

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
STRUCTURES FOR WILDLIFE

(No.)

CODE 649

DEFINITION

A structure installed to replace or modify a missing or deficient wildlife habitat component.

PURPOSE

To provide structures, in proper amounts, locations and seasons to:

- Enhance or sustain non-domesticated wildlife; or
- Modify existing structures that pose a hazard to wildlife.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to all lands where planting or managing vegetation fails to meet the short-term needs of the species or guild under consideration. And in addition, where a State-approved wildlife habitat assessment identifies the need to:

- Provide loafing, escape, nesting, rearing, roosting, perching and/or basking habitat. Examples are nesting islands, nesting boxes, roosting boxes, rock piles, perching structures and brush piles.
- Modify existing structures to minimize the risks of injury or mortality to wildlife. Examples are the need to:
 - i. Retrofit an existing fence with high visibility fence markers,
 - ii. Modify an existing fence by removing wire or adding wildlife-friendly wire at appropriate spacing, or
 - iii. Modify an existing watering facility by installing escape ramps or removing obstacles that impede safe access to water.

Do not use this practice to:

- Install new structures or modify existing structures for the control of nuisance animal species.
- Install new structures or modify existing structures for the benefit of captive, feral, or domesticated animals.

CRITERIA

General Criteria Applicable to all Purposes

Construct and install wildlife structures when the State-approved habitat appraisal method identifies limiting habitat component(s) (e.g., nest boxes, brush piles, nest platforms), that cannot be provided within the desired time period with implementation of a vegetation management strategy, or an existing structure is causing injury and/or mortality to wildlife.

Use the following criteria to design, install or modify structures for wildlife.

- Select the location of structures to meet the needs of the targeted species, while not subjecting individuals to increased risks of injury or mortality.
- Nesting structures placed along streams and rivers shall be attached to trees or poles located on the top of bank in the riparian zone, and never in the stream on poles.
- Select materials that are durable and safe for wildlife. Avoid caustic, dangerous, debilitating and/or irritating materials. If the structure is exposed to sunlight, utilize ultraviolet resistant materials and/or coatings made with non-toxic substances for additional protection from deterioration due to sunlight exposure.
- Construct habitat structures to withstand normal environmental conditions and meet

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard visit the [Field Office Technical Guide](#). Contact Jeff Norment, NRCS Biologist, 207-990-9571 or jeff.norment@me.usda.gov with questions or concerns.

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the needs of the targeted wildlife for the lifespan of the structure.

- Construct and locate the structure to allow for easy access, if monitoring, maintenance, and/or management of the structure will be required.
- Add wildlife escape ramps to water troughs and use wildlife-friendly designs for fencing.

Criteria for Nesting Structures

- Follow construction, placement, density and maintenance recommendations provided in NRCS' Fish and Wildlife Habitat Management Leaflet No. 20, [Artificial Nesting Structures](#) & No. 5 [Bats](#), Maine NRCS' biology technical note [ME-02](#), Bat Conservation International's [Bat House Designs](#), or other published designs.

Criteria for Brush Piles

Brush piles can provide enhanced protection from predators and weather where such cover is lacking.

To construct brush piles:

1. Lay at least four 10 to 18 ft logs , 6 - 10 inches in diameter parallel to each other 8 – 12 inches apart,
2. Lay an equal number of similarly sized logs on and perpendicular to the 1st base logs,
3. Build-up the pile by crossing several layers of 2" – 4" limbs with loose branches and twigs on top to a minimum height of 4 feet. Interlaced conifer branches with needles can top-off the structure,
4. If desired, 4 feet section of 6 inch drainage tile or cinder blocks can be placed under the base to allow easier access,
5. Piles should not exceed 3 piles per acre and should be arranged to connect uncut forest and riparian areas,
6. Maintain brush piles by periodically adding new limbs and branches.



Note: Piles at least 6 feet high, circular brush piles 16 or more feet in diameter or rectangular piles 16 feet wide and at least 25 feet in length provide better cover.



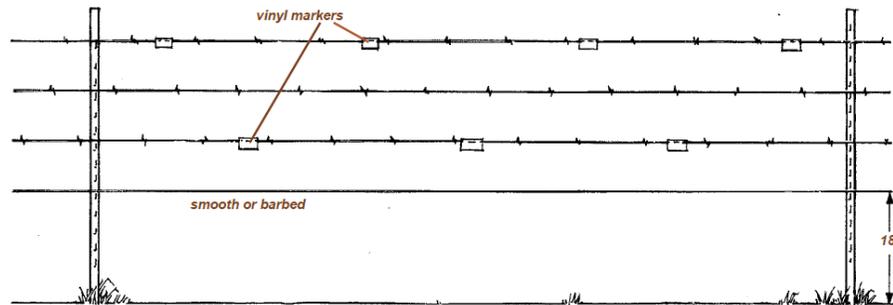
Use NRCS 649 *Brush Pile Specification Sheet* in Section IV of Maine NRCS' Field Office Technical Guide (FOTG) to design, implement, maintain and document completion of this practice component.

Criteria for High-Visibility Fence Markers

Criteria for Spacing and Maintenance of Visibility Markers (Flagging and White Vinyl-Siding J-Trim Strips) on High Tensile Smooth or Barbed Wire Fences.

1. Vinyl J-Trim Strips: Trim strips will be a minimum of three (3) inches long.
 - Under most conditions white vinyl trips strips should be used.
 - Vinyl trim strip color should alternate between white and black where visibility is a concern when snow is present.
 - On smooth wire place crimp sleeves on either side of markers to keep trim strips or flagging in place.
2. Flagging: Reflective or fluorescent tape with tag ends at least three (3) inches.
3. Spacing of Trim Strips or Flagging:
 - Top Strands: Evenly space flags or vinyl strips three (3) feet apart.
 - Middle Strands: Evenly space flags or vinyl strips every 5½ feet apart and between flags on the top strand.
4. Replace flagging or vinyl strips when no longer functioning as intended.

Figure 1. Example of vinyl j-trim strip placement on a typical fence with posts on a 16 foot center.



Criteria for Wildlife Friendly Fence Designs

Wildlife friendly fences should be low enough for adult animals to jump, high enough for animals to crawl under, and minimize the chance of tangling.

- A top wire or rail preferably no more than 40" above the ground, and absolutely no more than 42";
- At least 12" between the top two wires;
- At least 18" between the bottom wire or rail and the ground;
- Smooth wire or rail for the top, smooth wire on bottom.
- No vertical stays;
- Posts at 16.5-foot intervals; and
- Gates, drop-downs, or other passages where wildlife concentrate and cross.

Criteria for Wildlife Escape Ramps/Ladders

Maine NRCS defers (see references and links below) to Wyoming NRCS' *Technical Note 41 - Watering Facility Wildlife Escape Structures* and Bat Conservation International's *Water for wildlife: a handbook for ranchers and range managers* (Taylor and Tuttle 2007).

CONSIDERATIONS

Consider the following prior to implementation of this conservation practice and implement mitigation measures as appropriate.

- Potential negative impacts to target species and non-target species through an increase in predation, disease transmission, nest parasitism or other means.

- Modification of existing onsite and offsite, barriers, or other conservation structures that may inhibit safe daily and seasonal movement of wildlife.
- Establishment or management of native vegetation to supplement and/or eventually replace installed habitat structures.
- Risks associated with the use of structures by non-target or nuisance species.
- Modifications to structures to inhibit predator access.
- Select appropriate color, orientation and exposure to support thermal regulation.

PLANS AND SPECIFICATIONS

Develop plans and specifications that describe the biological and physical requirements for applying the practice.

Specify the number, location, spacing, grade, quantities, dimensions, materials and timing of installation of new or modification of existing structures.

Develop specifications for construction and installation of habitat structures by following State or Agency technical notes, and cited literature.

OPERATION AND MAINTENANCE

Provide an operation and maintenance plan that is customary and reasonable for the wildlife structure being installed or modified. Provided the timing, scope and intensity of operation and maintenance, with consideration of the needs of the target and associated

species. As a minimum, the O&M will include a schedule (timing, frequency, duration) to:

- Monitor condition and/or usage of structures.
- Implement adaptive management by relocating, modifying or repairing structures as needed during the season with the least disturbance to target species.
- Conduct needed maintenance of structures such as removal and replacement of old nesting materials, nests of non-target species, or undesirable debris.
- Install, modify and/or monitor during the season of year or time of day to minimize disturbance to wildlife.
- Remove all structures if they are determined as being potentially detrimental to the target or non-target species.

REFERENCES

- Elliott, C.A (editor). [1999](#). Biodiversity in the forests of Maine: guidelines for land management. Bulletin #7147, University of Maine Cooperative Extension. Orono, ME. 168pp.
- Henderson, C.L. 1992. Woodworking for wildlife: homes for birds and mammals. Minnesota Dept of Natural Resources. St. Paul, MN 111pp.
- NRCS. [2008](#). Artificial Nesting Structures. Fish and Wildlife Habitat Management Leaflet No. 20 (Insight #81). 29pp.
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- NRCS. 2004. National Biology Handbook. Washington, DC.
- [ME-02](#). Maine Nest & Den Box Specifications and Designs: For Upland and Wetland Wildlife Habitat Manage.
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- Taylor, A.R. and M.D. Tuttle. [2007](#). Water for wildlife: a handbook for ranchers and range managers. Bat Conservation International. 20pp.