Summer roosting habitat for native forest-dwelling bat species

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Create new potential roost trees within upland and riparian forests to achieve desired summer habitat for forest-dwelling bat species.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- These criteria and any tree removal activities will be coordinated with U.S. Fish and Wildlife Service (USFWS). This includes the establishment of minimum criteria to meet the habitat requirements of the bat species of concern while avoiding potentially detrimental disturbances during the maternity period.

- Create additional snags within the forested acres by girdling/killing live trees. When choosing trees to kill, consider that the majority of snag-roosting bats prefer the largest available snags, which often extend above the forest canopy and retain bark for a longer period of time. Also focus on killing trees that are undesirable for quality forest products due to species or form.

- Promote use of live trees with loose or exfoliating bark by killing all trees adjacent (canopies within 15 feet of habitat tree) to trees determined to have desired bark characteristics, as defined by NRCS state technical staff. Larger diameter trees should be considered as habitat trees, as desirable bark characteristics tend to improve with the
size and age of the tree. Large/mature trees also develop splits, breaks, dead limbs, and cavities that serve as roosting areas.

- Habitat trees should be distributed evenly across the treated acres.

- The combined snags and live, loose bark trees should be created or maintained at a combined rate as determined to be necessary to meet the habitat requirements of the bat species of concern and the specific forest type, as defined by the USFWS and NRCS state technical staff.

- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States’ Forestry Best Management Practices for Water Quality.

- When determining which trees will be killed for snag creation, and/or used to create loose/exfoliating bark, consider effects on the remaining stand.
  
  o Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.

  o Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to avoid overstocked conditions using approved silvicultural stocking guides.

  o Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.
Documentation and Implementation Requirements:

Participant will:

☐ Prior to implementation, work with NRCS to complete a wildlife habitat evaluation guide or State equivalent.

☐ Prior to implementation, obtain a wildlife habitat management plan for the targeted species suite which includes:
  - Wildlife Habitat Evaluation Guide scores for benchmark and desired conditions.
  - The minimum criteria to meet the targeted species habitat requirements.
  - A plan map indicating the stands and individual trees selected for the treatment.
  - A list of NRCS Conservation Practice Standards that will be applied to reach the desired habitat conditions.

☐ During Implementation, keep a field log which includes:
  - Treatment dates
  - Count of treated (girdled) trees and treatment actions completed (i.e. removal of canopies within 15 feet of habitat tree).

☐ During implementation, notify NRCS of any planned changes, notify NRCS of any planned changes to verify they meet the enhancement criteria.

☐ After implementation, notify NRCS that implementation has been completed.

☐ After implementation, make the follow items available for NRCS review to verify implementation of the enhancement:
  - Wildlife Habitat Management Plan.
  - Wildlife habitat plan treatment map.
  - Field log.
  - Digital photographs.
NRCS will:

☐ Prior to implementation, assist the participant in completing the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG) or State equivalent. **Target Bat Species of concern:** ____________________________

**Current/Existing Condition WHEG score:** ______________

**Planned WHEG score after implementation:** ______________

☐ Prior to implementation, provide participant assistance in the development of a wildlife habitat management plan.

☐ Prior to implementation, provide participant with additional technical assistance to the, as requested.

☐ During implementation, as needed, evaluate any planned changes to verify they meet the enhancement criteria.

☐ After Implementation, verify implementation of the wildlife habitat management plan, by reviewing field log records kept and digital photographs taken during enhancement implementation.

☐ After implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG) or State equivalent. **WHEG score after implementation:** ______________

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name ______________________________ Contract Number ______________

Total Amount Applied ______________________ Fiscal Year Completed ______________

_________________________ ______________________
NRCS Technical Adequacy Signature Date
INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY
E666137Z2

Additional Criteria for Indiana
In addition to the criteria specified in the National job Sheet E666137Z2 the following addition criteria apply to Indiana:

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Livestock must be excluded from all forested acres enrolled for this enhancement
- Follow all NRCS-USFWS Requirements for the Indiana Bat and Northern Long-Eared Bat document attached to the Indiana CSP Wildlife Species Guidance (2019).

Notes and comments on the National Enhancement:
- Follow guidance in the Indiana Supplement: Wildlife Species of Concern of Interest to be Considered, and the Indiana CSP Wildlife Habitat Evaluation Guide (WHEG) to determine WHEG scores for this enhancement. A minimum 0.5 existing value is required to qualify for this enhancement. Activities completed by this enhancement (Planned Score) must meet a minimum of 0.75

Additional Guidance for Indiana:
Summer habitat includes forested areas that have potential roost trees. Potential roost trees are live trees or standing snags > 5 inches dbh that have exfoliating bark, cracks, crevices or hollows. Loose or exfoliating bark may be slabs or plates of bark on dead, diseased or dying trees as well as naturally loose bark found on species such as shagbark and shellbark hickory. Live conifers are not considered potential roost trees for this guidance; however conifer snags with exfoliating or loose bark are considered potential roost trees. Although almost any woody species that gets large enough can be a potential roost tree if the right characteristics develop.

The following species of trees have been identified as having relatively high value as potential Indiana bat maternity roost trees:
- shagbark hickory (Carya ovata)
- shellbark hickory (Carya laciniosa)
- bitternut hickory (Carya cordiformis)
- silver maple (Acer saccharinum)
sugar maple (Acer saccharum)
green ash (Fraxinus pennsylvanica)
white ash (Fraxinus americana)
eastern cottonwood (Populus deltoides)
northern red oak (Quercus rubra)
post oak (Quercus stellata)
white oak (Quercus alba)
slippery elm (Ulmus rubra)
American elm (Ulmus americana)
black locust (Robinia pseudoacacia)
(Tree species based on literature and unpublished roosting data).

On average, at least 3 live trees per acre >20" dbh (of the high-value species listed above) shall always be maintained in the stand (a tree with <10% live canopy should be considered a snag). These "leave trees" must be the largest trees of the listed species remaining in the stand. An additional 6 live trees per acre >11" dbh (of the species listed above) must also be maintained. The "per acre" requirement can be expressed as an average per acre but should be relatively evenly spread across the treated acres.

If there are no trees >20" dbh to leave, then 16 live trees per acre must be left, and these must include the largest specimens of the listed species remaining in the stand.

Generally, bats prefer to use the largest trees for roost trees. These trees are more likely to develop the conditions for good roost trees such as presence of crevices, cracks or exfoliating bark. Especially important is that the trees have solar exposure to create desired roost conditions. Therefore, the creation and retention of potential roost trees that are some of the larger trees in the stand, especially those extending above the canopy, is preferred.

Creation and enhancement of potential roost trees consists of both creating snags and improving use of live trees with exfoliating bark or other desirable characteristics.

a. Snags are created by girdling or killing live trees; select trees with the best potential for developing bat roost features; oaks, hickories and ashes are preferred.

b. Living trees with desirable roost characteristics may be improved by removing competing trees adjacent to the roost tree; this improves viability of the roost tree and increases solar exposure to the tree. Generally removing any trees with canopies touching the roost tree should be removed. Shellbark and shagbark hickories are the preferred species but other large trees with suitable roost characteristics may also be good targets for enhancement.