



Band-winged meadowhawk (*Sympetrum semicinctum*). Photo: Dr. Mary Ann Perron.

The importance of wetland plants for dragonflies and damselflies

WHAT ARE ODONATA?

Odonata, including dragonflies and damselflies, are ancient insects, with their ancestors dating back over 325 million years. Odonata are used as biological indicators in ecological research as their species presence often is linked to ecosystem health. Odonata also have a biphasic lifecycle, meaning they spend part of their life in the water as aquatic nymphs and part of their life in the terrestrial environment as adults.

Why do dragonflies and damselflies make good bioindicators? They are well studied taxonomically, easily identifiable as adults, widespread in freshwater habitats, and have a huge range of environmental conditions they can live in depending on the species.

WHY DO ODONATA NEEDS PLANTS?

- **Endophytic oviposition** – all damselflies and darter dragonflies lay their eggs directly into plant tissues by slicing a small slit in the plant with their specialized ovipositors. This protects the eggs from desiccation and predation.
- **Emergent substrates** – almost all Odonata species need a vertical substrate to emerge from their nymphal life stage into their adult life stage (see example, right).
- **Predator-prey relationships** – plants create structure in both the terrestrial and aquatic habitat that can act as shelter from predators.
- **Perching** – plants provide shelter and opportunities for thermoregulation.



Dragonhunter (*Hagenius brevistylus*) in the middle of emergence. Photo: Dr. Mary Ann Perron.

NATIVE WETLAND PLANTS IN OTTAWA, ONTARIO THAT WERE SIGNIFICANTLY ASSOCIATED WITH ODONATA SPECIES COMPOSITION (AS FOUND IN PERRON AND PICK 2019)



Swamp candles (*Lysimachia terrestris*).

- Broadleaf arrowhead (*Sagittaria latifolia*)
- Common spikerush (*Eleocharis palustris*)
- Marsh bedstraw (*Galium palustre*)
- Softstem bulrush (*Schoenoplectus tabernaemontani*)
- Swamp candles (*Lysimachia terrestris*)

When ponds had many species of native wetland plants, they supported high numbers of adult dragonflies and damselflies (Perron and Pick 2019). Native wetland plant species were also the most important driver, more so than water quality and surrounding land cover, to dragonfly and damselfly nymphs (Perron et al. 2021)! It is important to keep the edges of ponds natural and provide a gradual sloping bank for wetland plants to establish to enhance Odonata biodiversity.

EDUCATION RESOURCES

- Practice your identification skills with the Odonata Central iOS/Android [App](#)
- Check out the [Dragonfly Society of the Americas](#) and their *Argia* journal (a naturalist journal about Odonata)
- Download the free Shoreline Habitat Creation Manual [PDF](#)
- Select suitable native plants for your property by using the free, Canada-wide [Natural Edge Native Plant Database](#)
- Join the "Northeast Odonata" [Facebook group](#) or follow Dr. Perron on [Instagram](#)
- Read Dr. Perron's full paper online: Perron, M.A.C., Pick, F.R. Stormwater ponds as habitat for Odonata in urban areas: the importance of obligate wetland plant species. *Biodivers Conserv* 29, 913–931 (2020).



Common green darner (*Anax junius*). Photo: Dr. Mary Ann Perron.