

INDIANA BAT PROTECTION AND ENHANCEMENT PLAN*

for _____

[applicant / company name]

[mine / operation name]

Directions

Known Habitat – Start by doing a PNDI screening of the project area. The PNDI receipt will provide direction to prepare an Indiana Bat Protection and Enhancement Plan (PEP), if some or all of the permit area is known Indiana bat habitat. Contact the US Fish and Wildlife Service (USFWS) to determine what type of Indiana bat habitat will be affected (i.e., summer habitat, swarming habitat, or both), as this influences the content of the PEP.

Potential Summer Habitat – For impacts to 40 or more acres of forests, woodlots or trees that are not known habitat (negative PNDI results), either assume Indiana bat presence (i.e., treat as **Known Habitat**) OR conduct a **mist-net survey** of the permit area (<http://www.fws.gov/northeast/pafo/surveys.html>). If Indiana bats are captured, the permit area is now known habitat and a PEP is required. If no Indiana bats are captured, no PEP is required (unless Indiana bats are found during surveys of **Potential Hibernating Habitat**). Negative mist net survey results are valid for 5 years. Provide survey results to USFWS and Pennsylvania Game Commission (PGC) for review and concurrence.

Potential Hibernating Habitat – Locate and map all caves and abandoned mine portals in the permit area. Assess all openings to identify those that may be suitable for bats (see “Cave and Mine Portal Surveys” within the PEP Guidelines for Pennsylvania). Conduct a bat survey of those openings that were identified as potentially suitable for bats. Portal and bat surveys must be conducted by USFWS-approved bat surveyors (list available at <http://www.fws.gov/northeast/pafo/surveys.html>). Provide combined survey results (i.e., portal assessment survey and bat survey) in a single report to the USFWS and PGC for review and concurrence.

The template below can be completed to serve as the required Indiana Bat Protection and Enhancement Plan, provided it is supplemented with 1) a project location map, 2) a detailed site plan, 3) an IBCF calculation sheet for measure 9B, and 4) other documentation (e.g., survey results). Provide a copy of the PEP and associated supplements to PADEP and the USFWS Pennsylvania Field Office. Include a map showing the project location, and a figure or site plan depicting the location and size of the permit area, the location and amount of forest habitat in the permit area, and the location and amount of forest habitat that will be removed or disturbed. The figure or site plan should also depict the location of wetlands, streams, caves and mine openings and indicate which will be affected by the project and which will be undisturbed by mining-related activities. The figure or site plan should clearly depict information associated with protective measures 1, 2, 4 and 8.

Project Information

PADEP Permit or Application No.: _____ PNDI # _____

Township(s): _____ County: _____

USFWS Project #: _____

Indiana Bat Habitat Screening Results (check all that apply)

- Known Habitat – based on PNDI Hit or USFWS correspondence (**check one**)
 - Summer habitat
 - Swarming habitat
 - Summer and swarming habitat
- Cave/abandoned mine portal survey results (enclose survey results, regardless of findings)
- Potential Summer Habitat (check one)
 - Indiana bat presence assumed
 - Mist-net survey conducted (enclose survey results, regardless of findings)

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<p>The PEP measures listed below will become enforceable conditions of the PADEP mining permit.</p>
<p>1. Minimize Forest Impacts: The project has been designed to minimize impacts to forests, woodlots, and forested fence rows, since these areas may be used for foraging and roosting by Indiana bats. Within the _____-acre permit area, there are _____ acres of forest of which _____ acres will be disturbed and _____ acres will be unaffected. (A detailed map is included to depict this.)</p>
<p>2. Maternity Roosts (select one):</p> <p><input type="checkbox"/> Known maternity roosts are present in or near the mining permit area. Direct and indirect impacts to known, primary maternity roosts have been avoided. (A detailed map is included to depict this.)</p> <p><input type="checkbox"/> There are no known maternity roosts in or near the project area.</p>
<p>3. Known Hibernacula: Impacts to all known Indiana bat hibernacula have been avoided by maintaining a no-disturbance buffer adequate to avoid both direct and indirect adverse effects. No blasting or tree removal will occur in this buffer.</p>
<p>4. Riparian Corridors:</p> <p>The integrity of all riparian corridors will be maintained to the greatest extent possible. To minimize impacts on foraging bats, impacts to streams and wetlands will be avoided and a 50-foot (or larger) no-disturbance buffer will be conserved along each side of streams and around wetlands. A site plan is included to depict streams, wetlands, and no-disturbance buffers.</p> <p>Where it is necessary to disturb vegetation in riparian areas and adjacent to wetlands, these areas will be restored with a tree planting mix that includes at least six tree species from the Tree Species List found in the Range-wide Indiana Bat Protection and Enhancement Plan Guidelines. To promote diversity, no more than 20% of any individual tree species will be included in the planting mixture.</p>
<p>5. Seasonal Tree Cutting Restrictions (select one, based on input from USFWS):</p> <p><input type="checkbox"/> Swarming Habitat - Tree cutting will only occur between November 15 and March 31.</p> <p><input type="checkbox"/> Summer Habitat - Tree cutting will only occur between October 15 and March 31.</p> <p><input type="checkbox"/> Swarming & Summer Habitat - Tree cutting will only occur between November 15 and March 31.</p>
<p>6. Staged Tree Removal (select one):</p> <p><input type="checkbox"/> Tree cutting will take place shortly before (within one year prior to) planned mining activities, and all proposed tree cutting will take place in a single year.</p> <p><input type="checkbox"/> Tree cutting will take place shortly before (within one year prior to) planned mining activities, and will be phased so that forest clearing will take place only as needed to allow for mining that is anticipated in the near future. Approximately _____ acres of forest will be cut annually over a period of _____ years, but total tree cutting will not exceed the amount identified in #1 above.</p>
<p>7. Provide Roosting Habitat (select one):</p> <p><input type="checkbox"/> Trees will be girdled along the perimeter of the permit area or within the undisturbed areas of the permit area to create short-term Indiana bat roosting habitat. One tree per 500 feet of permit perimeter or at least 6 trees per acre of unaffected forest habitat in the permit area will be girdled. Girdled trees will be ≥ 9 inches d.b.h. Tree girdling will be done before or concurrent with tree clearing in the mining permit area.</p> <p><input type="checkbox"/> No tree girdling will be done because surveys within undisturbed forest areas (i.e., forests to remain undisturbed within or adjacent to the permit area) indicate there are at least 6 natural snags ≥ 9 inches d.b.h. per acre or one natural snag ≥ 9 inches d.b.h. for every 500 feet along the permit area perimeter. Documentation of this will be provided to PADEP.</p>

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8. Watering Areas¹ (**select one**):

- There are no suitable water sources on or within 0.5 mile of the permit area. Therefore, existing water sources (e.g., ephemeral streams, natural wetlands, shallow water depressions) that will be disturbed by mining will be replaced with water sources that are available throughout a significant portion of the dry months. Procedures in "A Guide to Creating Vernal Ponds," published by the USDA Forest Service will be followed to create these water sources (see <http://www.fs.fed.us/r8/boone/resources>).
- Suitable water sources are available on or within 0.5 mile of the permit area, and include the following:

A detailed map is included to show existing and replacement water sources.

9. Mitigate for Habitat Loss: The long-term habitat needs of the Indiana bat will be met through on-site reforestation or through the protection of off-site forest. (**Select A or B**)

- A. Forest habitat will be restored and protected on-site (in the permit area) to provide for the long-term habitat needs of the Indiana bat. To accomplish this, the following measures will be implemented:
 - ✓ **Post-Mining Land Use:** The post mining land use will be "wildlife habitat" and it will remain in that state.
 - ✓ **Forest Restoration:** _____ acres will be reforested (at least 70% of the forest habitat that was or will be lost must be restored). Reforestation will occur by replanting with at least six different tree species listed in the Range-wide guidelines. At least four "exfoliating bark" tree species will be planted and equal at least 40% of the stems per acre. No more than 20% of any one species will be included in the planting mixture, and no more than 50 stems per acre of black locust will be planted. Success will be measured as 400 live woody stems per acre at bond release. Forest restoration will be implemented in accordance with the methods detailed in the Forest Reclamation Advisories published by the Appalachian Regional Reforestation Initiative (<http://arri.osmre.gov/FRA.htm>).
 - ✓ **Herbaceous Ground Cover:** Native species will be used when establishing the herbaceous ground cover. If any non-native herbaceous species will be used, they must be compatible with tree planting, non-invasive, slow growing and beneficial to wildlife.
 - ✓ **DEP (by letter to affected landowners)** will document the landowners' willingness to retain and conserve reforested areas for the long-term benefit of the Indiana bat. **Copies of these letters are attached as part of this PEP.**
- B. Forest habitat will be permanently conserved off-site (outside the permit area) to provide for the long-term habitat needs of the Indiana bat.² The manner in which this will be accomplished is identified below (**select one**).
 - An in-lieu-fee contribution will be made to the Indiana Bat Conservation Fund (IBCF) prior to DEP issuance of the mining permit. The most recent IBCF calculation sheet is available online (http://www.fws.gov/northeast/pafo/coal_mining.html). **The completed IBCF calculation sheet for this project is attached as part of the PEP.**
 - Known Indiana bat habitat will be permanently protected off-site. Permanent habitat protection will be accomplished via fee simple land purchase, land donation, permanent conservation easement, or perpetual trust agreement. (Include letter from USFWS indicating they have reviewed and approved the habitat parcel, land/easement holder, and terms of habitat protection.)

PEP approved by USFWS: _____

(Signature of Field Office Supervisor)

(Date)

* Template revised 10/22/2012

¹ This measure does not apply to Coal Refuse Disposal Sites.

² This mitigation measure is required for Coal Refuse Disposal Areas, since many of the reforestation measures in 9A cannot be implemented on those sites. Off-site mitigation is also used when all or part of the land being mined will have a post-mining land use other than "wildlife habitat" due to business or applicant considerations precluding the implementation of measures identified in 9A or the landowner's long term-plans for the property do not include retaining and conserving replanted forests for the many decades necessary to meet the long-term habitat needs of the Indiana bat.