

# BOGDIVERSITY THURSDAY



—*from Head Naturalist Clinton*

## Predaceous Diving Beetles

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Phenologists, folks who track the change of seasons through biological happenings, often have their favorite groups of species to see first (or last) in a season! Plants like skunk cabbage, bloodroot, hepatica, migrant bird species, and migrant butterflies like Monarchs are used as markers of changing or arriving seasons. Today's Biodiversity Thursday features a group of species that you might not always associate with seasonal change: predaceous diving beetles!

Predaceous diving beetles are a diverse group of aquatic beetles that are substantial underwater predators as adults and as larvae. Found in most freshwater ecosystems, these beetles use their strong hind legs and well-developed jaws to catch prey ranging from other aquatic insects to fish and tadpoles! You can find these beetles in moving or still water, but in our area, they are primarily found in lakes, ponds, and ditches. There have been 6 species of predaceous diving beetles documented in the Sax-Zim Bog, out of a total of 16 aquatic beetle species.

These awesome beetles have a few adaptations that make them successful in their environments. Their hindlegs have stiff hairs, effectively making their narrow legs flippers! On some species, their front legs may have suction cups, used by males to hold onto the smooth and streamlined elytra (wing covers) of females when mating.

Diving beetles spend the majority of their lives in water, but they still need to breathe air. To do this, these beetles rise to the surface of the water to collect air bubbles under their elytra. They can then "breathe" these air bubbles through spiracles on their abdomens, before replenishing their stores once again.

So what do those adaptations have to do with phenology? Well, nothing really! But these beetles do have a relationship to tracking phenology. For example, adult diving beetles often will disperse from overwintering areas (either in water or on land) to open bodies of water in April and May. This is when you are likely to encounter these beetles in places far from water, like sidewalks or even at house lights at night. This dispersal also happens in the fall, when adult beetles are moving to new breeding areas or overwintering areas. The same behavior can be seen in giant water bugs and even water boatman and backswimmers! Keep your eyes out for these beetles this spring, especially now that lakes and ponds are free of ice!

More information can be found about these beetles below.  
(Photos below by Head Naturalist Clinton)



A rather small species of predaceous diving beetle, *Colymbetes densus*, is quite beautiful with a handsome pattern behind its head. This one is collecting an air bubble from the surface in preparation to dive.



It is not uncommon to find adult diving beetles on land during the spring or fall, as they disperse from overwintering areas to breeding areas, or vice versa.



*Acilius semisulcatus* is a lovely species of predaceous diving beetle! It is beautifully marked with gold on its elytra and stripes near its head. This one is showing off its air bubble. Also well seen in this photo are the stiff hairs on the hind legs that allows diving beetles to swim swiftly through the water.



Some diving beetles can be large! This species (either *Dytiscus alaskanus*/*dauricus*) was found on land during dispersal. Not all diving beetles are this big, but at this size, you can certainly see why tadpoles and small fish are on their menu!