to conceal and screen friendly troop movements, to protect equipment and personnel on a battlefield, and for signaling. Training with smoke and obscurants has taken place at Ft. McCoy for about 50 years. Smoke may be

used throughout the installation, but is not generally used in non-operational areas (Fig. 1). At Ft. McCoy, non-operational areas include the Cantonment and recreational and family housing areas. Units training at Ft. McCoy use smoke and obscurants during the day, typically, but may also use them at night.

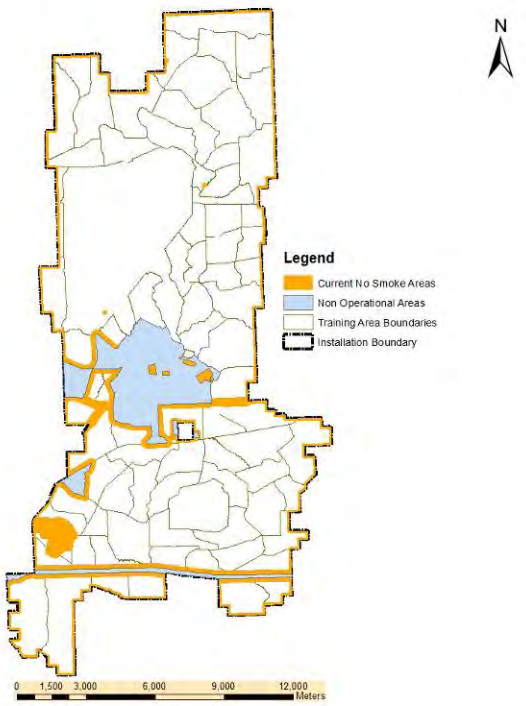

Figure 1. Current smoke restricted areas on Fort McCoy.

The following categories of smoke and obscurants are used at the Installation:

a. Fog Oil: Smoke is produced by the burning of fog oil inside a generator that is normally mounted on the back of a military vehicle, such as a High Mobility Multipurpose Wheeled Vehicle (Humvee). The smoke is then dispersed by the wind. The vehicle can be stationary or moving as the smoke is generated. At approximately 800 acres in size, the Badger Drop Zone (BDZ) is the installation's largest drop zone. Due to their large sizes, it is likely that units will select either the BDZ or Warrens Drop Zone (WDZ) (Fig. 2) for this type of smoke generation, which may last up to an hour in duration. In its BA, the Army assumes that fog oil will be used to produce smoke no more than four times annually.

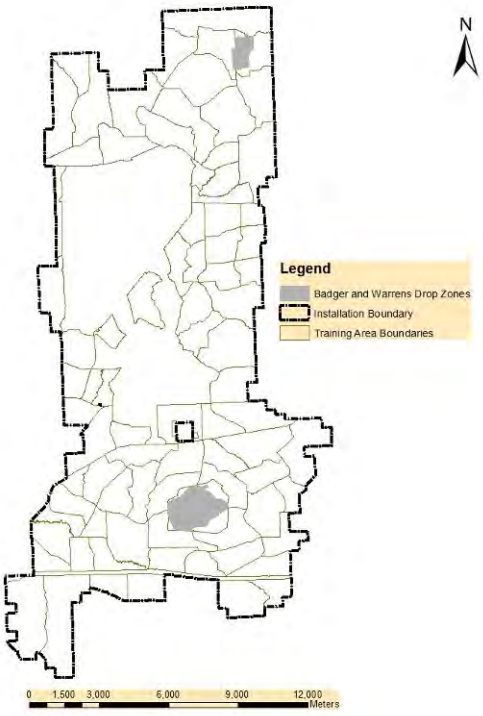

Figure 2. The location of the Badger and Warrens Drop Zones on Fort McCoy.

b. M18 Colored Smoke Grenades and Smoke Pots: Terephthalic acid (TPA) is typically ignited and burned to produce the smoke emitted from M18 colored smoke grenades and smoke pots. It is normally used alone but can be used in combination with fog oil. M18 colored smoke grenades will typically generate 30 seconds to two minutes of smoke while smoke pots generate up to five minutes of smoke. In a typical training scenario, a military unit will deploy M18 colored smoke grenades when they are ambushed when moving by vehicle or on foot from one location to another. Multiple smoke grenades are often deployed with the actual number dependent on the intensity level of the engagement. Approximately 17,000 M18 colored smoke grenades and 120 smoke pots will be deployed annually. About 95% of the use will occur during the period when the northern long-eared bat is likely to be present on the installation, April 1 to September 30.

c. White Phosphorous and Hexachloroethane: White phosphorous (WP) is normally dispersed by mortars and light artillery munitions while hexachloreothane (HC) is normally dispersed using heavy artillery. WP is only deployed within four areas totaling 1,817 acres while HC is deployed within two areas totaling 3,160 acres (Figure 3). WP is also used for incendiary purposes since it ignites when exposed to air. Smoke produced by WP and HC can last up to 15 minutes. It is currently estimated that up to 1,650 WP and 450 HC rounds will be deployed annually.

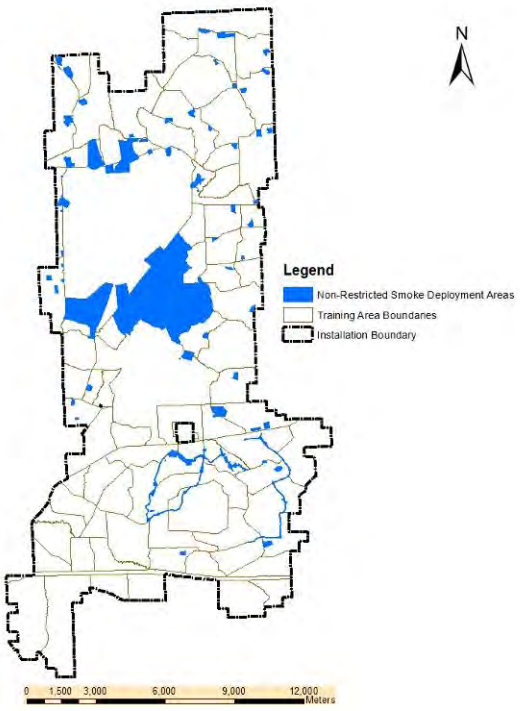

Figure 3. Non-restricted deployment areas for M18 colored smoke grenades and smoke pots. About 60% of the use of this category of smoke/obscurant will be within these deployment areas.

Conservation Measures

Conservation measures are those actions taken to minimize any adverse effects of a proposed action and to benefit or promote the recovery of the species. These actions taken by the federal agency that serve to minimize or compensate for project effects on the species under review and are included as an integral portion of the proposed action.

M18 colored smoke grenades will not be used within 50 meters of any known northern long-eared bat roost tree with the exception of ranges, firing points, and urban training areas as identified within Appendix 1 of the BA. The Army has proposed no conservation measures with respect to the use of fog oil or WP and HC.

Action Area

The action area is defined as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action. For the purposes of this BO, the action area consists of Ft. McCoy – an area that is about 17 miles long and six miles wide and covers 59,660 acres.

STATUS OF THE SPECIES

Refer to the final rule (80 FR 17974) for the best available information on northern long-eared bat life history and biology, threats, distribution, and overall status. The following is summarized from that rule.

Life History and Biology

The northern long-eared bat is a temperate, insectivorous, migratory bat that hibernates in mines and caves in the winter and spends summers in wooded areas. The key stages in its annual cycle are: hibernation, spring staging and migration, pregnancy, lactation, volancy/weaning, fall migration and swarming. Northern long-eared bat generally hibernate between mid-fall through mid-spring each year. Spring migration period likely runs from mid-March to mid-May each year, with timing varying depending on the portion of the range. Females depart shortly after emerging from hibernation and are pregnant when they reach their summer area. Parturition (birth) occurs in late May or early June (Caire et al. 1979, p. 406; Easterla 1968, p. 770; Whitaker and Mumford 2009, p. 213) but may occur as late as July (Whitaker and Mumford 2009, p. 213), with nursing continuing until weaning, which is shortly after young become volant (able to fly) in mid- to late-July. Fall migration likely occurs between mid-August and mid-October.

Summer habitat and ecology

Suitable summer habitat[1] for the northern long-eared bat consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts, as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure.

Many species of bats, including the northern long-eared bat, consistently avoid foraging in or crossing large open areas, choosing instead to use tree-lined pathways or small openings (Patriquin and Barclay 2003, Yates and Muzika 2006). Further, wing morphology of the species suggests that they are adapted to moving in cluttered habitats. Thus, isolated patches of forest may not be suitable for foraging or roosting unless the patches are connected by a wooded corridor.

Upon emergence from the hibernacula in the spring, females seek suitable habitat for maternity colonies (typically consisting of females and young). Northern long-eared bats actively form colonies in the summer (Foster and Kurta 1999) and exhibit fission-fusion behavior (Garroway and Broders 2007), where members frequently coalesce to form a group (fusion), but composition of the group is in flux, with individuals frequently departing to be solitary or to form smaller groups (fission) before returning to the main unit (Barclay and Kurta 2007). As part of this behavior, northern long-eared bats switch tree roosts often (Sasse and Pekins 1996), typically every 2 to 3 days (Foster and Kurta 1999; Owen et al. 2002;

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1 See the Service's current summer survey guidance for our latest definitions of suitable habitat: http://www.fws.gov/midwest/Endangered/mammals/inba/inbasummersurveyguidance.html.

Carter and Feldhamer 2005; Timpone et al. 2010). Northern long-eared bat maternity colonies range widely in size, although a maximum of 30-60 individuals may be most common early in the season, with the colony size decreasing post-lactation of young (U.S. Fish and Wildlife Service 2014). Northern long-eared bat show some degree of inter-annual fidelity to single roost trees and/or maternity areas. Male northern long-eared bat are routinely found with females and young in maternity colonies. Northern long-eared bat use networks of roost trees often centered on one or more central-node roost trees (Johnson et al. 2012). Northern long-eared bat roost networks also include multiple alternate roost trees and male and non-reproductive female northern long-eared bat may also roost in cooler places, like caves and mines (Barbour and Davis 1969, Amelon and Burhans 2006).

Northern long-eared bats roost in cavities, underneath bark, crevices, or hollows of both live and dead trees and/or snags (typically ≥3 inches dbh). Northern long-eared bats are known to use a wide variety of roost types, using tree species based on presence of cavities or crevices or presence of peeling bark. Northern long-eared bats have also been occasionally found roosting in structures like barns and sheds (particularly when suitable tree roosts are unavailable).

Young northern long-eared bats are typically born in late-May or early June, with females giving birth to a single offspring. Lactation then lasts 3 to 5 weeks, with pups becoming volant (able to fly) between early July and early August (with timing often depending on location within the species' range).

Migration

Males and non-reproductive females may summer near hibernacula, or migrate to summer habitat some distance from their hibernaculum. The northern long-eared bat is not considered to be a long distance migrant (typically 40-50 miles). Migration is an energetically demanding behavior for the northern long-eared bat, particularly in the spring when fat reserves and food supplies are low and females are pregnant.

Winter habitat and ecology

Suitable winter habitat (hibernacula) includes underground caves and cave-like structures (e.g. abandoned or active mines, railroad tunnels). There may be other landscape features being used by northern long-eared bat during the winter that have yet to be documented. Generally, northern long-eared bat hibernate from October to April depending on local climate (November-December to March in southern areas and as late as mid-May in some northern areas).

Hibernacula for the northern long-eared bat typically have significant cracks and crevices for roosting; relatively constant, cool temperatures (0-9 degrees Celsius) and with high humidity and minimal air currents. Specific areas where they hibernate have very high humidity, so much so that droplets of are often seen on their fur. Within hibernacula, surveyors find them in small crevices or cracks, often with only the nose and ears visible.

Northern long-eared bats tend to roost singly or in small groups (U.S. Fish and Wildlife Service 2014), with hibernating population sizes ranging from a just few individuals to around 1,000 (U.S. Fish and Wildlife Service unpublished data). Northern long-eared bats display more winter activity than other

cave species, with individuals often moving between hibernacula throughout the winter (Whitaker and Rissler 1992, Caceres and Barclay 2000). Northern long-eared bats have shown a high degree of philopatry to the hibernacula used, returning to the same hibernacula annually.

Spring Staging and Fall Swarming habitat and ecology

Upon arrival at hibernacula in mid-August to mid-November, northern long-eared bats "swarm," a behavior in which large numbers of bats fly in and out of cave entrances from dusk to dawn, while relatively few roost in caves during the day. Swarming continues for several weeks and mating occurs during the latter part of the period. After mating, females enter directly into hibernation but not necessarily at the same hibernaculum as they had been mating at. A majority of bats of both sexes hibernate by the end of November (by mid-October in northern areas).

After hibernation ends in late March or early April (as late as May in some northern areas), most northern long-eared bats migrate to summer roosts. Females emerge from hibernation prior to males. Reproductively active females store sperm from autumn copulations through winter. Ovulation takes place after the bats emerge from hibernation in spring. The period after hibernation and just before spring migration is typically referred to as "staging," a time when bats forage and a limited amount of mating occurs. This period can be as short as a day for an individual, but not all bats emerge on the same day.

In general, northern long-eared bats use roosts in the spring and fall similar to those selected during the summer. Suitable spring staging/fall swarming habitat consists of the variety of forested/wooded habitats where they roost, forage, and travel, which is most typically within 5 miles of a hibernaculum. This includes forested patches as well as linear features such as fencerows, riparian forests and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Isolated trees are considered suitable habitat when they exhibit the characteristics of a suitable roost tree and are less than 1,000 feet from the next nearest suitable roost tree, woodlot, or wooded fencerow.

Threats

No other threat is as severe and immediate for the northern long-eared bat as the disease white-nose syndrome (WNS). Since the disease was first observed in New York in 2007 (later biologists found evidence from 2006 photographs), WNS has spread rapidly in bat populations from the Northeast to the Midwest and the Southeast. Population numbers of the northern long-eared bat have declined by 99 percent in the Northeast, which along with Canada, has been considered the core of the species' range. Although there is uncertainty about how quickly WNS will spread through the remaining portions of these species' ranges, it is expected to spread throughout their entire ranges. In general, the Service believes that WNS has significantly reduced the redundancy and resiliency of the northern long-eared bat.

Although significant northern long-eared bat population declines have only been documented due to the spread of WNS, other sources of mortality could further diminish the species' ability to persist as it experiences ongoing dramatic declines. Specifically, declines due to WNS have significantly reduced the number and size of northern long-eared bat populations in some areas of its range. This has reduced these

populations to the extent that they may be increasingly vulnerable to other stressors that they may have previously had the ability to withstand. These impacts could potentially be seen on two levels. First, individual northern long-eared bats sickened or struggling with infection by WNS may be less able to survive other stressors. Second, northern long-eared bat populations impacted by WNS, with smaller numbers and reduced fitness among individuals may be less able to recover making them more prone to extirpation. The status and potential for these impacts will vary across the range of the species.

Bats affected but not killed by WNS during hibernation may be weakened by the effects of the disease and may have extremely reduced fat reserves and damaged wing membranes. These effects may reduce their capability to fly or to survive long-distance migrations to summer roosting or maternity areas.

In areas where WNS is present, there are additional energetic demands for northern long-eared bats. For example, WNS-affected bats have less fat reserves than non-WNS-affected bats when they emerge from hibernation (Reeder et al. 2012; Warnecke et al. 2012) and have wing damage (Meteyer et al. 2009; Reichard and Kunz 2009) that makes migration and foraging more challenging. Females that survive the migration to their summer habitat must partition energy resources between foraging, keeping warm, successful pregnancy and pup-rearing, and healing and may experience reduced reproductive success. In addition, with wing damage, there may be an increased chance of WNS-affected bats being killed or harmed as a result of proposed action. Again, this is particularly likely if timber harvest or burns are conducted early in the spring (April – May) when bats have just returned, have damaged wings, and are exposed to colder temperatures when torpor is used more frequently.

Over the long-term, sustainable forestry benefits the northern long-eared bat by maintaining suitable habitat across a mosaic of forest treatments. However, forest practices can have a variety of impacts on the northern long-eared bat depending on the quality, amount, and location of the lost habitat, and the time of year of clearing. Depending on their characteristics and location, forested areas can function as summer maternity habitat, staging and swarming habitat, migration or foraging habitat, or sometimes, combinations of more than one habitat type. Impacts from tree removal to individuals or colonies would be expected to range from indirect impact (e.g., minor amounts of forest removal in areas outside northern long-eared bat summer home ranges or away from hibernacula) to minor (e.g., largely forested areas, areas with robust northern long-eared bat populations) to significant (e.g., removal of a large percentage of summer home range, highly fragmented landscapes, areas with WNS impacts).

Lastly, there is growing concern that bats, including the northern long-eared bat (and other bat species) may be threatened by the recent surge in construction and operation of wind turbines across the species' range. Mortality of the northern long-eared bat has been documented at multiple operating wind turbines/farms. The Service is now working with wind farm operators to avoid and minimize incidental take of bats and assess the magnitude of the threat.

Rangewide Status

The northern long-eared bat ranges across much of the eastern and north central United States, and all Canadian provinces west to the southern Yukon Territory and eastern British Columbia (Nagorsen and Brigham 1993; Caceres and Pybus 1997; Environment Yukon 2011) (Figure 4). In the United States, the

species' range reaches from Maine west to Montana, south to eastern Kansas, eastern Oklahoma, Arkansas, and east through the Gulf States to the Atlantic Coast (Whitaker and Hamilton 1998; Caceres and Barclay 2000; Amelon and Burhans 2006). The species' range includes the following 37 States (plus the District of Columbia): Alabama, Arkansas, Connecticut, Delaware, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, West Virginia, Wisconsin, and Wyoming. Historically, the species has been most frequently observed in the northeastern United States and in Canadian Provinces, Quebec and Ontario, with sightings increasing during swarming and hibernation (Caceres and Barclay 2000). However, throughout the majority of the species' range it is patchily distributed, and historically was less common in the southern and western portions of the range than in the northern portion of the range (Amelon and Burhans 2006).

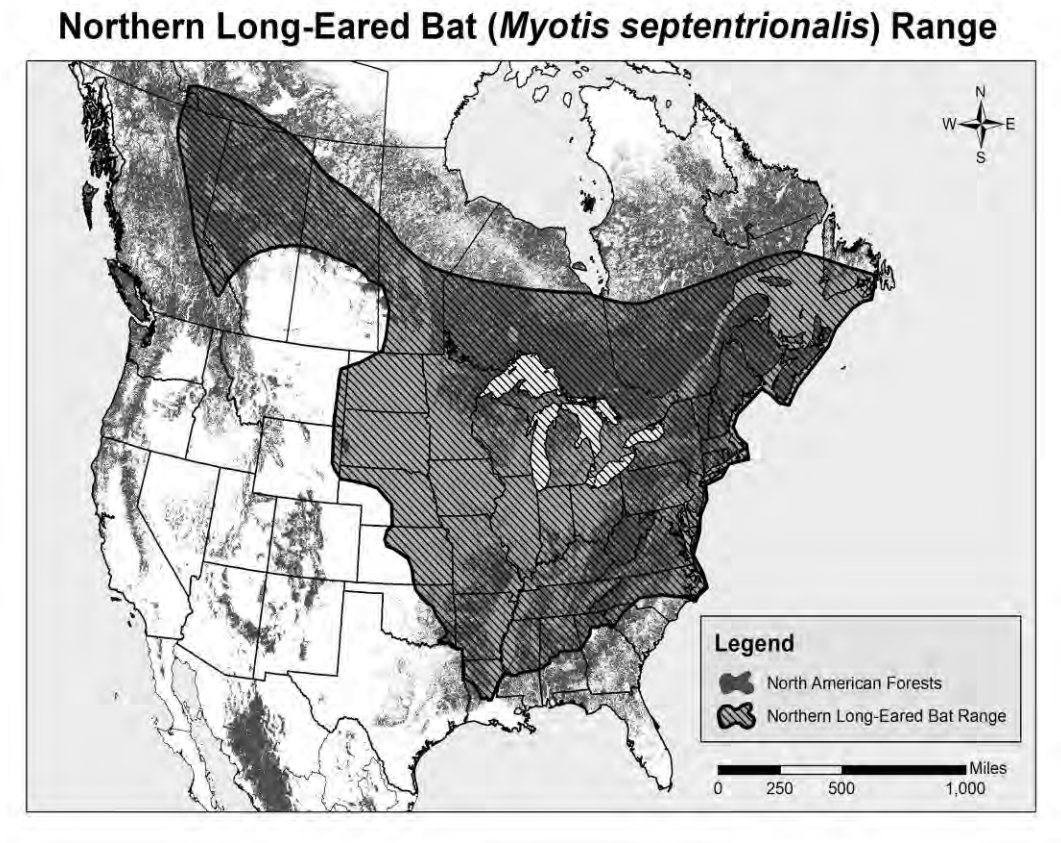

Figure 4. Northern long-eared bat range.

Although they are typically found in low numbers in inconspicuous roosts, most records of northern long-eared bat are from winter hibernacula surveys (Caceres and Pybus 1997). More than 780 hibernacula have been identified throughout the species' range in the United States, although many hibernacula

contain only a few (1 to 3) individuals (Whitaker and Hamilton 1998). Known hibernacula (sites with one or more winter records of northern long-eared bats) include: Alabama (2), Arkansas (41), Connecticut (8), Delaware (2), Georgia (3), Illinois (21), Indiana (25), Kentucky (119), Maine (3), Maryland (8), Massachusetts (7), Michigan (103), Minnesota (11), Missouri (more than 269), Nebraska (2), New Hampshire (11), New Jersey (7), New York (90), North Carolina (22), Oklahoma (9), Ohio (7), Pennsylvania (112), South Carolina (2), South Dakota (21), Tennessee (58), Vermont (16), Virginia (8), West Virginia (104), and Wisconsin (67). Northern long-eared bats have been documented in hibernacula in 29 of the 37 States in the species' range. Other States within the species' range have no known hibernacula (due to no suitable hibernacula present, lack of survey effort, or existence of unknown retreats).

The current range and distribution of the northern long-eared bat must be described and understood within the context of the impacts of WNS. Prior to the onset of WNS, the best available information on the northern long-eared bat came primarily from surveys that were mostly focused on Indiana bat (*Myotis sodalis*) or other bat species and some targeted research projects. In these efforts, the northern long-eared bat was very frequently encountered and was considered the most common myotid bat in many areas. Overall, the species was considered to be widespread and abundant throughout its historic range (Caceres and Barclay 2000).

WNS has been particularly devastating for the northern long-eared bat in the northeast, where the species was believed to be the most abundant. There are data supporting substantial declines in northern long-eared bat populations in portions of the Midwest due to WNS. In addition, WNS has been documented at more than 100 northern long-eared bat hibernacula in the southeast, with apparent population declines at most sites. WNS has not been found in any of the western states to date and the species is considered rarer in the western extremes of its range. We expect further declines as the disease continues to spread across the species' range.

Status of the Northern Long-eared Bat in Wisconsin

Prior to listing under the ESA, northern long-eared bat (and all cave bats) were listed as state threatened in 2011 due to previously existing threats and the impending threat of WNS [78 Federal Register (FR) 61068]. Northern long-eared bat can be found in many parts of Wisconsin but based on data from hibernacula counts, acoustic surveys, mist-netting in summer foraging areas, and harp trap captures, it is reported to be uncommon (78 FR 61053). Acoustic and mist-net data were collected by a pipeline project proponent in 2014, which surveyed an approximately 125-feet wide and 300-mile-long (483-km) corridor from the northwest corner of the state diagonally to the southeast corner. Positive detections were recorded in Adams, Chippewa, Clark, Columbia, Dane, Douglas, Jefferson, Marathon, Marquette, Rock, Rusk, Sawyer, Taylor, Washburn Counties, and northern long-eared bats were the third most common (14.5 percent) species captured by mist-net (Brown et al. 2014). Based on the Service's current records, 28 counties in the state have identified northern long-eared bat presence. The northern long-eared bat is known from 45 hibernacula sites in Wisconsin (78 FR 61052).

WNS was first confirmed in southwestern Wisconsin during the winter of 2013/2014 and at additional sites in southern and eastern Wisconsin during winter 2014/2015. Currently, there is one county in

southwest Wisconsin with confirmed WNS; and one county in the central portion of the state where the fungus that causes WNS (*Pseudogymnoascus destructans*) has been found. At this time, WNS has not been confirmed on Fort McCoy.

Critical Habitat

Critical habitat has not been proposed for the northern long-eared bat.

Conservation Needs of the Species

The species' conservation needs define what is needed in terms of reproduction, numbers, and distribution to ensure the species is no longer in danger of extinction. The conservation needs should be defined in the species' recovery outline or plan. Since there is no recovery plan or recovery outline available at this time, we will outline the conservation needs based on our current understanding of the species.

We find that the primary conservation need of the northern long-eared bat is to reduce the threat of WNS. This includes minimizing mortality in WNS-affected areas and slowing the rate of spread into currently unaffected areas. In addition, northern long-eared bats that continue to exist within WNS-affected areas need to be able to continue to survive and reproduce in order to stabilize and/or increase the populations. This can be done by reducing the other threats to the species, as listed above.

Therefore, efforts to protect hibernacula from disturbances need to continue. These should include restricting human access to hibernacula particularly during the hibernation period, constructing/installing suitably designed gates where appropriate and maintaining the gates, and restoring microhabitat conditions in hibernacula that have been altered. Efforts should also be made to protect and restore (in some cases) adequate fall swarming habitat around hibernacula. Known maternity habitat should be maintained, and the removal of known roost trees, particularly when pregnant females and/or young are present should be reduced. Research to identify important hibernacula and summer areas and to delineate the migratory relationship between summering and wintering populations should also be pursued.

ENVIRONMENTAL BASELINE

The Environmental Baseline analyzes the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat, and the ecosystem within the action area.

Action Area

Action area, as defined by the ESA's implementing regulations [50 Code of Federal Regulations (CFR) 402.02], is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (our emphasis). Action is defined in the regulations as "…all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to: (a) actions intended to conserve listed species or their habitat; (b) the promulgation of regulations; (c) the granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; or (d) actions directly or indirectly causing modifications to the land, water, or air.

For the purposes of this BO, the action area consists of Ft. McCoy – an area that is about 17 miles long and six miles wide and covers 59,660 acres (Figs. 1-3).

Status of the Species in the Action Area

Northern long-eared bats are assumed to inhabit the forested portions of Ft. McCoy, although no roost trees have been identified on the installation. Acoustic surveys conducted in 2011 and 2012 documented northern long-eared bats flying in two areas of the installation, which is mostly forested. The species likely occurs throughout the installation's 55,555 forested acres.

Figure 5. The area within Ft. McCoy that is potentially suitable for northern long-eared bat roosting – excluded are open grassland areas and some industrial areas that are not suitable as roosting habitat for the species.

There are no known bat hibernacula in Ft. McCoy. Therefore, we do not expect effects to hibernacula to result from the proposed action. There are currently no known roost trees in Ft. McCoy, but surveys for the northern long-eared bat would likely identify roost tree locations on the installation.

Habitat Conditions in the Action Area

About 39,000 of the 59,660 acres in Ft. McCoy are forested – about 65%. This forested area likely in general functions as roosting habitat for the northern long-eared bat. Forest types, in descending order of extent are scrub oak (*Quercus spp.*) – 22,000 acres; jack pine (*Pinus banksiana*) – 6,000 acres; oak (*Quercus spp*.) – 3,500 acres; and, red pine (*Pinus resinosa*) – 2,500 acres; lesser amounts of aspen

(*Populus spp*.), red maple (*Acer rubrum*), and white pine (*P. strobus*) comprise an additional 5,000 acres. The rest of Ft. McCoy consists of aquatic habitats; open grassland; and, developed and industrial areas.

Conservation Needs of the Species in the Action Area

The conservation needs of the species in the action area are similar to the needs rangewide. Therefore, within the action area the conservation needs include: 1) providing suitable habitat conditions for northern long-eared bat foraging and roosting; 2) reducing the removal of roost trees, especially during the spring-fall roosting period; 3) conducting surveys for previously unidentified areas of maternity activity; and 4) conducting research to understand the migration patterns of northern long-eared bat that use the area.

EFFECTS OF THE ACTION

This BO evaluates the anticipated effects of the use of smoke/obscurants for military training at Ft. McCoy, Wisconsin.

Our analysis of effects for northern long-eared bat entails: (1) evaluating individual northern long-eared bat exposure to action-related stressors and the bats' likely responses; (2) integrating those individual effects (exposure risk and subsequent response) to discern the consequences to the populations to which those individuals belong; and (3) determining the consequences of any population-level effects to the species rangewide. If we find that the actions are unlikely to affect the rangewide numbers, reproduction, and distribution of the species in a way that can be measured or described, we conclude that the agency's actions are not likely to jeopardize the continued existence of the species.

Effects to Hibernating Bats at or Near Hibernacula

There are no known northern long-eared bat hibernacula on Fort McCoy, although hibernating northern long-eared bats have been recorded at three different sites within about ten miles of the installation boundary. Although the hibernacula are nearby, they are likely too far to be affected by the use of smokes and obscurants on Fort McCoy.

Effects to Bats in Spring-Fall Roosting Habitat

Effects of Smoke Exposure on Northern Long-Eared Bats

Smoke and obscurants may infiltrate bat roost trees and expose northern long-eared bats to potentially harmful chemicals via ingestion, inhalation, or through the skin (Guelta & Balbach 2006). Three categories of smoke/obscurants are used at Ft. McCoy – fog oil; white phosphorous and hexachloroethane; and, M18 colored smoke grenades and smoke pots. Smokes and obscurants may cause adult northern long-eared bats to abandon roost sites and could suffocate non-flying pups. The likelihood of these effects depends on the type of smoke/obscurant used and the duration, timing, and location of their use. Smoke/obscurants will not be used within 50 meters of known northern long-eared bat roosts, but no roosts have been identified and only a small proportion may be identified in the near future. Smoke and obscurant training rarely occurs at night when northern long-eared bats are foraging with the possible exception of graphite smoke, which is not proposed for use currently at Ft. McCoy.

Fog Oil

The total area of northern long-eared bat habitat where the species is likely to be affected by smoke generated from fog oil is not expected to exceed 379 acres. When used in the BDZ or WDZ, impacts to northern long-eared bats from fog oil smoke may be minimal if the smoke disperses before it enters the surrounding forested habitat. In the BA, however, the Army assumed that smoke from fog oil could drift from the drop zones for 100 meters (Fig. 3) into surrounding northern long-eared bat habitat, resulting in potential effects to northern long-eared bats on 317 acres annually. Northern long-eared bats could also be affected by fog oil use in an additional 62 acres away from the drop zones annually.

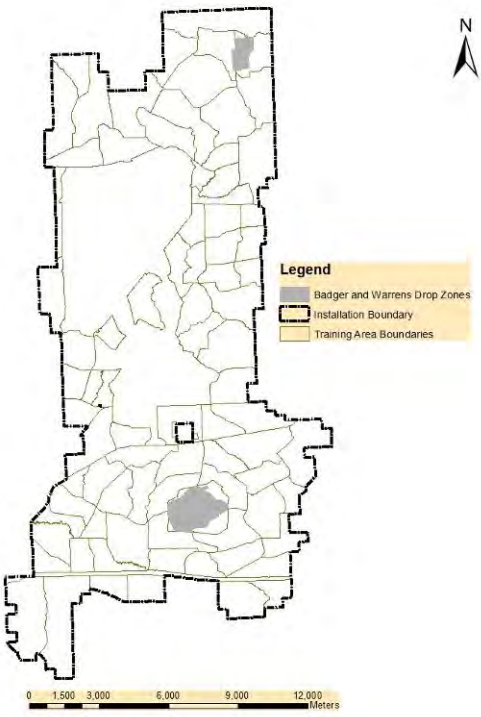

Figure 6. The location of the Badger and Warrens Drop Zones on Fort McCoy.

Fog oil has low potential for acute toxicity based on dermal exposure; little potential for acute lethality from ingestion; very low oral toxicity; and, may cause slight to moderate irritation after a single exposure directly to the skin (3D/International Inc. 1996; National Research Council 1997). Bats may need to ingest large quantities to cause significant impacts, but are not likely to ingest fog oil during foraging or drinking because fog oil does not persist in soil, sediment, or surface water (3D/International Inc. 1996). Direct exposure of bats to large amounts of fog oil would require repeated exposure, which is unlikely because it will be used no more than four times annually on the installation. Volant bats would flush during fog oil deployment (see below).

Inhalation is the most likely path of exposure of fog oil for northern long-eared bats. The effects of inhalation on northern long-eared bats as a result of any single smoking exercise would likely consist of

respiratory irritation and would be transitory, at most two hours in duration (Getz et al. 1996). The concentration of fog oil aerosols and rates of deposition are dynamic and highly dependent on local conditions, such as the length of the military training exercise; distance from the source; ambient weather conditions; and, terrain. Some studies (Driver et al. 1993) have attempted to model the complex atmospheric conditions that affect fog oil smoke dispersion and deposition and to predict likely fog oil concentrations in the atmosphere that could result from a typical smoke operation. Other studies (Liljegren et al. 1988, Policastro et al. 1989) have attempted to develop more realistic estimates of fog oil concentrations with field sampling at various distances from the source. The concentrations detected during the field sampling studies and predicted to occur by modeling are within the range where exposure studies would predict only minor respiratory irritation to exposed northern long-eared bats.

Behavioral responses to smoke/obscurants could increase the risk of death or harm to northern long-eared bats during certain periods and non-volant pups may be especially vulnerable. Dickinson et al. (2009) found that radio-tracked northern long-eared bats flushed less than ten minutes after prescribed fires were ignited within 20 meters of roosts in Kentucky on a warm spring day. Deployment of fog oil smoke near roosts could cause adult northern long-eared bats to similarly flush from the roost with minor or no direct injury. In early spring, however, bats are more likely to enter torpor. At this time adults may be exposed to smoke long enough and at high enough concentrations to experience respiratory irritation before they are able to fly away. If smoke operations occur during June or July non-volant pups could be injured or killed directly by the fog oil exposure or harmed indirectly as a result of adult abandonment of roosts. Adults that flush during the day would also pose additional predation risk.

White Phosphorus and Hexachloroethane

WP is only deployed within four areas in the NIA totaling 1,817 acres while HC is deployed within two areas totaling 3,160 acres (Fig. 4). Approximately 1,000 acres within these areas is open grassland and is not considered northern long-eared bat habitat.

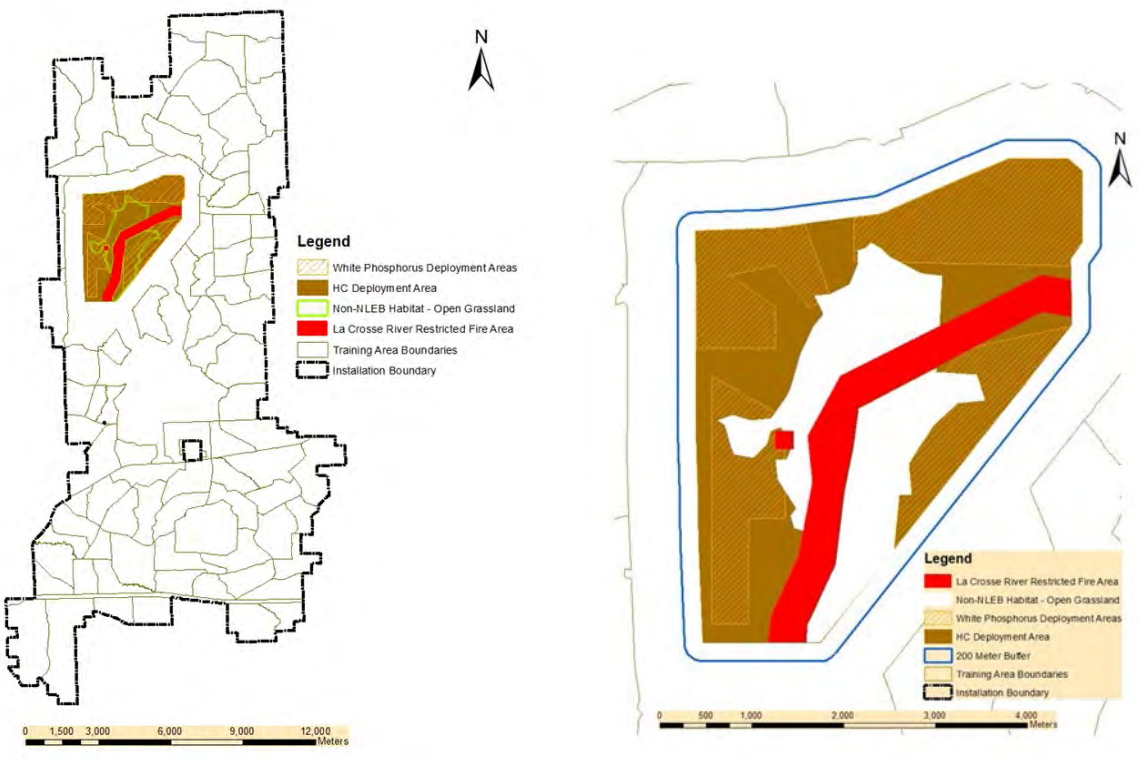

Figure 7. White phosphorus and hexachloroethane deployment areas at Ft. McCoy. Closeup view of deployment area is on the right.

WP ignites when it is exposed to air, and smoke typically lasts up to 15 minutes. Inhalation studies of WP on mice, rats, and goats showed signs of respiratory tract irritation (National Research Council 1999a). Hexachloroethane has been shown to be a skin and eye irritant in animal studies. When applied to the skin of guinea pigs, weight loss was evident. In rabbits, severe skin irritation was noted both on abraded and unabraded skin and eye application induced severe corneal damage, an effect manifest 4 days to 2 weeks after application.

The northern long-eared bats roosting in close proximity to WP or HC deployment areas would be exposed to high concentrations of smoke. Deployment of WP or HC near roosts would most likely cause adult northern long-eared bats to flush from the roost with minor or no direct injury. Even a short duration of exposure, however, can result in severe skin irritation and burns. WP and HC smoke can last for minutes at a time depending on how it is deployed, making the likelihood of exposure potentially higher (National Research Council 1997). If adults become irritated enough to abandon a roost, non-volant young could be left behind. Also, if WP is used in early spring when bats are more likely to enter torpor, some adults may be exposed to longer durations of exposure. In June/July adults are likely to move, but non-volant pups may be present. Pups that adults fail to move may be injured or killed by WP or HC smoke and burns or harmed indirectly as a result of adult abandonment of roosts. If northern long-eared bats flush during the day, that would also pose additional risks of predation to the adults.

M18 Colored Smoke Grenades and Smoke Pots

M18 colored smoke grenades and smoke pots will be used in locations throughout Ft. McCoy and could affect northern long-eared bats in 7,953 acres of habitat annually. This figure is based on the anticipated number of smoke grenades and M18 smoke pots that would likely be deployed each year and estimates of the area that would be affected by each device. To produce the smoke emitted from M18 colored smoke grenades and smoke pots, terephthalic acid (TPA) is typically ignited and burned. The primary combustion products produced when TPA is burned are carbon monoxide, carbon dioxide, sulfur dioxide, benzene, toluene, and formaldehyde.

Colored smoke and TPA could result in dermal and respiratory-tract sensitization in northern long-eared bats (National Research Council 1999b). Some symptoms that were observed in mammals after a variety of exposure trials (e.g., ingestion, dermal application, and inhalation) included reduced growth rate in juveniles, respiratory afflictions, and sensitization of skin. An Ecological Risk Assessment prepared by 3D/International (1997b) found there may be possible effects of inhalation of M18 colored smoke to Indiana bats from acute exposure (minor respiratory inflammation) and/or chronic exposure (slight decrease in body weight gain or minor respiratory irritation). We would expect similar effects to northern long-eared bats. M18 colored smoke grenades have >98% burn efficiency, indicating that nearly all chemical components are converted to smoke, leaving little residue that could end up on fur and possibly ingested (3D/International 1997a). An ecological risk assessment of M18 colored smoke grenades found that ingestion and dermal absorption were unlikely, and inhalation is the most likely path of exposure of colored smoke for Indiana bats and presumably, northern long-eared bats (3D/lntemational 1997a).

Colored smoke operations may result in minor injury (e.g., respiratory irritation) to a small number of northern long-eared bats in unknown roosts at Ft. McCoy. Bats in roosts will be protected as they are found, but bats in currently unidentified roosts may be adversely affected. As discussed in the fog oil section above, Dickinson et al. (2009) found that radio-tracked northern long-eared bats flushed within ten minutes after prescribed fire ignition within 20 meters of roosts in Kentucky on a warm spring day. Colored smoke typically lasts only two minutes in duration; thus, affected northern long-eared bats may not flush from roosts. If colored smoke or other smoke grenades are deployed within 30 meters (98.4 feet) of unknown roosts, bats may inhale unsafe quantities of smoke, which could result in minor respiratory affects (3D/Internationall997a). Unsafe concentrations of smoke produced by M18 grenades last approximately one minute (3D/International 1997a). Effects from chronic exposure are not expected or will occur infrequently; northern long-eared bats are not anticipated to sustain repeated exposures. In their Ecological Risk Assessment, 3D/International (1997a) determined there would be no chronic effects from M18 colored smoke to Indiana bats.

Cumulative Effects

Cumulative effects include the effects of future state, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

All activities that may affect endangered or threatened species that are carried out by Ft. McCoy require consultation with the Service under section 7, including any public use of the installation that is allowed by the U.S. Army. Therefore, there are no cumulative effects to consider.

Summary of Effects

Impacts to Individuals

While analyzing the effects of the proposed action, we identified the life stages that would be exposed to the stressors associated with the proposed action, and analyzed how those individuals would respond upon exposure to the stressors. In summary, the Army has presented a reasonable worst-case scenario for the use of each type of smoke and obscurant that indicates that annually northern long-eared bats could be affected in 11,337 acres on the installation. This includes effects from the use of fog oil (379 acres); M18 colored smoke grenades and smoke pots (7,953 acres); and, WP and HC (3,005 acres). The northern long-eared bat is likely to inhabit much, but not all, of the affected area between April 1 and September 30. Outside of this time period, the species occurs in or near hibernacula. Some northern long-eared bats present in the affected area will be adversely affected as described above in this section, although the number of individuals that are likely to be affected significantly cannot be predicted within a reasonable level of precision.

None of the proposed actions will alter the amount or extent of mortality or harm to northern long-eared bat resulting directly from WNS. The continued implementation of monitoring efforts will provide additional information on the effect of the actions on affected bats. Minimal cumulative effects are expected.

Impacts to Populations

We have concluded that individual bats are likely to experience reductions in either their annual or lifetime survival or reproductive rates. Therefore, we need to assess the aggregated consequences of these effects to exposed individuals as they relate to the population to which these individuals belong.

There is potential for direct take of the species, but the action area will continue to provide suitable habitat for northern long-eared bat foraging and roosting during the spring-fall period as the proposed activities are implemented. In a substantial proportion of the installation, northern long-eared bats will not be exposed to smoke/obscurants. In any single year, about 44,218 acres of potential habitat on the installation will be outside of the area that will be affected. Therefore, despite the likelihood that northern long-eared bats will be affected by smoke/obscurants in a substantial portion of Ft. McCoy, the installation is likely to continue to support a large number of northern long-eared bats. There is not a discrete and identifiable population that would be affected. Rather, the affected bats are part of a population that is distributed more or less continuously throughout the region (Fig. 4).

Impacts to the Species

The status of the species is uncertain due to WNS, but given the environmental baseline, and the anticipated intensity, frequency, extent, and duration of the project impacts, we find that the proposed

project is unlikely to have appreciable impacts on the population that inhabits the action area. Thus, no component of the proposed action is expected to reduce the reproduction, numbers, or distribution of the northern long-eared bat rangewide. Therefore, we do not anticipate a reduction in the likelihood of both survival and recovery of the species as a whole.

CONCLUSION

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the northern long-eared bat. No critical habitat has been designated to date for this species; therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR § 17.3). Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Army so that they become binding conditions of any funding, permits, and/or approvals, as appropriate, issued to any other federal agencies or contractors on Ft. McCoy for the exemption in Section 7(o)(2) to apply. The Army has a continuing duty to regulate the activity covered by this incidental take statement. If the Army 1) fails to require Army personnel, other federal agencies, or contractors to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit, authorization, or funding document; and/or 2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of Section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Army must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement (50 CFR §402.14(1)(3)).

AMOUNT OR EXTENT OF TAKE

Incidental take could occur to northern long-eared bats that are present in areas affected by one or more categories of smoke/obscurants. The Service anticipates incidental take of the northern long-eared bat will be difficult to detect for the following reasons: (1) the bats are small and occur under loose bark or in the cavities of trees where they are difficult to detect; (2) females and pups form small, widely dispersed maternity colonies and males and non-reproductive females may roost individually; (3) discovery of dead or injured specimens during or following use of smoke/obscurants is unlikely; (4) the precise distribution and density of the species within its summer habitat in the action area is unknown; and, (5) in many cases incidental take will be non-lethal and undetectable.

Monitoring to determine actual take of individual bats within an expansive area of forested habitat is a complex and arduous task. Unless a significant number of individual trees that contains suitable roosting habitat is inspected by a qualified biologist before management activities begin, it would be impossible to know if a roosting northern long-eared bat is present in an area where smoke operations are planned. Inspecting individual trees is not considered by the Service to be a practical survey method and is not

recommended as a means to determine incidental take. The areal extent of potential roosting and foraging habitat that is likely to be affected, however, can be used as a surrogate to monitor the level of take.

In the attached biological opinion, we found that the following activities are likely to result in the incidental take of the northern long-eared bat as follows:

- Fog oil – will affect the northern long-eared bat in 379 acres annually;
- White phosphorus and hexachloroethane – will affect the northern long-eared bat in 1,817 and 3,160 acres annually; and,
- M18 colored smoke grenades and smoke pots – will affect the northern long-eared bat in 7,953 acres annually.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to northern long-eared bat. No critical habitat has been designated for northern long-eared bat, so none would be impacted.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures (RPM) are necessary and appropriate to minimize take of the species.

A. As is already incorporated into the proposed action for the use of M18 colored smoke grenades and smoke pots, minimize the potential for *any* smoke/obscurant to affect areas where northern long-eared bat roosts have been identified.
B. Implement actions to ensure that any northern long-eared bats discovered that may be affected by smoke/obscurants are appropriately handled and treated.
C. Monitor activities associated with the proposed action to determine if the Terms and Conditions of this Opinion are being implemented in order to ensure that take is adequately minimized and provide an annual report of those activities to the Service.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the agency must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. As is proposed for M18 colored smoke grenades and smoke pots, preclude the use of *all* smoke/obscurants within 50 meters of any known northern long-eared bat roost tree with the exception of ranges, firing points and urban training areas as identified within Appendix 1 of the BA. This implements Reasonable and Prudent Measure A.

2. The Army shall ensure that all reasonable efforts are made to educate personnel to report any sick, injured, and/or dead bats located during the implementation of project activities. All such bat encounters shall be reported to Army staff or researchers trained to conduct bat monitoring activities and who have the expertise to handle any live bat, regardless of its condition. If an injured bat is found, if possible, effort should be made by trained staff (with rabies vaccination) to transfer the animal to a wildlife rehabilitator. Any dead bats believed to be northern long-eared bat will be transported on ice to the TCFO or Wisconsin Department of Natural Resources. If a northern long-eared bat is identified, TCFO will contact the appropriate Service law enforcement office. Care must be taken in handling dead specimens to preserve biological material in the best possible state. In conjunction with the care of sick and injured fish or wildlife and the preservation of biological materials from dead specimens, the Army should ensure that information relative to the date, time, and location of northern long-eared bats, when found, and possible cause of injury or death of each, is recorded and provided to the Service. This implements Reasonable and Prudent Measure B.
3. The Army shall provide the Twin Cities Ecological Services Field Office (TCFO) with a report summarizing the extent of area affected each calendar year as a result of the use of each category of smoke/obscurant as described above in the section, **AMOUNT OR EXTENT OF TAKE**. The report should also provide information on the type of each deployment of smoke/obscurants and the amount used each month. For any type of smoke/obscurant whose precise date of use cannot be reasonably tracked in the field, the amount issued to training units each month shall be reported. The Service will assume that all rounds issued were used in the field during the same month. This report shall be provided to the Service no later than April 1 each year – beginning on April 1, 2016. This implements Reasonable and Prudent Measure C.
4. Develop a means, in coordination with the Service, to determine for each calendar year what areas have been affected by the use of fog oil, white phosphorous, and HC at Ft. McCoy, during the period April 1 to September 30, and how frequently each area has been affected. This information should be included in the annual report described under Term & Condition #3. This implements Reasonable and Prudent Measure C.
5. Include in the report described under Term and Condition #3 the methods and results of any surveys conducted to determine the presence, distribution, and habitat use of the northern long-eared bat at Ft. McCoy. This may include, for example, the results of any emergence, mist-net, or acoustic surveys. Also include in the annual report the location of any roost trees determined to have been used by northern long-eared bats. This implements Reasonable and Prudent Measure C.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid the adverse effects of a proposed action on listed species or critical habitat, to help carry out recovery plans, or to develop information.

The Service has identified the following action that, if undertaken by the Army, would further the conservation of the northern long-eared bat. We recognize that limited resources and other agency priorities may affect the ability of the Army to follow these recommendations.

1. Conduct surveys for the northern long-eared bat at Ft. McCoy to determine the areas within the installation that are used as maternity habitat. The Service can work with the Army to help develop survey methods.

2. Notify the Service if any maternity roost trees are found in the vicinity of ranges, firing points, and urban training areas where they would be affected by the use of smoke/obscurants. The conservation measure to buffer roost trees by 50 meters does not apply to these areas and may present an opportunity to evaluate the effects of smoke/obscurant use on bats in maternity roosts and to develop site-specific measures to protect bats in these areas.

3. Establish a Bat Conservation Area (BCA), similar to the one at Ft. Drum. A BCA would help to provide long-term protection to northern long-eared bat habitat at Ft. McCoy and facilitate the monitoring of population trends and conservation research.

4. As bat conservation measures and monitoring are developed at Ft. McCoy, develop outreach materials and programs to educate civilian employees, military personnel, and visitors about the role that the installation plays in the species' conservation and the on its rangewide conservation status.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the conservation recommendations carried out.

REINITIATION NOTICE

This concludes formal consultation for the USFS's actions outlined in your request dated March 23, 2015. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over an action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such a take must cease pending reinitiation.

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