

## **Aliens on earth:**

Flying across the sky at amazing speeds they could be mistaken for far off airplanes in the sky, or flying saucers from out of this world, but this is not a man, or alien made object. It's a dragonfly! These amazing insects dart across our skies, and they are always wonderful to watch, but they also provide a ton of benefit to our ecosystem. Particularly to the ecosystems of lakes and other freshwater bodies of water by being important predators.

Everybody has to start somewhere, and you'd think that a creature as cool as a dragonfly would have to earn the title of being cool, and that they'd have to start off humbled, but you would be wrong as dragonflies are simply born cool. Dragonfly nymphs are aquatic insects that are found in freshwater bodies all across the world. These cool little guys are actually quite large for the environments that they're found in. They have six long legs protruding from their body, and at the end of each leg they have two small, ragged claws jolting out like some sort of unsafe Halloween decoration at the clearance bin<sup>1</sup>. They also have two large, bulging eyes above their mouth that almost look like the eyes of a chameleon<sup>2</sup>. I wouldn't blame you if you thought that the chameleons had grown sentient and were secretly replacing dragonfly larva with their own kind in some bizarre B Movie plot. If you thought those sounded like aliens you wouldn't be very surprised to hear that what they turn into is just as weird looking.

With four large, almost helicopter blade-like wings placed onto a horizontal axis the adult dragonfly picks up the air around it and achieves flight, moving its wings in what looks like a drowsy kaleidoscope blockbuster special effect in the hot summer air. It looks like a mirage, like fiction, but it's real. The body of the dragonfly shoots out from the head like a long stick, on which the wings rest. At their head are multiple giant compound eyes, which completes their

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<sup>1</sup> *Dragonfly Larvae* (Missouri Department of Conservation, 2024).

<sup>2</sup> *Dragonfly Larvae* (Missouri Department of Conservation, 2024).

appearance with an alien tone. It's like a flying UFO zooming around our skies at high speeds. While the appearances of both the nymph and adult are weird, how they work might be even weirder.

The nymphs don't have any visible gills on their bodies, so how do they breathe underwater? Well it's a little bizarre. Dragonfly nymphs literally breathe out their back end. They take water in, and they take water out through a system located on their rear end allowing them to breathe<sup>3</sup>. They can also use this organ system to expel water at such force that it propels them forward<sup>4</sup>, functioning almost like an underwater stealth fighter. Dragonfly nymphs are "lie-in-wait predators" that use their mobility and their protractile jaw to snatch prey in the blink of an eye<sup>5</sup>. They eat and hunt other insects, and even sometimes small fish using these methods<sup>6</sup>. After molting many times over the course of three years they turn into full dragonflies.

Despite their awesomeness most dragonflies sadly only live for around a month<sup>7</sup>, but during that time they provide a great service to humanity, and all of nature really. Using their good eyesight, their mobility, and their long legs dragonflies will hunt and make quick work of annoying flying insects like mosquitoes, and flies<sup>8</sup>. Impressively they catch their prey in mid-air! They help keep these populations in check, and if you've ever been bitten by a mosquito I think you would be grateful for the service that these bugs provide. After mating a female dragonfly lays her eggs in a body of water<sup>9</sup>, and after around a week the eggs hatch, and nymphs are born into the world beginning the cycle all over again.

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<sup>3</sup> *Dragonfly Larvae* (Missouri Department of Conservation, 2024).

<sup>4</sup> *Dragonfly Larvae* (Missouri Department of Conservation, 2024).

<sup>5</sup> *Dragonfly Larvae* (Missouri Department of Conservation, 2024).

<sup>6</sup> Danielle Wesley, *What do dragonflies eat? And other dragonfly facts* (Woodland Trust, 2019).

<sup>7</sup> *Dragonflies* (National Geographic).

<sup>8</sup> Danielle Wesley, *What do dragonflies eat? And other dragonfly facts* (Woodland Trust, 2019).

<sup>9</sup> *Dragonflies* (National Geographic).

To identify dragonflies as a specific genus one has to look at the order that they are placed under, the order Odonata, and specifically the other of the two insects that make up this group, the damselfly<sup>10</sup>. Dragonflies and damselflies are both extremely cool insects, but they also look very, very similar so it's easy to get them mixed up. Damselflies however have many notable and easy to distinguish differences, like for example how they fly. Damselflies fly like butterflies; they flutter in the air. It's beautiful, but no dragonfly does that<sup>11</sup>. Damselflies are also often quite a bit smaller than most dragonflies, and when not flying dragonflies tend to be a bit more prepared, never closing their wings when they land while "damselflies fold theirs on top of their bodies."<sup>12</sup> Turns out dragonflies are a little paranoid! These are the differences that distinct the two. If it's clearly a member of Odonata, but it doesn't act or look like a damselfly then it must be a dragonfly.

I love seeing dragonflies in the summer. It amazes me how an insect can be so amazing, and they've always held special significance as a warning that perhaps it's a little too hot to be going out with a toque on that day. They provide to me a lesson that I never seem to learn despite the insects association and constant reminder.

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<sup>10</sup> *Dragonflies* (National Geographic).

<sup>11</sup> Danielle Wesley, *What do dragonflies eat? And other dragonfly facts* (Woodland Trust, 2019).

<sup>12</sup> Danielle Wesley, *What do dragonflies eat? And other dragonfly facts* (Woodland Trust, 2019).

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