

The Great Lakes Entomologist

Volume 32
Numbers 1 & 2 - Spring/Summer 1999 *Numbers*
1 & 2 - *Spring/Summer 1999*

Article 6

April 1999

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Recommended Citation

Mawdsley, Jonathan R. 1999. "New Records and Biological Notes On Species of Cleridae (Coleoptera) From the Adirondack Park, New York," *The Great Lakes Entomologist*, vol 32 (1)
Available at: <https://scholar.valpo.edu/tgle/vol32/iss1/6>

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NEW RECORDS AND BIOLOGICAL NOTES ON SPECIES OF CLERIDAE
(COLEOPTERA) FROM THE ADIRONDACK PARK, NEW YORKJonathan R. Mawdsley¹

ABSTRACT

Eleven species of Cleridae (Coleoptera) have been previously recorded from the Adirondack Park in the state of New York. Three additional species (*Placopterus thoracicus*, *Enoclerus muttkowskii*, and *Enoclerus nigrifrons*) are recorded from the Adirondacks for the first time. Biological notes and collecting records are provided for all species. Characters are given for separating adults and larvae of *Enoclerus muttkowskii* from those of the superficially similar species *Enoclerus ichneumoncus*. The relationships of these two species are discussed.

Adults and larvae of species of the beetle family Cleridae are important predators of bark and wood boring beetles (Böving and Champlain 1920, Balduf 1935). The Nearctic clerid fauna is reasonably well known from a taxonomic perspective; however, relatively little has been published on the distribution and ecology of most Nearctic clerid species.

The present compilation of records of species of Cleridae collected within the boundaries of New York's Adirondack Park is the first since the catalogue of Leonard (1928). Accordingly, three species of Cleridae are recorded from the Adirondacks for the first time in the present paper.

New York's Adirondack Park includes some six million acres in 12 counties in northern New York, of which approximately two million acres are owned by the state of New York which has designated them a "forever wild" forest preserve (Davis 1993, McMartin 1994). A wide range of ecological habitats are included in the Adirondack Park, and a correspondingly wide range of species of Cleridae might be expected to inhabit it. Future collecting in seldom-explored areas of this park (see discussion below) may reveal species not included in the present list; however, it is unlikely that species of Cleridae will be found in the Adirondacks which were not included in the treatment of Ohio Cleridae by Knull (1951) or the New York state list of Leonard (1928).

MATERIALS

Specimens examined in the present study are housed in the Cornell University Insect Collection (CUIC), the collection of the Museum of Comparative Zoology, Harvard University (MCZC), and the personal collections of the author (JRMC) and Kipling W. Will (KWWC). M. F. O'Brien provided label data from specimens identified by W. F. Barr and D. Gosling in the collection of the Museum of Zoology, University of Michigan (UMMZ). I have repro-

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duced collecting information exactly as it appears on specimen labels, although "Mt. Whiteface" is more properly known as "Whiteface Mountain" and the summit of "Mt. MacIntyre" is known as "Algonquin Peak" (Carson 1927). Keys and illustrations of all species of Cleridae known or likely to occur in the Adirondack Park are given by Knull (1951).

Subfamily Thaneroclerinae

Zenodosus sanguineus (Say)—Adults are conspicuous when active on recently-cut logs or on trunks of recently-dead or dying eastern white pines and other conifers. Adults overwinter singly in frass beneath thick bark at the base of large, dead trees. I have collected overwintering adults in central New York beneath bark of large, dead eastern white pine, black cherry, beech, and eastern hemlock. This species has also been collected on oak, maple, and birch (Chittenden 1890). Böving and Champlain (1920) record it from spruce infested with *Dendroctonus* and *Polygraphus* (Coleoptera: Scolytidae).

Historical Records: St. Lawrence Co., [no locality specified] July, Cranberry Lake, June and July; Essex Co.: Keene Valley, May and August (Leonard 1928).

Specimens Examined: Essex Co.: Heart Lake, June 13, 1949 (1 ex CUIC); Lake Colden, June 30, 1949 (1 ex CUIC); Whiteface Mt., summit, July 11, 1995 (2 ex JRMC); St. Lawrence Co.: Parishville (White's Hill), August 21, 1975 (1 ex UMMZ).

Subfamily Tillinae

Cymatodera bicolor (Say)—This species has been recorded from a wide range of deciduous trees as well as species of *Juniperus* infested with scolytid and cerambycid beetles (Knull 1951). Adults are most commonly collected at lights.

Historical Record: Essex Co.: Keene Valley, June (Leonard 1928).

Subfamily Clerinae

Thanasimus dubius (Fabricius)—Adults are active on recently-cut logs or on trunks of recently-dead or dying coniferous trees. Oviposition occurs in crevices in bark, and adults of both sexes frequently conceal themselves beneath bark scales or loose bark. Adults have been collected on most eastern species of pine and spruce (Böving and Champlain 1920:628–629). Specimens have also been collected on rocks atop open summits in the Adirondacks and other mountain ranges.

Historical Records: Franklin Co.: Mt. Seward, summit, June 22, 1901 (Houghton 1905); Essex Co.: Keene Valley, June and July; Clinton Co.: Black Brook, June (Leonard 1928).

Specimens Examined: Essex Co.: Mt. MacIntyre (top), July 29, 1940 (1 ex CUIC); Whiteface Mountain (top), July 16, 1990 (1 ex CUIC), summit, July 11, 1995 (4 ex JRMC).

Thanasimus trifasciatus (Say)—Adults are most often collected on old-growth or virgin eastern white pine or red spruce trees, but have also been

taken recently on the open, rocky summit of Whiteface Mountain (J. Huether, pers. comm.).

Characterized by LeConte (1849) as "minus frequens," *T. trifasciatus* has apparently never been abundant and is represented by few specimens in collections.

Historical Record: Essex Co.: Keene Valley, June (Leonard 1928).

Thanasimus undatulus (Say)—This species has been collected on most eastern coniferous trees, including species of pine, spruce, tamarack, and cedar (Böving and Champlain 1920:629). In the Adirondacks and other northeastern mountain ranges it is usually the most common species of *Thanasimus* on open summits.

This species exhibits considerable variability in coloration, with the elytral bases and pronotum ranging from red-orange to black.

Historical Record: Clinton Co.: Black Brook, June (Leonard 1928).

Specimens Examined: Essex Co.: Mt. MacIntyre (top): June 19, 1941 (9 ex CUIC), August 2, 1940 (1 ex CUIC), June 11, 1942 (1 ex CUIC); Mt. Whiteface (top): June 27, 1941 (5 ex CUIC), July 25, 1940 (1 ex CUIC), June 14, 1943 (1 ex CUIC), July 22, 1991 (2 ex CUIC); Newcomb to Goodnow Mountain Peak, June 1, 1989, 1600–2685 ft (1 ex CUIC).

Placopterus thoracicus (Olivier)—This species is one of the most common clerids in southern New York but is apparently less abundant in the Adirondacks. Its larvae prey on bark and wood-boring beetles attacking smaller branches of deciduous trees (Böving and Champlain 1920). Adults are usually found on foliage or in flight around dead or dying trees.

Historical Records: not previously recorded from the Adirondacks.

Specimen Examined: Essex Co.: Top Mt. Whiteface, June 27, 1941 (1 ex CUIC).

Enoclerus muttkowskii (Wolcott)—Like *Thanasimus trifasciatus*, *E. muttkowskii* is uncommon in collections. Most older specimens were collected in Pennsylvania, although specimens have also been collected in Ontario, Vermont, Long Island, Michigan, and Wisconsin. Larvae have been collected beneath the bark of eastern hemlock (Böving and Champlain 1920). Adults have also been recorded from poplar and shortleaf pine (Knull 1951).

Enoclerus muttkowskii has often been confused with the similarly colored and more widely distributed species *E. ichneumoneus* (F.), despite significant anatomical and biological differences separating adults of these two species (see Table 1) and the differences in urogomphal anatomy which readily separate their larvae (Table 1, Böving and Champlain 1920). These characters suggest a placement for *E. muttkowskii* within a group of predominantly western species of *Enoclerus* (including *E. ocreatus* (Horn), *E. schaefferi* Barr, and *E. nigrifrons* (Say)). In contrast, *E. ichneumoneus* is probably most closely related to *E. knabi* (Wolcott) from Florida and Georgia, and these two species in turn belong to a larger complex of large, robust species with basal elytral tubercles, most of which occur in Mexico. Most northern records of *E. ichneumoneus* probably refer instead to *E. muttkowskii*. I have not personally examined specimens of *E. ichneumoneus* collected north of Pennsylvania. These two species from different lineages of the genus *Enoclerus* have converged on a similar color pattern, perhaps through mimicry of mutillid wasps (Mawdsley 1994).

Historical Records: The record of *E. ichneumoneus* from Cranberry Lake,

Table 1. Characters for separation of *Enoclerus muttkowskii* (Wolcott) and *Enoclerus ichneumoneus* (Fabricius).

Character	<i>E. ichneumoneus</i>	<i>E. muttkowskii</i>
Pronotal shape	midsection strongly robust, globose	midsection tapering from apex to base, not robust
Pronotal vestiture	dense orange pubescence surrounding central black patch of pubescence	scattered suberect black and orange setae
Base of elytra	with one large, stout tubercle per elytron	lacking large tubercles
Larval urogomphi	apices tapered, acuminate, not globose	apices swollen, globose
Host Species	<i>Carya ovata</i> , <i>Liquidambar styraciflua</i> , <i>Acer</i> spp., <i>Juniperus</i> spp., <i>Rhus</i> spp.	<i>Tsuga canadensis</i> , <i>Pinus echinata</i> , <i>Populus</i> spp.
Distribution	PA south along Appalachians and foothills to FL; west to WI, IL, and KS	Great Lakes, northeastern mountains, Long Island

St. Lawrence Co., in July (Leonard 1928) probably refers instead to this species.

Specimen Examined: Clinton Co: Chateaugeay Lake, 2000 ft [no date] (1 ex MCZC).

Enoclerus nigrifrons (Say)—Adults are found on smaller dead and dying branches (usually less than 3 cm in diameter) of eastern white pine and other conifers, often at the same time adults of *E. nigripes* are on the larger branches.

As noted by Knull (1951), this species' coloration varies considerably. A few color forms have been named, but the range of variation outside of these color forms is considerable and no clear geographic patterns are evident.

Historical Records: not previously recorded from the Adirondacks.

Specimens Examined: Essex Co.: Wilmington area, July 12–15, 1992 (4 ex CUIC); Wilmington, July 3–4, 1991 (3 ex CUIC).

Enoclerus nigripes (Say)—Adults are most commonly found on small to moderate-sized branches (3 to 10 cm diameter) of various species of pine which are infested with scolytid, buprestid, and cerambycid beetles. *Enoclerus nigripes* has also been recorded from shoot tips of eastern white pine infested with *Pissodes strobi* Peck (Coleoptera: Curculionidae) (Böving and Champlain 1920). Adults have also been collected on butternut, ash, mulberry, and wild cherry (Chittenden 1890:154).

The melanic color form of this species (*E. nigripes* var. *rufiventris* (Spinola)) provides a good example of clinal color variation. Specimens collected south of Pennsylvania have the prothorax and basal third of the elytra reddish-orange, while specimens from Maine, southern Canada, and northern New York have the prothorax and elytral bases entirely black. Collections of specimens from intervening areas exhibit increasingly greater proportions of melanic individuals with increasing latitude. Specimens which are intermediate in the extent of melanic coloration can also be found in this region.

Historical Record: Clinton Co.: Black Brook, June (Leonard 1928).

Specimens Examined: Essex Co.: Mt. MacIntyre (top): July 29, 1940 (3 ex CUIC), August 2, 1940 (1 ex CUIC); Whiteface Mt.: 4600 ft July 12, 1992 (1 ex CUIC), top, July 7, 1991 (2 ex CUIC), top, July 3, 1990 (1 ex CUIC), top, July 22, 1991 (1 ex CUIC), summit, July 6, 1995 (1 ex JRM), July 11, 1995 (2 ex JRM); St. Lawrence Co.: Parishville (White's Hill), April 27, 1974 (1 ex UMMZ), May 10, 1975 (1 ex UMMZ), May 14, 1974 (1 ex UMMZ), September 16, 1973 (1 ex UMMZ).

Trichodes nutalli (Kirby)—This colorful species has been found on flowers in subalpine forest and alpine tundra in the vicinity of the summit of Whiteface Mountain in the Adirondacks (K. Will. pers. comm.). *Trichodes nutalli* is widespread across the northern United States and southern Canada and adults have been collected from a wide range of flowers (Foster 1976:50, 80). The larvae of this species are thought to feed on grasshopper egg pods (Foster 1976:71–72).

Historical Record: Essex Co.: Wilmington, July (Leonard 1928).

Specimens Examined: Essex Co.: Mt. Whiteface, 2000 ft., June 19, 1936 (1 ex CUIC), summit, July 6, 1995 (1 ex KW); Heart Lake, August 27, 1942 (1 ex CUIC); St. Lawrence Co.: Parishville (White's Hill), July 12, 1974 (1 ex UMMZ).

Subfamily Hydnocerinae

Phyllobaenus humeralis (Say)—This species is common and widespread in eastern North America. Adults are usually collected on foliage of *Carya* or *Quercus* species (Chapin 1917, Knull 1951). In my experience, this species is most abundant on sunlit foliage in barrens and other open habitats, including recently-logged areas.

The typical form of this species is dorsally bluish-black with quadrate orange-red markings on the elytral humeri. Adults which are entirely bluish-black (*P. humeralis* var. *difficilis* (LeConte)) and adults with more or less reduced humeral markings are found in many populations of this species from eastern North America.

Historical Record: Franklin Co.: Axton, June 16–23, 1901 (MacGillivray and Houghton 1902).

Phyllobaenus verticalis (Say)—Recorded from a wide range of deciduous trees and shrubs infested with cerambycid and buprestid beetles (Knull

1951). Osten Sacken (1861) found adults in cynipid galls on white oak. Adults are usually found on foliage of infested trees.

Historical Records: Essex Co.: Mt. Whiteface, 2000–4000 ft., August; Clinton Co.: Plattsburgh, July (Leonard 1928).

Specimen Examined: Essex Co.: Artist's Brook, June 23, 1940 (1 ex CUIC).

Isohydnocera curtipennis (Newman)—Larvae attack insects associated with galls on goldenrod (*Solidago* spp.) (Sabrosky 1934). Chittenden (1890) records this species from witch hazel (*Hamamelis virginica*) and hickory (*Carya* spp.). Adults are usually collected by sweeping low herbaceous foliage.

Historical Record: St. Lawrence Co.: Cranberry Lake, June (Leonard 1928).

Subfamily Epiphloeinae

Madoniella dislocata (Say)—This species is found on smaller dead limbs of many species of deciduous and coniferous trees infested with bark and wood-boring beetles (Chapin 1917, Knull 1951). In my experience, it is most common on oaks, particularly northern red oak (*Quercus rubra*).

Historical Record: Essex Co.: Keene Valley, August (Leonard 1928).

Subfamily Korynetinae

Necrobia violacea (Fabricius)—One of three common species of this genus which are associated with dry carrion and have been spread by human commerce (Knull 1951).

Historical Record: Franklin Co.: Axton, June 16–23, 1901 (MacGillivray and Houghton 1902).

DISCUSSION

The collecting records reported here are mostly from the "High Peaks" region of the Adirondack Park in Essex County. The lack of collecting data for much of the rest of the Adirondack Park is an artifact of the preferences of present and past collectors. The High Peaks area has well-developed campgrounds, trails, lodges, motels, and a Cornell University experiment station. There is even a road to the top of one mountain (Whiteface Mountain, not coincidentally the best-represented collecting locality in the present paper). Additional collections from outside the High Peaks, particularly within large surviving old growth forest tracts (described by Leopold et al. 1988, Davis 1993), are clearly needed in order to better understand the distribution and biology of these important forest predators.

ACKNOWLEDGMENTS

I would like to thank K. W. Will and J. Huether for discussion of clerids on Whiteface Mountain. J. K. Liebherr and E. R. Hoebeke graciously allowed me to examine specimens in the Cornell University Insect Collection. M. F.

O'Brien contributed information on specimens in the collection of the Museum of Zoology, University of Michigan. J. E. Carter, Jr. and C. M. Carter stimulated my interest in the Adirondack Park.

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