Subarctic Darner

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Photo credits: *Blair Nikula*

Scientific Name *Aeshna subarctica* Walker, 1908

Family Name Aeshnidae Darners

Did you know?
The subarctic darner is primarily a European and Canadian species. Until the mid 1990s it was known from only three localities in the United States, including one site in the southern tier of New York State (Donnelly 1992)

Summary

Protection Not listed in New York State, not listed federally.

This level of state protection means: The species is not listed or protected by New York State.

Rarity G5, S1

A global rarity rank of G5 means: Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
A state rarity rank of S1 means: Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology makes it especially

vulnerable in New York State.

Conservation Status in New York

At present, there is a single known population of the subarctic darner in New York State. A record from non-breeding habitat in the Adirondacks indicates the likelihood of additional undiscovered populations in this region and perhaps elsewhere in the state where bogs are found. However, this is primarily a species of Canada and northern Europe, is considered rare in most of the northern states where it occurs, and is not expected to be found in a large number of locations in New York.

Short-term Trends

There is no information on population trends at the single known site that has existed since at least 1973.

Conservation and Management

Threats

There are no obvious threats to the habitat that supports the single known population in New York although there may well be threats to other, as yet unidentified, populations. Little published information is available citing specific cases of negative impacts to bog and fen odonates, but any activities which degrade the sensitive hydrology of these habitats would threaten populations of this species. Examples include peat mining, ditching, filling, eutrophication, direct effects of pesticides (e.g. for mosquito control or from agricultural runoff), and increases in the sediment load of the wetland (such as might result from agricultural runoff or removal of vegetation from the adjacent uplands). Succession could also threaten some sites as shallow pools fill in with vegetation over time. Removal of large areas of forest or shrub habitats adjacent to occupied wetlands could also threaten populations as these adjacent habitats are important for recently emerged adults until they reach maturity.

Research Needs

Research aimed at obtaining information on population size at occupied sites would be useful in determining the overall population for this species in the state.

Habitat

The habitat for this species has been described as muskeg ponds, bogs, and northern swamps (Mead 2003), whereas Nikula et al. (2003) describe the habitat in Massachusetts as sphagnum bogs and deep fens with wet sphagnum. The sole breeding location for this species in New York is a bog complex that includes areas of black spruce-tamarack bog, highbush blueberry bog thicket, and inland poor fen.

Associated Ecological Communities

Black Spruce-tamarack Bog
A conifer forest that occurs on acidic peatlands in cool, poorly drained depressions. The characteristic trees are black spruce and tamarack; in any one stand, either tree may be dominant, or they may be codominant. Canopy cover is quite variable, ranging from open canopy woodlands with as little as 20% cover of evenly spaced canopy trees to closed canopy forests with 80 to 90% cover.

Highbush Blueberry Bog Thicket
A wetland usually fed by rainwater or mineral-poor groundwater and dominated by tall shrubs and peat mosses. The most abundant shrub is usually highbush blueberry. The water in the bog is usually nutrient-poor and acidic.

Inland Poor Fen
A wetland fed by acidic water from springs and seeps. Plant remains in these fens do not decompose rapidly and thus the plants in these fens usually grow on older, undecomposed plant parts of mostly sphagnum mosses.

Other Probable Associated Communities

Dwarf shrub bog
Patterned peatland

Identification Comments

Identifying Characteristics

Like other blue or mosaic darners (genus *Aeshna*), adult subarctic darners are large dragonflies with large eyes, a brown thorax with two blue-green stripes on the front and two on the side, and a long slender brown abdomen marked by two rows of sky blue spots. Adult subarctic darners average approximately 2.8 inches (7.1 cm) in length. The face is yellow with an obvious black line across the middle and a black "T-spot" above the face. The eyes are blue-gray to greenish. The two stripes on the side of the thorax (the lateral stripes) are bent at the midpoint and tend to be blue or blue-green in the upper portion and yellow or greenish in the lower portion. The forward-most stripe has a long, thin blue "flag" at the top which extends toward the rear. Typically, there are two, nearly connected, very thin yellow to blue lateral spots located between the two lateral thoracic stripes. The wings are usually clear, but are occasionally tinted with amber in females. Some females have green or yellow abdominal spots or thoracic stripes in places where these colors are blue in males.The larvae are elongate, cylindrical shaped aquatic insects that are usually patterned in drab brown and greenish colors and climb and crawl among aquatic vegetation. The antennae are composed of six or seven, small slender segments. Body length is approximately 1.57-1.65 inches (40-42 mm) at maturity (Walker 1958) which may be at 1-3 years.

Characteristics Most Useful for Identification

Close examination of the thoracic and abdominal pattern and terminal appendages is necessary for positive identification.

Best Life Stage for Identifying This Species

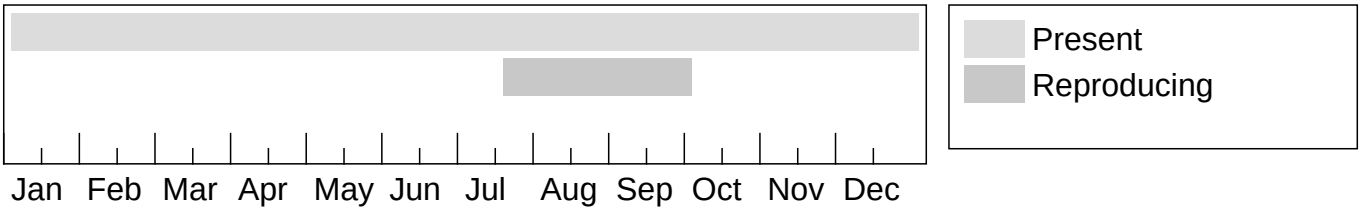
Mature adults are the best life stage for the identification of all dragonflies. Larval identification requires the use of detailed taxonomic keys, can be very difficult, and can be very unreliable, especially in the case of larvae that are not yet mature. Larval identification is best done by people with a great deal of expertise in this area.

Behavior

Adults may be found hunting in open areas away from the breeding habitat. At the bogs and fens where this species breeds the males may be seen flying low over wet areas and pools patrolling a territory, chasing other males, and searching for females. Females lay their eggs in patches of sphagnum "soup" in pools of shallow water within the bogs.

The Best Time to See

Flight dates for this species in Massachusetts are from mid-July to mid-September (Nikula 2003), whereas flight dates in the western Great Lakes states extend to the end of September (Mead 2003). Dunkle (2000), gives a somewhat longer flight period of early June to early October. The few observations for New York are from late August and early September, but the full flight season is probably similar to that listed above for other states.



The time of year you would expect to find Subarctic Darner in New York.

Similar Species

Green-Striped Darner(Aeshna verticalis): As with the Canada darner, the forward-most stripe on the thorax is indented, but not bent in the middle as in the subarctic darner. There is no black cross line on the face.

Shadow Darner(Aeshna umbrosa): The narrow, straight stripes on the thorax of this species are narrowly outlined in black. There is no black cross line on the face.

Black-Tipped Darner(Aeshna tuberculifera): The stripes on the side of the thorax in the black-tipped darner are relatively straight and parallel sided as opposed to bent in the middle. As its name implies, the last abdominal segment is black and the male abdominal "clasper" or cerci has a small bump or tubercle on the underside.

Canada Darner(Aeshna canadensis): Although the forward-most stripe on the thorax is indented in the middle it is not bent as in the subarctic darner. There is often a single, small yellow spot on the side of the thorax located between the two lateral stripes. There is no black cross line on the face.

Taxonomy

Kingdom Animalia
└─ **Phylum** Mandibulates (Mandibulata)
  └─ **Class** Insects (Insecta)
    └─ **Order** Dragonflies and Damselflies (Odonata)
      └─ **Family** Aeshnidae (Darners)

Additional Resources

Links

NatureServe Explorer
http://natureserve.org/explorer/servlet/NatureServe?searchName=AESHNA+SUBARCTICA

Google Images
http://images.google.com/images?q=AESHNA+SUBARCTICA

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This project is made possible with funding from:

- New York State Department of Environmental Conservation Hudson River Estuary Program
- Division of Lands & Forests, Department of Environmental Conservation

- New York State Office of Parks, Recreation and Historic Preservation

Information for this guide was last updated on Mar 14, 2013

This guide was authored by