



Notes on Deer Wintering Complexes

Help for readers about the term “Deer Wintering Complexes”, understanding, and using this information

Efforts have been made to ensure the most recent and best information layers have been used in creation of the data and any maps; however, there are some comments readers should note, and ensure they understand the term “Deer Wintering Complex”.

When reading the map or considering Deer Wintering Complex (DWC) information, please consider:

- The information is durable and usable on regional to county scales down to Section level scale comparisons – or areas 1 to 5 square miles.
- The representation indicates the shaded area has an importance to wintering deer, but there are complex interacting factors which determine, on an annual basis, how important each area is and the type of usage by local deer populations.
- Significant variations in any of the complex interacting factors of *weather, site conditions, past deer migratory behavior or conditions, and ecological conditions* cause changes in the use and utility of the DWC to local deer, and DWC are used the same by deer in severe winters.

A deer wintering complex (DWC) is the landscape mosaic of food and cover resources used by deer in winter conditions. Stated another way, a DWC is a local area where *weather, forest cover, timber harvest, past deer patterns and behavioral conditions, and ecological conditions* interact, resulting in a specific local area important to deer survivorship during typical winters. Deer wintering complexes have sometimes been called “deer yards,” but because there are differences or variations in accepted definitions of “*deer yard*”, this term is not ideal for a description or for our use. A “*deer concentration area*” is a localized site or area where deer are found during any individual winter, and this can vary widely. Compare these to deer wintering complexes, which are very important landscape locations for deer which result from complex interaction of several factors:

- **Winter Weather** : In northern climates that receive abundant snowfall and long periods of sub-freezing temperatures, deer vacate their summer range and concentrate in ecologically distinct wintering complexes. The amount of food and shelter present on the landscape, along with prevailing snow depth, determines the capability of the deer wintering complex to support deer during the winter.
- **Site Conditions** : The term site conditions means land cover related aspects of forest habitat, stand composition and relates to timber harvest. Conifer tree cover is important in determining the location of winter complexes, particularly in the higher snowfall areas. Conifer cover provides deer with shelter from snow, wind, and cold temperatures. In addition, conifer branches intercept and retain snow, allowing deer easier travel. In the Upper Peninsula, it appears that preferred winter cover is upland stands of eastern hemlock and swamps of northern white cedar, of appropriate age and stocking rates. Deciduous trees and shrubs adjoining conifer cover provide food for deer. Logging operations in close proximity to conifer cover provide deer with temporary abundant browse that would ordinarily be out of reach, but also may be a source for disturbance on local deer populations.
- **Past Migratory Behavior and Behavior Conditions**: This term includes established migratory deer patterns, deer movement behavior or instinct, and other behavior responses, dynamics or conditions. Fawns learn wintering locations from their mother or matrilineal family members and develop long-lasting affinities for specific wintering complexes. Following the onset of winter conditions, deer may migrate up to 50 miles from summer range to reach specific or preferred wintering complexes. Following winter break-up, deer disperse back to their summer areas.
- **Ecological Conditions**: The capability of wintering complexes to support deer depends on the quantity, quality, and spatial arrangement of shelter and food resources over time. The optimal habitat mix of shelter and food, at the landscape scale, appears to be approximately 50% conifer cover and 50% deciduous food, where upland conifer cover is utilized. Northern white cedar stands have the capability of providing both shelter and preferred winter food. Deer utilization of wintering complexes can be dynamic depending upon the onset, severity and duration of winter weather.

The newest DWC Data for 2013 is the product of a project initiated recently (before 2013), to identify the landscape-scale concentration sites of deer during the winter periods in the Upper Peninsula of Michigan. This was a formal landscape-scale mapping effort of winter deer concentration areas and associated deer wintering complexes for use for deer management considerations.

Comparison to other or older Deer Wintering data: Methods and scales of data have improved over time. The scales and methods used to create earlier “deer yard” maps appear to have varied across the state; previous products may not have identified deer wintering complexes by the same criteria, and are thus considered approximate representations of potential deer wintering complexes. Avoid a strict direct comparison between any previous approximations and current approximation.