MISSOURI BOTANICAL GARDEN

William T. Kemper Center for Home Gardening

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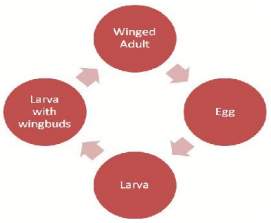
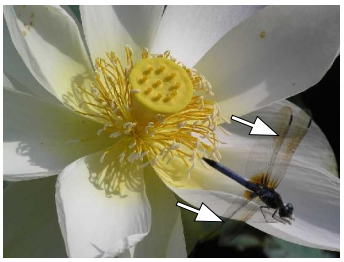
Insect Order ID: Odonata (Dragonflies, Damselflies)

Life Cycle–Gradual metamorphosis (sometimes called incomplete or simple). As the larvae (nymphs or naiads) grow, they look more and more like adults. Wings begin as tiny wingbuds on larvae and gradually grow larger and larger until fully developed on adults.



Adults–Long skinny, stick-like abdomen. Two pairs of long membranous wings divided into numerous cells. The wings of dragonflies are wide at the base, the venation of the forewings is different than the hindwings, and at rest the wings are held separately at right angles to the body. Both the forewing and hindwing of damselflies narrow toward the base (forming a stalk in some cases), venation is similar, and at rest the wings are held folded together or only slightly separated. Eyes of damselflies are spherical, set far apart on each side of the head, and are enormous in relationship to the head. Eyes of dragonflies are also enormous, but set close together atop the head. Odonata antennae are bristles that may require magnification to see. Mandibles are well-developed, and the jaws are toothed hence the name Odonata "toothed jaws." All six legs are similar. *(Click images to enlarge or orange text for more information.)*

Odonata means "toothed jaw"

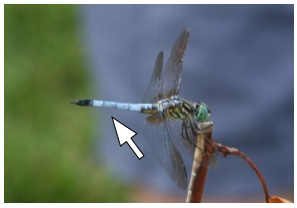


4 wings often held flat

Wings divided into numerous cells

Antennae hard to see bristles

Dragonfly eyes: set close together atop the head



Long, stick-like body

Eggs–Laid in aquatic areas, sometimes in plant material, sometimes in mud, sometimes in water.

Larvae–The nymphs or naiads look similar to adults, but most are aquatic and therefore possess gills. The gills of dragonfly larvae are located inside the rectum and are therefore not visible externally, but damselfly larvae have 3 visible paddle-shaped gills protruding from the tip of the abdomen. After each molt, the larvae look more adultlike and the wings (wingbuds) are larger and more developed than the previous instar (the stages between molts). The larval stage usually lasts 2 years in the St. Louis area, but in other areas can last from 3 months to 10 years, depending on species and location. The lower lip is hinged into multiple segments, and can shoot out and snare prey, then shoot it back to the mouth. *(Click images to enlarge or orange text for more information.)*

Wingbuds present

Pupae–None. All Odonata go through gradual metamorphosis becoming more and more adultlike between molts. *(Click images to enlarge or orange text for more information.)*

Molted skin
of last instar

Beneficial/Benign Aspects–Both the adults and larvae (nymphs) are considered beneficial insects. Both are carnivores. The larvae feed mainly on aquatic creatures, such as, mosquito larvae, midges, and other small insects, and even minnows. The adults often catch flying prey, such as, mosquitoes, midges, and even other Odonata, in midair. *(Click images to enlarge or orange text for more information.)*

Predator

Damage–Neither the adults nor larvae (nymphs) damage plant tissues. Neither are pests, but larger ones can deliver a painful bite if handled.

Comments–Dragonflies and damselflies depend on unpolluted water for survival as they spend the early part of their lives as aquatic insects. The larvae need muck in the bottom of ponds in which to hide from predators and as a place to overwinter.

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