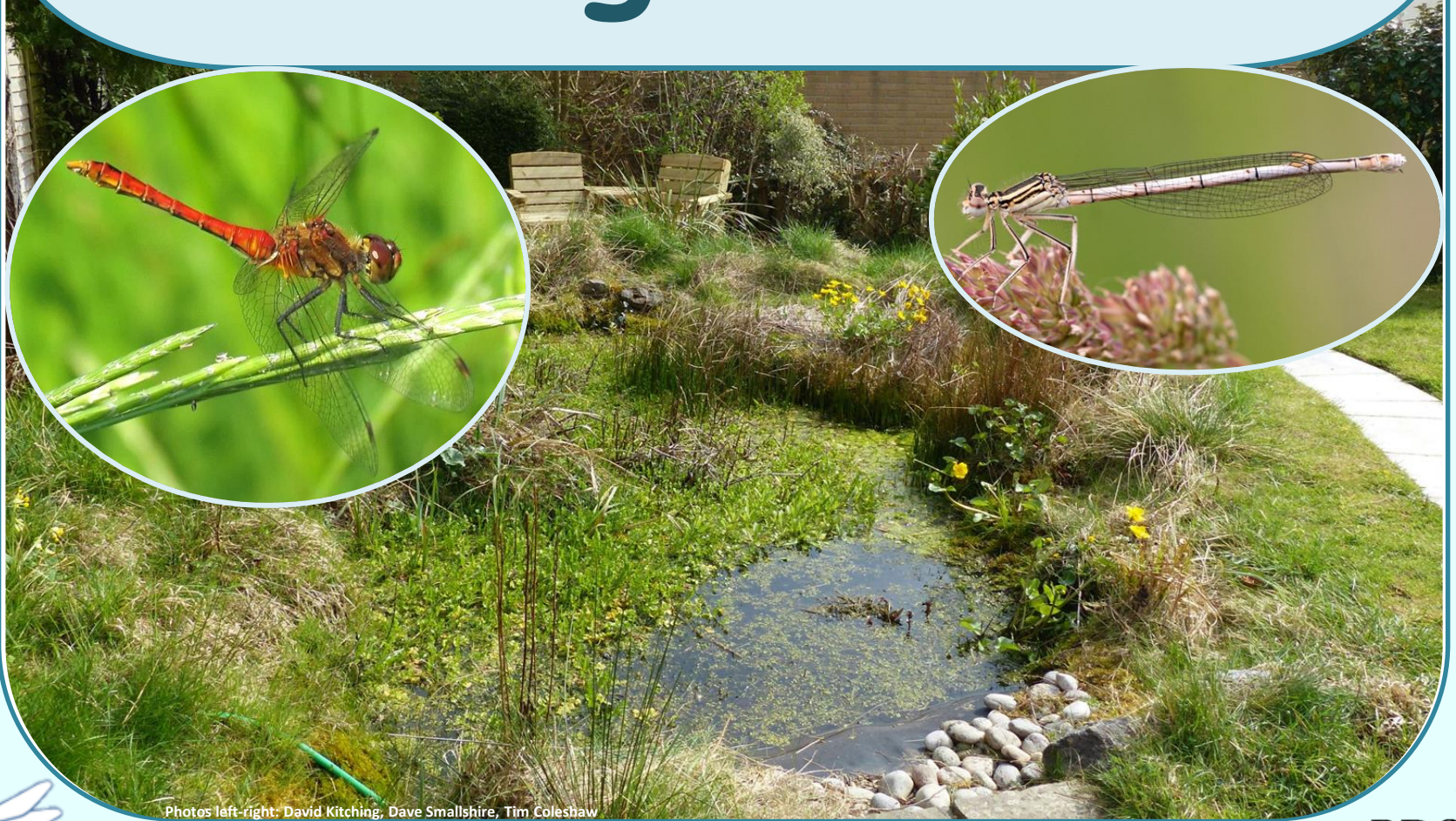


Dragonflies



Photos left-right: David Kitching, Dave Smallshire, Tim Coleshaw

A Dragonfly is an insect.
What is an insect?

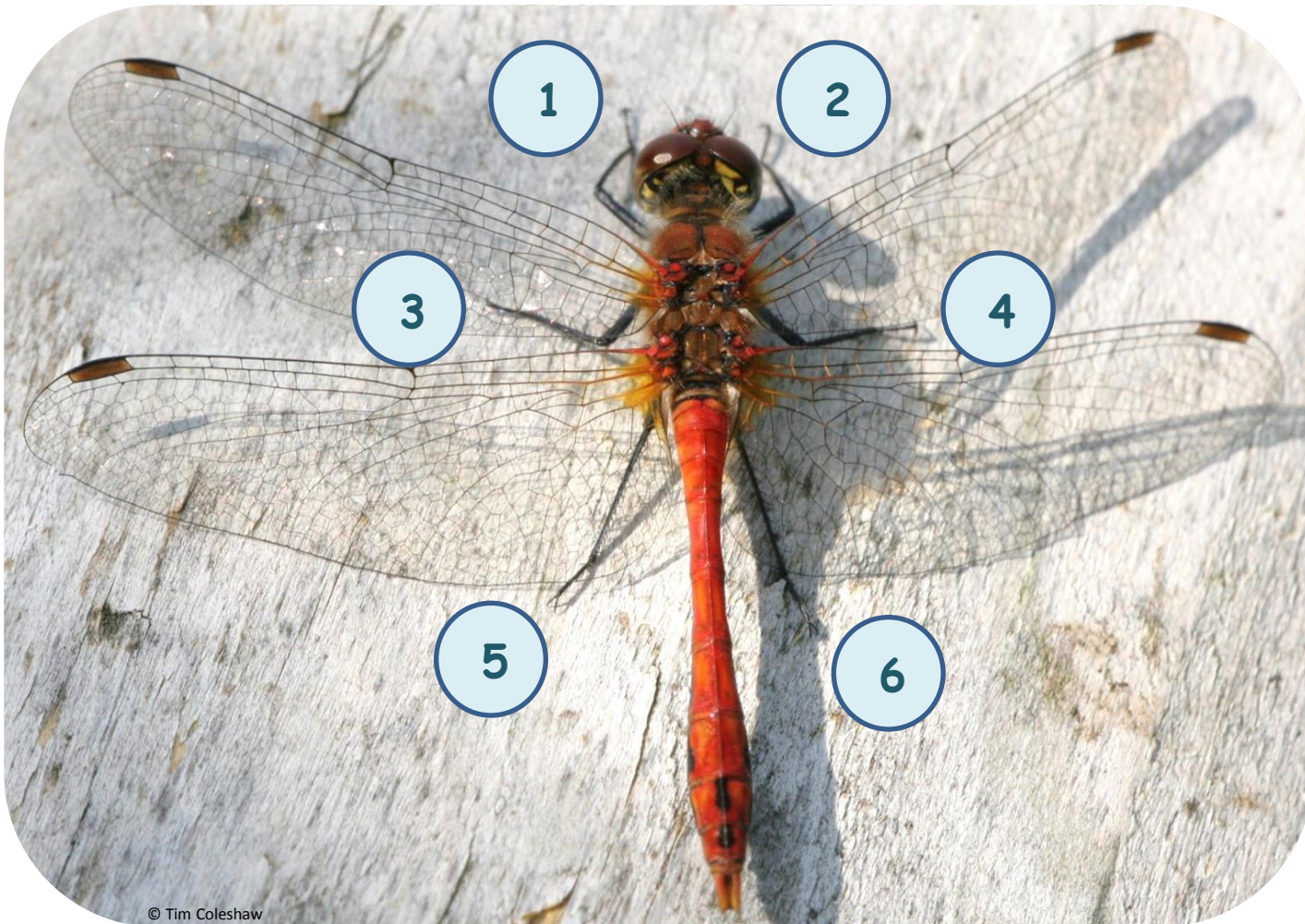


© Tim Coleshaw

BDS



Insects have 6 legs.

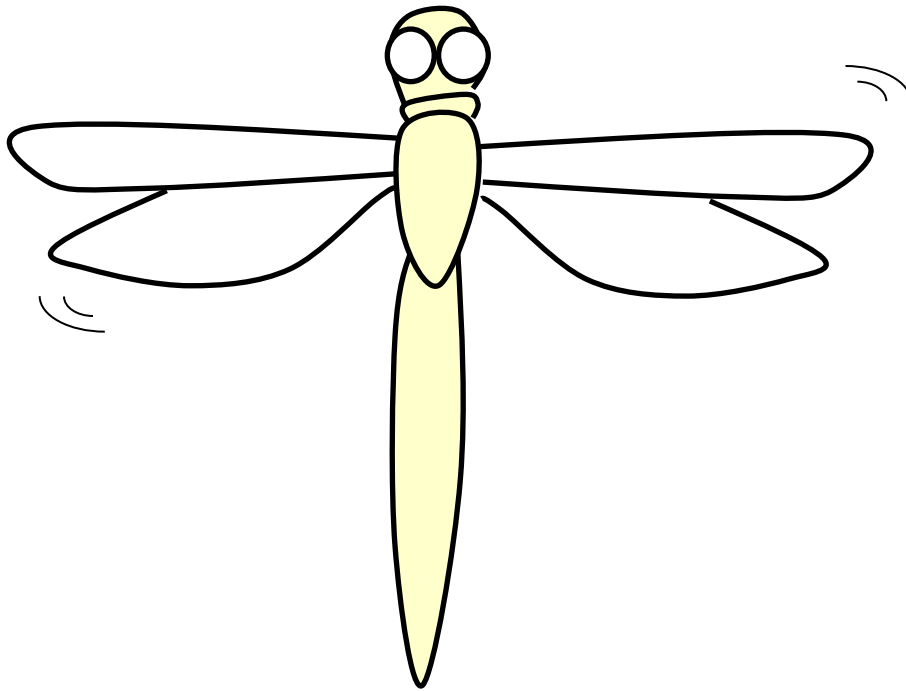


© Tim Coleshaw

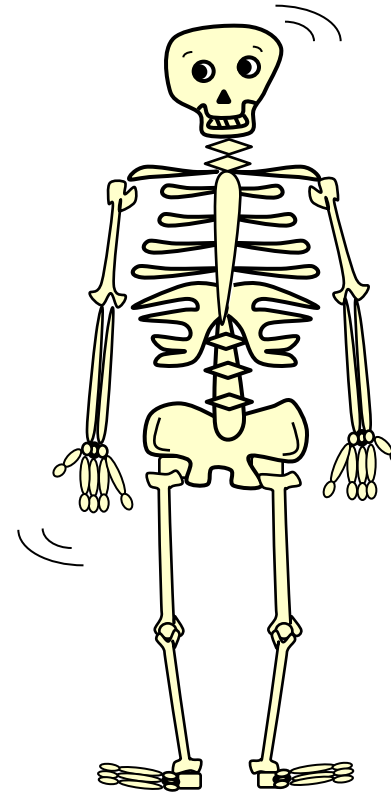
BDS



Insects have a skeleton on the outside of their body instead of bones on the inside.

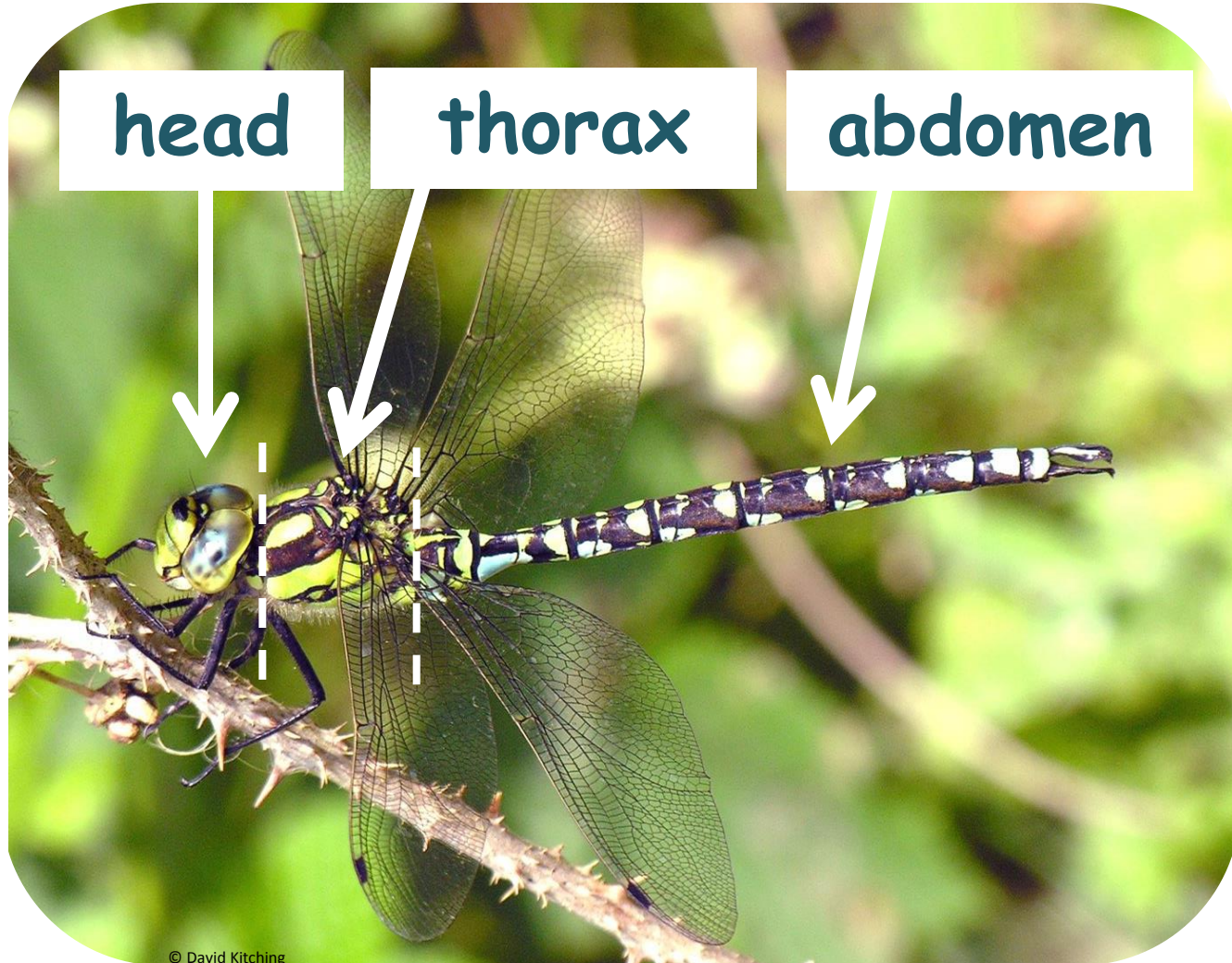


dragonfly



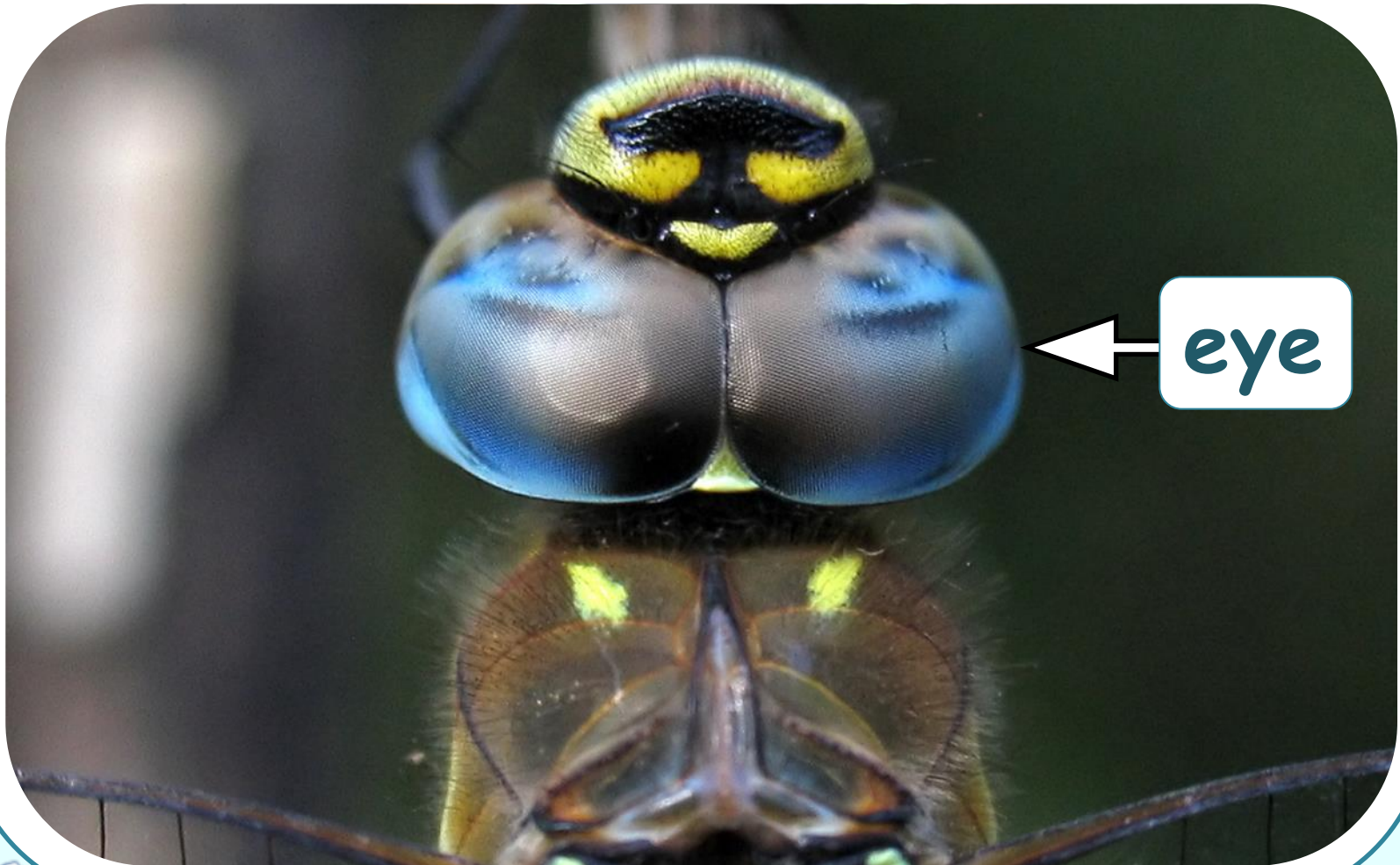
human

Insects have three main body parts.



© David Kitching

Insects have compound eyes.



eye

© David Kitching

Insects are cold blooded.

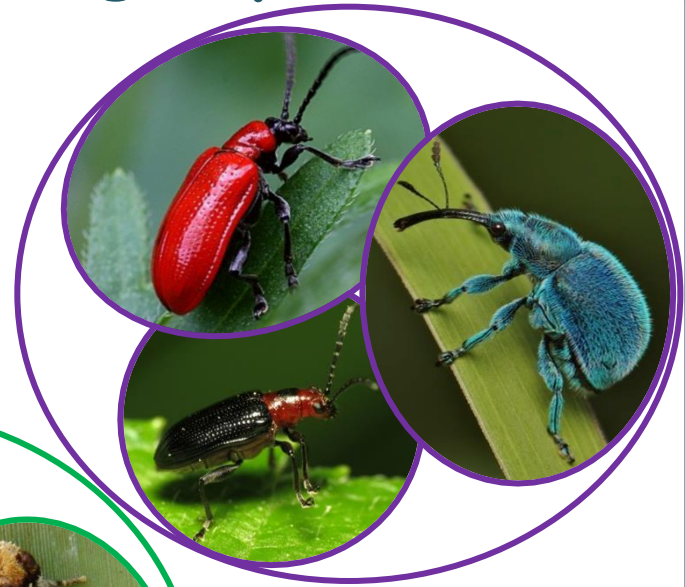
They sunbathe on warm objects, like rocks, wood and bricks.



© Tim Coleshaw

Touch bricks
in the
sunshine to
feel how
warm they
are.

There are many different types of insect.
We sort them into groups.



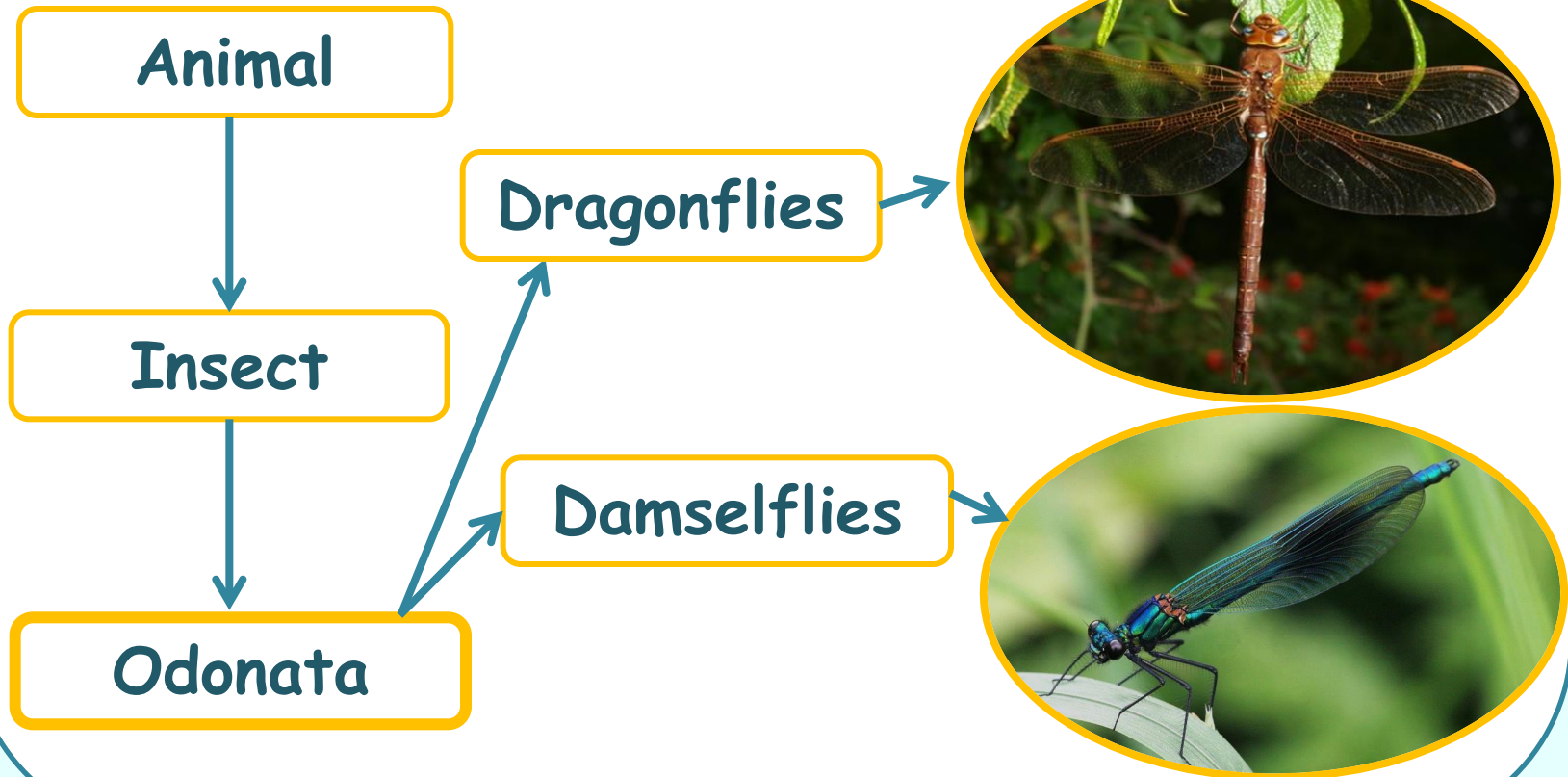
Orange: clockwise from left: [Jack Wolf](#), [Mark Robinson](#), [Autan](#)

Green: left-right: [Dave Miles](#), [Zoe Rimmer](#)

Purple: Clockwise from top: [Vernon Hyde](#), [Troup Dresser](#), [Katia Schulz](#)

These groups are called 'Orders'.

Dragonflies and damselflies are in the order called 'Odonata'.



Photos left-right: Paul Appleyard, Tim Coleshaw

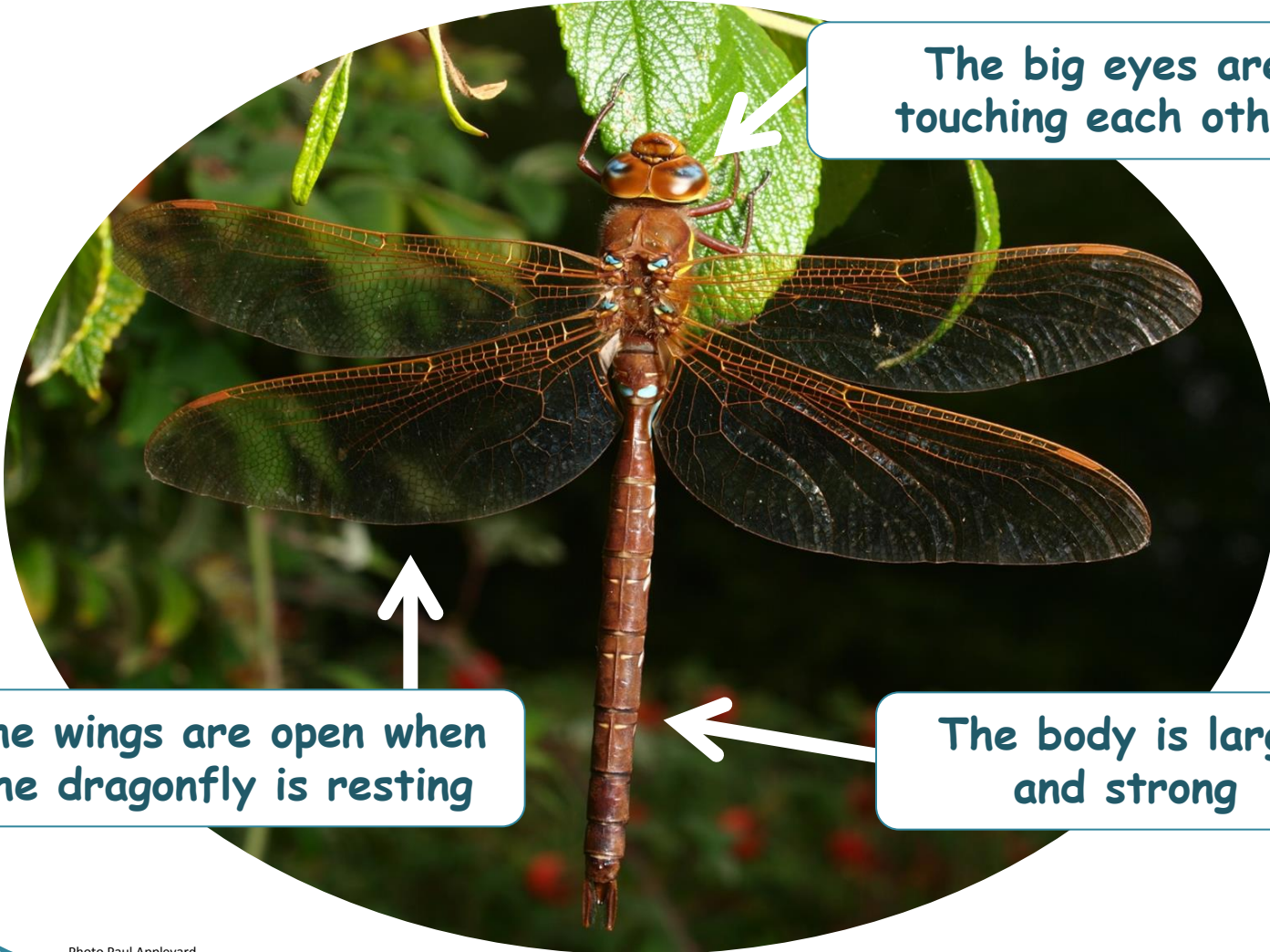
Photos left-right: David Kirching, David Smallshire, Tim Coleshaw

What is the difference between dragonflies and damselflies?



Photos left-right: Paul Appleyard, Tim Coleshaw

Dragonflies



The big eyes are touching each other

The wings are open when the dragonfly is resting

The body is large and strong

Photo Paul Appleyard

Damselflies

The smaller eyes
do not touch each
other

The wings
are
closed
when the
damselfly
is resting

The body is smaller
and weaker

Photo Tim Coleshaw

BDS



Dragonflies come in many different colours.



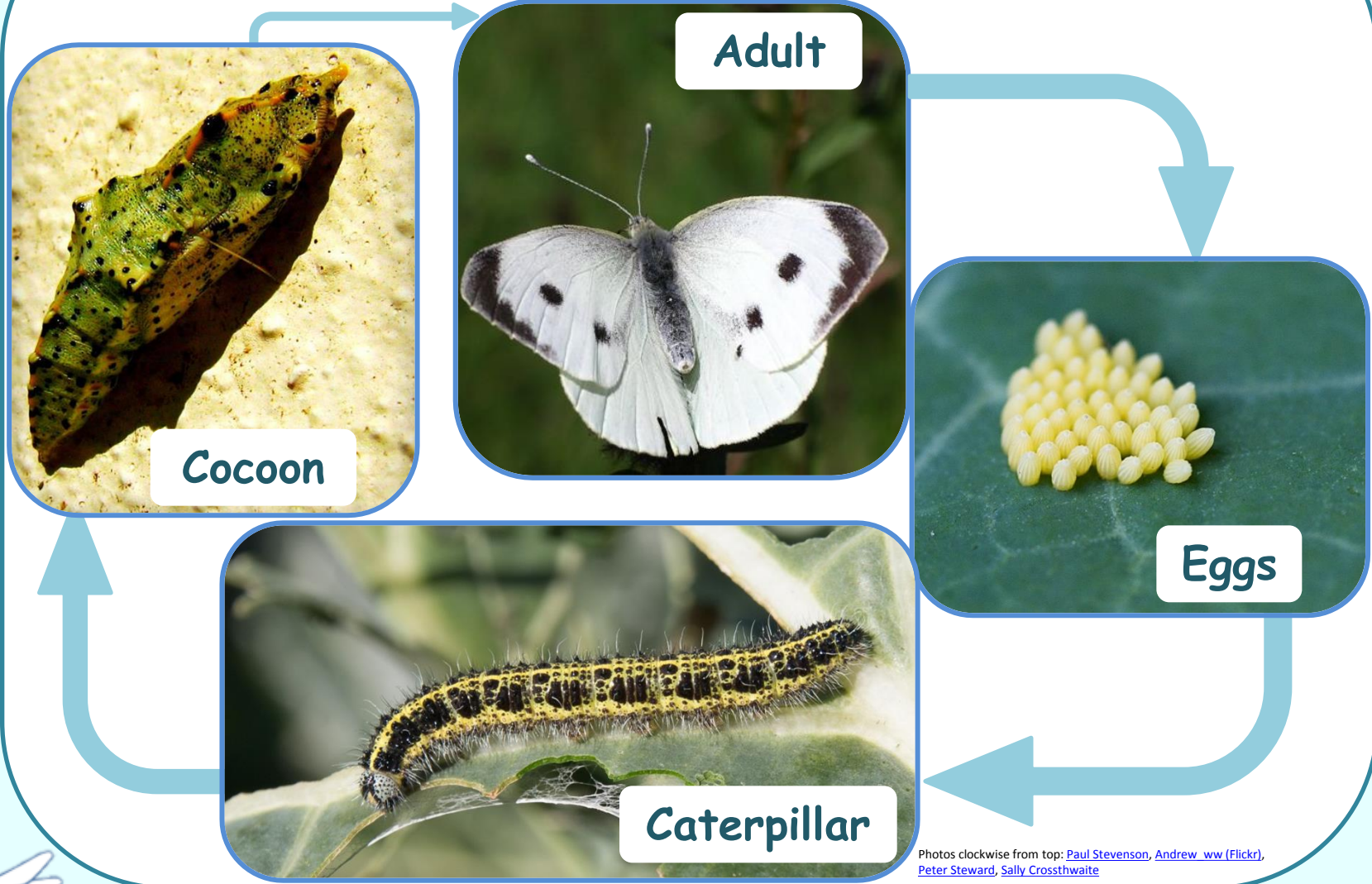
Photos © David Kitching

Dragonflies come in many different sizes.
The smallest in Britain are around 3cm long.
The biggest in Britain are nearly 8cm long!



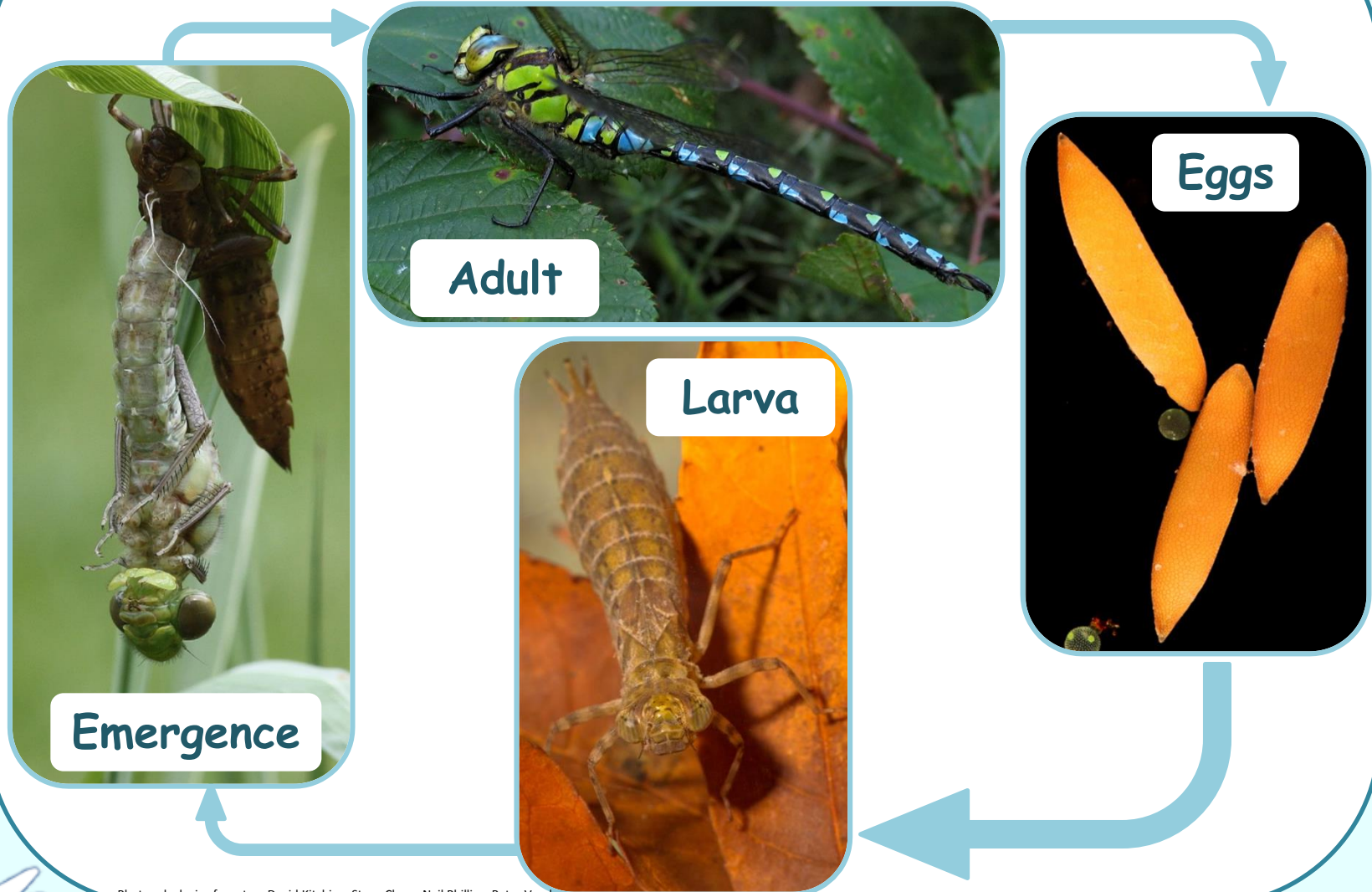
Photos left-right © Genevieve Dalley, Claire Install

Butterfly Life Cycle



Photos clockwise from top: [Paul Stevenson](#), [Andrew_wu \(Flickr\)](#),
[Peter Steward](#), [Sally Crossthwaite](#)

Dragonfly Life Cycle



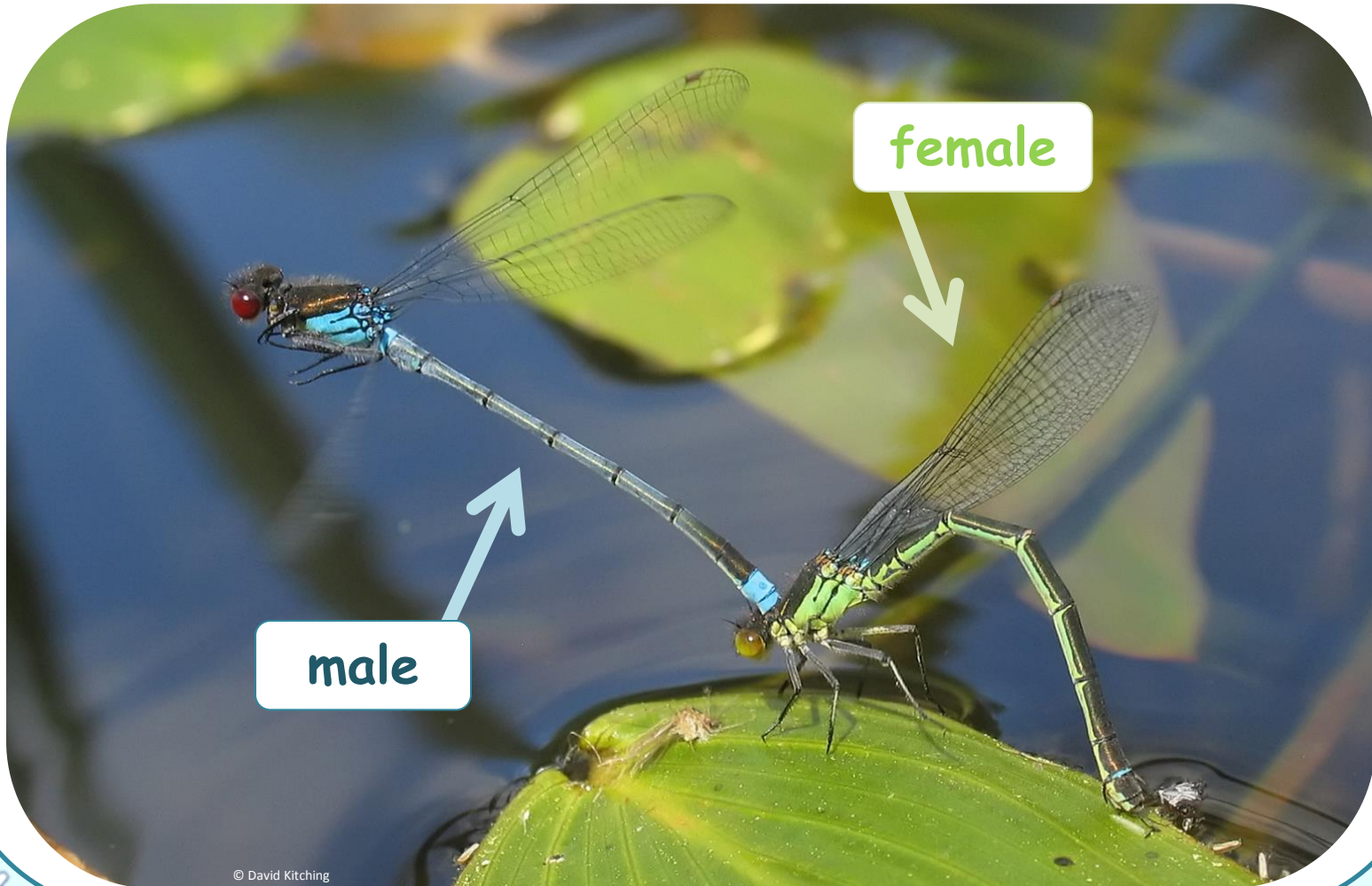
Photos clockwise from top: David Kitching, Steve Cham, Neil Phillips, Peter Vandome

Female dragonflies lay eggs on or inside plants, moss, wood or the water. Some dragonflies lay eggs using a special body part: the ovipositor.



© Keith Noble

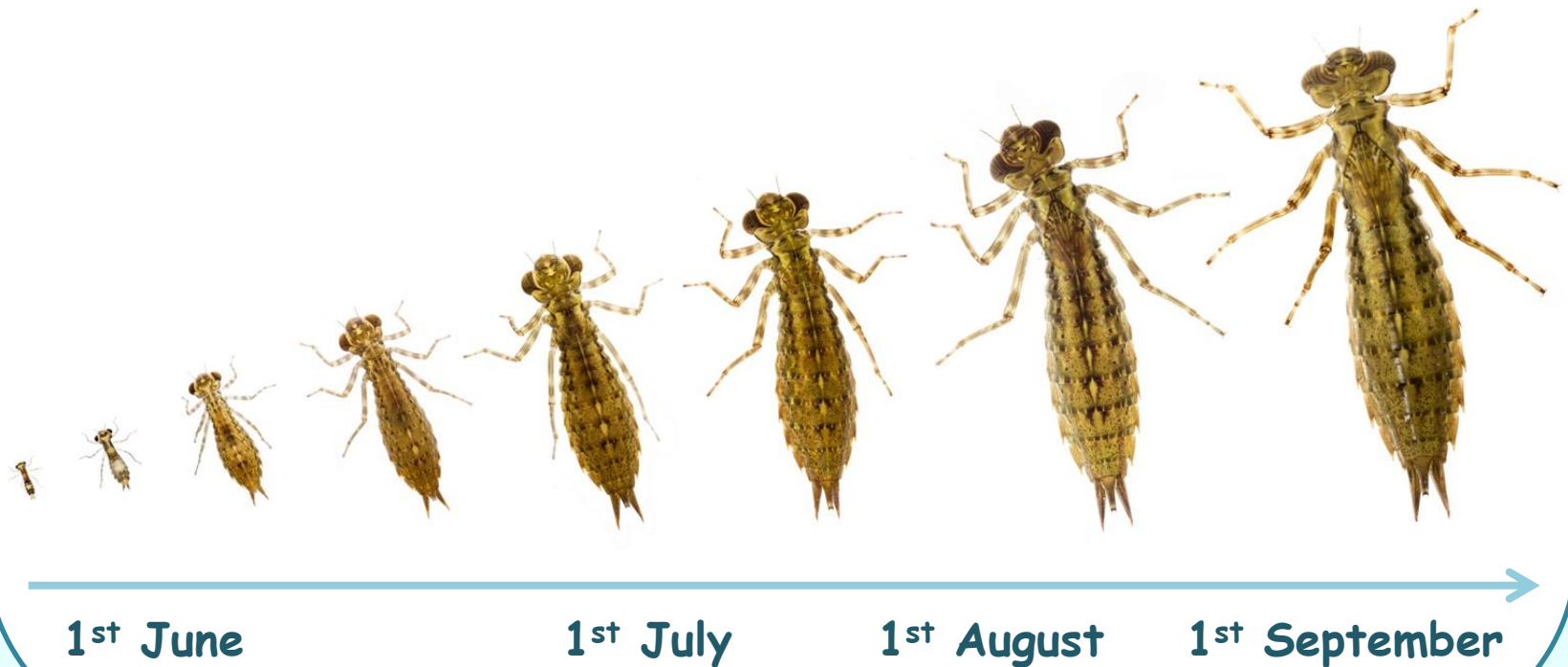
Sometimes the male damselfly will guard the female damselfly while she lays eggs.



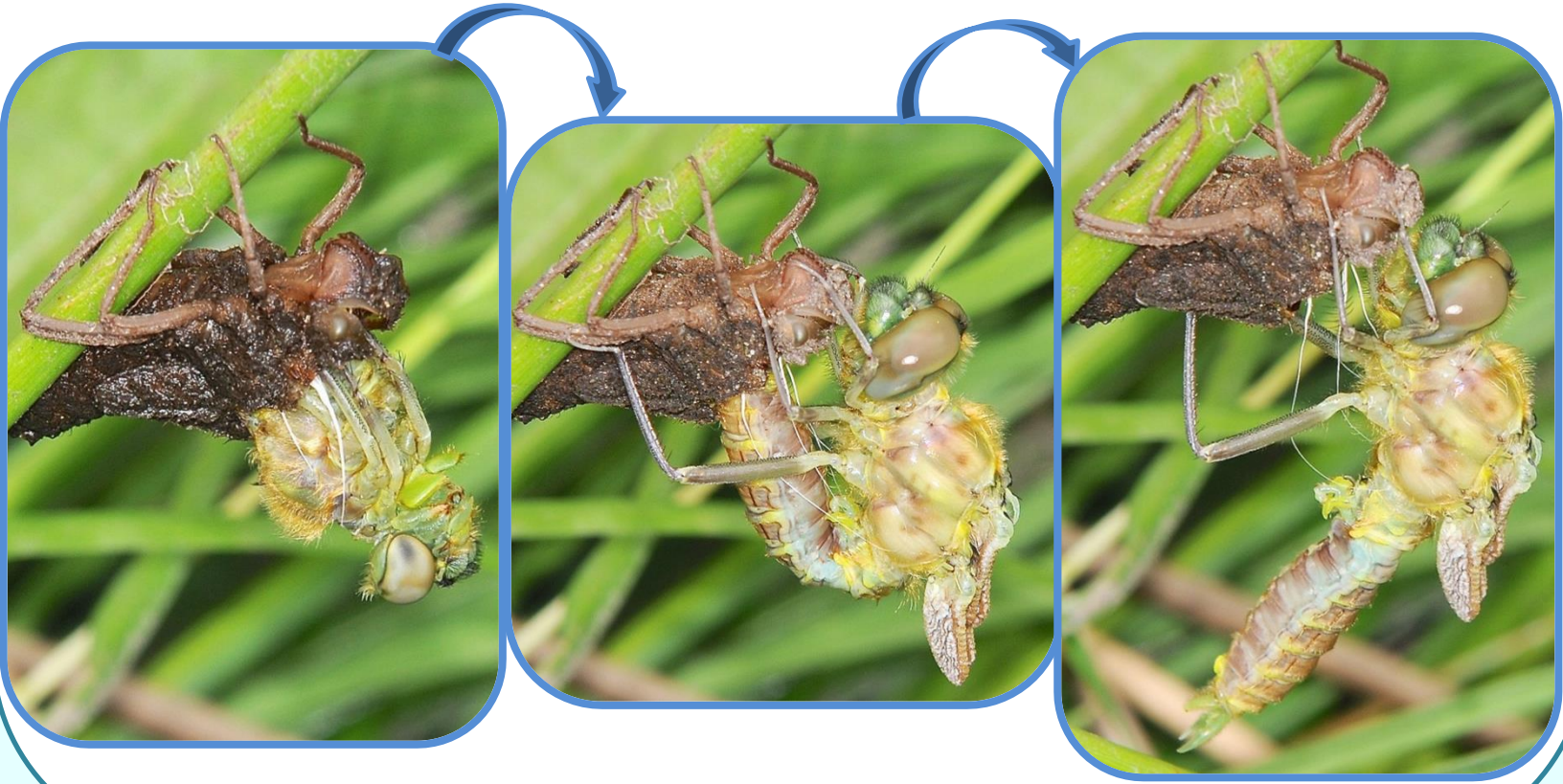
© David Kitching

Young dragonflies are called larvae. A larva's skin is its skeleton so it is very hard. Larvae have to shed their skin so they can grow bigger.

The larvae do this many times as they grow. Each stage is called an instar.



When they are ready to be adults, larvae go through a process called emergence.



Photos © Peter Vandome

Emergence



Photos © Peter Vandome

After a few hours, the dragonfly is ready to fly away!



Photos © Peter Vandome

Dragonflies leave their skin behind after emergence.

The empty skins are called exuviae.



© Daniele Muir

Where do dragonflies live?

Where an animal lives is called its habitat.

Animals live in habitats with the conditions
needed for them to survive.



© Genevieve Dalley

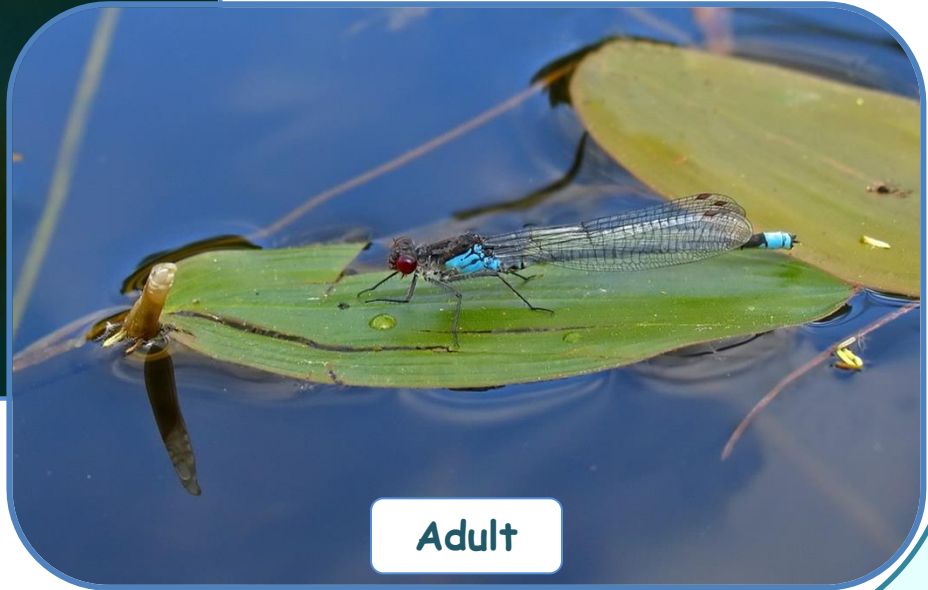
Where do dragonflies live?

Dragonfly larvae live in fresh water.

Dragonfly adults live near fresh water.



Larva



Adult

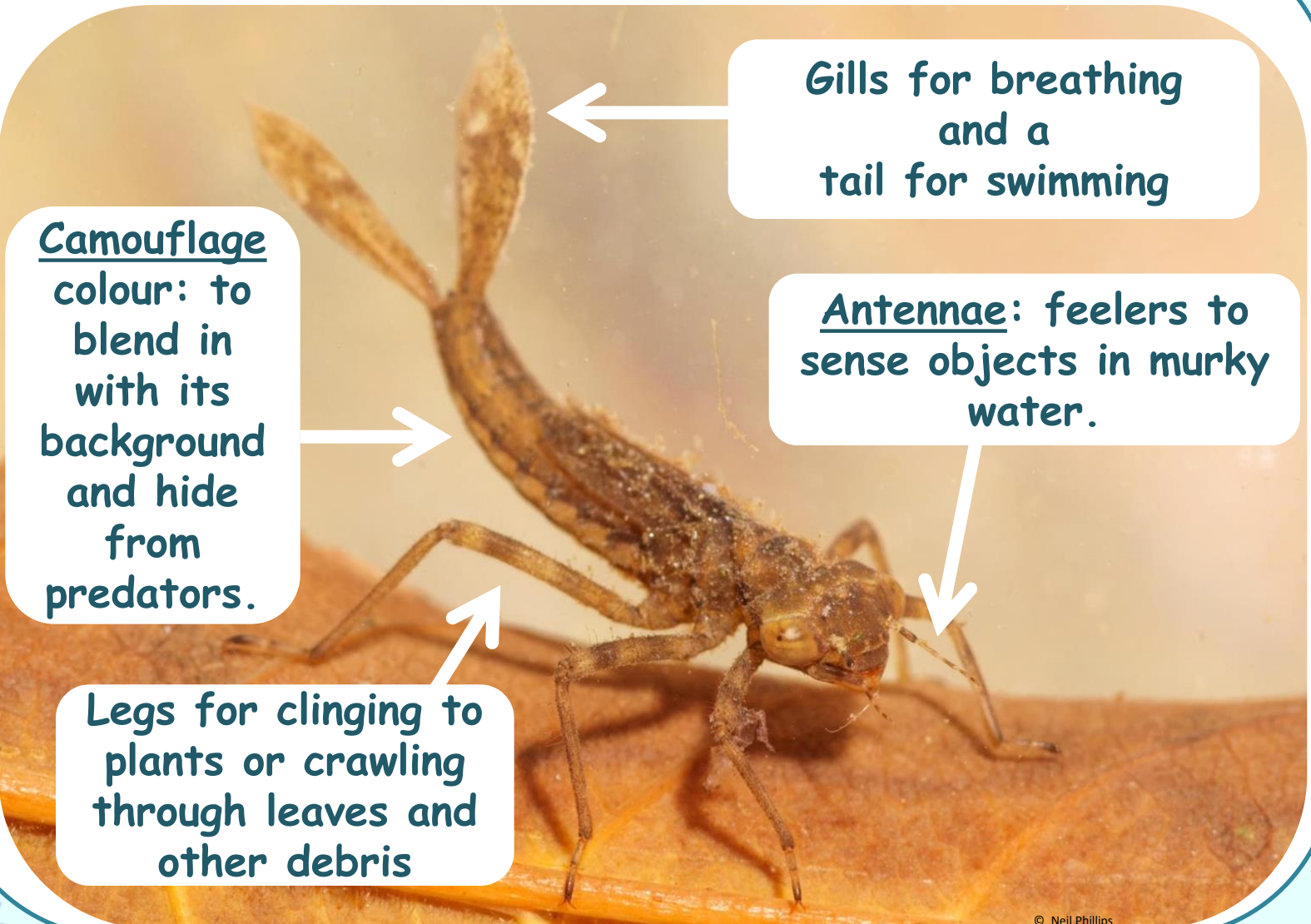
© left – right: Jan Hamrsky, David Kitching

How are dragonfly larvae suited to living in water?



© Neil Phillips

How are dragonfly larvae suited to live in water?



Gills for breathing
and a
tail for swimming

Camouflage
colour: to
blend in
with its
background
and hide
from
predators.

Antennae: feelers to
sense objects in murky
water.

Legs for clinging to
plants or crawling
through leaves and
other debris

© Neil Phillips

BDS

Dragonfly Habitats

Ponds & lakes



© Randen Pederson

Dragonfly Habitats

Rivers & streams



© Cat Burton

Dragonfly Habitats

Bogs and heaths



© Chad K

Dragonfly Habitats

What do dragonflies need in a habitat?

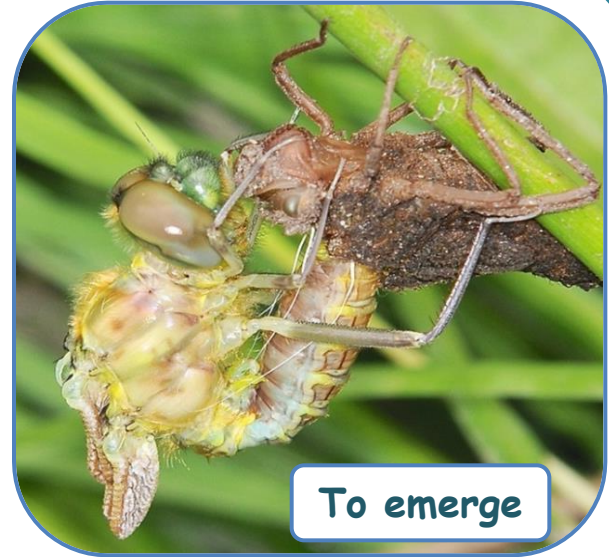


© clockwise from left: [Chad K.](#), [Cat Burton](#) [Randen Pederson](#)

Plants



To shelter
and hide



To emerge



To lay eggs

photos © left top: David Kitching, bottom: Jan Hamrsky. Right top: Peter Vandome, bottom: David Kitching

Oxygen



Clean water



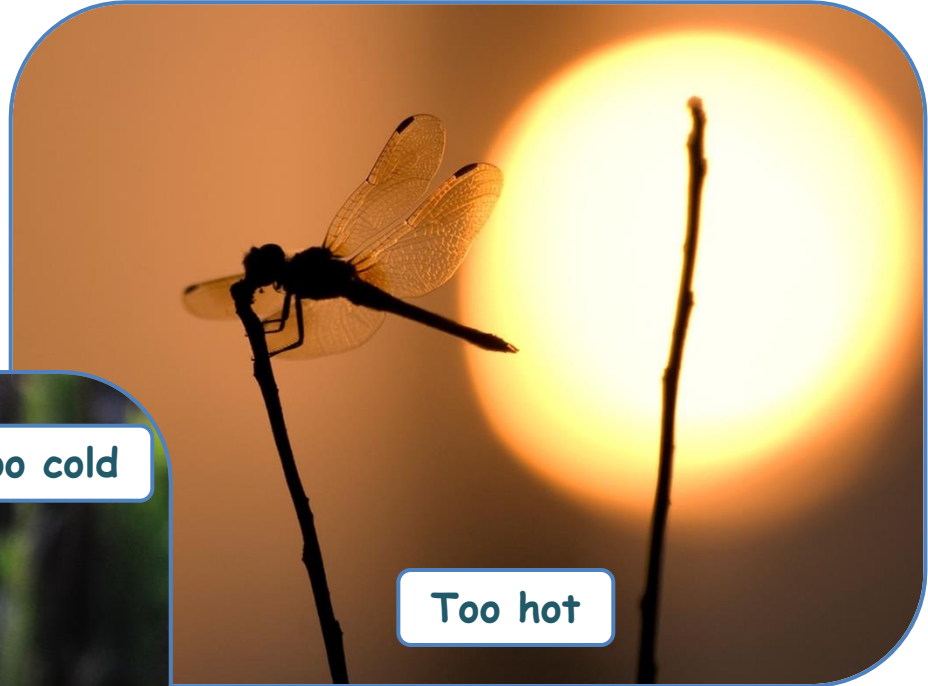
Clean air

Photos left-right © Stavros Markopoulos, Jan Hamrsky

The right temperature



Too cold



Too hot

Photos left-right © [Julie Falk](#), [Dee Eff](#)

Food and water



Other animals



photos © left-right: Andy Thompson & Jan Hamrsky

What do dragonflies eat?

Dragonfly adults and larvae are carnivores.

These are some of the animals dragonfly larvae eat:



All photos © Jan Hamrsky

Adult dragonflies catch prey in the air as they fly. These are some of the animals dragonfly adults eat:



Photos © clockwise left-right: Andy Thompson, [Steve Waterhouse](#), Gareth Tonks

What eats dragonfly larvae?

These are some of the animals which eat dragonfly larvae:



Spiders



Birds



Each other!

Photos © clockwise left-right: [Ian Worsley](#), John Webley, Jan Hamrsky

What eats dragonfly adults?

These are some of the animals which eat dragonfly adults:



Spiders



Hornets
and wasps

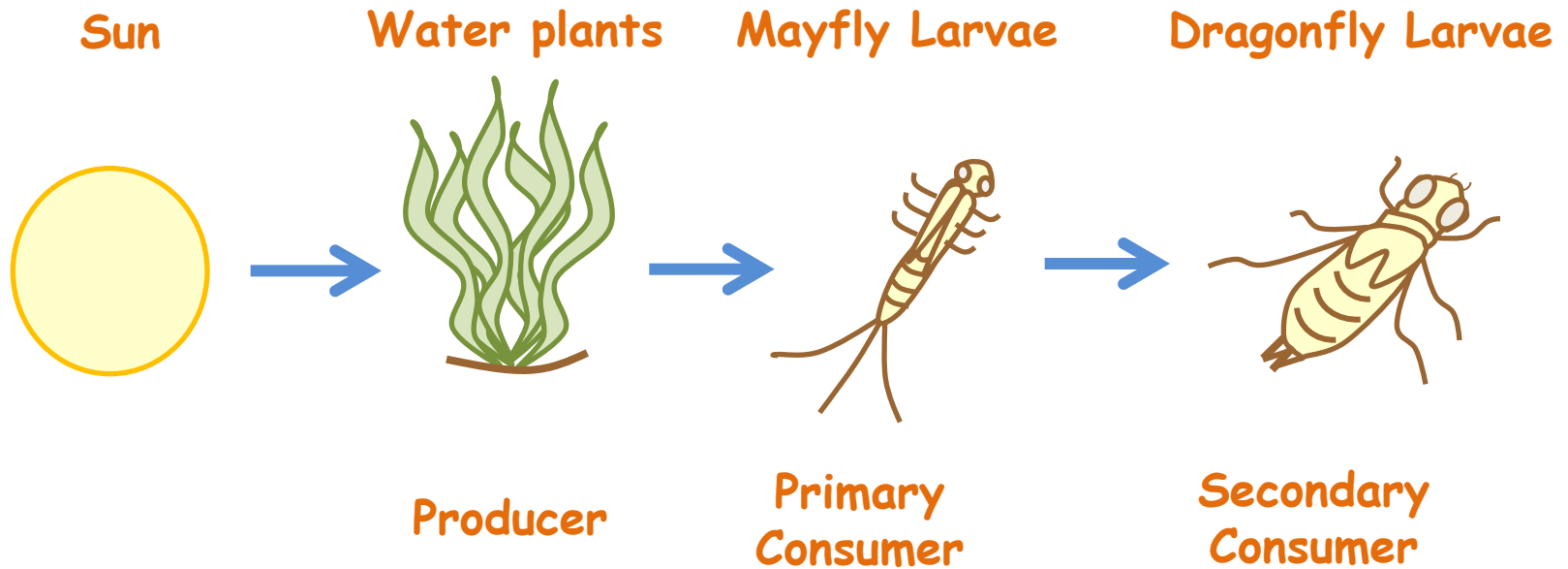


Birds

Photos ©clockwise from top left: Andy Thompson, Dave Bush, [Nick Ransdale](#)

Dragonfly Food Chain

A food chain shows how energy is passed from one source to another.



Dragonfly Food Chains

Example 1



© Carolyn Jewel

Duckweed



© Jan Hamrsky

Pond Snail



© Neil Phillips

Dragonfly
Larva

Dragonfly Food Chains

Example 2



© [Paul Moody](#)

Thistle



© [Chris Parker](#)

Butterfly



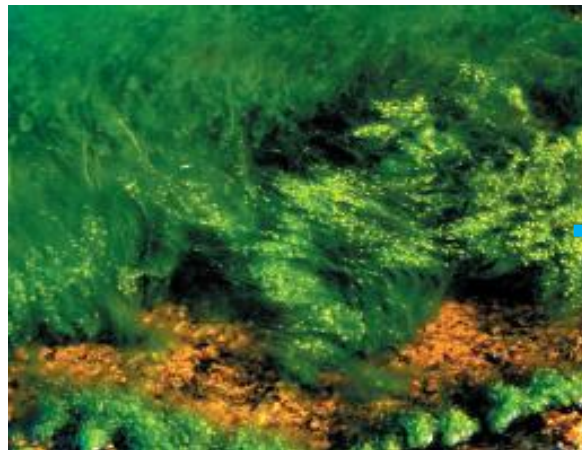
© Neil Malton

Dragonfly



Dragonfly Food Chains

Example 3



Algae



Water Flea



Water Spider



Damselfly Larva

Dragonfly Food Chains

Example 4



Dandelion



Bee



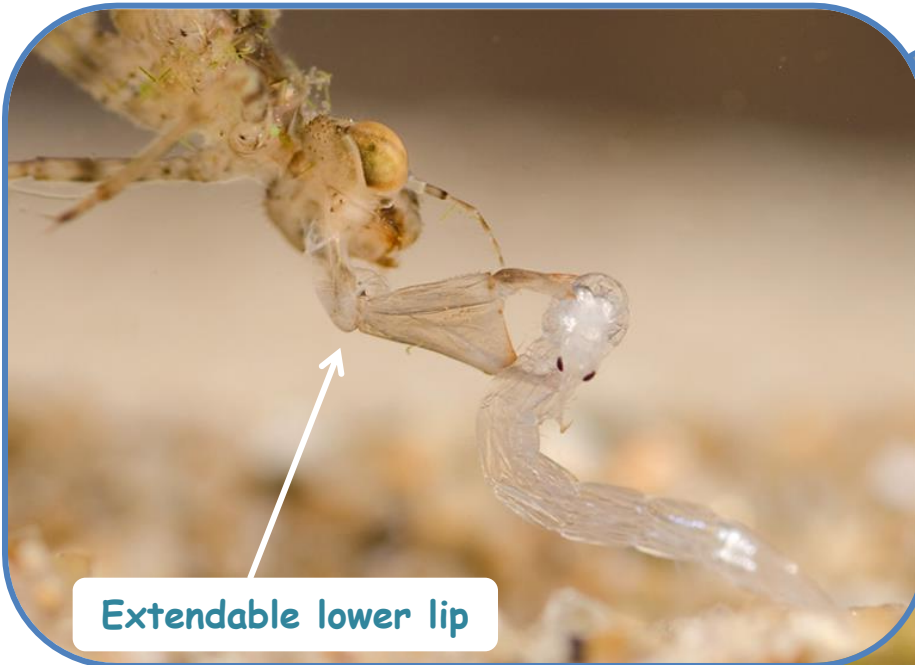
Bird



Dragonfly

How are dragonfly larvae adapted to hunt?

Dragonfly larvae have an extendable lower lip for catching prey.



Extendable lower lip



All photos © Jan Hamrsky

How is an adult dragonfly adapted to hunt?



© Steve Cham

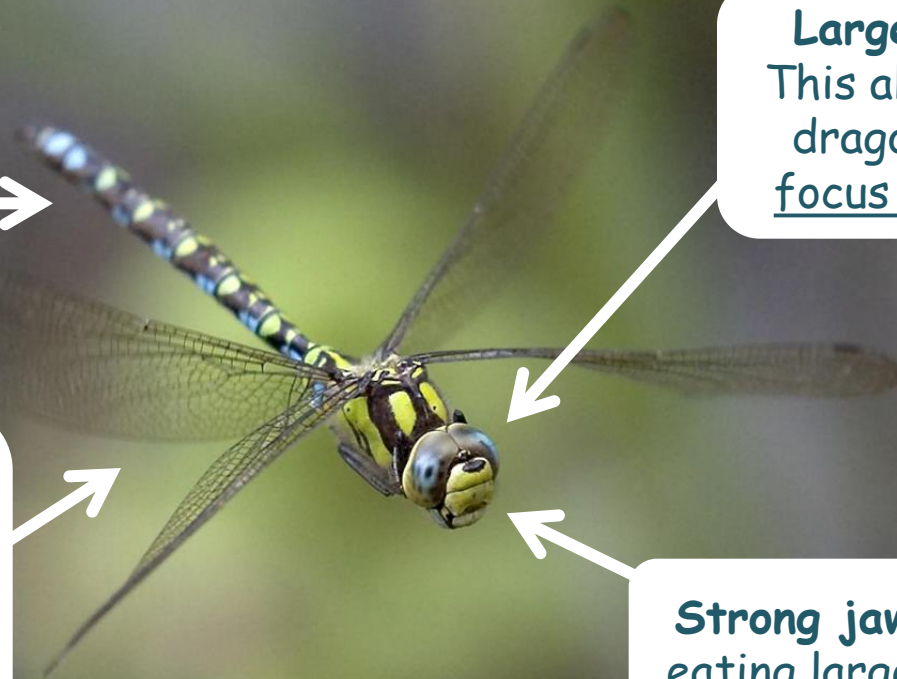
How is an adult dragonfly adapted to hunt?

Stream-lined body. This allows the dragonfly to fly fast through the air.

Large eyes. This allows the dragonfly to focus on prey.

Four wings which move independently. These allow the dragonfly to change direction quickly.

Strong jaw. For eating large prey.



© Steve Cham

Why are dragonflies important?



© Tim Coleshaw

Dragonflies are important as food for other animals.



Can you draw a food chain with a dragonfly in it?

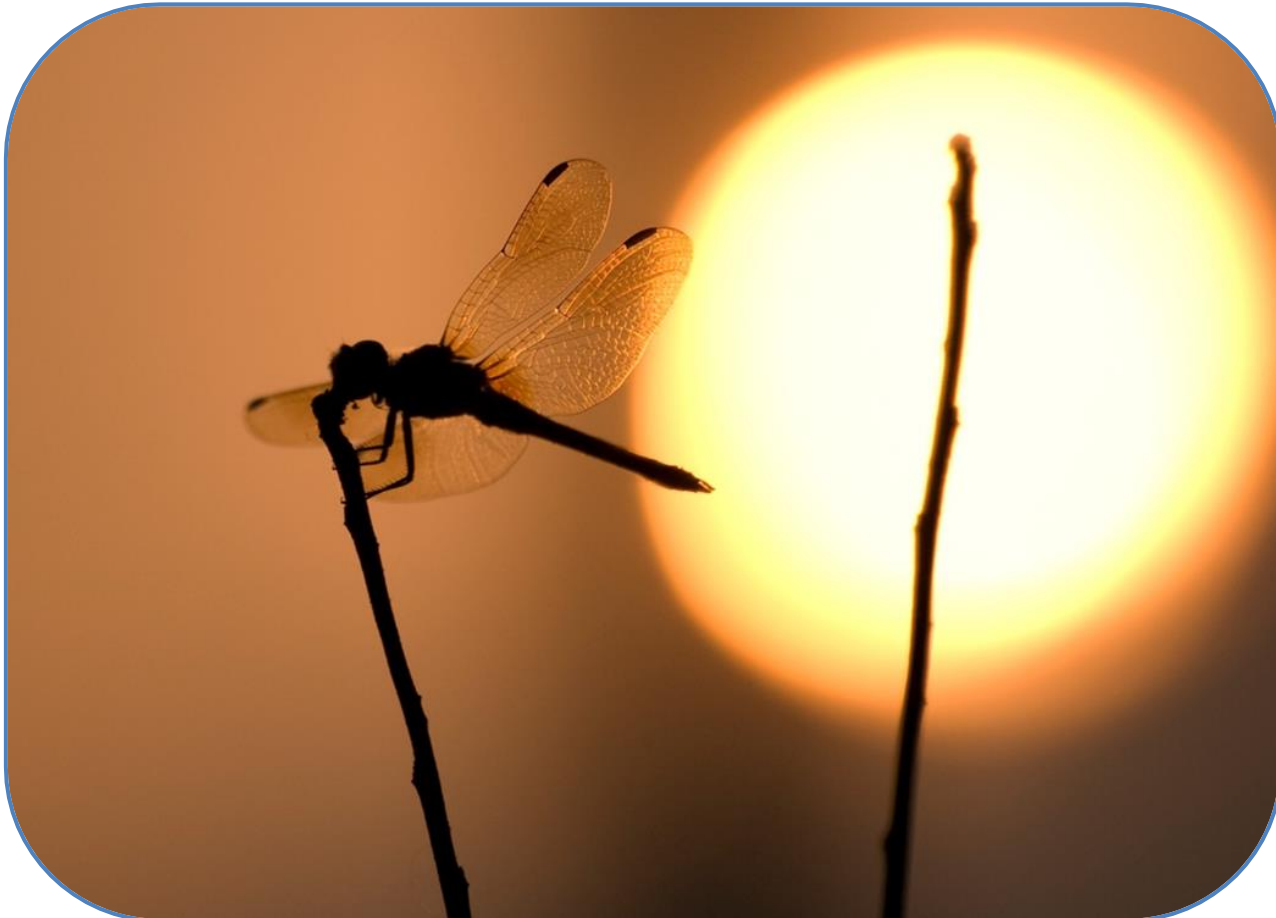
Dragonflies eat other animals.



**Such as mosquitoes,
which can give
humans diseases.**

Photos © top: Andy Thompson; bottom: James Gathany

Dragonflies tell us how the world might
be changing.



© Dee Eff

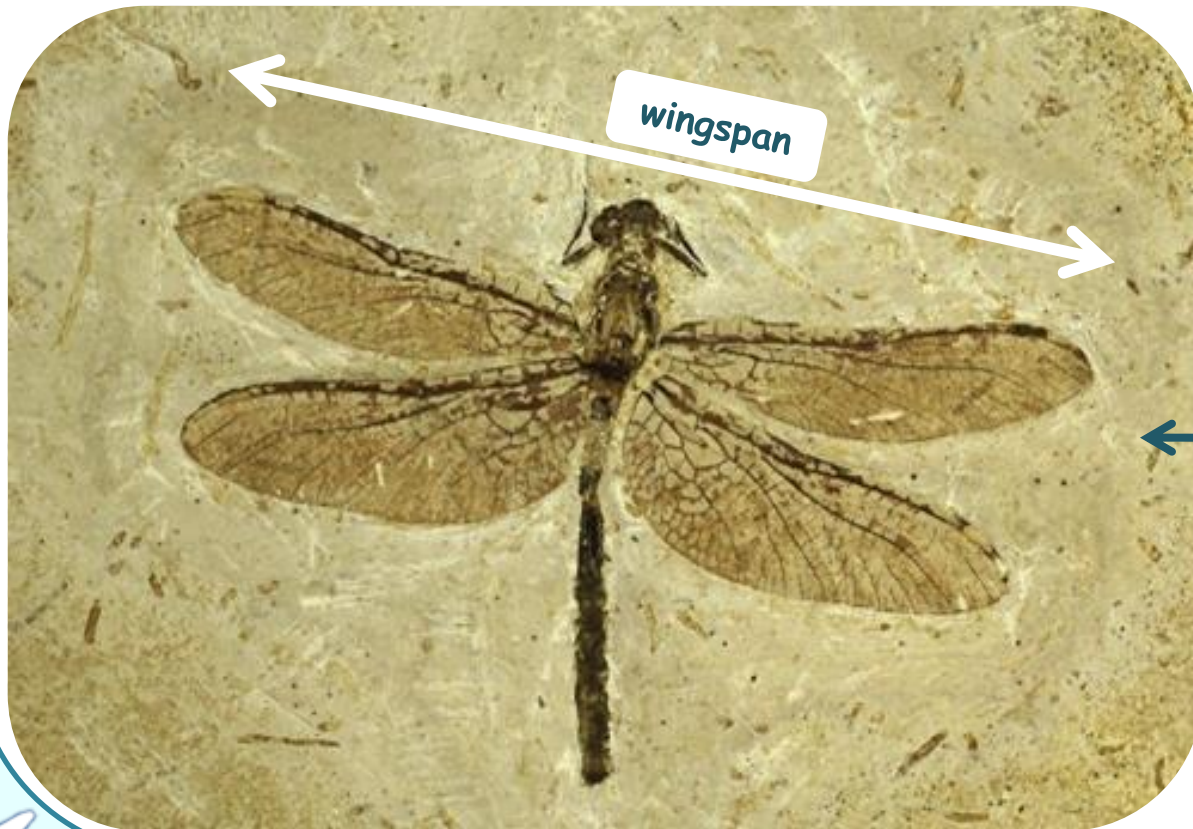
BDS



They are ancient insects.

Dragonflies have existed for over 300 million years.

They were the biggest insects ever to exist.



A
dragonfly
fossil

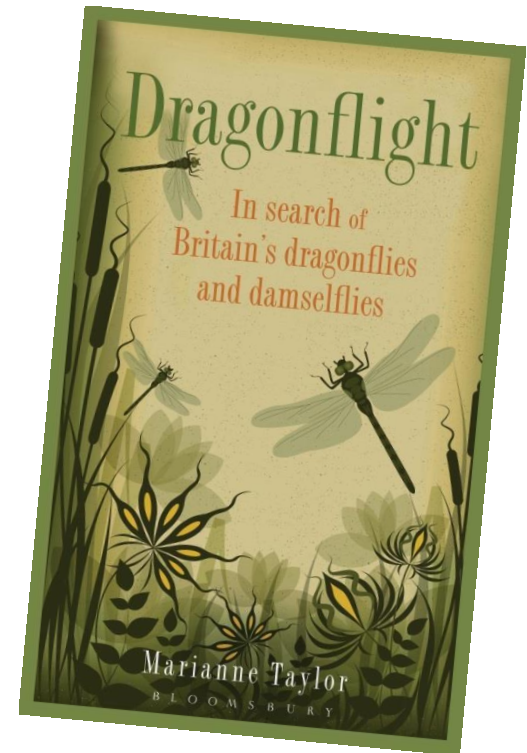
Dragonflies are important in culture.

Some countries think they bring good luck.

Other countries think they bring bad luck.



© Hokusai Katsushika



Can you make dragonfly art?



Dragonflies are beautiful animals.
It makes people happy to see them.



© Daniele Muir

BDS



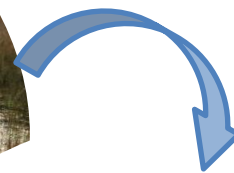
Why are dragonflies in danger?

Humans are changing their habitats so they no longer have the conditions they need to survive.



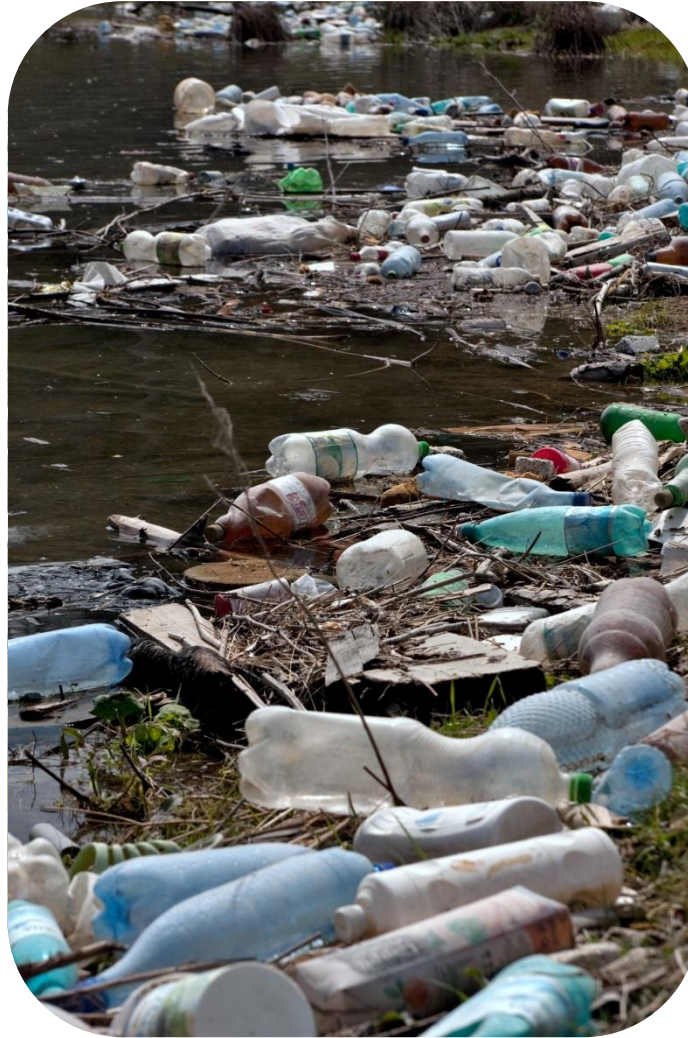
© Tim Coleshaw

We drain wet places so there is not enough water left for dragonflies.



Photos Daniele Muir

We put pollution in their water.



© Horia Varlan

We kill insects with chemicals. Dragonflies need these insects for food.



Photos © clockwise left-right: [jetsandzeppelins](#), [Steve Waterhouse](#)

You can help dragonflies!

Dig a pond



You can help dragonflies!

Record them

24th July 2016

My School Pond

Grid reference: SU498059

- ✓ Southern Hawker
- ✓ Common Darter
- ✓ Azure Damselfly
- ✓ Blue-tailed Damselfly
- ✓ Emerald Damselfly



You can help dragonflies!

Learn about them



© Daniele Muir

BDS



You can help dragonflies!

Teach other people about them



You can help dragonflies!

Keep their habitat clean and healthy

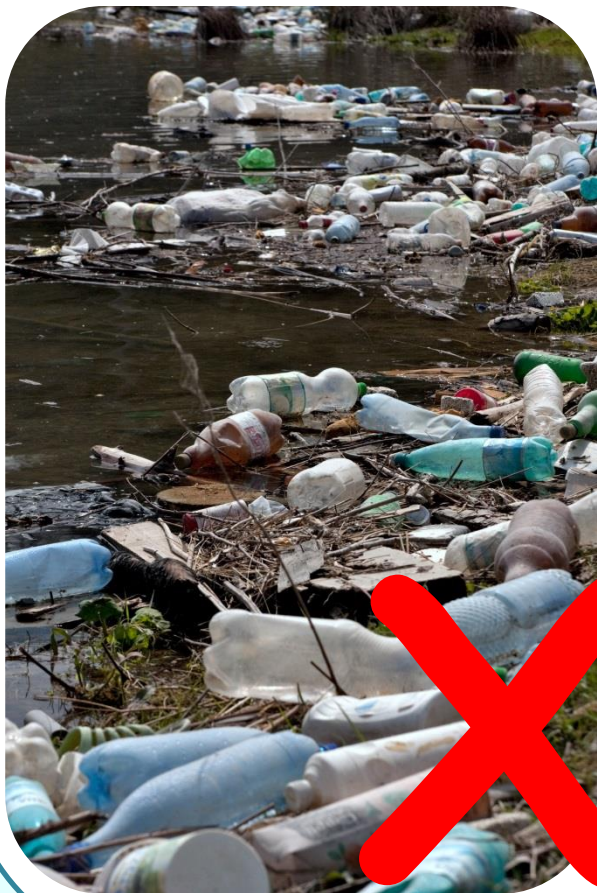


Photo left-right: [Horia Varlan](#), Dave Smallshire

BDS



You can help dragonflies!

Love them!



© Daniele Muir

BDS



For more information you can
visit the British Dragonfly
Society website.

www.british-dragonflies.org.uk



© Tim Coleshaw