United States Department of the Interior

FISH AND WILDLIFE SERVICE

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Memorandum

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Subject: Multi-Bat Species General Conservation Plan for Routine Development Projects in New York, Pennsylvania, and West Virginia Biological Opinion/Conference Opinion

This memorandum transmits the U.S. Fish and Wildlife Service's (Service) biological opinion and conference opinion (Opinion) that evaluates the Service's proposed action of issuing future section 10(a)(1)(B) incidental take permits (ITP) contingent on the implementation of the Multi-Bat Species *General Conservation Plan* for Routine Development Projects in New York, Pennsylvania, and West Virginia (hereafter, GCP). The GCP was developed by biologists from the New York (NY), Pennsylvania (PA), and West Virginia (WV) Field Offices with assistance from the Service's Northeast Regional Office and the Department of Interior Solicitor's Office. The GCP is designed to conserve the federally listed endangered Indiana bat (*Myotis sodalis*; IBAT), endangered northern long-eared bat (*Myotis septentrionalis*; NLEB) and the proposed endangered tricolored bat (*Perimyotis subflavu*s; TCB) (herein, the bats or Covered Species), and to streamline applications for ITPs for their incidental take resulting from a variety of routine actions associated with residential, commercial, transportation, utility, and other project types. This Opinion is prepared in accordance with section 7 of the Endangered Species Act (ESA) (16 U.S.C. 1536), as amended.

Since the TCB is proposed for federal endangered status, a conference opinion is provided herein, which could be adopted as a biological opinion if this species becomes listed under the ESA. The incidental take statement (ITS) provided in this conference opinion does not provide take authorization for the TCB until the final listing rule becomes effective and the conference opinion is adopted as the biological opinion.

There may be situations when Federal agencies need incidental take coverage under ESA section 7 for projects that they authorize, fund, or carry out that would not fall under the section 10 GCP permit process. In these instances, the Federal agencies are required to consult with the Service to meet their ESA section 7(a)(2) obligations, which will need to be completed separately from the GCP. However, as long as the Federal action meets the eligibility requirements of the GCP and this Opinion, and all effects to the bats are contemplated in those documents, those Federal agencies can use this Opinion and the analyses herein to document their ESA section 7(a)(2) responsibilities in a separate consultation. If Federal agencies want to use the GCP framework, their projects will have to meet the sideboards outlined in the GCP. This includes the Covered Activities, *Plan Area*, and Covered Species discussed further below and in the GCP. The GCP defines the scope of, and criteria applicable to, projects that may rely upon the findings and streamlined processes of the Opinion herein for compliance with ESA section 7(a)(2).

As mentioned in the GCP,[1] permits issued under the GCP only provide incidental take coverage for the IBAT, NLEB and TCB. If, during the processing of an application submitted under the GCP, the Service determines that a project is reasonably certain to result in take of any noncovered federally listed wildlife species or has adverse effects to federally listed plants or designated critical habitat, the Service will notify the project proponent. The Service cannot issue an incidental take permit under this GCP if noncovered federally listed species would be taken or jeopardized, or if any critical habitat would be adversely modified. To address such a situation, the *Project Proponent* may modify the project to avoid these effects, or they could develop their own HCP with an expanded covered species section using all or parts of the GCP to address bats (see GCP section 3.3.1 and contact your local field office) plus information on the additional covered species, or obtain ESA coverage for the noncovered species through another mechanism. *Applicants* can use the Service's Information for Planning and Consultation (IPaC) program and/or the Pennsylvania Conservation Explorer (PACE), which are online tools available to receive a list of federally listed or proposed species or designated or proposed critical habitat that may be present within a proposed project area. This Opinion only addresses the IBAT, NLEB, and TCB and is based on the best available commercial and scientific information.

[1] Service 2025

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GLOSSARY

[*Note: Terms included in the glossary are italicized and underlined the first time they are used in the body of this document.*]

Applicant – Refers to any person, as defined in ESA section 3(13), who requires formal approval or authorization from a Federal agency as a prerequisite to conducting an action (50 CFR[2] 402.02). Under the GCP, a Project Proponent is a potential Applicant and becomes an Applicant at the time they submit a complete application as determined by the Service (GCP appendix C).

assumed occupied habitat – Areas in the range of the Covered Species that have not been surveyed, and the Applicant has elected to assume as occupied because the Covered Species are reasonably likely to occur in these areas based on their location and/or the presence of suitable habitat.

conservation measures – Actions to benefit or promote the recovery of federally listed and proposed species that are included by the Federal agency or Applicant as an integral part of the proposed action. These actions will be taken by the Federal agency or Applicant, and serve to minimize or compensate for, project effects on the species under review. These may include actions taken prior to the initiation of consultation, or actions which the Federal agency or Applicant have committed to complete in a biological assessment or similar document (section 7 Handbook, p. xii, HCP and ITP Processing Handbook).

documented habitat – Suitable forested habitat that has been surveyed (using the most recent version of the Service's Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines[3]) and resulted in the presence of one or more of the Covered Species. *See also* "known habitat" and "occupied habitat."

endangered species – Any species which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta determined by the Secretary to constitute a pest whose protection under the provisions of the ESA would present an overwhelming and overriding risk to man (ESA section 3).

fall swarming area/habitat – Fall swarming areas are found in forested areas where the Covered Species roost, forage, and travel, around a hibernaculum during the fall swarming period, from mid-August to mid-November for the IBAT and NLEB, and mid-August to mid-October for the TCB. Bats also use these areas for mating and to build up fat reserves before hibernation. These areas include 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. See GCP section 2.2 for the general timing of the Covered Species annual cycle.

[2] CFR stands for Code of Federal Regulations.

[3] *https://www.fws.gov/library/collections/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines*

general conservation plan – A completed landscape-level conservation plan and National Environmental Policy Act (NEPA) compliance document produced either by the Service, or by another entity in cooperation with the Service; however, no Permit is issued at the time the conservation plan is approved. This approach is recommended in situations where it is anticipated that numerous individual HCPs would be needed to cover many similar, unrelated proposed actions, but where no Applicant is appropriate to serve as a master Permittee. In this type of HCP, the Service defines the geographic scope of the GCP, the conservation plan, and associated mitigation requirements. In this process, the Service completes a single Findings document, a single section 7 biological opinion, and a single document for all actions covered under the GCP. The GCP is made available for adoption and use by numerous Applicants who become eligible to receive individual Permits when they can demonstrate compliance with the conservation plan and mitigation requirements of the GCP (Service Policy Memo October 5, 2007; HCP and ITP Processing Handbook).

hibernacula – Natural or artificial (manmade) features where the Covered Species overwinter. Hibernacula for IBATs predominantly includes caves, mines, and other cave-like structures (e.g., active or abandoned mines, railroad tunnels, bridges). NLEBs hibernate in habitat similar to IBATs, but may also use nontraditional hibernacula (e.g., buildings, talus slopes, rock crevices/outcroppings). TCBs hibernate in similar habitats as IBATs and NLEBs and have also been observed in rock crevices/outcroppings. See GCP section 2.2 for the general timing of the Covered Species annual cycle.

occupied habitat – Suitable forested habitat that has been surveyed (using the most recent version of the Service's Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines[4])and resulted in the presence of one or more of the Covered Species. *See also* "documented habitat."

Permit Area – The geographic area where a Permit applies (HCP and ITP Processing Handbook). The Permit Area for ITPs issued in association with the GCP will be defined for each individual project and must be completely within the Plan Area of NY, PA, and WV, excluding Federal lands.

Plan Area – The specific geographic area where the Covered Activities described in the GCP, including mitigation, may occur (HCP and ITP Processing Handbook). The Plan Area includes NY, PA, and WV, excluding Federal lands.

Project Proponent – A potential Applicant. For the purposes of this plan, a Project Proponent is any person[5] planning to engage in activities within the GCP Plan Area that may result in take of a Covered Species. A Project Proponent is referred to as an Applicant at the time they submit a complete application.

[4] *https://www.fws.gov/library/collections/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines*
[5] See definition in ESA section 3(13).

proposed species – Any species the Service has determined is in danger of extinction throughout all or a significant portion of its range (proposed endangered) or is likely to become endangered within the foreseeable future throughout all or a significant portion of its range (proposed threatened), and the Service has proposed a draft rule to list as either endangered or threatened under the ESA. Proposed species are not protected by take prohibitions in ESA section 9 until the rule to list a species is finalized. Under ESA section 7(a)(4), Federal agencies must confer with the Service if their action will jeopardize the continued existence of a proposed species.

roost – A natural (e.g., tree, leaf cluster) or artificial/manmade (e.g., bat box, culvert) structure that is used by bats during the active season for sheltering and/or pup rearing.

spring staging area/habitat – Spring staging areas are found in forested areas where the Covered Species roost, forage, and travel, around a hibernaculum, during the spring staging period from mid-March to mid-May for IBATs and NLEBs, and late April to early-May for TCBs. Bats may spend a few hours or days around hibernacula preparing for migration or migrate immediately to summer habitat. These areas include 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. See GCP section 2.2 for the general timing of the Covered Species annual cycle.

suitable habitat (summer):
IBAT – Suitable summer habitat consists of a wide variety of forested habitats where they roost, forage, and travel and may also include some adjacent and interspersed nonforested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags greater than 5 inches diameter at breast height (DBH) that have exfoliating bark, cracks, crevices, and/or hollows), 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. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet of other forested habitat. IBATs have also been observed roosting in manmade structures, such as bridges and bat houses; therefore, these structures should also be considered potential summer habitat.

NLEB – Suitable summer habitat consists of a wide variety of forested habitats where they roost, forage, and travel and may also include some adjacent and interspersed nonforested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags greater than 3 inches DBH that have exfoliating bark, cracks, crevices, and/or cavities), 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. Individual trees may be considered suitable habitat when they exhibit characteristics of suitable roost trees and are within 1,000 feet of forested habitat. The NLEB has also been observed roosting in manmade structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat.

TCB – Suitable summer habitat consists of a wide variety of forested habitats where they roost, forage, and travel and may include some adjacent and interspersed nonforested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields, and pastures. This includes forests and woodlots containing trees with potential roost substrate (i.e., live and dead leaf clusters of live and recently dead deciduous trees), as well as linear features such as fencerows, riparian forests, and other wooded corridors. TCBs will roost in a variety of tree species, especially oaks (*Quercus* spp.), and often select roosts in tall, large diameter trees, but will roost in smaller diameter trees when potential roost substrate is present (e.g., 4-inch [10-centimeter]). Occasional summer roosts also include clusters of dead pine needles of large live pines (*Pinus echinata*), live branches of Norway spruce (*Picea abies*), eastern red cedar (*Juniperus virginiana*), abandoned gray squirrel (*Sciurus carolinensis*) nests, and under exfoliating birch (*Betula* spp.) bark. TCBs commonly roost in the mid to upper canopy of trees although males will occasionally roost in dead leaves at lower heights (e.g., less than 16 feet [5 meters] from the ground). TCBs seem to prefer foraging along forested edges of larger forest clearings, along edges of riparian areas, and over water and avoid foraging in dense, unbroken forests, small forest openings, and narrow road cuts through forests. TCBs also roost in manmade structures, such as bridges and culverts, and occasionally in barns or the underside of open-sided shelters (e.g., porches, pavilions); therefore, these structures should also be considered potential summer habitat.

See the Service's Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines for additional details on suitable habitat.[6]

threatened species – Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (ESA section 3).

travel/commuting habitat – Treed areas (i.e., riparian corridors, hedgerows) between documented (via acoustic detections, captures, or radio telemetry) summer foraging and roosting habitat.

[6] *https://www.fws.gov/library/collections/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines*

BIOLOGICAL OPINION/CONFERENCE OPINION

DESCRIPTION OF PROPOSED ACTION

As defined in the ESA section 7 regulations, "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" (50 CFR 402.02).

The proposed Federal action being evaluated in this Opinion is the Service's issuance of future ITPs authorizing take[7] of the bats, pursuant to ESA section 10(a)(1)(B). As part of any future permit application, as required by ESA section 10(a)(2)(A), the Applicants will address the effects associated with their project in their Individual Project Plan (IPP) (see GCP appendix C). The issuance of these future permits is considered a Federal action requiring intra-Service consultation under ESA section 7. The ITPs would authorize take of the bats due to the alteration of forested habitat of up to 180,000 acres total, over a 10-year period in the *Plan Area* of NY, PA, and WV.

Should any other Federal agencies be involved with an Applicant's proposed project, those agencies would have a separate proposed action (either authorized, funded, or carried out by that agency) and consultation process. This Opinion can be used to receive take exemption from other Federal actions, but a separate biological assessment/biological opinion/conference opinion will be needed. The following is a summary of the proposed action, and a detailed description can be found in the GCP.[8]

Covered Activities – In GCP section 3.4, we describe the activities that are covered under the GCP framework and analyzed in this Opinion. These activities could result in take of the Covered Species, but before this is determined, a proposed project first needs to be screened through the Eligibility Key (see GCP appendix B). In general, the Covered Activities are routine development projects that are not already covered by another permitting mechanism and can be categorized into three major groups: development projects (e.g., residential, commercial), transportation projects with no federal nexus, and utility projects. In GCP section 3.0, we describe the eligibility requirements for the Covered Activities.

Conservation Strategy – Centric to the GCP is the consideration of the Covered Species' biological needs and the conservation program designed around those needs. In this approach, the Service starts by developing a conservation program and then describes strategies that accommodate compatible projects. In this way, the GCP ensures a consistent approach to minimization and mitigation measures by aggregating benefits that contribute to the conservation

[7] Take is defined in ESA section 3 as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct.

[8] Service 2025

of the bats. In GCP section 4.1, we describe the avoidance and minimization measures (AMMs) that Applicants will commit to depending on the location of the Covered Activities.

In GCP section 4.6, we describe the mitigation framework that Applicants will use to design and implement appropriate mitigation for the impact of the take. Mitigation options include permittee-responsible projects and the use of existing in lieu fee programs and conservation banks (where available).

In GCP section 4.7, we describe the monitoring, reporting, and adaptive management framework that Applicants will commit to implement throughout the duration of their permit. This will ensure that project effects on the Covered Species and the effectiveness of the mitigation towards the conservation of the Covered Species will be documented.

ACTION AREA

The Action Area is defined in 50 CFR 402.02 as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The Service has determined that the Action Area is synonymous with the GCP *Permit Area* and falls entirely within the Plan Area (as defined in the GCP Glossary and depicted in GCP Figure 1. The action area for each individual project permitted under the GCP will include the specific geographic area where the Covered Activities and mitigation, as described in the GCP sections 3 and 4, will occur. In other words, given the permit structure of the GCP, we anticipate multiple action areas within the Plan Area.

STATUS OF THE SPECIES

Per 50 CFR 402.14(g)(2), the Service must "Evaluate the current status and environmental baseline of the listed species or critical habitat." The following summarizes the species' general life history, threats, demographics and population trends, and recovery strategy drawn primarily from Service assessment, listing, and recovery documents.

To assess the current status of the bats, it is helpful to understand their conservation needs. The Service frequently describes conservation needs via the conservation principles of resiliency (the ability of species/populations to withstand stochastic events which is measured in metrics such as numbers, growth rates, etc.), redundancy (the ability of a species to withstand catastrophic events which is measured in metrics such as number of populations and their distribution), and representation (the variation/ability of a species to adapt to changing conditions which may include behavioral, morphological, genetics, or other variation) (collectively known as the 3 Rs[9]). The Service can then apply the appropriate regulatory framework and standards to these principles to address a variety of ESA-related decisions (e.g., listing status, recovery criteria, jeopardy, and adverse modification analyses). For ESA section 7(a)(2) purposes, the 3 Rs can be translated into the reproduction, numbers, and distribution (RND) of a species.

[9] Shaffer et al. 2002; Wolf et al. 2015; Smith et al. 2018

Indiana Bat

This species was listed as being in danger of extinction under the Endangered Species Preservation Act of 1966,[10] and received protection as an *endangered species* when the ESA was signed into law in 1973. Critical habitat was designated in 1976 for the species at 13 *hibernacula* locations (consisting of 11 caves and 2 mines) in six states, including Hellhole Cave in WV (41 FR 41914). The Service developed a recovery plan for the species in 1983.[11] An agency draft of a revised plan was published in 1999 but was never finalized. A revision incorporating updated scientific information and recovery actions addressing specific threats was published in 2007.[12] After release of the draft revised recovery plan, previously undescribed impacts from white-nose syndrome (WNS)[13] were discovered.

The IBAT recovery plan delineated four recovery units (RUs) based on population discreteness and differences in population trends, land use, and macrohabitats (Figure 2). The Plan Area includes portions of the Appalachian Mountains and Northeast RUs.

To achieve the goal of maintaining adaptive capacity for the species (representation), the Service's recovery actions are focused on maintaining multiple (redundant) healthy (resilient) populations in each RU.[14]

[10] 32 FR 4001, March 11, 1967
[11] Service 1983
[12] Service 2007
[13] *https://www.whitenosesyndrome.org/*
[14] The 3 Rs are further defined as follows: **Resiliency** means having sufficiently large populations for the species to withstand stochastic events (arising from random factors). We can measure resiliency based on metrics of population health (e.g., birth versus death rates and population size), if that information exists. Resilient populations are better able to withstand disturbances such as random fluctuations in birth rates (demographic stochasticity), variations in rainfall (environmental stochasticity), or the effects of human activities.
Redundancy means having a sufficient number of populations for the species to withstand catastrophic events (such as a rare destructive natural event or episode involving many populations). Redundancy is about spreading the risk and can be measured through the duplication and distribution of populations across the range of the species. Generally, the greater the number of populations a species has distributed over a larger landscape, the better it can withstand catastrophic events. **Representation** means having the breadth of genetic makeup of the species to adapt to changing environmental conditions. Representation can be measured through the genetic diversity within and among populations and the ecological diversity (also called environmental variation or diversity) of populations across the species' range. The more representation, or diversity, a species has, the more it is capable of adapting to changes (natural or human caused) in its environment. In the absence of species-specific genetic and ecological diversity information, we evaluate representation based on the extent and variability of habitat characteristics within the geographical range (Shaffer et al., 2002; Wolf et al. 2015).

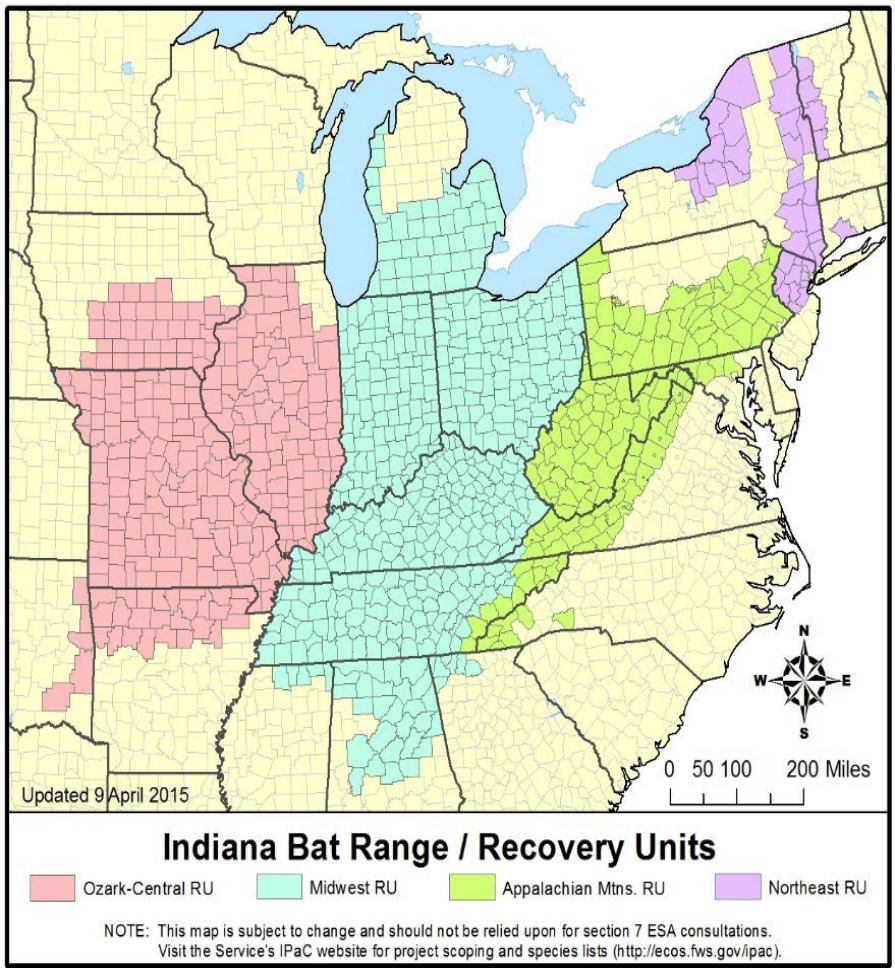

Figure 1. Indiana bat recovery units.

The IBAT 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 their annual cycle are hibernation, spring staging and migration, pregnancy, lactation, volancy/weaning, fall swarming and migration. While varying with weather and latitude, IBATs generally hibernate between mid-fall through mid-spring each year. Spring migration likely runs from mid-March to mid-May each year, as females depart shortly after emerging from hibernation and are pregnant when they reach their summer area. Young are born between late May or early June, with nursing continuing until weaning, which is shortly after young become volant in mid- to late-July. Fall migration typically occurs between mid-August and mid-October.

The basic resource needs for the IBAT across the species entire range are safe winter hibernation sites; forested *spring staging/fall swarming habitat*; connected forested summer habitat for *roost*ing, foraging, and travel/commuting; forested migratory stopover habitat; safe migration passage; insects; and clean drinking water (e.g., streams, riparian areas, and wetlands).

Currently, some IBAT populations in the range are increasing, some show evidence of stabilization and others continue to slowly decline (Figure 3).[15] Declines are associated with the onset of WNS, which has spread south and west from NY across the range of the species since the winter of 2006-2007. Though declines have been observed in all RUs, impacts have been most severe in areas with the longest exposure to WNS, specifically in the northeast. Since the onset of WNS, population declines of 75-99 percent have been reported in NY, PA, and WV. Intrinsic biological constraints also affect IBAT reproductive capacity. Because healthy adult females can produce only one pup per year, high adult female survival rates are needed to maintain or increase populations.[16]

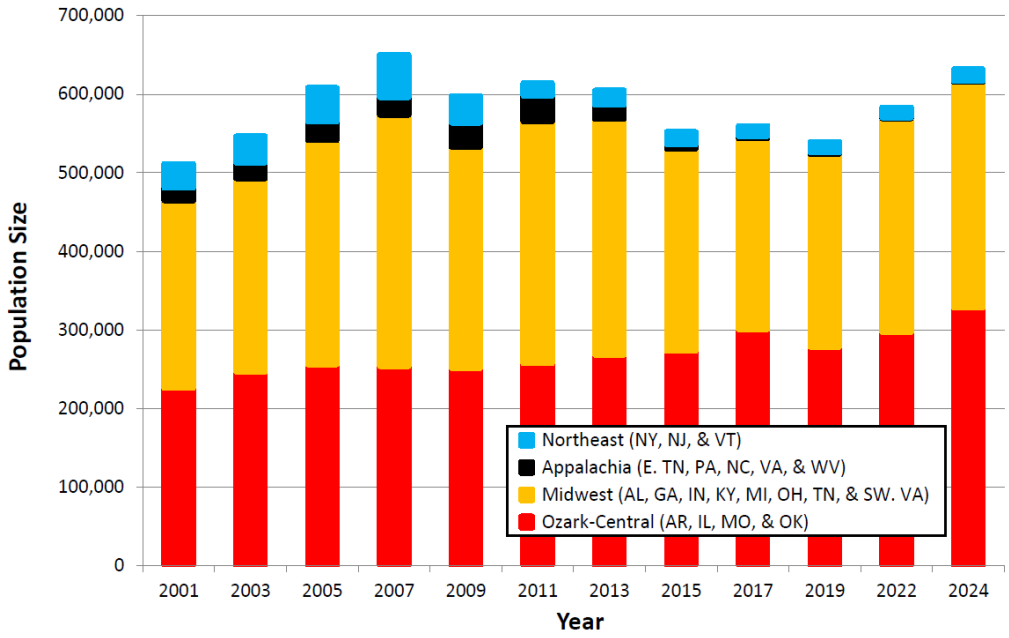

Figure 2. IBAT winter population estimates by recovery unit from 2001 to 2024[17].

Redundancy in IBAT populations has significantly declined. The species is no longer found in several previously occupied hibernacula, and a small number of locations now host most of the surviving individuals. The causes of variation in mortality by site are not well understood. According to the Service's most recent IBAT 5-Year Review, 93 percent of the IBATs identified in the Northeast RU were found at a single location, and 72 percent of the individuals found in the Appalachian Mountains RU were found at three hibernacula sites.[18] This concentration of individuals increases the population-level threat posed by potential adverse impacts at any of these remaining locations.

[15] Service 2024a
[16] Thogmartin et al. 2013
[17] Service 2024a
[18] Service 2019

Regarding maternity colony populations on the summer landscape, changes are not clear; however, variation is expected to reflect winter observations as noted above.

More information about the IBAT, including the draft recovery plan and 5-Year Reviews, can be found on the Service's Environmental Conservation Online System (ECOS) webpage at *https://ecos.fws.gov/ecp/species/5949*.

Northern Long-Eared Bat

The NLEB was listed as a *threatened species* under the ESA on April 2, 2015 (80 FR 17974). The Service issued a final 4(d) rule for this species on January 14, 2016 (81 FR 1900). In responding to a court order requiring the Service to reconsider the 2015 listing decision, the Service subsequently published a final rule to reclassify the NLEB as endangered under the ESA on November 30, 2022 (87 FR 73488). The final rule became effective on March 31, 2023, which then removed the NLEB species-specific 4(d) rule.

The Service has not yet approved a recovery plan for the NLEB. However, we suggest that to reduce extinction risk and help maintain adaptive capacity for the species (representation), multiple (redundant) healthy (resilient) populations should occur across the species range. To do this, our current focus addresses conservation needs for the NLEB that are similar to the IBAT.[19] The NLEB is a temperate, insectivorous, migratory bat that spends summers in wooded areas and hibernates in caves and mines in the winter (with some overwintering exceptions), similar to IBATs. The key stages in their annual cycle are hibernation, spring staging and migration, pregnancy, lactation, volancy/weaning, fall swarming and migration. While varying with weather and latitude, NLEBs generally hibernate between mid-fall through mid-spring each year. Spring migration likely runs from mid-March to mid-May each year, as females depart shortly after emerging from hibernation and are pregnant when they reach their summer area. Young are born between late May or early June, with nursing continuing until weaning, which is shortly after young become volant in mid- to late-July. Fall migration typically occurs between mid-August and mid-October.[20]

The basic resource needs for the NLEB across its entire range are safe winter hibernation sites; forested spring staging/fall swarming habitat; connected forested summer habitat for roosting, foraging, and commuting; forested migratory stopover habitat; safe migration passage; insects; and clean drinking water (e.g., streams, riparian areas, and wetlands).

The current range of the NLEB includes 37 States, the District of Columbia, and 13 Canadian Provinces (Figure 4). Similar to the RUs developed for the IBAT, geographical representation population units (RPUs) have been developed for the NLEB based on variation in biological traits, genetic diversity, habitat diversity, environmental gradients, and climatic differences, and are identified as Southeast, Eastern Hardwoods, Subarctic, Midwest and East Coast (Figure 4).[21] To help maintain adaptive capacity for the species (representation), multiple (redundant) healthy

[19] Conservation needs for the IBAT are included in Service (2007, 2018, 2019).
[20] Service 2022
[21] Service 2022

(resilient) populations should occur in all five RPUs. The Plan Area is located within the Eastern Hardwoods RPU.

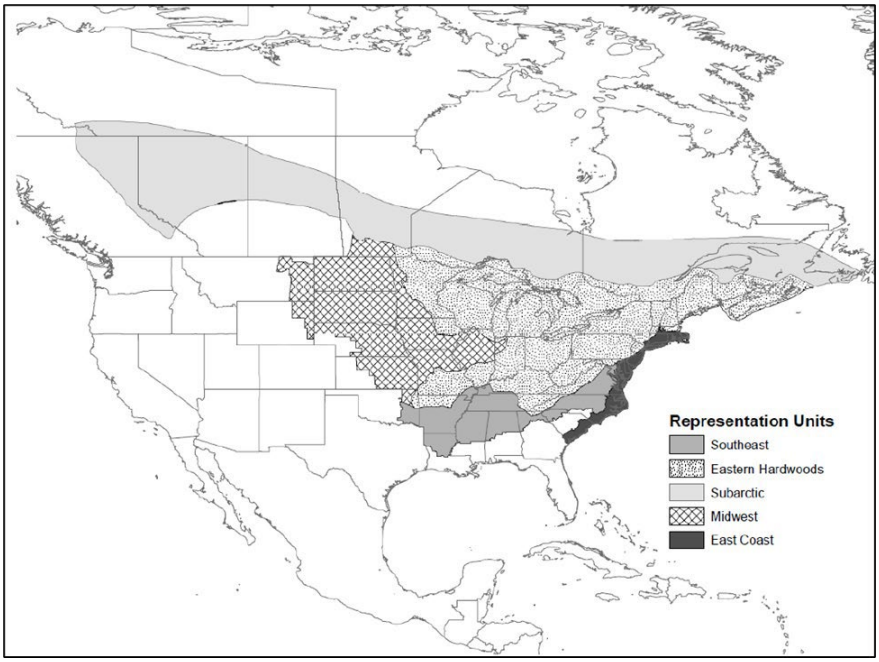

Figure 3. The NLEB range organized into five geographical Representation Population Units[22].

The NLEB was once widely distributed in the eastern part of its range.[23] Prior to the documentation of WNS, NLEBs were consistently caught during summer mist-net surveys and detected during acoustic surveys in the eastern U.S. (80 FR 17974). The NLEB continues to be distributed across much of its historical range, but there are many gaps within the range where bats are no longer detected or captured, and in other areas, their occurrence is sparse. Similar to summer distribution, NLEBs were known to occur in many hibernacula throughout the east. Since WNS was documented, multiple hibernacula have no reported NLEBs. One study documented the local extinction of NLEBs from 69 percent of sites surveyed (468 sites where WNS had been present for at least 4 years in VT, NY, PA, MD, WV, and VA).[24]

More information about the NLEB can be found on the Service's ECOS webpage at *https://ecos.fws.gov/ecp/species/A080.*

Tricolored Bat

On September 14, 2022, the Service published a proposed rule to list the TCB as endangered under the ESA. The species faces potential extinction due to the rangewide impacts of WNS. The

[22] Service 2022
[23] Caceres and Barclay 2000
[24] Frick et al. 2015

Service also has not yet approved a recovery plan for the TCB. However, similar to the IBAT and NLEB, we suggest that to reduce extinction risk and help maintain adaptive capacity for the species (representation), multiple (redundant) healthy (resilient) populations should occur across the species' range. To do this, our current focus addresses conservation needs for the TCB that are similar to the IBAT and NLEB.

The current range of the TCB includes 39 states, 4 Canadian Provinces, and Guatemala, Honduras, Belize, Nicaragua, and Mexico (Figure 5). Prior to 2006 (pre-WNS), the TCB was highly abundant and widespread, with over 140,000 bats observed hibernating in 1,951 known hibernacula spread across greater than one billion acres in 34 States and 1 Canadian Province. TCB numbers varied temporally and spatially, but abundance and occurrence on the landscape were generally stable. Although the majority of winter colony sizes were small (less than 100 individuals), the vast majority of individuals occupied a small subset of hibernacula. For example, in 2000, 32 percent (N=508) of the known winter colonies contained 90 percent of total known winter abundance.[25]

Similar to the NLEB, geographical representative population units (RPUs) were developed for the TCB using the following proxies: variation in biological traits, neutral genetic diversity, peripheral populations, habitat niche diversity, and steep environmental gradients.[26] The RPUs are identified as the Eastern, Northern, and Southern (Figure 5). To help maintain adaptive capacity for this species (representation), multiple (redundant) healthy (resilient) populations should occur in all three RPUs. The Plan Area is located within the Northern and Eastern RPUs.

Similar to both the IBAT and NLEB, the TCB is a temperate, insectivorous, migratory bat that typically overwinters in caves or mines and spends the remainder of the year roosting in forested areas and occasionally in manmade structures.[27] Key stages in the TCBs annual cycle are hibernation, spring staging and migration, pregnancy, lactation, volancy/weaning, fall swarming and migration. While varying with weather and latitude, TCBs generally hibernate between early fall through mid-spring each year. Spring migration likely runs from early April to mid-May each year, as females depart shortly after emerging from hibernation and are pregnant when they reach their summer areas. Young are born between mid-May or early June, with nursing continuing until weaning, which is shortly after young become volant in mid- to late-July. Fall migration typically occurs between mid-August and mid-November.

[25] Service 2021
[26] Service 2021
[27] Service 2021

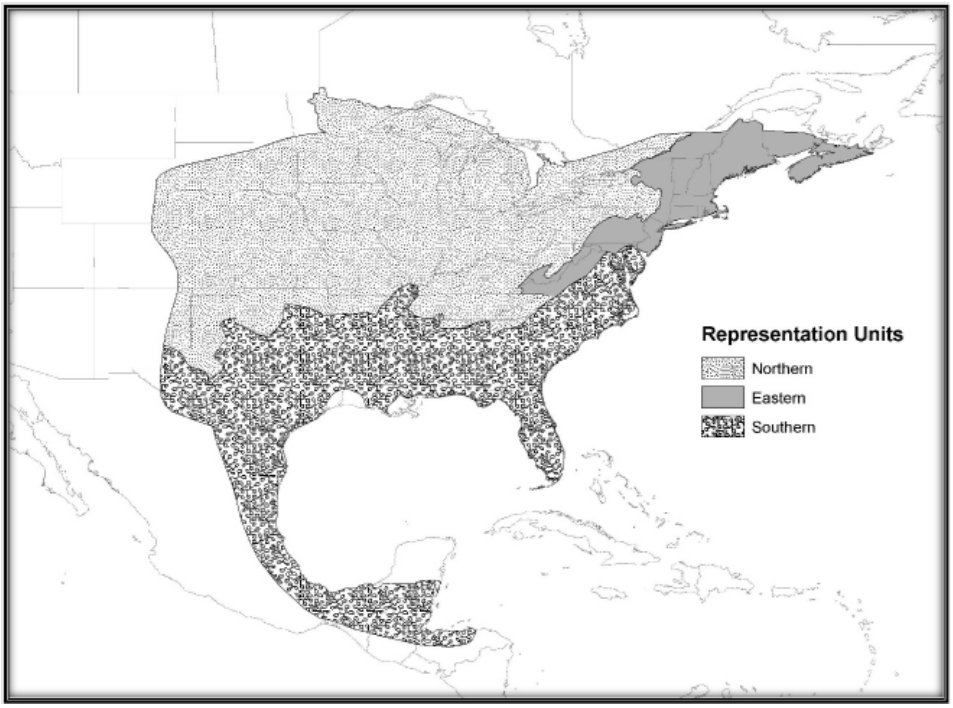

Figure 4. The TCB range organized into three geographical Representation Population Units.

The basic resource needs for the TCB across its entire range are safe winter hibernation sites; forested spring staging/fall swarming habitat; connected forested summer habitat for roosting, foraging, and commuting; forested migratory stopover habitat; safe migration passage; insects; and clean drinking water (e.g., ponds, streams, riparian areas, and wetlands).

With WNS now widespread across much of the TCB range, the species continues to be distributed across much of its historical range, but there are many gaps within the range where bats are no longer detected or captured, and in other areas, their occurrence is sparse. The effect of WNS on the TCB has been extreme, such that most summer and winter colonies have experienced severe declines following the arrival of WNS. For example, just four years after the discovery of WNS, a study estimated a 75 percent decline in TCB winter counts across 42 sites in VT, NY and PA[28], which are within the Northern and Eastern RPUs. Similarly, another study estimated the arrival of WNS led to a 10–fold decrease in TCB colony size.[29] Most recently, data used from 27 States and 2 Canadian Provinces concluded WNS caused estimated population declines of 90–100 percent across 59 percent of the species range.[30]

More information about the TCB can be found on the Service's ECOS webpage at *https://ecos.fws.gov/ecp/species/10515.*

[28] Turner et al. 2011
[29] Frick et al. 2015
[30] Cheng et al. 2021

Threats to Survival

Indiana Bats

Threats to the IBAT are discussed in detail in the recovery plan, the 5-Year Reviews, and the Northeast Regional Indiana Bat Conservation Strategy.[31] Traditionally, *occupied habitat* loss/degradation, winter disturbance, and environmental contaminants have been considered the greatest threats to IBATs. The recovery plan identified and expounded upon additional threats, including collisions with manmade objects (e.g., wind turbines).[32] The 2009 5-Year Review was the first review to include the threat of WNS, which is now considered the most significant threat to the recovery of the species. WNS has spread across the range of the IBAT (Figure 6) with declines varying among hibernacula. Overall, the Service finds that WNS has significantly reduced the redundancy, and overall resiliency of the IBAT to withstand other cumulative threats. For example, one study modeled the interaction of WNS, and wind turbine mortality and the interaction resulted in a larger population impact than when considering the effects of either stressor alone.[33]

In addition to extrinsic factors, there are several intrinsic biological constraints affecting IBATs. High IBAT adult female survival is required for stable or increasing growth rates.[34] While IBAT populations are increasing in parts of the range,[35] it is essential to minimize impacts to the reproductive potential for surviving IBATs. Healthy adult females have a maximum of one pup per year and as a result, population growth over time will be slow.

In summary, there are few healthy winter populations (and likely associated summer maternity colonies) remaining in the Northeast and Appalachian RUs. The WNS impacts are expected to continue across the range for years to come as are other ongoing threats (e.g., climate change, wind turbines) to the bats and their habitats. Given the species' limited reproductive potential, populations are not likely to rebound to pre-WNS numbers in the near term for these two RUs. In short, over the past decade, WNS has increased the species' risk of extinction as the 3 Rs of many populations have declined. The majority of the IBATs' population-based and protection-based recovery criteria have not yet been achieved, identified threats have not yet been sufficiently reduced, and stable population growth at the most important hibernacula has not been sustained within these two RUs. Current data show the rangewide status of the species appears to be increasing, with some populations still stable or declining.[36] The Service recommended maintaining the current classification as an endangered species in its last 5-Year Review and the Service anticipates an updated 5-Year Review sometime in fiscal year 2025 or 2026.[37]

[31] Service 2007; 2009; 2018; 2019
[32] Service 2007
[33] Erickson et al. 2016
[34] Thogmartin et al. 2013
[35] Service 2024a
[36] Service 2024a
[37] Service 2019

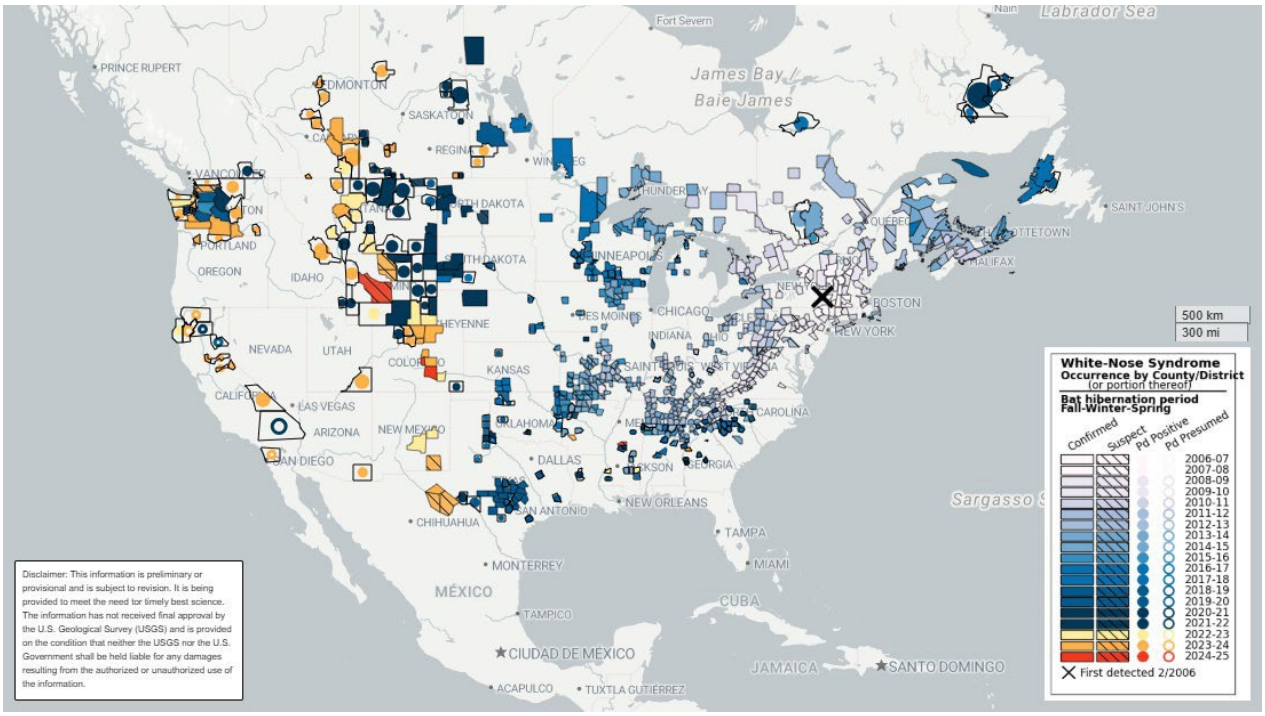

Figure 5. Occurrence of Pseudogymnoascus destructans *(Pd) and WNS in North America based on surveillance efforts in the U.S. and Canada: WNS disease confirmed (color-coded),WNS disease suspected (stripes), Pd positive (WNS disease not confirmed) (solid circles), and Pd presumed (open circles). Pd and WNS occurrence records generally reflect locations of winter roosts and are not representative of the summer distribution of affected bats. (https://www.whitenosesyndrome.org/ accessed June 23, 2025)*

Northern Long-eared Bats

WNS has caused precipitous and dramatic declines in NLEB numbers (in many areas 90–100 percent declines) where the disease has occurred and was the primary factor resulting in the listing of the species under the ESA. As WNS continues to spread across the NLEB's range, their numbers have continued to decline to varying degrees. Notwithstanding the severity of the impact of WNS to the NLEB, there are other anthropogenic threats to this species. Their hibernacula may be impacted by humans altering or closing hibernacula entrances. Forest conversion and management may result in habitat loss, fragmentation of existing habitats, and direct and indirect injury and mortality of individual bats. Tree removal around maternity roosts and hibernacula may cause injury and death to individual NLEBs. Environmental contaminants, in particular pesticides and inorganic contaminants, such as mercury and lead, may have detrimental effects on individual NLEBs. They have also been documented to collide with wind turbines, although at lower rates than species like the hoary bat (*Lasiurus cinereus*) and eastern red bat (*Lasiurus borealis*).[38] Rangewide, the number of NLEB maternity colonies that have been detected varies greatly among states and risk exists that an unknown number of individuals

[38] Taucher et al. 2012

are being impacted as a result of habitat loss, habitat fragmentation, and/or direct injury/mortality.

In summary, as a whole, the rangewide status of this species appears to be declining. The primary threat of WNS continues to spread and effects are expected to continue across the range for years to come as are other ongoing threats (e.g., climate change, wind turbines) to the bats and their habitats. Also, given the species' limited reproductive potential, populations are not likely to rebound in the near term. In short, over the past decade, WNS has increased the species' risk of extinction as the 3 Rs of its remaining populations have declined.

Tricolored Bat

Similar to the NLEB, WNS has caused precipitous and dramatic declines in TCB across all RPUs but varies spatially in occurrence and abundance, where the disease has led to the primary factor resulting in the listing of the species under the ESA. Winter abundance has declined across all RPUs between 24 and 89 percent. Declining trends in TCB occurrence and abundance is also evident from summer data where rangewide occupancy declined 28 percent from 2010 to 2019 and mobile acoustic detections decreased 53 percent. Notwithstanding the severity of the impact of WNS to the TCB, there are other anthropogenic threats to this species. Their hibernacula may be impacted by humans altering or closing hibernacula entrances. Forest conversion and management may result in habitat loss, fragmentation of existing habitats, and direct and indirect injury and mortality of individual bats. Tree removal around maternity roosts and hibernacula may cause injury and death to individual TCBs. Environmental contaminants, in particular pesticides and inorganic contaminants, such as mercury and lead, may have detrimental effects on individual TCBs. They have also been documented to collide with wind turbines, although at lower rates than species like the hoary bat and eastern red bat.[39] Rangewide, the number of TCB maternity colonies that have been detected varies greatly among states and risk exists that an unknown number of individuals are being impacted as a result of habitat loss, habitat fragmentation, and/or direct injury/mortality.

In summary, as a whole, the rangewide status of the TCB appears to be declining. The primary threat of WNS continues to spread and effects are expected to continue across the range for years to come as are other ongoing threats (e.g., climate change, wind turbines) to the bats and their habitats. Similar to the IBAT and NLEB, the TCB has limited reproductive potential; therefore, populations are not likely to rebound in the near term. In short, over the past decade, WNS has increased the species' risk of extinction as the 3 Rs of its remaining populations have declined.

STATUS OF CRITICAL HABITAT

Indiana bat

Critical habitat for IBAT has been designated in 13 winter hibernacula (11 caves and 2 mines) in six states (including Hellhole Cave in Pendleton County, WV, which is in the Plan Area) (41 FR 41914); however, this action does not affect any of those areas. Therefore, critical habitat for this species is not considered in this Opinion.

[39] Taucher et al. 2012

Northern long-eared bat
On April 27, 2016, the Service determined that it is not prudent to designate critical habitat for the NLEB (81 FR 24707). Therefore, critical habitat for this species is not considered in this Opinion.

Tricolored bat
The current status of the TCB is proposed endangered and no critical habitat has been proposed to date. Therefore, critical habitat for this species is not considered in this Opinion.

ENVIRONMENTAL BASELINE

In accordance with 50 CFR 402.02, the "environmental baseline refers to the condition of the listed species or its designated critical habitat in the Action Area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, state, or private actions and other human activities in the Action Area, the anticipated impacts of all proposed Federal projects in the Action Area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process. The impacts to listed species or designated critical habitat from Federal agency activities or existing Federal agency facilities that are not within the agency's discretion to modify are part of the environmental baseline."

Status of the Species within the Action Area

As stated above, the Action Area (or Plan Area) covers approximately 70.4 million acres and includes suitable summer, fall, spring, and winter habitat for the Covered Species. Forest cover is estimated at 47.7 million acres within the Action Area.[40] All three bat species may be found within areas of *suitable habitat* in the Action Area throughout the year.

Indiana bat
IBATs have been known to hibernate at 20 sites in PA[41], 21 in NY[42], and 82 in WV.[43] The Plan Area overlaps with the Appalachian Mountain and Northeast RUs for the IBAT. Winter hibernacula counts between 2007 (arrival of WNS) to 2024 have showed IBAT populations have declined 99.8 percent in PA, 72 percent in NY, and 99 percent in WV.[44] As of winter 2023-2024[45], approximately 97 percent (14,520 of 14,860) of IBATs in the Northeast RU occur at the Barton Hill hibernaculum in northern NY.[46] As of winter 2023-2024, approximately 13 percent

[40] Widmann 2016; Albright 2017; Morin et al. 2017
[41] Recent counts conducted by the Pennsylvania Game Commission (PGC) documented that the IBAT currently hibernates in only 5 of these sites (pers. comm. with Michael Scafini (PGC), November 2024, unpublished data).
[42] Counts conducted by the New York State Department of Environmental Conservation (NYSDEC) during winter 2023-2024 documented that the IBAT currently hibernates in only seven sites currently (Service, unpublished data).
[43] The total number of IBAT hibernacula in WV is based on the count of entrances at hibernacula (A. Silvis 2025, pers. comm.).
[44] Service 2024a
[45] Service 2024a.
[46] Service 2024a, NYSDEC, unpublished data

(189 of 1,447) of IBATs in the Appalachian Mountain RU occur in WV, with approximately 0.1 percent (2 out of 1,447) occurring in PA.

The Service has records of a few hundred documented roost trees within the Action Area associated with multiple IBAT maternity colonies. We have moderate confidence that there are additional unknown maternity colonies within the Action Area based on survey gaps and we have high confidence that there are additional roosts associated with the known and unknown colonies.

Northern long-eared bat

NLEBs have been documented to hibernate at 322 sites in PA, 93 in NY, and 151 in WV.[47] For IBAT, the Service estimates population numbers using winter hibernacula counts. However, because NLEBs often hibernate alone and may hide in cracks or crevices where they are easily overlooked, these counts are not a reliable basis for estimating NLEB populations. Therefore, it is difficult to estimate the baseline hibernating population for each state, which is the basis for estimating population size and assessing long-term population trends.

The Service has records of several hundred documented roost trees within the Action Area associated with multiple NLEB maternity colonies. We have high confidence that there are additional unknown maternity colonies within the Action Area based on survey gaps and we have high confidence that there are additional roosts associated with the known and unknown colonies.

Tricolored Bat

TCBs have been known to hibernate at 528 sites in PA, 110 in NY, and 220 in WV;[48] many of which have single digit numbers of TCBs. Due to the recent listing of the TCB, the Service lacks the long-term population monitoring for this species at hibernacula. Therefore, it is difficult to estimate the baseline hibernating population for each state for TCB.

The Service has less known roost tree data for the TCB as compared to the IBAT and NLEB as TCB are harder to detect during summer survey efforts and use forested habitat differently. Also, prior to the proposed listing, if TCBs were caught in mist-net surveys they generally were not radio-tracked; and therefore, not tracked to a roost tree. However, given the broad forested habitat that TCBs use, and their roost switching behavior,[49] it is reasonable to estimate that there are several hundred undocumented roost trees within the Action Area, and these are associated with multiple maternity colonies. We have high confidence that there are many unknown maternity colonies within the Action Area based on significant survey gaps and we have high confidence that there are additional roosts associated with the unknown colonies.

[47] The total number of NLEB hibernacula in WV is based on the count of entrances at hibernacula (A. Silvis 2025, pers. comm.).
[48] Same as for IBAT and NLEB, the total number of TCB hibernacula in WV is based on the count of entrances at hibernacula (A. Silvis 2025, pers. comm.).
[49] Veilleux et al. 2003; Veilleux and Veilleux 2004; Perry and Thill 2007; Quinn and Broders 2007; Poissant 2010

In summary, similar to the rangewide status of the species, the status of the three bats has declined significantly in the Action Area since the onset of WNS; however, IBAT populations increased during the 2023-2024 winter season counts in NY by 2,330 individuals from the previous winter count in 2021-2022, and IBATs in WV increased by 8 individuals over the same time period.[50]

Status of Critical Habitat within the Action Area

There is one IBAT critical habitat unit within the Action Area (Hellhole Cave in WV); however, it will not be affected by the proposed action and will not be discussed further.

EFFECTS OF THE ACTION

In accordance with 50 CFR 402.02, "effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action but are not part of the action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action."

All of the Covered Activities frequently require tree removal, which includes whole tree removal, topping, limbing, pruning, and trimming. Tree removal can have a variety of impacts on bats depending on the quality, amount, and location of the lost habitat, and the time of year of tree cutting. Therefore, tree removal is the only activity that is anticipated to result in take of the Covered Species included in the GCP. Projects involving tree removal may result in injury or death to individual bats; temporary or permanent loss of undocumented roosts; loss of foraging and/or roosting habitat; loss of *travel/commuting habitat*; or loss of spring staging/fall swarming areas. There will be no removal of documented roost trees as part of the GCP for any of the Covered Species.

In addition to the loss of suitable habitat, the GCP acknowledges potential take from noise, lighting, and vibration associated with tree removal. This potential take is subsumed in the take from the tree removal. Projects that only result in take from noise/vibration (i.e., noise/vibration that is not associated with tree removal) are not covered by the GCP and will not be further analyzed in this Opinion.

No discernible changes in the quality or quantity of drinking water or foraging availability are anticipated from project activities due to the types of Covered Activities in the GCP and associated *conservation measures* (CMs) (e.g., implementation of standard erosion and sediment control measures). Some projects may include the permanent loss of wetland and/or streams from fill or temporarily reduce water quality from sedimentation.[51] Standard construction best

[50] Service 2024a

[51] Proposed projects involving the permanent or temporary loss of wetland and/or streams may need section 404 authorization from the U.S. Army Corps of Engineers. If this is the case, then proposed projects will not be able to receive take coverage through the use of this GCP and separate consultation under ESA section 7 will be needed.

management practices (BMPs) (e.g., silt fencing) will minimize erosion and subsequent sedimentation; thus, reducing potential impacts on aquatic ecosystems. Since potential impacts from sedimentation are expected to be localized, foraging bats should have alternative drinking water sources and foraging locations. The surrounding landscape will continue to provide an abundant prey base of both terrestrial and aquatic insects during project construction, operation, and maintenance. Therefore, any potential direct effects to bats from a reduction in water quality are anticipated to be minimal. In addition, most water quality alterations are anticipated to be associated with new construction activities. Many water quality alterations that have the potential to impact the Covered Species would also involve habitat removal. Therefore, we do not anticipate additional take beyond that estimated for suitable habitat/tree removal throughout the range.

Mitigation projects such as appropriate gating of hibernacula, protecting summer habitat, etc., are wholly beneficial and are not reasonably certain to result in take of the Covered Species. Intentional take resulting from capture and handling (e.g., netting, radio transmitter attachment) that may be part of mitigation or monitoring will be addressed through other Service recovery permitting mechanisms such as section 10(a)(1)(A) permits.

In summary, tree removal is the only component of the Covered Activities that is anticipated to result in take of the Covered Species. No impacts are anticipated to bat hibernacula, wintering bats, documented roosts, or to bats present during fall swarming or spring staging activities due to the sideboards in the GCP (see GCP section 3.2).

Tree Removal

Tree removal can result in the loss of documented[52] and unknown maternity roosts, foraging habitat, travel/commuting corridors, and spring staging/fall swarming habitat. The following exposure response pathways outline the mechanisms and forms of take that may occur from tree removal.

- Loss of roosts → death or injury
- Loss of roosts → increased risk of predation → death
- Loss of roosts → colony fragmentation → smaller colonies → reduced thermoregulation, reduced information sharing → increased energy expenditure → harm through:
    1. reduced pregnancy success
    2. reduced pup survival
    3. reduced adult survival
- Loss/fragmentation of roosting habitat, foraging habitat, or travel/commuting corridors → displacement → increased flights → increased energy expenditure → harm through:
    1. reduced pregnancy success
    2. reduced pup survival
    3. reduced adult survival

[52] As stated previously in this Opinion, no documented roost trees will be removed for projects that adopt this GCP.

Not all forms of take are anticipated from each project given the CMs included in the GCP. The form of take will also be dependent upon the location of projects and scope/scale of the tree removal.

Death or injury from trees felled while bats are present - Bats will form colonies in the summer and exhibit fission-fusion behavior 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.[53] As part of this behavior, both IBAT and NLEB switch roosts often, typically every 2–3 days,[54] with TCB also switching roosts regularly.[55] Bats switch roosts for a variety of reasons, including temperature, precipitation, predation, parasitism, and to make use of ephemeral roost sites.[56] It is reasonable to assume that bats investigate new potential roost trees prior to their current roost tree becoming uninhabitable (e.g., tree falls over).[57]

The exact number of roost trees a colony uses at any given time (or across the season) is not known, because: 1) not every bat in a colony can be tracked; 2) not all bats can be tracked simultaneously; 3) bats are generally tracked for a short period; and 4) the number of trees used by a bat is correlated with number of days it is radio-tracked.[58] Maternity colonies use a minimum of 8–33 different trees in one season.[59] Therefore, bats associated with a maternity colony are spread out across these multiple trees in any given day. An IBAT colony is often dispersed among numerous trees, with many bats occupying one or more primary roosts, while individuals and small groups reside in different alternate roosts.[60] However, one to three of these are primary roosts used by the majority of IBATs for some or all of the summer.[61] NLEBs have a similar roost tree dynamic, though primary roosts for this species are referred to as central-nodes.[62] It is unclear whether the TCB exhibits similar roost dynamics as the IBAT and NLEB.

While some bats can flee during tree removal, removal of occupied roosts is likely to result in injury or mortality to some percentage of bats. If a bat is in the tree and a tree is cut down, the bat may either stay in the tree and potentially be crushed or fly out (adults or volant pups) during the day and be more susceptible to predation (e.g., by raptors).

Individual NLEB home ranges have been minimally estimated at 148.8–173.7 acres,[63] with colony home ranges being larger. Individual IBAT home ranges may be several hundred to

[53] Barclay and Kurta 2007; Garroway and Broders 2007
[54] Foster and Kurta 1999; Kurta et al. 2002; Owen et al. 2002; Carter and Feldhamer 2005; Kurta 2005
[55] Veilleux and Veilleux 2004; Quinn and Broders 2007; Poissant et al. 2010
[56] Carter and Feldhamer 2005
[57] Kurta et al. 2002; Carter and Feldhamer 2005; Timpone et al. 2010
[58] Gumbert et al. 2002; Kurta et al. 2002
[59] Callahan et al. 1997; Kurta et al. 2002; Veilleux et al. 2003; Veilleux and Veilleux 2004; Perry and Thill 2007; Poissant et al. 2010; Silvis et al. 2015
[60] Kurta 2005
[61] Callahan et al. 1997
[62] Silvis et al. 2015
[63] Owen et al. 2003; Lacki et al. 2009

thousands of acres in size.[64] Individual TCB home ranges may be upwards of several hundred acres[65] but are likely much smaller.[66] Core roosting areas are smaller than foraging areas, with roosts often clustered in space. The size of both foraging and core roosting areas likely varies depending on habitat quality. For example, larger home ranges may be necessary to meet a bat's needs in less suitable habitat.

In most cases, the Service does not have sufficient information to map core roosting and foraging areas or documented travel routes for known maternity colonies. Therefore, the Service developed standard protocols[67] for mapping potential home ranges based on varying levels of existing data. The likelihood of projects intersecting with bat habitat such as roosting, foraging, or commuting areas increases with the size of each project or the density of projects in a specific area. This intersection can expose individuals to stressors related to these projects. Linear projects along existing roadways/railways are assumed to be less likely to intersect with multiple roosts as alternative habitat is available.[68]

Impacts to bats from tree removal is anticipated to vary depending on the location, extent, and timing of removal. The location with the greatest likelihood of cutting a roost with bats present is a known maternity roost or suitable trees in close proximity of those roosts. Permits issued under the GCP will not result in the removal of any known, documented roosts (that remain suitable for roosting) or trees within 150 feet of those roosts at any time. Therefore, none of the above exposure response pathways are applicable.

The Service assumes the next greatest likelihood of removing occupied roosts for the Covered Species is within 1.0-mile of documented roosts.[69] In addition, based on previous survey results and the presence of suitable habitat, we anticipate that undocumented roosting and foraging areas are present throughout the Plan Area. The larger the area of tree removal, the greater the likelihood of intersecting with a potentially occupied roost tree. In *assumed occupied habitat* (summer), Project Proponents can choose to assume presence in certain situations (nonlinear projects with less than 25 acres of suitable habitat impacts; no limit for linear projects) or have the option to conduct presence/probable absence (P/A) summer surveys and be eligible for the GCP. Since we do not have sufficient survey information for most summer habitat, we assume an equal risk of this occupancy throughout all *documented habitat* (outside of 150 feet of roosts) and assumed occupied habitat. Therefore, the above exposure response pathways may be applicable to tree clearing outside of 150 feet from roosts regardless of whether it is within

[64] Menzel et al. 2005; Sparks et al. 2005; Watrous et al. 2006; Jachowski et al. 2014; Kniowski and Gehrt 2014; Divoll and O'Keefe 2018
[65] Carter et al. 1999
[66] Veilleux at al. 2003; Veilleux and Veilleux 2004
[67] *https://www.fws.gov/media/indiana-bat-section-7-and-section-10-guidance-wind-energy-projects.*
[68] Service 2024b
[69] At a site with less abundant potential roosts, Kurta et al. (1996) observed bats moving an average of 686 m between roosts, ranging from 4 m to 5.8 km. On the Fort Drum Military Installation, NY, most roosts are found within approximately 2,200 acres (Fort Drum 2011). Two colonies in KY, with long-term tracking, have roosting areas of approximately 2,400 to 3,200 acres (M. Armstrong, Service, email to R. Niver, Service, April 4, 2019). These distances/acreages are similar to a 1.0-mile radius circle.

known or assumed occupied habitat.

The likelihood of bats occupying potential roost trees is highest during pregnancy and lactation, with roost tree exit counts falling dramatically after this time as bats begin to migrate out of maternity habitat in late summer. For example, two studies found NLEBs use of suitable roost trees appears to be highest in spring, when females were pregnant, and the colony apparently splintered into smaller groups before parturition.[70] IBAT colonies also break up over time with smaller exit counts later in the summer.[71] Similarly, TCB maternity colonies disband soon after young become volant in late summer.[72]

The greatest risk is during the period when colonies are largest (most concentrated) and pups cannot fly. The risk is also greater to adults during cooler weather when bats periodically enter torpor and would be unable to arouse quickly enough to respond. Neither of these situations is anticipated because the GCP limits the months of active season tree removal (see GCP Table 1) within known occupied or assumed occupied summer maternity colony habitat as pups will be volant at this time and maternity colonies will be breaking up to migrate to fall swarming areas. As such, the risk of take occurring within occupied summer habitat during the active season will be greatly reduced.

Once IBATs, NLEBs, and TCBs migrate back to their hibernacula, we do not anticipate lethal impacts from tree removal because the GCP does not authorize take of the bats during the majority of the active season (April 1-August 15) within 5.0-miles of known and assumed hibernacula[73] for the IBAT and NLEB, and within 3.0-miles for the TCB.

Harm from loss of individual roosts - Because the bats rely on previously established roosts (fidelity), roost tree loss, regardless of whether it occurs during the active or inactive (winter) seasons, may affect the fission-fusion dynamics of their maternity colonies through colony fragmentation.

Although loss of a roost is a natural phenomenon that bats must deal with regularly, the loss of multiple roosts simultaneously due to a variety of reasons likely stresses individual bats, as well as the social structure of the colony.[74] Maternity colonies are typically formed by bats coming from multiple hibernacula. These bats must be able to reassemble with each other in the spring when they return so that they can form colonies. If some established roosting and foraging areas no longer exist, it will be more difficult for bats to reform colonies. Colonies may fragment (split into multiple colonies) temporarily with the loss of a primary roost or multiple alternate roosts.[75]

[70] Sasse and Pekins 1996; Foster and Kurta 1999
[71] Barclay and Kurta 2007
[72] Veilleux and Veilleux 2004
[73] For projects on Long Island, project proponents will need to coordinate with the local FO to determine when it is appropriate to assume occupancy for a potential hibernaculum.
[74] Service 2007
[75] Sparks 2003; Silvis et al. 2014a; Silvis et al. 2014b

Because their colonial, fission/fusion behavior contributes to reproductive success, colony fragmentation is expected to result in reduced thermoregulatory benefits and either increased energy expenditures or increased use of torpor resulting in: 1) reduced recruitment; and/or 2) reduced adult survival.[76]

Smaller colonies may be expected to provide less thermoregulatory benefits for adults and for nonvolant pups in cool spring temperatures. Female bats have tight energy budgets, and in the spring need to have sufficient energy to keep warm, forage, and sustain pregnancies. Increased flight distances or smaller colonies are expected to result in some percentage of bats having reduced pregnancy success, and/or reduced pup survival.

In areas with WNS, there are additional energetic demands for IBATs, NLEBs, and TCBs. For example, WNS-affected bats have fewer fat reserves than non-WNS-affected bats when they emerge from hibernation[77] and have wing damage[78] 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. As stated above, impacts to bats from tree removal are anticipated to vary depending on the location, extent, and timing of removal. The location with greatest likelihood of cutting a roost with bats present is a known maternity roost or suitable trees in close proximity of those roosts. Permits issued under the GCP will not result in the removal of any known, documented roosts (that remain suitable for roosting) or trees within 150 feet of those roosts at any time. However, as there are many more roosts on the landscape than we have identified to date, effects from the loss of unknown roosts are reasonably certain to occur and are addressed by the GCP.

Harm from loss/fragmentation of roosting, foraging, and travel/commuting corridors - In addition to assessing impacts from the loss of roosts, the Service anticipates impacts from the loss or fragmentation of forested areas that serve as roosting, foraging, or travel/commuting habitat (treed travel corridors between roosting and foraging habitat).

The Covered Species requires forested areas for foraging, roosting and commuting; however, at a landscape level, maternity colonies occupy habitats ranging from completely forested to areas of highly fragmented forest.[79] The minimum size of a forest patch that will sustain IBAT, NLEB and TCB maternity colonies has not been established. However, the likelihood of these bats roosting in a particular forest patch increases with the size and connectivity of that forest patch.

It is difficult to determine space requirements in bats because they are highly mobile and show relatively patchy use of habitat (and use of linear landscape features), but connectivity of habitats has some clear advantages (e.g., aids orientation, attracts insects, provides shelter from wind and/or predators).[80] In addition, the bats' energetic constraints may preclude the use of overly

[76] Trune and Slobodchikoff 1976; Humphey et al. 1977; Racey 1982; Kurta 1986; Kurta et al. 1996
[77] Reeder et al. 2012; Warnecke et al. 2012
[78] Meteyer et al. 2009; Reichard and Kunz 2009
[79] Service 2007
[80] Racey and Entwistle 2003

patchy habitats.[81] One study suggested longer, or more frequent commuting bouts will be required by IBATs in highly fragmented landscapes, with smaller, more distant suitable habitat patches, to obtain similar resources compared to landscapes with larger, more abundant habitat patches.[82] In Michigan, IBATs did not fly over open fields but traveled along wooded corridors, even though use of these corridors increased commuting distance by over 55 percent.[83]

The impact of shifting flight patterns and foraging areas on individual bats varies. Recovery from the stress of hibernation and migration may be slower as a result of the added energy demands of searching for new roosting/foraging habitat especially in an already fragmented landscape where forested habitat is limited. Pregnant females displaced from preferred roosting/foraging areas will have to expend additional energy to search for alternative habitat, which would likely result in reduced reproductive success (failure to carry to full term or failure to raise pup to volancy) for some females. It is reasonable to assume that females that do give birth may have pups with lower birth weights given the increased energy demands associated with longer flights, or their pups may experience delayed development. Therefore, we assume these longer flights would also be experienced by pups once they become volant, which could affect the survival of these pups as they enter hibernation with potentially reduced fat reserves. Overall, the effect of the loss of roosting/foraging habitat on individual bats from the maternity colonies may range from no effect to death of juveniles. The effect on the colonies could then be reduced reproduction for that year. These effects are reasonably certain to occur but are anticipated to be relatively short-lived as the Covered Species are anticipated to acclimate to the altered landscape.

This GCP does not cover projects that impact more than 200 acres of suitable occupied habitat or projects with more than 25 acres of nonlinear assumed occupied habitat. As part of its conservation strategy, the GCP provides an option for the permanent protection of roosting, foraging, and commuting habitats to offset harm from habitat loss and fragmentation.

Harm from loss/fragmentation of spring staging/fall swarming habitat - Impacts to IBATs, NLEBs, and TCBs from the loss or fragmentation of spring staging/fall swarming habitat are not well understood. It is assumed that exposure or risk of bats actually being harmed from loss of this habitat type is greater the closer the removal is to a hibernaculum, but this has not been well established. This habitat must support the foraging and roosting needs of large numbers of bats during the spring staging and fall swarming periods. After arriving at a given hibernaculum, bats build up fat reserves before entering into hibernation and commencing torpor behavior. In addition, bats congregate for breeding near hibernacula and may not hibernate in the same area they breed within. Loss of roosting and foraging habitat around hibernacula may result in reduced weight gain prior to entry into hibernation. For some bats this may result in reduced overwintering survival. In spring, the bats emerge from hibernation, having expended their fat reserves and are now healing from the effects of WNS. Some individuals will use the same forested areas as during the fall swarming period as transitional areas to bulk up on fat again before returning to their summer habitats. Many females will be pregnant, and the loss of spring

[81] Patterson et al. 2003
[82] Kniowski and Gehrt 2014
[83] Murray and Kurta 2004

staging habitat forces individuals to find new habitat, thereby expending additional energy that may contribute to reduced pregnancy success. Similar to the impacts associated with loss/fragmentation of summer habitat, the likelihood of take depends on the location and amount of tree removal within spring staging/fall swarming habitat, the landscape context (amount of remaining suitable habitat), and the fitness of the individual bat.

The GCP does not cover any impacts to bats within 0.5-mile of hibernacula. However, it does consider impacts associated with loss or fragmentation of habitat greater than 0.5-mile from hibernacula. Permanent protection of spring staging/fall swarming habitat is one mitigation option that is part of the GCP conservation strategy, and where protection occurs it will minimize future loss or fragmentation of habitat.

CUMULATIVE EFFECTS

Per 50 CFR 402.02, cumulative effects are those "effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the Action Area" considered in this Opinion.

There may be numerous state and private activities currently occurring within the Action Area; however, these activities are ongoing, and the effects created by those activities are considered in the Status of the Species, Status of Critical Habitat, and Environmental Baseline sections of this Opinion. Cumulative effects are limited to future (i.e., the action is not ongoing) nonfederal discretionary actions that are reasonably anticipated to occur within the Action Area. Many projects are reasonably certain to occur in the Action Area that are future Federal actions and will require separate ESA section 7 consultation. These Federal projects are not considered in the cumulative effects analysis.

However, the following are nonfederal activities that are reasonably certain to occur in the Action Area that are unrelated to the proposed actions and could contribute to cumulative effects in the Action Area:

- Private and commercial forestry
- Wind energy facilities
- Large scale solar projects
- Oil and gas activities (gathering pipelines, well pads and transmission pipelines)
- Large residential, commercial and industrial development
- Mining projects without a federal nexus
- New transmission line construction
- Landfills (new or expansion)

Any future development within the Action Area will likely be required to obtain necessary construction permits and comply with Federal, state, and local regulations, including using the Service's IPaC program to screen for federally listed or proposed species. Specific to the bats covered in this Opinion, known hibernacula, maternity colonies, and important spring staging and fall swarming areas are part of the environmental review in IPaC. By incorporating project

measures such as siting, size, and seasonal timing of the impacts, or requesting surveys, the Service uses the screening process to determine if the Covered Species could be harmed through the felling and loss of roost trees and foraging/commuting habitat, or if there are effects to hibernacula or maternity colonies. If impacts are anticipated, the Service recommends avoidance measures or further coordination to evaluate and reduce project effects.

JEOPARDY ANALYSIS

ESA section 7(a)(2) requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat, although the GCP does not allow impacts to critical habitat. Therefore, an adverse modification analysis was not completed for this Opinion.

Jeopardy Analysis Framework

Per 50 CFR 402.02, "jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the RND of that species. In accordance with policy and regulation, the Jeopardy Analysis in this Opinion relies on four components: (1) Status of the Species, which evaluates the bats rangewide condition, the factors responsible for that condition, and its survival and recovery needs; (2) Environmental Baseline, which evaluates the status of the bats in the Action Area, the factors responsible for that condition, and the relationship of the Action Area to the survival and recovery of the bats, (3) Effects of the Action, which determines impacts of the proposed action, and (4) Cumulative Effects, which evaluates the effects of future, nonfederal activities in the Action Area on the Covered Species. The Jeopardy Analysis in this Opinion emphasizes the rangewide survival and recovery needs of the Covered species and the role of the Action Area in providing for those needs. It is within this context that we evaluate the significance of the proposed Federal action (the Service issuance of future ITPs), taken together with cumulative effects, for purposes of making the Jeopardy determination (see 50 CFR 402.14(g)).

In this section, we add the effects of the action and the cumulative effects to the status of the species and to the environmental baseline to formulate our Opinion as to whether the proposed action of issuing future ITPs is likely to appreciably reduce the likelihood of both the survival and recovery of a listed species in the wild by reducing the RND of that species.

Per the Service's consultation handbook (Service and NMFS 1998), survival is defined as "the species' persistence as listed or as a RU, beyond the conditions leading to its endangerment, with sufficient resilience to allow for the potential recovery from endangerment. Said another way, survival is the condition in which a species continues to exist into the future while retaining the potential for recovery. This condition is characterized by a species with a sufficient population, represented by all necessary age classes, genetic heterogeneity, and number of sexually mature individuals producing viable offspring, which exists in an environment providing all

requirements for completion of the species' entire life cycle, including reproduction, sustenance, and shelter."

Per the Service's consultation handbook (Service and NMFS 1998), recovery is defined as "improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in Section 4(a)(1) of the ESA." The "criteria set out in Section 4(a)(1)" means determining when a species no longer meets the definition of an "endangered species" or a "threatened species" because of any of the following factors: (A) present or threatened destruction, modification, or curtailment of habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) inadequate existing regulatory mechanisms; and (E) other natural or manmade factors affecting the species continued existence.

To conduct this analysis, we begin by assessing whether there are effects to any individuals of the Covered Species. If all effects are insignificant, discountable, or wholly beneficial, no further consultation is required. In other words, if we conclude that individuals are *not* likely to experience reductions in reproductive success or survival likelihood, fitness consequences for the species rangewide would not be expected as well. In this case, we have ensured that the action of issuing future ITPs is not likely to jeopardize the continued existence of the species, and our analysis is completed. Conversely, if we are unable to show that individuals are unlikely to experience reductions in their reproductive success or survival likelihood, we are required to assess how those effects are or are not anticipated to result in an appreciable reduction in the likelihood of both the survival and recovery of the species. We do not assess appreciable reduction of RND at an individual level because we do not assess appreciable reduction of survival and recovery at an individual level.

Because many species are composed of multiple populations and there may be meaningful differences in those populations (e.g., genetics, morphology, size) to the overall species survival and recovery, it is a logical intermediate step to evaluate the effects of impacts to individuals on the population(s) they are associated with. If our analyses indicate that reductions in the fitness of the population(s) are not likely to occur, then there can be no appreciable reductions in RND at a species level and we conclude that the agency has ensured that their action is not likely to jeopardize the continued existence of the species. If there are reductions in the fitness of the population(s) impacted, we then assess whether those changes affect the overall species survival and recovery rangewide based on the importance of the population(s) for species level representation, resiliency and redundancy, the level of impact, and the status of the species.

Analysis for Jeopardy

To analyze whether our action addressed in this Opinion will jeopardize the continued existence of the Covered Species, we assess project impacts at the individual, population, and species levels. Typically, the Service provides an analysis for each Covered Species separately at the different levels (individuals, populations and species); however, due to the programmatic approach of the GCP, which encompasses a large geographic area with similar species use of

habitat and where proposed projects are not yet identified, we have combined the Jeopardy Analysis for each of the Covered Species below.

Indiana bat, Northern long-eared bat, Tricolored bat

Impacts to Individuals – First, we determine how individuals are likely to respond upon exposure to the stressors and/or beneficial actions associated with the proposed action. The response of an individual can be measured by impacts to its breeding, feeding, and/or sheltering. This assessment of effects to individuals provides the basis for the subsequent two steps, in which we determine whether any appreciable reduction of RND is expected at the population or species level.

Effects generally include temporary reduced reproduction of individual bats as a result of having to expend additional energy seeking out alternate foraging and roosting habitat. However, if tree removal takes place during the bat active season, the effects could include killing of adults and juveniles that may be roosting in trees, and this will reduce future reproduction of individual bats having to expend additional energy seeking out alternate roosting, foraging, and travel/commuting habitat. In addition, a shift in home range could occur for some individual bats due to loss of roosts.

The potential for effects caused by the removal of suitable roosting, foraging, and travel/commuting habitat is expected to be greatest during the following spring and early summer when bats return from hibernation. Impacts to bats could be minor as bats may acclimate sooner than expected to flying further to find suitable foraging and roosting habitat. Also, bats impacted by WNS have additional energetic demands and reduction in flight ability. This compounds the stress of having to find new roosting and/or foraging habitat. Some individuals may have to expend additional energy finding prey, experience higher predation risk, and may experience complications with pregnancy and rearing young, resulting in reduced reproductive potential.

While known roost trees will not be removed as a result of this project, undocumented roost trees might, which may result in direct effects to the Covered Species. However, incorporating AMMs (e.g., time of year restrictions on tree clearing) into project plans will reduce the number of direct impacts.

In summary, we anticipate adverse impacts to individual IBATs, NLEBs, and TCBs in their annual survival or reproductive rates from forested habitat removal.

Impacts to Populations – Because many species are composed of multiple populations and there may be meaningful differences in those populations (e.g., genetics, morphology, size) related to the overall species survival and recovery, it is a logical intermediate step to evaluate the effects of impacts to individuals on the population(s) to which they belong. Specifically, we are analyzing how the change in breeding, feeding, and/or sheltering at the individual level affects the population's abundance, reproduction, or growth rates to make inferences about the

population's future reproductive success and its viability. If our analyses indicate that reductions in the condition of the population(s) are not likely to occur, then there can be no appreciable reductions in the RND at a species level and we conclude that the agency has ensured that its' action is not likely to jeopardize the continued existence of the species (i.e., not likely to affect the overall species survival and recovery rangewide).

As we have concluded that individual IBATs, NLEBs, and TCBs are likely to experience impacts in their annual survival rates due to forested habitat removal, we need to assess the aggregated consequences of the anticipated impacts on the population to which these individuals belong.

Individuals of multiple maternity colonies are likely to be affected; however, it is currently unknown how many maternity colonies are present within the Plan Area or will be affected by tree removal from the Covered Activities. The effects are not expected to measurably decrease the fitness of most colonies for a few reasons. The removal of potential roost trees will be done starting August 16 and after, which should avoid the chance of killing adults or pups. Further, not every bat from the single anticipated colony is likely to be exposed to stressors associated with future projects as they will occur within a small portion of a colony's potential home range. Finally, we anticipate that most impacts will occur within the first spring after tree clearing. Bats are expected to acclimate to this change and seek out alternate habitat nearby. All impacts are anticipated to be short term in nature and suitable forest habitat will remain within the Plan Area.

The proposed action involves the permanent removal of up to 180,000 acres of the Covered Species' roosting and foraging habitat over the 10-year duration of the ITP within the Plan Area (see Table 2 in the GCP). The actual acreage impacted will depend on the quantity and extent of future permitted projects but will not exceed 180,000 acres over the permit term. Specifically, over the permit term, the Covered Activities could affect up to 0.32 percent of the forested areas in NY, 0.35 percent of the forested areas in PA, and 0.50 percent of the forested areas in WV. As discussed in the Effects of the Action section, potential impacts include effects on the Covered Species present within the Action Area upon their return from hibernation.

Additionally, due to the GCP sideboards, there will be no impacts to known maternity roost trees and to known hibernacula or hibernating bats in the Plan Area/Permit Area. Finally, mitigation, such as cave gating, and habitat protection/restoration, will have a positive impact on population numbers.

In summary, we do not anticipate a long term reduction in any maternity colony RND because the Covered Species are expected to acclimate to changes in the landscape given ample suitable habitat remaining within the Plan Area that will be available to them after future hibernation events. This analysis suggests that implementation of the Covered Activities is not likely to cause a discernable reduction on the continued viability of IBAT, NLEB, and TCB populations.

Impacts to Species – The final step in our analysis is to ascertain whether the anticipated impacts on the population(s) or RUs/RPUs are likely to reduce the likelihood of both survival and

recovery of the species by impacting its RND. Our analysis evaluates how the population-level effects determined above influence the likelihood of progressing towards or maintaining the conservation needs of the species rangewide. To complete this analysis, we need to first determine the rangewide status of the species and then compare: 1) what the species needs, 2) what it has, and 3) what the future expected status is. Here we connect the relative importance of the impacted population(s) to the rangewide status of the species to the impacts (positive and negative) from the proposed action.

If our analyses indicate that appreciable reductions in RND are likely to occur, we conclude that the action is likely to jeopardize the continued existence of the species. Appreciable reduction means that it impacts the species in a meaningful and consequentially negative way that is more than "background" noise of the species' population dynamics. If the population-level reductions do not appreciably (i.e., meaningfully) reduce the likelihood of progressing towards or maintaining one or more of the species' conservation needs, then the action is not likely to appreciably reduce the likelihood of both survival and recovery of the species, and our analysis is completed, and a non-jeopardy determination is required.

As we have concluded that IBAT, NLEB, and TCB colonies are unlikely to experience long term reductions in their fitness due to future proposed projects, there will be no harmful effects (i.e., there will be no reduction in RND) to the Covered Species as a whole.

CONCLUSION

We considered the current overall declining rangewide status of the Covered Species and the similar condition of the species within the Action Area (environmental baseline). We then assessed the effects of the proposed action and the potential for cumulative effects in the Action Area on individuals, populations, and the species as a whole. As stated in the Jeopardy Analysis, we do not anticipate any reductions in the overall RND of the Covered Species due to the conservation focus of the GCP, the limited number of Covered Activities and associated sideboards, and the mitigation. It is the Service's Opinion that the issuance of section 10(a)(1)(B) ITPs for the incidental take of the Covered Species, as proposed, is not likely to jeopardize the continued existence of these species.

INCIDENTAL TAKE STATEMENT

ESA section 9 and Federal regulations promulgated pursuant to ESA section 4(d) prohibit the take of endangered and threatened wildlife species, respectively, without a special exemption. Take is defined in ESA section 3 as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC 1532(19)). Incidental take "refers to takings that result from, but are not the purpose of, carrying out an otherwise lawful activity …." (50 CFR 402.02). Under the terms of ESA sections 7(b)(4) and 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 (TC) of this ITS.

The GCP and its associated documents clearly identify anticipated impacts to affected species likely to result from the proposed taking and the CMs that are necessary and appropriate to minimize those impacts. All CMs described in the GCP, together with the TCs of any section 10(a)(1)(B) permit/s issued with respect to the GCP, are incorporated herein by reference as reasonable and prudent measures (RPM) and TCs within this ITS as stated in 50 CFR 402.14(i). Such TCs are nondiscretionary. The amount or extent of incidental take anticipated under the GCP, associated reporting requirements, and provisions for disposition of dead or injured animals are as described in the GCP and its accompanying section 10(a)(1)(B) permit(s).

Should other Federal agencies be involved with any Applicant's proposed project, those agencies would have a separate proposed action. That Federal agency will be required to document the agencies' fulfillment of their section 7(a)(2) obligations under a separate consultation.

Amount of Extent of Take Anticipated

The anticipated levels of take associated with our action are described above under "Jeopardy Analysis Framework, *Impacts to Individuals*." Individual ITPs exempt all incidental take of the Covered Species and contain all measures necessary to avoid, minimize and mitigate such take to the maximum extent practicable, and requires that the GCP be fully implemented. Monitoring and reporting will be conducted as stated in GCP section 4.7. Therefore, no additional RPMs or TCs are required.

The Service has used available data to quantify, and numerically express anticipated incidental take of the Covered Species. This numerical estimate provides a clear limit on the incidental take of the Covered Species anticipated and exempted by this Opinion. Under this approach, reinitiation of consultation will be triggered if the incidental take from future projects exceeds the habitat acres specified below.

In analyzing the effects to the Covered Species above, the Service anticipates incidental take of these species. The Service must specify the amount or extent of such incidental taking. "A surrogate (e.g., similarly affected species or habitat or ecological conditions) may be used to express the amount or extent of anticipated take provided that the biological opinion or ITS: 1) describes the causal link between the surrogate and take of the listed species, 2) explains why it is not practical to express the amount or extent of anticipated take or to monitor take-related impacts in terms of individuals of the listed species, and 3) sets a clear standard for determining when the level of anticipated take has been exceeded" (50 CFR 402.14(i)(1)(i)).

Here, we use 180,000 acres of suitable habitat impacted as a surrogate for take of the Covered Species. This take can be anticipated by the loss of suitable habitat because of the relationship (high site fidelity) between the Covered Species and the habitat needed to fulfill critical aspects of their life cycle. Furthermore, as described in the Effects of the Action section, there is a causal link between habitat impacted and take of the Covered Species because removal of forest during construction of future permitted projects impacts the habitat and is the cause of all forms of take that are reasonably certain to result from the future proposed projects. The incidental take is

expected to be in the form of harm.

It is not practical to monitor all take-related impacts in terms of individual IBATs, NLEBs, and TCBs for the following reasons: (1) these bats are nocturnal and widely dispersed, making them difficult to detect; (2) they have a small body size and are drab in color, making them difficult to locate even during daylight hours; as such encountering dead or injured individuals is unlikely; (3) any dead or injured bats may be eaten or scavenged; (4) individual losses may be masked by annual fluctuations in numbers; (5) these bats occur in habitats (e.g., caves and under loose bark, in tree cavities) where they are difficult to locate; (6) take may occur offsite (e.g., a bat may die outside of the Action Area as a result of stressors caused by a project) and would not be detected; and (7) some of the anticipated indirect take (nonlethal injury, reduced fitness and reproductive failure of individual bats) is not directly observable or able to be monitored. While some individual live bats may be detected or counted during summer surveys or winter counts, this does not mean that survey methods exist to precisely document bats that may experience lethal or sublethal take from a specific project that will occur over a multi-year timeframe. For all of these reasons, it is not practicable to monitor take-related impacts in terms of individuals of these species, requiring the use of a surrogate.

In deciding to use acres of suitable habitat impacted as a surrogate for take of the Covered Species, the Service considered that it previously provided numerical estimates for anticipated take of bats in the 2023 biological opinions for the Mountain Valley Pipeline project, as well as the 2018 biological opinion for the Atlantic Coast Pipeline (ACP) project. In those opinions, the Service expressed anticipated take of IBATs and NLEBs using both a numerical estimate of the number of individuals and a surrogate measure of acres of habitat. In those opinions, the numerical estimate of the number of individuals for take was calculated based on a number of assumptions and a series of calculations and was included in an effort to move those projects forward expeditiously following litigation concerning the 2017 biological opinion for the ACP project. *See Sierra Club v. U.S. Dep't of the Interior*, 899 F.3d 260, 266 (4th Cir. 2018) (recognizing that the Service is "not required to set a numeric [take] limit," but finding that the Service had not adequately demonstrated the bases for using surrogates in the 2017 biological opinion for ACP).[84]

We will use habitat as a surrogate to express, and monitor take related to the issuance of future ITPs. We calculated the area of forest removal within the Plan Area as 180,000 acres total based on the Service's experience with past review of development projects (where acreage limits were similar), and their associated forest loss in each state. As described in the Opinion above, tree removal will cause the anticipated incidental take within the bounds of the identified acres. Therefore, because the 180,000 acres of roosting, foraging, and travel/commuting habitat can be

[84] Additional examples cited in *Sierra Club* of instances in which the Service numerically expressed take of IBATs – i.e., the Update to the Biological Opinion on the 2014 Revision of the George Washington National Forest Land and Resources Management Plan (April 21, 2014); the Biological Opinion on Enbridge Pipelines (FSP) LLC's Flanagan South Pipeline project (July 24, 2013); and the Biological Opinion on the 2003 Revision of the Jefferson National Forest Land and Resource Management Plan 33-34 (January 13, 2004) – predate the Service's Final Rule amending the ITS provisions of the section 7 regulations in 2015 ("2015 Surrogate Rule"; 80 Fed. Reg. 26832 (May 11, 2015).

readily identified and monitored, this surrogate serves as a practical means for detecting when the amount or extent of take may be exceeded. These acreages of habitat disturbance and removal set a clear, enforceable standard[85] and tree removal in the Covered Species' habitat that does not fall within the GCP sideboards (GCP section 3.2; appendix B) would need a separate permitting mechanism. Reinitiation of consultation will be triggered if the incidental take from future permitted projects exceed the surrogate specified below (Table 1).

In places where the species overlap, the Service will subtract acres for each species from the totals, just as in places where all species occur for mitigation, the Service will apply the benefits for each species (e.g., one mitigation project can benefit all three species). Over the 10-year life of the GCP, the maximum amount of take permitted will be up to 180,000 acres (with habitat as a surrogate for individual bats, as explained previously), depending on species overlap. This includes up to 2,000 acres for each state per year per Covered Species in NY, PA, and WV totaling 6,000 acres annually or 18,000 acres total across the Plan Area annually (Tables 1 and 2).

Table 1. The annual permitted take (in acres) per state within the Plan Area for the Covered Species.

State	IBAT acres/year	NLEB acres/year	TCB acres/year	Maximum acres permitted in the Plan Area Annually
NY	2,000	2,000	2,000	6,000
PA	2,000	2,000	2,000	6,000
WV	2,000	2,000	2,000	6,000
Total	**6,000**	**6,000**	**6,000**	**18,000**

[85] The Service has determined that the surrogate-only approach taken for the IBAT, NLEB, and TCB in this Opinion is appropriate and is a proper application of ESA section 7 regulations and the rationales underlying the 2015 Surrogate Rule as explained in the preamble to the Rule. This is the same conclusion reached by the Service in many other biological opinions, in which the Service routinely relies on habitat surrogates for bats and other threatened and endangered species, depending on the best available scientific and commercial data available relevant to each particular project and species. Moreover, in reaching this determination, the Service took note that the Fourth Circuit has repeatedly recognized that numeric take limits are not required and that the Service may use a surrogate where appropriate in accord with the criteria in 50 CFR 402.14(i)(1)(i). *See Sierra Club*, 899 F.3d at 266; *Defs. of Wildlife v. United States DOI*, 931 F.3d 339, 361 (4th Cir. 2019); *Appalachian Voices v. United States DOI*, 25 F.4th 259, 281-82 (4th Cir. 2022).

Table 2. The maximum permitted take (in acres) per state and for all three states combined within the Plan Area for the Covered Species.

State	IBAT acres/duration of GCP (10 years)	NLEB acres/duration of GCP (10 years)	TCB acres/duration of GCP (10 years)	Maximum acres permitted in the Plan Area over 10 years
NY	20,000	20,000	20,000	**60,000**
PA	20,000	20,000	20,000	**60,000**
WV	20,000	20,000	20,000	**60,000**
Total	**60,000**	**60,000**	**60,000**	**180,000**

CONSERVATION RECOMMENDATIONS

Conservation recommendations are not a required item in a biological opinion/conference opinion, and their implementation is at the discretion of the Federal agency or Applicant and not required to meet the requirements of section 7(a)(2). Conservation recommendations are defined in the regulations as "suggestions of the Service regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information" (50 CFR 402.02).

The Service and/or Applicant may pursue the following conservation recommendations:

- Develop and implement AMMs for bat conservation within streamlined processes (e.g., IPaC) for consultations intersecting with federally listed and/or proposed bat species.
- Develop programmatic consultations for bats that implement AMMs and provide appropriate mitigation for impacts that cannot be avoided.
- Develop additional GCPs for other project types.
- Develop additional section 10 programmatic consultation processes to benefit bats (e.g., Conservation Benefit Agreements).
- Develop mitigation tools such as conservation banks, in-lieu fee programs, and permittee responsible mitigation to benefit bats where projects have adverse impacts.
- Fund research on understanding/controlling and mitigating the effects of WNS.
- Fund spring, summer, or fall telemetry studies within the Action Area, and submit data to North America Bat Monitoring Program (NABat).
- Erect and monitor artificial roost structures within the Action Area and submit data to the NABat program.

REINITIATION NOTICE

This concludes formal consultation on the Service's issuance of future ITPs associated with the Multi-Bat Species General Conservation Plan for Routine Development Projects in New York, Pennsylvania, and West Virginia. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) if the amount or extent of taking specified in the ITS is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

A reinitiated consultation shall take into consideration the assurances that the Applicants will receive in accordance with the "No Surprises" regulations [50 CFR §17.22(b)(5) and 17.32(b)(5)].

Specifically for the proposed endangered TCB, the Service may confirm the conference opinion as a biological opinion issued through formal consultation if the TCB is listed or critical habitat is designated pursuant to the ESA. If the Service reviews the proposed action and finds that there have been no significant changes in the action as planned or in the information used during the conference opinion, the Service will confirm the conference opinion as a biological opinion on the project and no further section 7 consultation will be necessary.

For the TCB, the ITS provided in this conference opinion does not become effective until and if the species is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, the project will be reviewed to determine whether any take of the TCB has occurred. Modifications of the Opinion and ITS may be appropriate to reflect that take.

Should the Service decide to federally list the TCB, no take of the TCB may occur between the effective date of the final rule and the adoption of the conference opinion through formal consultation, or the completion of a subsequent formal consultation. It is the Service's intent to conduct all analyses necessary and make a determination on whether the TCB conference opinion can be adopted as a biological opinion as close to the effective date of the listing final rule as possible.

If you have any questions regarding this Opinion, please reach out to our field offices.

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