U.S. Fish and Wildlife Service

Guidance on Developing and Implementing a Voluntary Bat Conservation Plan in Pennsylvania

(revised July 7, 2026)

Purpose

This *Guidance on Developing and Implementing a Voluntary Bat Conservation Plan in Pennsylvania* provides technical assistance to Federal action agencies and non-Federal project proponents on ways to avoid or reduce the likelihood of take to federally listed bat species in Pennsylvania. This is especially important when a *May Affect* determination is made either through an IPaC-assisted determination letter (see Appendix A of the Pennsylvania Guidance for Completing Project Reviews) or through an internal review process. Federal action agencies and non-Federal project proponents are encouraged to consider and incorporate conservation measures outlined below into a Bat Conservation Plan (BCP) to assist in making a final effects determination after the initial *May Affect* determination. A BCP is prepared by the Federal action agency or non-Federal project proponent and includes a description of the proposed project and its activities, along with a detailed outline of the conservation measures that support the proponent's final effects determination.

Background

Section 9 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543; ESA) prohibits certain acts with respect to federally listed species, including taking[1], possessing, selling, delivering, or importing/exporting such species. Within its legal authorities under the ESA, the U.S. Fish and Wildlife Service (Service) provides technical assistance to Federal action agencies and non-Federal project proponents to assist them in determining whether adverse effects, or take, are likely to occur.

Federal action agencies and non-Federal project proponents that make a *May Affect* determination for federally listed or proposed bat species in Pennsylvania[2] either through an IPaC-assisted determination key or an internal review process should:

1) Evaluate project effects to, and develop conservation commitments for, these bat species, and;

2) Finalize and justify their effects determinations for these bat species using the conservation measures outlined below.

[1] The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.
[2] Indiana bat (*Myotis sodalis*; Endangered; IBAT), northern long-eared bat (*Myotis septentrionalis*; Endangered; NLEB), tricolored bat (*Perimyotis subflavus*; Proposed Endangered; TCB).

For additional information on finalizing effects determinations, see Appendix A of the Pennsylvania Guidance for Completing Project Reviews.

Early project planning that incorporates the measures described below can avoid or substantially reduce potential impacts to federally listed or proposed bat species. In these cases, the BCP becomes an integral component of the proposed project when the Federal action agency or non-Federal project proponent commits to implementing its measures.

Take Authorization

The development and implementation of a BCP alone does not confer incidental take exemption or authorization. If implementation of a BCP is not sufficient to completely avoid take of federally listed bats, the ESA requires that take be exempted or authorized through either the issuance of a biological opinion pursuant to Section 7 of the ESA (Federal projects) or through an incidental take permit pursuant to Section 10 of the ESA (non-Federal projects). However, if implementation of a BCP is sufficient to completely avoid take of federally listed bats, no take exemption or authorization under the ESA is required.

To avoid or minimize potential adverse effects to federally listed bats, project proponents are encouraged to develop and implement a BCP whenever a project may affect potential summer habitat, spring staging/fall swarming habitat, or hibernating habitat. Potential habitat typically includes areas near documented occurrence records or within suitable but unconfirmed habitat within the species' range. For descriptions of suitable habitat for federally listed bats in Pennsylvania, see the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidance.

The BCP should consider the various sources and types of effects on federally listed bats due to project development, and should incorporate measures to avoid, minimize, and offset potential effects of the project. For example, a residential development would include all aspects of the development that may affect listed bats (including all forest or wooded areas to be affected or encroached upon by roads, utility lines, houses, driveways, septic areas, detention basins, stormwater basins, yards, lots, etc.) and potential measures to reduce or offset those effects. An oil and gas project would include not only the well and well pad, but also the roads, staging areas, and oil and gas lines associated with the well or well field when analyzing potential project effects.

To aid in completing the BCP, we recommend reviewing the "Northern Long-eared Bat and Tricolored Bat Voluntary Environmental Review Process for Development Projects" tool at: https://www.fws.gov/media/consultation-technical-assistance-development-projects

After completing items 1-12 below for your BCP, the next step will be to **prepare an effects determination** for each federally listed bat species that received an initial *May Affect* determination. Details on how to prepare an effects determination can be found in Appendix A of the Pennsylvania Guidance for Completing Project Reviews.

Bat Conservation Plan

To develop a robust Bat Conservation Plan, please provide a response to each measure below. If the measure is *not applicable* to your project, please indicate that in the plan.

I. Habitat Description:

1. Describe if the habitat onsite is suitable for potential summer roost trees, spring staging/fall swarming habitat, hibernacula (e.g., caves or mines in or near the project area), or bridge and culvert roosts. This can be accomplished through conducting a desktop or field habitat assessment for bat summer and winter habitat which can be found here: Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines | FWS.gov
    a. If suitable habitat is not present within the action area, provide this as a rationale for your effects determination. *No further development of the BCP is necessary.*
    b. If suitable habitat is present within the action area, you can:
        i. assume federally listed bats are present within the action area and continue developing your BCP; or,
        ii. conduct surveys in accordance with the Service's bat survey guidance (Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines | FWS.gov) and provide the survey results to the Service's Pennsylvania Field Office (PAFO) per the survey guidance requirements. If federally listed bats are detected, continue developing the BCP.

II. Project Description:

2. Provide a detailed project description. See Appendix B of the Pennsylvania Guidance for Completing Project Reviews.
3. Describe your project in its entirety including the interconnected/interrelated infrastructure associated with the project (such as transmission lines, waterlines, etc.) and proposed future project phases.
    a. Please provide any PNDI numbers and USFWS Project codes associated with your project.
    b. Please state if your project is a stand-alone project or part of a phased approach.

III. Conservation Measures:

4. Describe timing of tree removal[3].
    a. For projects located within spring staging/fall swarming habitat, we recommend cutting trees between November 15 and March 31.
    b. For projects located within summer habitat (summer occupancy), we

[3] Tree removal during the below periods avoids only the direct effects to bats that would have occurred from active-season clearing. Winter tree clearing may not prevent all impacts associated with bats returning to traditional roosting sites since bats exhibit strong philopatric behavior. In addition, the loss of familiar roost trees can still disrupt established roosting patterns and potentially affect the stability of maternity colonies.

recommend cutting trees between October 1 and March 31.
   c. We recommend obtaining all required construction approvals prior to any tree clearing.

5. Provide a detailed analysis of any noise or vibration associated with your project.
   a. Provide a detailed blasting plan. Describe the anticipated vibration levels and assess whether they could disturb or damage the integrity of any hibernaculum feature.
   b. In general, we recommend:
      i. No blasting within 0.5 miles of known or assumed federally listed bat hibernacula and,
      ii. No blasting within 0.25 miles of known or assumed occupied maternity roosts in the active season.
   c. Provide a detailed description of any construction-related noise or ongoing operational noise.

6. Describe your tree clearing plan.
   a. We recommend phased tree clearing over multiple years to allow bats to gradually adjust to the changing habitat.
   b. Indicate the rate at which forest will be cleared, as well as the total duration of this effect (e.g., 5 acres/year for 10 years).

7. Describe your reforestation plan.
   a. We recommend you reforest temporarily cleared areas with tree species preferred by federally listed bats (see Appendix A).
   b. Ensure that soils are properly segregated and replaced during earth-disturbance activities.
   c. Avoid soil compaction to support successful tree establishment.
   d. Avoid use of invasive, exotic plant species when reforesting and stabilizing soils.

8. Describe your site layout and explain how it has been designed to avoid sensitive bat-habitat features.
   a. To minimize the risk of take within foraging and roosting habitat for federally listed bats, configure projects to avoid and/or minimize disturbance to suitable summer and spring staging/fall swarming habitat, particularly in and around wetlands and riparian areas.
   b. To reduce the amount of forest clearing required, co-locate project features (e.g., roads and utility lines) and cluster development elements (e.g., houses).
   c. Retain at least a 50-foot forested buffer – and preferably a 100- to 150-foot buffer – on each side of streams and around wetlands.

9. Describe the amount of forest cover near the project area.
   a. Provide an aerial map depicting the extent of forested habitat within a 5-mile, 3-mile, and 1.5-mile radii of the project limit of disturbance. Include a summary of the total forested acres and percent forest coverage within each

radius.

b. **Note that even in areas with high forest cover, the removal of a significant amount of suitable forest habitat without presence/absence survey data could result in the loss of suitable but undocumented roost trees.** *Depending on the amount of forest removed, an entire home range of an individual federally listed bat could be removed*[4].

10. Describe your erosion and sediment control measures.
    a. Develop and implement stringent erosion and sedimentation controls to protect water quality and minimize impacts on the bat prey base within streams and wetlands.

11. Develop and implement a pollution prevention plan to ensure hazardous materials (e.g., oils, lubricants, etc.) do not contaminate soils, wetlands, or waterways.

12. Develop tools for furthering bat conservation and recovery (**see Appendix B**).

The conservation measures discussed above *may* or *may not* avoid take of federally listed bat species. They can help Federal action agencies or non-Federal project proponents determine if take will occur given known or assumed presence or probable absence of federally listed bats, but ultimately avoidance of take depends on the scope (e.g., long linear projects vs. polygon projects, noise and vibrations), scale (e.g., amount of suitable habitat removal), location, and timing (e.g., seasonal and duration) of the project, as well as survey results, or if presence is assumed.

If take is determined to occur, the above measures can help non-Federal project proponents minimize take when seeking an incidental take permit. The measures can also be used by Federal action agencies when developing conservation measures as part of their Biological Assessment after making a "*may affect, is likely to adversely affect*" determination for federally listed bats.

What if I determine take will occur?

If a non-Federal project proponent determines take will occur for IBATs, NLEBs, and/or TCBs, the project proponent may: 1) redesign the project to avoid take and proceed without an incidental take permit, or 2) prepare and submit a project specific Habitat Conservation Plan or General Conservation Plan and associated incidental take permit application under Section 10(a)(1)(B) of the ESA. Please note that proceeding with the project without a permit or without redesigning the project to avoid take is **not** in compliance with the ESA.

Applying for a permit under Section 10(a)(1)(B) of the ESA is a voluntary action at the discretion of the project proponent. In accordance with 50 CFR 17.22 and 50 CFR 17.32, the non-Federal project proponent determines if take will occur (after designing and implementing the BCP) and can voluntarily seek an incidental take permit if needed.

[4] Individual NLEB home ranges have been minimally estimated at 148.8–173.7 acres with colony home ranges being larger (Owen et al. 2003; Lacki et al. 2009).

If a Federal action agency determines their project "*may affect, is likely to adversely affect"* federally listed bat species, they are required to formally consult with the Service under Section 7(a)(2) of the ESA.

Please see Appendix A of the Pennsylvania Guidance for Completing Project Reviews document for further information on how to complete necessary steps for ESA compliance for both Federal and non-Federal applicants.

What if I determine take will not occur?

If a non-Federal project proponent determines take will not occur for IBATs, NLEBs, and/or TCBs, the non-Federal project applicant can utilize the information in the BCP to document their determination and no further coordination with the Service is necessary.

If a Federal action agency determines their project "*may affect, is not likely to adversely affect"* federally listed bat species, they are required to informally consult with the Service under Section 7(a)(2) of the ESA. If a Federal action agency determines their project will have "*no effect"* to federally listed bat species, no further coordination with the Service is necessary.

Please see Appendix A of the Pennsylvania Guidance for Completing Project Reviews document for further information on how to complete necessary steps for ESA compliance for both Federal and non-Federal applicants.

Additional Considerations for Federal Action Agencies

Section 7(a)(1) directs all Federal agencies to carry out "programs for the conservation of endangered and threatened species." The provision provides an affirmative and broad mandate to all agencies to take action to conserve species. A BCP can be used as a tool for Federal action agencies to develop a program to conserve Federally listed bat species. Please reach out to PAFO to further discuss implementing a 7(a)(1) program for Federally listed bats. For more information on Federal action agency obligations under ESA section 7(a)(1) see: https://www.fws.gov/media/federal-agency-obligations-under-section-7a1-endangered-species-act)

LITERATURE CITED

Lacki, M.J., D.R. Cox, L.E. Dodd, and M.B. Dickinson. 2009. Response of northern bats (Myotis septentrionalis) to prescribed fires in eastern Kentucky forests. Journal of Mammalogy. 90(5):1165–1175.

Owen, S.F., M.A. Menzel, W.M. Ford, B.R. Chapman, K.V. Miller, J.W. Edwards, and P.B. Wood. 2003. Home-range size and habitat used by the northern myotis (Myotis septentrionalis). American Midland Naturalist. 150(2):352–359.

APPENDIX A

Bat Habitat Reforestation

The following tree species can benefit all federally listed bats; however, some federally listed bats are tree species generalists, and it is likely that a greater list of tree species can benefit these bats. Check with your local Field Office for the latest information prior to planting trees for reforestation that are not on this list. See the Service's Range-Wide Indiana Bat & Northern long-eared Bat Survey Guidelines: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines for more definitions of potentially suitable habitat for each federally listed bat species.

Planting plans should include at least six of the tree species listed below. To benefit Indiana bat, one of these tree species must be shagbark hickory. To promote diversity, do not include more than 20% of any one tree species, and do not include any more than 50 stems per acre of black locust. Success is measured as at least 400 live woody stems per acre after 5 years. If this criterion is not met, carry out supplemental plantings to achieve this level of success.

Acer rubrum	red maple
Acer saccharum	sugar maple
Carya cordiformis	bitternut hickory
Carya glabra	pignut hickory
Carya laciniosa	shellbark hickory
Carya ovata	shagbark hickory
Carya tomentosa	mockernut hickory
Fraxinus americana	white ash
Fraxinus nigra	black ash
Fraxinus pennsylvanica	green ash
Platanus occidentalis	sycamore
Populus deltoides	eastern cottonwood
Quercus alba	white oak
Quercus coccinea	scarlet oak
Quercus prinus	chestnut oak
Quercus rubra	northern red oak
Quercus velutina	black oak
Robinia pseudoacacia	black locust
Sassafras albidum	sassafras
Ulmus americana	American elm
Ulmus rubra	slippery elm

APPENDIX B

Recommended Tools for Furthering Bat Conservation

If you have determined that take will occur to listed bats (non-Federal projects) or that the project is "*likely to adversely affect*" listed bats (Federal projects), the tools below can be incorporated into your Section 10 Habitat Conservation Plan or Section 7 Biological Assessment, respectively, to address permit issuance criteria associated with an incidental take permit or to address conservation measures associated with a biological opinion.

If you have determined that take will not occur to listed bats (non-Federal projects) or that the project is "*not likely to adversely affect*" listed bats (Federal projects) and would like to voluntarily contribute to the advancement of recovery of federally listed bat species, please consider implementing the same tools below to further conservation for listed bat species.

We recommend coordinating with PAFO to determine which of these options are most suitable for your project and how to initiate them.

I. Conservation Banks: Purchase credits from a Service-approved bat conservation bank to protect forested habitat off-site.

II. Permittee Responsible Mitigation (PRM):
    i. Permanently conserve on-site and/or off-site forest suitable for federally listed bat foraging and roosting.
        - Conserved forest stands should have characteristics of suitable federally listed bat habitat (e.g., a variety of tree species used by federally listed bats, various age/dbh classes, appropriate canopy closure, adequate snags).
        - Permanent habitat protection can be accomplished via fee simple land purchase, land donation, permanent conservation easement, or perpetual trust agreement.
        - Forest conservation will occur prior to forest removal associated with the proposed project.
        - Commitment to this protection would become a component of the proposed project.
        - For projects that result in take, include a letter from PAFO indicating they and their solicitors have reviewed and approved the habitat parcel, land/easement holder, and terms of habitat protection.
    ii. Restore and enhance forest habitat suitable for federally listed bat foraging and roosting.
        - Project proponents are responsible for developing habitat restoration and enhancement projects, which must be approved by the Service.
        - Project proponents are responsible for all fees associated with the mitigation project.
        - To be considered to offset project effects, restoration and enhancement mitigation must provide a measurable conservation benefit to the species affected that exceeds current site conditions.

iii. Surveys that include searching for and identifying previously undocumented IBAT, NLEB, and/or TCB habitat.
- Searching for and identify previously undocumented IBAT, NLEB, and/or TCB hibernacula, or
- Searching for and identify previously undocumented IBAT, NLEB, and/or TCB maternity colony roosts or identify roosts in prior colonies where only acoustics or netting previously occurred.
- Coordinate with PAFO if interested in surveying for federally listed bats.

III. In-Lieu Fee Program:
- Utilize an In-Lieu Fee (ILF) program such as The Conservation Fund: Range-wide Indiana bat and Northern long-eared bat In-Lieu Fee Program to conserve habitat suitable for federally listed bats.
- **Note that the Conservation Fund ILF program only accepts funds from mitigation, not from voluntary conservation efforts or Section 7(a)(1) programs.**
- More information on the Conservation Fund ILF program can be found here: https://www.conservationfund.org/projects/range-wide-indiana-bat-and-northern-long-eared-bat-in-lieu-fee-program

Please note that **mitigation ratios should be commensurate with the impacts** associated with the proposed project and will depend on scope (e.g., long linear projects vs. polygon projects, noise and vibrations), scale (e.g., amount of suitable habitat removal), location, and timing (e.g., seasonal and duration) of the proposed project. If using conservation banks or ILF, ratios have been predetermined through approved crediting methodologies.