Assignment 3 – Lower Order Insect Research (Dragonflies)

1. Brian McManus, “The Insane Biology of: The Dragonfly.” Real Science - YouTube, August 28th, 2021

2. The article (video) discusses the order Odonata, who have been around for over 320 **million** years.

3. The video goes into detail about the biology of dragonflies, such as their size, wing muscles, and eyes. After this the video talks about their behaviors when faced with a variety of different scenarios, and shows how they are such effective predators. According to the referenced Harvard study, dragonflies catch approximately 95% of the prey they engage with.

4.

a) Over hundreds of millions of years ago, dragonflies used to be much larger. Around 1 meter long! That’s absolutely terrifying and disgusting. Good thing they got smaller, or I’d never leave my house.

b) Dragonflies are able to fly due to their ‘direct flight muscles’, which allow dragonflies to individually move whichever wing muscle they want at a time. This allows them to fly in all six axes. They are also able to hover with a technique called counter stroking, where their wings will flap 180 degrees out of phase with each other. Unlike 99% of other winged fellas, they are also able to fly backwards by tilting their bodies upwards by 90 degrees.

c) Dragonflies have 360 degree vision. These eyes are made from over 30 thousand individual things that are like telescopes that absorb light from every direction. These eyes are able to view a lower percentage of color spectrum than humans or birds, but have a much higher sensitivity to motion, allowing them to be more effective when searching for food, or evading being eaten. Despite seeing a more shallow color spectrum, dragonfly eyes are much more sensitive to lower wavelength light signals, such as ultra-violets and blues.