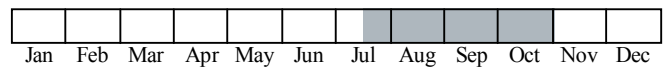


Best Survey Period



Status: State special concern

Global and state rank: G5/S3S4

Family: Muridae (rats, mice, lemmings, and voles)

Range: The woodland vole is found throughout the eastern United States from Maine to Texas. It is absent in portions of New England, the Florida peninsula, and the northern portions of the upper Great Lakes Region (Kurta 1995).

State distribution: The woodland vole population is patchy and local in Michigan (less than 100 specimens taken). However, there is potential for this species to occur throughout most of the state. This species is known from 20 counties in the lower peninsula. These counties include Allegan, Benzie, Barry, Berrien, Calhoun, Cheboygon, Charlevoix, Clare, Clinton, Crawford, Emmet, Gratiot, Ingham, Kalamazoo, Leelanau, Livingston, Oakland, Saginaw, Shiawassee, and Washtenaw Counties. Woodland voles have not been documented in the Upper Peninsula. (Baker 1983).

Recognition: The woodland vole is a small rodent that has very **small eyes and ears** and it has two pairs of mammary glands. The front feet have four toes and the back five. Its tail is **bicolored and very short** (18 mm – 24 mm and typically shorter than the length of the hind foot) (Kurta 1995). The **pelage is dense, short, soft, mole-like, and reddish or chestnut brown on the sides**. Individual hairs are dark at the base and dusky tipped. Under-surfaces are lead gray with pale tipped hairs, which gives the appearance of a buff wash (Baker

1983). No other microtine in Michigan has the combination of a short tail, small body, and reddish fur on the sides (Kurta 1995). The southern bog lemming (*Synaptomys cooperii*), which also has a short tail, may be confused with the woodland vole. However, it can be distinguished from the woodland vole by its grizzled pelage and grooved upper incisors (Kurta 1995).

Best survey time: The woodland vole is a fairly cryptic species due to its semi-fossorial nature (Baker 1983). The best way to document its presence is with traps (e.g., H.B. Sherman live-traps). Abundances typically are highest during late summer and fall and it is during this time period that trapping efforts should be most successful. However, even with fairly intensive trapping efforts it is often difficult to assess the abundance and/or presence of this species since it is somewhat trap-shy. Furthermore, wet, cold weather can significantly lower trapping rates. Evidence of its tunnels may be apparent in leaf litter as well as its angular chew marks on vegetation near or in passageways, although its passageways are difficult to distinguish from mole tunnels (Benton 1955).

Habitat: The woodland vole can be found in a wide array of habitats including orchards, forested wetlands, bogs, fence rows, and forests. However, greatest abundances typically are located in dry hardwood forests of oak, beech, and maple. Sandy soils and a thick litter layer seem to be preferred by this species due to its semi-fossorial nature (Kurta 1995).



Biology: The home range for the woodland vole is quite small and they rarely wander more than 15-30m from their nests. Breeding typically takes place from January through October, but breeding can potentially occur throughout the year. Woodland vole populations (as with most vole species) frequently exhibit 1-4 year population cycles (Benton 1955). Nests are typically located in underground tunnels or beneath a root or log and are constructed of grasses and leaves. As many as 4 litters per year may be produced consisting of 2-4 young. The young are naked when born and are dependent on parental care for approximately 24 days (Baker 1983). When foraging, woodland voles travel along subterranean passageways that they have excavated or they may make use of existing mole tunnels. They feed on a wide assortment of foods including roots, tubers, fruits, and vegetation (Benton 1955, Baker 1983). Winter caches of food are stored underground within their passageway system. During periods of a prolonged shortage of food woodland voles may girdle trees or resort to coprophagy (i.e., eating fecal matter) (Kurta 1995). Associate species include the woodland jumping mouse (*Napaeozapus insignis*), southern bog lemming (*Synaptomys cooperii*), pygmy shrew (*Sorex hoyi*), northern short-tailed shrew (*Blarina brevicauda*), eastern mole (*Scalopus aquaticus*), and *Peromyscus* spp. Woodland voles, as with most small mammals, are prey for species such as the raccoon (*Procyon lotor*), northern short-tailed shrew (*Blarina brevicauda*), red fox (*Vulpes vulpes*), mink (*Mustela vison*), opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), and various raptors (Baker 1983).

Conservation and management: The distribution and abundance of this species is not well known in Michigan. However, a pattern of habitat preference seems to be evident when comparing Michigan Natural Features Inventory woodland vole occurrence records to "Regional Ecosystems of Michigan" (Albert 1994). These habitats include well drained sandy soils, steep topography (particularly sandy ridges), large sand dunes, high outwash plains, and well drained sand hills. Little is known about how to best manage this species. Benton (1955) suggested that light soil and a deep humus layer are of primary importance and cover is of secondary importance. Therefore, conservation of deciduous forests, particularly those with steep sandy slopes may be of primary importance in protecting this species. Further, maintaining dead and down woody vegetation should be encouraged, since it is an essential component for small mammal cover in general. Uneven-aged silvicultural prescriptions (e.g., individual tree selection and group selection cuts) for shade tolerant tree species is probably a compatible management strategy, particularly when tree tops are left on the site after harvest. In situations in which even-aged management is an objective (i.e., shade intolerant species), harvest strategies could incorporate retention of dead and down woody debris and leaving clumps of live trees in clear-

cuts.

Research needs: A better understanding of the state's distribution of this species and its relative rarity/commonality within Michigan. Further, research is needed to gather a better understanding of the habitat requirements for this species and the impacts of forest management practices in order to derive useful management recommendations.

Related abstracts: red-shouldered hawk, northern goshawk, box turtle, wooded dune and swale, goblin moonwort, ginseng

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