Animal Enhancement Activity – ANM24 - Upland forest wildlife structures

Enhancement Description
Habitat loss is one of the leading causes of declines in upland wildlife populations. This enhancement is for the construction of suitable physical wildlife structures necessary to meet the needs of an identified wildlife species.

Land Use Applicability
Forestland

Benefits
Artificial structures can be developed to enhance habitat for many species of wildlife including cavity-nesting birds, bats, bees, raptors, reptiles, amphibians, and waterfowl. Artificial structures are only appropriate where existing forest stand characteristics fail to meet the lifecycle requirements of a target species.

Criteria for Upland Wildlife Structures
Wildlife structures will be developed and maintained for at least one species or group of species native to the forest type. Landowners should determine their target wildlife species, assess what structural habitat components are not provided by the existing forest stand characteristics, and specifically design structures to meet those life stage needs. Artificial structures should be a considered temporary measure to provide habitat until natural habitat can become established.

Actions to provide upland wildlife structures include:

1. Installation of artificial nest boxes or platforms for species such as cavity-nesting birds, raptors, bats, and pollinators
2. Construction of artificial cover such as brush piles, rock piles, root wads
3. Manipulation of natural cover, such as girdling trees or blasting of tree tops to encourage snag development

1. <u>Nest Boxes</u>
The number of nest boxes per acre will be based on NRCS State requirements for identified species or a minimum of two structures per 10 acres of suitable habitat enrolled if no state specific criteria are available. Guidelines for specific wildlife species are as follows:

Birds
Structures for birds will be built and installed in accordance with the details in the publication "Artificial Nesting Structures" (NRCS Biology Tech. Note 20).

Bats
Bat boxes will be built and installed in accordance with the details in the publication "Bats" (NRCS Biology Tech. Note 5) or Bat Conservation International guidelines.

Bees
Bee nesting structures will be built and installed in accordance with the details in the publications "Nests for Native Bees" or visit the The Xerces Society Pollinator Resource Center.

2. Snags

General recommendations for maintaining snags in most timber stands to benefit wildlife include:

- One snag/acre larger than 20-inch dbh for use by larger woodpeckers and owls.
- Four snags/acre between 10- and 20-inch dbh for small mammals such as flying squirrels and smaller raptors such as American kestrels
- Two snags/acre between 6- and 10-inch dbh for smaller birds such as chickadees and nuthatches

Snags and den trees for nesting will be managed in accordance with the details in the publication "Managing Forests for Fish and Wildlife" (NRCS Biology Tech Note 18)

3. Brush Piles

The term "brush pile" describes a mound of woody vegetative material constructed to furnish additional wildlife cover. Each structure will provide habitat for up to 1/2 acre. Brush piles can be fashioned in many different ways to meet various cover needs for targeted wildlife species where natural ground cover is limited or difficult to establish.

Brush piles for cover be managed in accordance with the details in the publication "Managing Forests for Fish and Wildlife" (NRCS Biology Tech Note 18)

4. Root Wads & Basking Logs

Each structure will provide habitat for up to 40 acres. Place large root wads or logs with limbs attached into wetlands, ponds, and lakes to provide basking areas and underwater cover for reptile and amphibian species such as the Northwestern Pond Turtle (minimum of one structure per wetland, pond or lake). Root wads and logs must extend above the high water level. Anchoring may be required to keep root wads and logs stationary.

Structures for amphibians and reptiles will be built and installed in accordance with the details in the publication "Farm Pond Ecosystems" (NRCS Biology Tech. Note 29).

Operation and Maintenance:
Structures will be maintained and monitored as described in relevant publications above. Operator will complete yearly status review of the practice to track the use of the structures. A map will be developed to depict actual locations of structures. Re-install structures if annual inspection reveals that structures are no longer functional.

Documentation Requirements

1. Identify the objectives for the treatment, i.e. what wildlife species is to benefit, What habitat feature is being addressed, how many trees will be retained for snag/den trees, how many brush piles will be created, how many nest boxes will be installed, etc.
2. Brief written documentation detailing the pre-treatment habitat conditions and post-treatment habitat conditions.
3. Representative digital images/photos of the structures.
4. Map of area indicating location and type of each structure installed.

United States Department of Agriculture
Natural Resources Conservation Service

IDAHO ADDENDUM 2011
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Additional guidance for wildlife structures:

Many wildlife species accept man-made nesting, roosting and nursery structures as part of their life cycle, or when natural habitat is lacking. Where natural habitat has been disturbed to the point of having limited or no existing nesting, roosting or nursery habitat available, this enhancement can be used to expand the home range of birds and bats with the preservation and/or installation of man-made structures.

The following target guidance is provided for artificial structures in forested areas of Idaho:

Nesting Structures for Wood Ducks, Bluebirds, and Bats
All nesting boxes require annual maintenance including the removal of wasp nests.

Wood Duck
Maintain 1 wood duck nest box per 10 acres of suitable wetland habitat. Boxes should be constructed of weather resistant wood, with a 4" diameter entrance hole. Boxes should be fitted with a 3" wide strip of ¼" mesh hardware cloth securely fastened to the inside of the box to function as a ladder. A 3" layer of sawdust should be placed at the bottom of the box. The box should be fitted with predator guards. Boxes should be located in secluded areas.

Bluebird
Maintain 2 bluebird houses per 10 acres of suitable habitat. For western bluebirds use an entrance hole size of 1.5". For mountain bluebirds use hole size 1 9/16." Nest boxes should be constructed of weather resistant, untreated wood, with an overhanging roof and bottom drain holes. The inside cavity should be approximately 5"x 10"x8". Boxes should be fitted with predator guards.

Bats
Bat houses should be constructed with rough-sawn cedar or other untreated wood. If rough wood is unavailable, then the interior surfaces must be scored about 1/16" deep a minimum of 1 ½" apart. All bat houses should be at least 2 feet tall, have chambers at least 20 inches tall and 14 inches wide, and have a landing area extending below the entrance at least 3 to 6 inches. Larger and taller bat houses are usually more successful. Bats prefer ¾" to 1" wide roosting crevices. To help warm the bat house, paint the outside surfaces black in areas where the average July high temperature is 85° or less or dark brown where the average July high

temperature is above 85°. Houses should be placed on a building or pole, 12 to 15 feet above the ground, and located to receive 6 to 10 hours of sunlight per day, with as much morning sun as possible. Bat houses can be clustered at one site, and should be placed within ¼ mile of a stream or pond.

Snags for Cavity Nesting Birds, Bats, and Pollinators

Snags consist of standing dead trees which provide habitat for a variety of forest wildlife, most commonly as nesting and roosting sites for cavity nesting birds. Snags serve as one source of recruitment for eventual downed wood. Maintaining a viable snag component to forest stands requires landowners to implement methods to replace snags as they deteriorate and fall over in time.

Snag Management Guidelines:

- **Snags will be managed to achieve the density of 3 snags/acre, and a minimum 10"DBH, and a minimum of 15' tall.**
- Distribution--snags at the recommended density levels will be represented across eligible forestland. Snags will be managed across forested landscapes, and can be expressed on all aspects and slope positions.
- Larger diameter snags (> 20" DBH) provide optimum wildlife habitat and longer snag persistence than smaller diameter snags.
- Snag replacement trees can come from standing cull or pulp trees left on site, or from trees that are nearly dead, spike top, damaged, in advanced decay, or poorly formed trees. Create snags by girdling live trees or otherwise inflicting damage which will lead to mortally. Living trees that are presently used by wildlife are also preferred as replacement candidates.
- Snag safety issues will be identified and addressed where snags pose a threat to life and property.

Den trees are live trees with cavities that typically form in deciduous trees and coniferous trees. **At least 1 den tree will be retained per acre on average**. Tree size will be a minimum of 10" DBH and 15' tall.

Root Wads and Basking Logs for Amphibians and Reptiles

Placement of large woody debris (log with branches and/or root wad) in wetlands, ponds, and lakes can enhance the functions and values of wetland habitat for amphibians and reptiles.

Recommendations:

- Minimum diameter of debris (log) – 6"
- Minimum length 15 ft. with branches and/or root wad
- Placement of log – approximately 50% of log in water, 50% on shore for amphibians. If the target species is turtles, the log can be floating
- Log should be anchored if the water level fluctuates and may float the logs away.
- Minimum number of logs – 5 logs per acre

- Required permits are the responsibility of the landowner/operator

For additional information, refer to the following documents:

Bat Conservation International, *Criteria for Successful Bat Houses*, http://www.batcon.org/pdfs/bathouses/bathousecriteria.pdf

Idaho Department of Fish and Game, Nongame Leaflet #11, *Idaho's bats: Description, habitats, and conservation*. http://fishandgame.idaho.gov/cms/wildlife/nongame/publications/bat.pdf

Idaho Department of Fish and Game, Nongame Leaflet #13, *Dead trees and living creatures: The snag ecology of Idaho.* http://fishandgame.idaho.gov/cms/wildlife/nongame/publications/snag.PDF

Idaho NRCS Biology Technical Note 1, *Pollinators* (includes recommendations and pertinent references). http://efotg.nrcs.usda.gov/references/public/ID/biology_tn1.doc

Idaho NRCS Biology Technical Note 15, *Nest box for wood ducks*. ftp://ftp-fc.sc.egov.usda.gov/ID/technical/technotes/biology/biology_tn15.pdf

Xerces Society. *Pollinators in Natural Areas – A Primer on Habitat Management*. http://www.xerces.org/wp-content/uploads/2008/11/pollinators_in_natural_areas_xerces_society.pdf

This activity may be used with any other enhancements.

Potential duplicate practices:
645 – Upland wildlife habitat management