



## Note for the Representation of Deer Wintering Complexes

*This text provides clarifying information about Deer Wintering Complexes, helps map readers, and explains some caveat, scalar and methods details.*

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**Efforts have been made to ensure the most recent and best information layers have been used in creation of this map; however, there are some comments readers should note:**

A deer wintering complex is a complicated term which requires some explanation to ensure it is clearly understood. Deer wintering complexes have sometimes been called “deer yards,” but the differences in accepted definitions of “deer yard” mean this term is not ideal for description. A “deer concentration area” is a localized site or area where deer are found during any individual winter. In contrast, a “deer wintering complex” is the landscape mosaic of food and cover resources used by deer in the winter. Therefore a deer wintering complex is a local area where climate, forest cover, past deer patterns and other behavioral and ecological conditions interact which result in an area important to deer survivorship during typical winters.

- **Winter Climate:** 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, determine the capability of the deer wintering complex to support deer during the winter.
- **Forest Cover:** 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 Patterns and Behavioral 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 many 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 cover 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 thermal cover and preferred winter food. Deer utilization of wintering complexes can be dynamic depending upon the onset, severity and duration of winter weather.

**During 2000-2005**, projects were initiated to identify the landscape-scale concentration sites of deer during the winter period in the Upper Peninsula (UP) of Michigan. This recent effort represents the first formal landscape-scale mapping effort of winter deer concentration areas and associated deer wintering complexes since DNR “deer yard” maps were produced in 1977-78. The scales and methods used to create the earlier individual winter “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. The various years (1962 to present) do have differences in how areas were identified and scales of reference information (i.e. scale of aerial photography, flyover height, site visits, etc.). There are differences in the 2000/2001 East UP and 2004/2005 West UP projects. Methods and scales of data development have improved over time; in the map legend, the West UP areas have a briefly described conditional index which is described in more detail in a developing document. Avoid a strict direct comparison between the previous approximations and current approximation – the information is durable on regional to county scales, but not durable at fine-scale comparisons.

**Therefore when reading the map**, please consider the representation to indicate the appropriately shaded area has noted importance to wintering deer, but that 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.