

**U.S. Fish and Wildlife Service**  
**Guidance on Developing and Implementing**  
**a Bat Conservation Plan**  
*(revised October 13, 2023)*

***Introduction***

Various land development and land use activities can cause the loss, degradation, and fragmentation of federally listed bat habitat, and harm or death to these bat species due to these habitat impacts. Within its legal authorities under the Federal Endangered Species Act (16 U.S.C. 1531-1543; Act), the U.S. Fish and Wildlife Service is often in the position of providing technical assistance to project proponents to assist them in determining if potential adverse effects to federally listed bats are likely to occur and, if so, how they can avoid, minimize, and/or mitigate for those adverse effects. In many cases, potential adverse effects can be avoided or greatly reduced by early project planning that incorporates the measures outlined below.

This guidance consolidates and memorializes technical assistance currently provided on a project-by-project basis. Frequently, these project-by-project reviews include considerable explanation of federally listed bat's habitat needs and life history<sup>1</sup>.

***Rationale for Plan Development***

Unauthorized “take” of federally listed species is prohibited pursuant to section 9 of the Act. Where there is a risk of take occurring (*e.g.*, due to effects caused by the proposed loss of forest habitat), this guidance details specific measures that can be taken to avoid potential adverse effects on federally listed bats, and significantly reduce the likelihood that take will occur. In some cases, application of this guidance may be sufficient to determine that effects on federally listed bats are insignificant or discountable. In other cases, this determination may be met through different or greater measures built into project design. In any instance where project design and implementation of a Bat Conservation Plan (BCP) successfully avoids potential adverse effects on federally listed bats, it would preclude the need for take exemption or authorization, and project proponents would be able to forego the lengthy regulatory process associated with seeking “take” authorization under the Act.

The development and implementation of a BCP does not itself confer incidental take exemption or authorization. Consequently, if implementation of a BCP is not sufficient to avoid potential adverse effects, incidental take would be exempted or authorized only via the issuance of a biological opinion pursuant to Section 7 of the Act, or an incidental take permit pursuant to Section 10 of the Act.

***Plan Development and Implementation***

To avoid or minimize potential adverse effects on federally listed bats, project proponents should develop and implement a BCP when a project will affect forests, woodlots, forested fencerows, or trees within areas that are known federally listed bat habitat, which typically includes habitat

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<sup>1</sup> Please see <https://ecos.fws.gov/ecp/species/5949> for biological background and listing information for Indiana bat, <https://ecos.fws.gov/ecp/species/9045> for northern long-eared bat and <https://ecos.fws.gov/ecp/species/10515> for tricolored bat.

located in proximity to known federally listed bat records or within suitable but unknown habitat within the range of the species. The BCP should consider the various sources and types of effects on federally listed bats due to project development, and incorporate measures to avoid, minimize, and offset potential effects<sup>2</sup>. It is important to note that “project” includes all project features and associated activities, not just the portion of the project prompting the submittal of a permit application (*e.g.*, to Pennsylvania Department of Environmental Protection or U.S Army Corps of Engineers). For example, a residential development would include all features of the development, 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.* An oil or 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.

The BCP becomes an integral part of the proposed project, and as such, is something the project proponent or applicant commits to implement. When forest disturbance due to the project is within known habitat of federally listed bats as defined in our survey guidelines<sup>3</sup> send the BCP to the Pennsylvania Field Office (PAFO) for review<sup>4</sup>. The PAFO will evaluate the proposed project, along with its BCP, to determine whether the combined effects of the project and BCP will result in insignificant or discountable effects on federally listed bats and their habitat, or whether further consultation and coordination would be necessary due to continued adverse impacts or the likelihood of take of federally listed bats.

### *Plan Content*

Provide a detailed project description and map, including all project features. Include project area size (acres), acres of forest habitat proposed to be removed and location of forest in the project area that would be removed and that would remain undisturbed, seasonal timing of forest removal, and any measures proposed to replace lost forest habitat or permanently protect forest habitat off-site for Indiana bats (see measures #6 and #10 below).

Provide a listing of all avoidance, minimization, and compensation measures that will be adopted, explaining how each measure will be implemented for the project.

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<sup>2</sup> This approach is sequential, meaning all reasonable efforts should be taken first to avoid adverse effects on federally listed bats and their habitat. Then, minimization measures should be implemented to the maximum extent practicable. After both avoidance and minimization measures have been fully integrated into project design, include measures to offset or partially offset any remaining adverse effects on federally listed bats and their habitat. Include measures to offset or partially offset any remaining effects to forest habitat to reduce the risk of harm to federally listed bats.

<sup>3</sup> <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>

<sup>4</sup> **Note that ALL tree removal within known federally listed bat habitat – regardless of the amount – is subject to the appropriate seasonal restriction (see measure #4).** We recommend that even projects with relatively small-scale forest impacts consider developing and implementing a BCP, because in doing so, the cumulative forest losses from a multitude of such projects would be reduced.

## *Avoidance and Minimization Measures*

1. To minimize the risk of take on foraging and roosting federally listed bat habitat, configure projects to avoid and/or minimize disturbance on suitable summer and swarming habitat, particularly in and around wetlands and riparian areas.
2. Retain at least a 50-foot forested buffer (but preferably a 100–150-foot buffer) on each side of streams and around wetlands.
3. Co-locate project features (*e.g.*, roads and utility lines) and cluster project features (*e.g.*, houses) to reduce forest clearing.
4. Seasonal restriction on tree cutting: Only cut trees when federally listed bats are assumed to be hibernating or concentrated near their hibernacula. For project areas affecting federally listed bat spring staging/fall swarming habitat (near hibernacula), only cut trees between November 15 and March 31. For project areas affecting federally listed bat summer habitat (summer occupancy), only cut trees between October 1 and March 31.
5. Blasting: No blasting within 0.5 miles of known or assumed federally listed bat hibernacula and within 0.25 miles of known or assumed occupied maternity roosts in the active season.
6. Phase tree clearing over multiple years (if applicable to the project). 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. Provide an aerial map showing the amount of forest habitat available within a 5-mile, 3-mile and 1.5-mile radius of the project limit of disturbance and provide a summary in forested acres and percent forest coverage within each radius.
8. Reforest temporarily cleared areas with tree species preferred by federally listed bats (see Appendix A). Ensure soils are segregated and replaced during earth disturbance activities and ensure soils are not compacted, to allow for successful tree establishment.
9. Avoid use of invasive, exotic plant species when re-foresting and when stabilizing soils.
10. Develop and implement stringent erosion and sedimentation controls to protect water quality and the Indiana bat prey base in 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. Provide for the short and long-term habitat needs of federally listed bats by offsetting the effect of forest habitat loss through the protection of off-site forest. 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/d.b.h. classes, appropriate canopy closure, adequate snags). There are several ways in which this can be accomplished, and they are outlined here:

Protect forest habitat to provide for the long-term habitat needs of federally listed bats. This is best accomplished through a fee simple land transfer to a conservation entity (*e.g.*, Pennsylvania Game Commission, The Nature Conservancy, Western Pennsylvania Conservancy, *etc.*) willing and able to commit to holding and managing the land in perpetuity for federally listed bat conservation. This habitat should benefit the same federally listed bat population that is being potentially affected by the project, so it should be located within the

swarming radius of the affected hibernating population or the summer habitat associated with the affected maternity colony. Because this loss of known habitat is immediate as well as long-term, conserving existing habitat at a 1:1 ratio would only partially offset the effects of the loss to federally listed bats. Consequently, for a Plan to fully offset loss of known habitat through this measure, it should conserve significantly more forest habitat than is proposed for removal (*e.g.*, 3:1 conservation ratio). Conserved forest stands should have characteristics of suitable federally listed bat habitat (*e.g.*, a variety of tree species used by bats, various age/d.b.h. classes, appropriate canopy closure, adequate snags). If only a portion of the conserved land is currently forested, the remainder should be reforested with trees that are preferred by federally listed bats for roosting.

- A. Purchase credits from a Service-approved bat conservation bank to protect forested habitat off-site.
- B. Permanently conserve off-site forest suitable for federally listed bat foraging and roosting. Permanent habitat protection will be accomplished via fee simple land purchase, land donation, permanent conservation easement, or perpetual trust agreement. (Include letter from PAFO USFWS indicating they have reviewed and approved the habitat parcel, land/easement holder, and terms of habitat protection. Forest conservation will occur prior to forest removal associated with the proposed project.
- C. Utilize an In-Lieu Fee program such as The Conservation Fund: Range-wide Indiana bat and Northern long-eared bat In-Lieu Fee (ILF) Program to conserve habitat suitable for federally listed bats. More information on this ILF can be found here: <https://www.conservationfund.org/projects/range-wide-indiana-bat-and-northern-long-eared-bat-in-lieu-fee-program>

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 Appendix A of 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.

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

