Odonata
Dragonflies and Damselflies
Notable Body Characteristics

- Antennae
- Labium
- Wing Pads
- Abdomen
- Terminal Filaments
Key Difference – Body Shape

Dragonflies: Robust Body – Small length:width ratio

Damselflies: Slender Body – Large length:width ratio
**Key Difference – Anal Appendages**

**Dragonflies**
- Short, sharp appendages – 2 cerci, 2 paraprocts and an epiproct.
- Gills are inside the terminal end of the abdomen.

**Damselflies**
- 3 leaf-like anal appendages – Caudal lamellae.
- Caudal lamellae are the damselflies gills.
Key Difference – Head Width:Body Width

**Dragonflies**: Head is equal to or less than the greatest width of the abdomen

**Damselflies**: Head is always wider than the greatest width of the abdomen
Damselflies
Zygoptera
Key Difference – Mouthparts (labium)

Lestidae: Labium is narrow at base and gets much wider at apex (y-shaped)

Coenagrionidae: Labium is wide at base and only increases slightly at apex
All Damselflies have hinged mouthparts that are used to capture prey.
Key Difference – anal appendages

Coenagrionidae
Anal appendages short, tapered to a point, often have venation, no cross-banded pattern

Lestidae
Anal appendages long, rounded at apex, typically have a cross-banded pattern
Key Difference – Terminal Filaments

**Lestidae**

Anal appendages long, rounded at apex, typically have a cross-banded pattern

**Coenagrionidae**

Anal appendages short, tapered to a point, often have venation, no cross-banded pattern
Secondary Difference – Body Length

Mature Lestidae are longer than mature Coenagrionidae. This should not be used as a primary key characteristic as immature individuals will cause confusion.
Within the Dragonflies there are two large groups that must first be distinguished, those with spoon-shaped mouthparts (Libelluloidea), and those flat mouthparts (Aeshnoidea).

Flat mouthparts: when mouthpart is folded up under head it does not cover the front of the face.

Spoon-shaped mouthparts: when mouthpart is folded up under head it extends up and covers the front of the face.
Bottom view of dragonfly mouthparts

Spoon-shaped mouthparts

Flat mouthparts
All Dragonflies have hinged mouthparts that are used to capture prey.

Aeshnidae with mouthpart extended
All Dragonflies have hinged mouthparts that are used to capture prey.

Libellulidae with mouthpart extended
Dragonflies with flat mouthparts

Aeshnidae

Gomphidae
Key Difference – Shape of antennae

Aeshnidae: Antennae are long and very narrow, 6-7 segments

Gomphidae: Antennae are shorter and wide or club-shaped, 4 segments
Secondary Difference – Length:Width Ratio

Aeshnidae:
Noticeably long, body robust but with large length:width ratio

Gomphidae:
Not noticeably long, body robust with small length:width ratio
Dragonflies with spoon-shaped mouthparts

Libellulidae

Corduliidae
Key Difference – Mouthparts (palpal lobes)

Libellulidae

Libelullidae: Inner edge of palpal lobe has very shallow scallops

Corduliidae

Corduliidae: Inner edge of palpal lobe is deeply scalloped

This is typically the most difficult characteristic for citizen volunteers to learn how to distinguish
In order to see the inner scalloped edges of the spoon-shaped dragonfly mouthparts, the mouthpart must be pulled away from the head.
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Once you are comfortable teasing out the mouthparts, play with the lighting while turning the mouthparts until you are able to get a good view of the scalloped edge.
Key Difference – Mouthparts (labium)

Libellulidae: Inner edge of labium has very shallow scallops

Corduliidae: Inner edge of labium is deeply scalloped
The End