

6.9 DEER WINTERING AREAS

BACKGROUND

White-tailed deer in New Hampshire live near the northern limit of their geographic range. Because of severe winters, deer require special habitats to survive.

The winter survival of white-tailed deer is related to their ability to occupy “wintering areas” when deep snow limits food availability and deer mobility. Special habitat characteristics of deer wintering areas allow deer to maximize their daily food intake and minimize the amount of energy they expend to move, keep warm, and avoid predators.

Deer wintering areas (DWAs) consist of two basic habitat components:

- (1) The core shelter area—dense, mature softwood that provides cover, improving the deers’ ability to move in the snow.
- (2) Other habitats that provide accessible forage within or adjacent to the core area. These habitats might be hardwood stands, mixed hardwood-softwood stands, or nonforest habitats such as fields or wetlands.

The term “deer wintering area” refers to the entire area deer occupy during winter, not just the dense-softwood cover—though the cover is critical and often the most difficult component to establish and maintain.



Most DWAs occur at elevations below 2,000 feet in lowland softwood stands such as spruce-fir and northern white cedar in the north, or eastern hemlock in the south. DWAs are often associated with watercourses and riparian areas, since these forest types grow there. Only about 3 percent of New Hampshire’s land base meets the habitat requirements for deer wintering.

Deer use of wintering areas varies within and between winters, based mainly on differences in snow depth. Deer move into wintering areas when snow depth exceeds 10 to 12 inches, and they primarily use the core shelter area when snow depth exceeds 16 to 20 inches. During mild winters deer may range far from softwood shelter or not use a wintering area at all. Some wintering areas aren’t used annually by deer, but these habitats are still critical when winter conditions are severe.

In northern New Hampshire, it isn’t uncommon for some deer to travel more than 20 miles between the habitat they use in autumn and the DWA they use each year. Northern deer generally “yard” in large numbers and remain within or close to the cover provided by extensive softwood stands all winter long.

In southern New Hampshire, where winter conditions are less severe, deer often make short-distance movements during winter storms or periods of severe cold. They find refuge in small stands or patches of dense softwood cover near or within the habitat they use during autumn. They often don’t yard in the same numbers or for the same length of time as deer in the north. As a result, DWAs in the north are often large, characterized by softwood stands exceeding 100 acres, while those in the south are often much smaller. Softwood stands covering less than a few acres provide temporary cover.

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OBJECTIVE

Manage existing deer wintering areas to provide deer with functional shelter, softwood travel lanes to access food and escape predators, and a continuous supply of accessible browse.

CONSIDERATIONS

- Refer to the following comprehensive guides for in-depth coverage of DWA ecology and management options: Gill 1957, Boer 1978, Telfer 1978, Reay et al. 1990, Voigt et al. 1997, OMNR 2000, NBDNR 2002, Pekins and Tarr 2009, Pratte 2009. Full listings follow below in “Additional Information.”
- N.H. Fish and Game (NHF&G) provides maps of known DWAs. Because locations of wintering areas change over time, a field evaluation of the current habitat conditions is recommended before conducting any work within a known or potential DWA.
- Maintaining DWAs on working forest land requires identifying sites where core shelter and forage can develop over time. The location of core shelter areas doesn't need to be static. Timber harvesting can be used to shift the location of these stands over time, to ensure they don't become overmature and lose their ability to provide functional shelter.
- Deer need to access adequate food throughout winter to offset their energy expenditure. This is best provided in DWAs with core shelter areas highly interspersed with forage areas and connected by corridors of mature softwoods. This allows deer to move among all habitats under a variety of snow conditions.
- It isn't clear how large a softwood stand needs to be to provide functional winter cover for deer. Experience and the existing research provide some considerations:
 - As you move from southern New Hampshire north, deer likely require larger core shelter areas due to differences in winter severity.
 - Wherever snow depth regularly exceeds 16 to 20 inches, individual core shelter areas should probably exceed 25 acres.
 - In the south, pockets of softwoods as small as 1 acre may provide functional cover, especially when crown closure in these stands approaches 100 percent.
 - Small-acreage softwood stands may effectively provide cover from cold temperatures or improve their access to forage. These stands may be ineffective in protecting deer from predators if the stands aren't large enough to enable deer to establish complex trail networks throughout the wintering area.
- Hemlock and northern white cedar provide the best winter cover for deer due to their superior ability to intercept snow. Spruce and balsam fir are important cover, but require denser stands to intercept the same amount of snow. Pines must grow in stands with considerably more than 70 percent crown closure to reduce snow depth.
- Hardwoods provide little to no cover for deer during winter. Hardwood stands on south- to west-facing slopes are important, though. During the day, deer often bed in these stands to be warmed by the sun's heat. Sun and wind often expose fallen acorns and beechnuts, which are among the highest-quality winter foods.
- After deer learn the location of their wintering area from their mothers, they generally return to it for life and are reluctant to abandon it for a new one. Focus on enhancing or expanding existing DWAs before attempting to create new ones.

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- The aggregation of small DWAs on multiple ownerships provides a significant portion of the winter range of deer in New Hampshire.
- All forms of softwood silviculture can be compatible with DWA management, as long as mature softwood stands previously managed for cover are harvested only when regenerating stands have grown and are able to immediately replace the cover being removed.
- Maintaining stands within the DWA for a balanced age-class distribution provides habitat for a diversity of wildlife, reduces the susceptibility of softwood stands to common insect pests (e.g., spruce budworm), and allows for a continued yield of forest products.
- Landowners for whom DWA management is a priority may have to reduce or delay timber harvests on a portion of their land to develop the softwood age classes or establish harvest rotations required to create and maintain functional core shelter areas. Such accommodations may increase the administrative costs of harvesting and require landowners to defer income.
- Because of deer browsing, regenerating many hardwood trees and some softwoods (e.g., hemlock, cedar) can be difficult in stands located in and adjacent to DWAs. Options for reducing this impact include (1) focused hunting, (2) locating openings away from wintering areas, and (3) providing a number of browsing opportunities for deer each time you cut trees. Make a number of openings, rather than a single opening, so browsing isn't concentrated within a single area.
- The potential negative impacts of providing deer with supplemental food during winter outweigh the potential benefits.
 - Supplemental food concentrates deer in unnaturally high densities, leading to significant overbrowsing of natural foods around feeding sites. Even where supplemental food is provided, deer rely on natural browse for most of their daily food needs. Overbrowsing may reduce the overall ability of the wintering area to meet the needs of deer.
 - Supplemental feeding cause deer to alter their annual migration patterns. They concentrate their activity near residential areas and away from historic wintering areas that provide cover.
 - Supplemental feeding sites may increase the risk of deer contracting and spreading serious diseases such as chronic wasting disease and bovine tuberculosis.

RECOMMENDED PRACTICES

General recommendations for managing DWAs

- ✓ Contact NHF&G to find out whether known DWAs occur on your land and for assistance planning timber harvests in known or potential DWAs.
- ✓ Develop and maintain a balanced distribution of timber age classes across the DWA to maintain a constant supply of core shelter.
- ✓ Maintain “functional” core shelter on at least 50 percent of the DWA at all times. Functional shelter is provided by softwood stands at least 35 feet tall with softwood crown closure between 65 to 70 percent.
- ✓ Throughout the remainder of the DWA, maintain forage areas that provide a steady, abundant source of accessible browse by clearcutting 1- to 5-acre openings using a 40-year rotation and 10-year cutting cycle. Locate browse cuts within 100 feet of core shelter areas.
- ✓ Throughout the DWA, maintain strips of closed-canopy softwoods as travel corridors that connect core shelter areas with forage areas. Integrate these strips with riparian management zones. Create strips at least 100 to 300 feet wide and managed with uneven-aged silviculture to maintain softwood crown closure greater than 75 percent.

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- ✓ Winter is generally the best season to harvest timber from DWAs since deer forage on fallen tree tops and tree lichens, and skid trails improve deer mobility. Summer logging is preferred when soil scarification is required to regenerate desired softwood species such as hemlock, spruce and fir.
- ✓ Protect advanced softwood regeneration. Lay out skid trails and incorporate harvesting technologies and techniques that have a lower impact to advanced regeneration (3.1 Timber Harvesting Systems).
- ✓ Avoid or limit disturbance to deer within the DWA during winter by routing all truck roads, skid trails, and recreational trails around, rather than through, core shelter areas. Locate new trails used during the winter (e.g., snowmobiling, skiing, snowshoeing) as far away as possible from core shelter areas—ideally so deer don't see trail users.

Forest-Type Specifics

- ✓ In spruce-fir stands, uneven-aged management using group selection is the preferred method for managing DWAs and is especially important in softwood stands smaller than 100 acres. Make group openings between 20 to 40 feet in diameter. Rotation age targets are 70 years for fir and 100 years for spruce.
- ✓ Suitable options for even-aged systems in spruce-fir stands depend upon advanced regeneration. If advanced regeneration is present, conduct an overstory removal. If regeneration is absent, use a two-cut shelterwood system or strip clearcutting to stimulate seedling growth.
- ✓ Favor spruce over fir because spruce is longer-lived, generally more root-firm, and less susceptible to common insect pests.
- ✓ Favor hemlock when possible since it provides the best cover of all the softwood species. Managing hemlock stands may be difficult. Seek professional advice. Refer to Tubbs (1978) and Reay (1985) for details on hemlock silviculture.
- ✓ Release advanced hemlock regeneration and establish browse by removing competing hardwoods around the core cover area.
- ✓ If DWA management is a priority, manage hemlock core shelter areas with at least a 150-year rotation. Hemlock is very long-lived. Older hemlock found growing in many DWAs tend to have poor timber quality.
- ✓ If advanced hemlock regeneration is present, conduct a single removal of the overstory trees in areas scheduled for regeneration. If there is inadequate regeneration, a two- or three-stage harvest is recommended.
- ✓ If harvesting in the summer, scarify the soil and remove advanced hardwood regeneration.
- ✓ In DWAs less than 10 acres, retain most or all of the hemlock to ensure the long-term production and maintenance of functional deer shelter.
- ✓ Northern white cedar can be extremely hard to regenerate because it grows slowly and is also a highly preferred browse species. If a cedar DWA is encountered, contact NHF&G for details on management options.

CROSS REFERENCES

2.1 New Hampshire Forest Types; 2.2 Forest Structure; 2.3 Regeneration Methods; 2.4 Managing for High-Value Trees; 3.1 Timber Harvesting Systems; 4.2 Wetlands; 4.3 Forest Management in Riparian Areas; 6.4 Overstory Inclusions; 6.5 Permanent Openings; 6.6 Temporary Openings Created by Forest Management.

ADDITIONAL INFORMATION

- Boer, A.H. 1978. Management of deer wintering areas in New Brunswick. *Wildl. Soc. Bull.* 6(4): 200-205.
- Gill, J. D. 1957. *Review of deer yard management*. Bulletin No. 5. Maine Dept. of Inland Fisheries and Wildlife, Augusta, Maine.
- New Brunswick Dept. of Natural Resources. 2002. *Standards and guidelines for management of deer wintering areas on Crown Land*. NBDNR, Fredericton, N.B. 28 p.
- N.H. Fish and Game Dept. 2001. *More harm than good: Here's why the New Hampshire Fish and Game Department urges you to not feed the deer*.
http://www.wildlife.state.nh.us/Wildlife_Journal/WJ_sample_stories/WJ_f01_More_Harm.pdf Accessed March 11, 2010.
- Ontario Ministry of Natural Resources. 2000. *Significant wildlife habitat technical guide*. OMNR, Queens Printer for Ontario, Toronto, Canada. 139 p.
- Pekins, P. J., and M. D. Tarr. 2009. *A critical analysis of the winter ecology of white-tailed deer and management of spruce-fir deer wintering areas with reference to northern Maine*. Cooperative Forestry Research Unit. Res. Rep. RR-08-02. Orono, Maine. 154 p.
- Pratte, J. J. 2009. *Guidelines for managing deer wintering areas in northern, western and eastern Maine*. Maine Dept. of Inland Fisheries and Wildlife.
http://www.maine.gov/ifw/wildlife/species/pdfs/DWA_Guidelines_2.4.10.pdf Accessed June 8, 2010.
- Reay, R.S. 1985. Compatibility of Timber Management and Wintering Deer in Hemlock Stands. In proceedings of joint conference of New England Chapter of the Society of American Foresters, Maine Chapter of the Wildlife Society, and Atlantic International Chapter of the American Fisheries Society, Portland, Maine.
- Reay, R.S, D.W. Blodgett, B.S. Burns, S.J. Weber, and T. Frey. 1990. *Management Guide for Deer-Wintering Areas in Vermont*. Vermont Dept. of Forests, Parks and Recreation, and Vermont Dept. of Fish and Wildlife. 35 p.
- Telfer, E.S. 1978. Silviculture in Eastern Deer Yards. *For. Chron.* 54: 203-208.
- Tubbs, C.H. 1978. *How to Manage Eastern Hemlock in the Lakes States*. USDA For. Serv. Pub. North Central Forest Experiment Station. 2 p.
- Voigt, D. R., J.D. Broadfoot, and J.A. Baker. 1997. *Forest management guidelines for the provision of white-tailed deer habitat (version 1.0)*. Ontario Ministry of Natural Resources, Queen's Printer for Ontario, Toronto, Canada. 33 p.