



Natural Heritage & Endangered Species Program

Massachusetts Division of Fisheries & Wildlife
Route 135, Westborough, MA 01581
Telephone: (508) 389-6360/Fax: (508) 389-7891
www.nhesp.org

Comet Darner *Anax longipes*

State Status: **Special Concern**
Federal Status: **None**

DESCRIPTION OF ADULT: The Comet Darner (also known as the Long-legged Green Darner in earlier references) is a stunning insect species in the order Odonata, suborder Anisoptera (the dragonflies), and family Aeshnidae (the darners). It is a large dragonfly with a bright red abdomen and bright green thorax (winged and legged segment behind the head). The first two abdominal segments are swollen and the third is constricted, giving the insect a slender-waisted appearance. The Comet Darner has long red legs that fade to black towards their ends. The wings are transparent and usually clear, though they can be tinged with amber. The face is bright green and unmarked. The compound eyes are green in mature males, but sky blue in females.

Comet Darners are very large dragonflies ranging from 3.0 to almost 3.4 inches (75 - 87 mm) in overall length, with the females averaging somewhat larger. Wingspread may be over four inches (107 mm).

SIMILAR SPECIES: There is one other species of *Anax* found in Massachusetts, the Common Green Darner (*A. junius*). The Comet Darner bears some resemblance to this species.

However, it is easy to distinguish between the two species as Common Green Darners have a "bull's eye" pattern located on the top of the forehead while the forehead in the Comet Darner is not marked. Mature male Common Green Darners have blue and black abdomens, while the mature male Comet Darner has a bright red abdomen. Young males and females are more difficult to distinguish. At these stages, both species have a dull red abdomen. Still, the "bull's eye" marking on the head will distinguish the two. Comet Darners are generally larger than Common Green Darners and have longer legs.

The nymphs of the Comet Darner are long and slender, averaging over two inches (55 mm) in length when fully grown, and can be distinguished from Common Green Darner nymphs using characteristics of the labium (lower lip) as per the keys in Walker (1958) and Soltesz (1996).

HABITAT: Typical habitat in Massachusetts is ponds containing floating and emergent vegetation, including coastal plain ponds. These ponds generally have yearly fluctuations in water level. Some of the common plants associated with coastal plain ponds include Military Rush (*Juncus militaris*), Plymouth Gentian (*Sabatia kennedyana*), and grasses (*Dicanthelium* spp.).



The nymphs are aquatic, living among aquatic vegetation and debris. The adults inhabit a wide range of uplands, being found far from natal sites.

LIFE-HISTORY/BEHAVIOR: Adult Comet Darners typically first appear in late June and are on the wing into early September. Comet Darners are most active on sunny days. Males patrol the breeding site, typically flying lengthy beats around the perimeter of their pond habitat, usually one to several feet above the tops of emergent vegetation and sometimes over open water.

Female Comet Darners appear at the breeding sites when ready to breed. The appearance of a female generally results in a moment of fevered chaos as one or more males attempt to seize the female. The male uses the claspers at the tip of his abdomen to grab the female behind the eyes. If the female is receptive, she curls her abdomen upward to couple with the male on the underside of his second abdominal segment. Once successfully

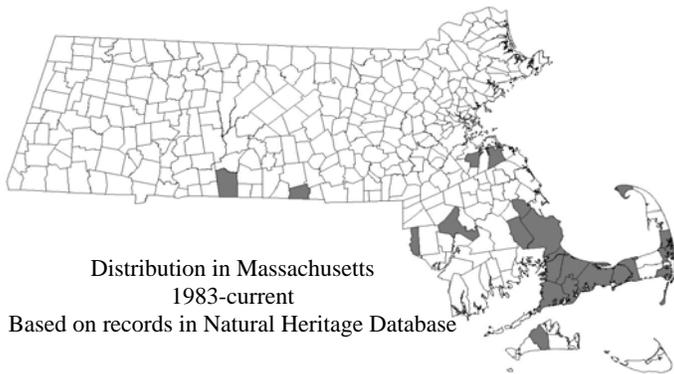
COMET DARNER FLIGHT PERIOD

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

coupled, the pair flies off high into the nearby woodland to mate. Male dragonflies will mate with as many females as possible; the females may also mate with more than one male. Comet Darner females oviposit (lay eggs) in emergent or aquatic vegetation. The female uses the ovipositor on the underside of her eighth abdominal segment to slice into the stalks of plants where the egg is deposited. Females have been observed ovipositing in the stems of Military Rush, but probably use many other species of emergent or floating vegetation as well. The number of eggs laid by an individual female Comet Darner is not known, but in many dragonfly species often numbers into the hundreds.

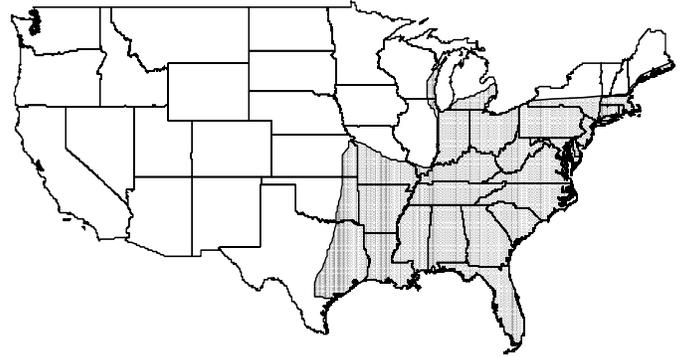
The Comet Darner nymph, like all dragonfly nymphs found in Massachusetts, is aquatic. The amount of time required for the development of the eggs and nymphs is uncertain. The eggs probably hatch within a month, but the nymph may take as long as 3-4 years to reach maturity. As a nymph matures, it sloughs off its skin, or exoskeleton, at the end of each stage of growth or instar. The final cast skins, known as exuviae, can be found attached to emergent vegetation where nymphs crawl out to transform into adults. The exuviae can be used for specific identification and are a reliable, useful means for confirming the presence of a breeding population at a site.

Immature dragonflies may spend a week or more feeding and maturing in upland areas away from water, often some distance from the breeding site. Comet Darners are rarely seen during this stage. It is possible that they spend much of their time among the treetops where they are difficult to observe. Comet Darners, like other Darners, feed on other aerial insects, which they capture on the wing. When at rest, they hang from vegetation in a vertical position, often high in the trees.



RANGE: The Comet Darner's range is largely restricted to the coastal plain from southeastern Massachusetts south to Florida and west along the Gulf Coast into Texas. Isolated inland populations occur in various states including Indiana and Wisconsin, as well as southern Ontario. In New England, Comet Darners have been recorded in Massachusetts, Rhode Island, and Connecticut. Large numbers of individuals have been observed in the migrations of dragonflies along the Atlantic seaboard in the late spring.

Population Status in Massachusetts: The Comet Darner is listed as a Species of Special Concern in Massachusetts. As with all species listed in Massachusetts, individuals of the species are protected from take (picking, collecting, killing...) and sale under the Massachusetts Endangered Species Act. Prior to 1978, this species was known from only four sites in Massachusetts. Recent surveys have identified several additional sites, especially on Cape Cod.



Range of Species in US

MANAGEMENT RECOMMENDATIONS: The major threat to the Comet Darner at this time is most likely the destruction of its breeding habitat, including construction and development near ponds; artificial drawdown by pumping stations of waterlevel; recreational use such as Off Road Vehicle traffic through pond shores which may kill eggs and nymphs and destroy habitat; and eutrophication from leaching of septic tanks. It is also important to preserve the upland habitats surrounding the ponds, as Comet Darners, like many species of dragonflies, spend a period of up to several weeks away from the pond maturing.

REFERENCES:

Carpenter, V. 1991. Dragonflies and Damselflies of Cape Cod. Cape Cod Museum of Natural History.
 Dunkle, S. W. 2000. Dragonflies Through Binoculars. Oxford University Press.
 Needham, J.G., M.J. Westfall, Jr., and M.L. May. 2000. Dragonflies of North America. Scientific Publishers.
 Nikula, B., J.L. Ryan, and M.R. Burne. 2007. A Field Guide to the Dragonflies and Damselflies of Massachusetts. Massachusetts Natural Heritage and Endangered Species Program.
 Soltesz, K. 1996. Identification Keys to Northeastern Anisoptera Larvae. Center for Conservation and Biodiversity, University of Connecticut.
 Walker, E.M. 1958. The Odonata of Canada and Alaska, Vol. II. University of Toronto Press.

Updated August 2008