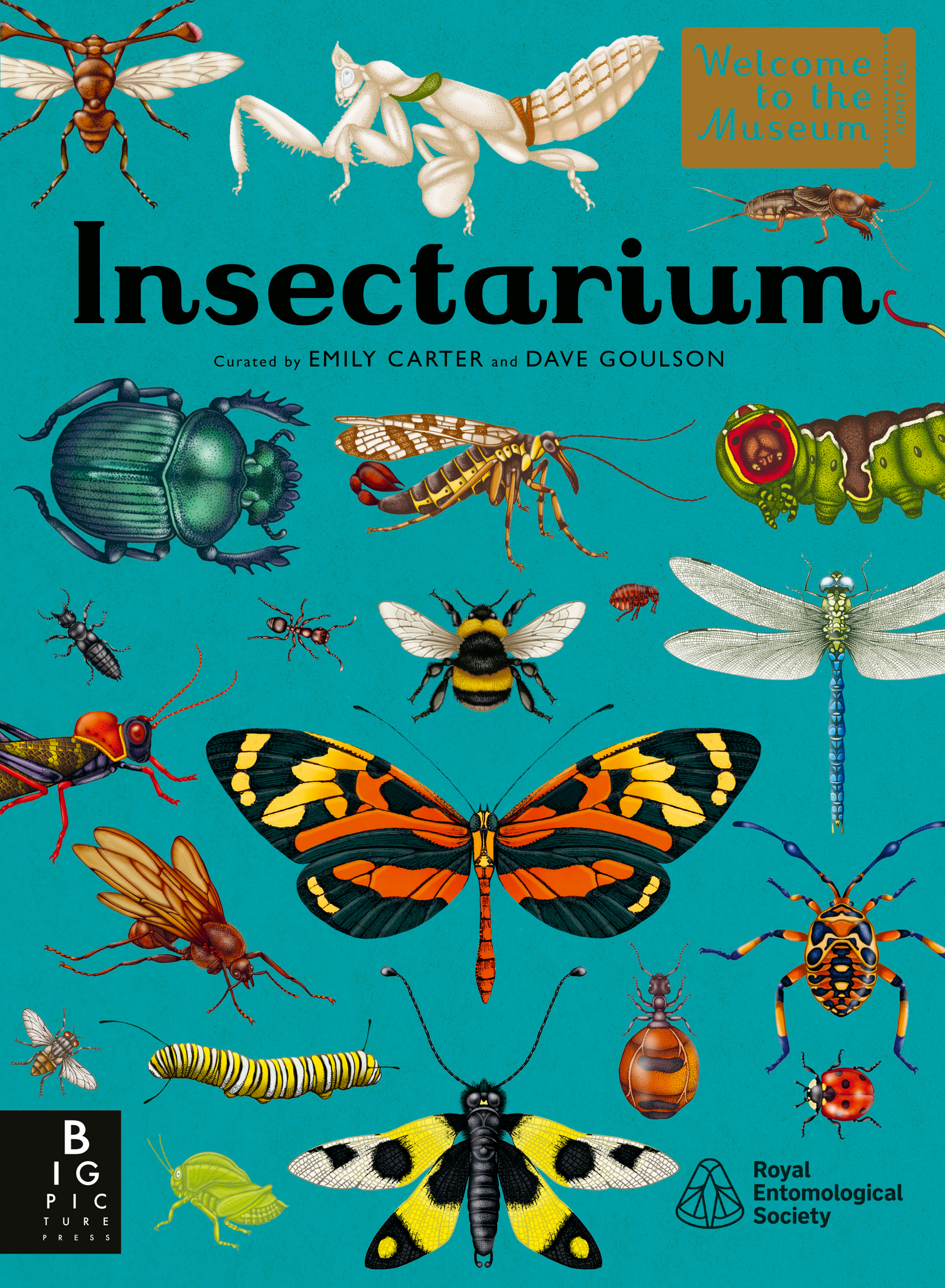


Welcome  
to the  
Museum

ADMIT ALL

# Insectarium

Curated by EMILY CARTER and DAVE GOULSON



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# Mantises

Mantises are the more glamorous wing of the Dictyoptera insect order, found most commonly in the tropics. Their stunning camouflage ranges from beautiful flowers to trembling leaves. That beautiful exterior is deceiving, however, as they are fascinating ambush predators. They catch their prey – mainly other insects – with their strong front legs which are equipped with rows of sharp spines. Gruesomely, their prey is consumed alive. While waiting for prey, mantises sit in a characteristic position with their front legs folded, giving rise to their common name of praying mantis. Mantises have large eyes situated on either side of their triangular head. Their flexible neck allows them to track the movement of approaching prey while moving only their head.

Courtship is a dangerous business for mantises as the male is much smaller and weaker than the female. Males of many species perform an elaborate swaying dance by way of courtship, but even so, if the female is hungry, she may prefer to eat him rather than mate with him. Sometimes she does both.

After mating, the female lays a batch of eggs which she covers with a quick-setting foam to create a tough protective case, known as an ootheca. The tiny young mantises that eventually emerge appear very delicate but are ferociously cannibalistic.

## Key to plate

### 1: Ghost mantis

*Phyllocoris paradoxus*

Length: Up to 50mm

This African mantis bears an uncanny resemblance to a dried, twisted leaf, complete with what appear to be leaf veins. So as long as it remains motionless, this species is almost impossible to spot.

### 2: Orchid mantis

*Hymenopus coronatus*

Length: Up to 75mm

This beautiful pink and white mantis

mimics the petals of a flower.

This helps the mantis avoid predation

by birds, and, at the same time,

attracts flower-visiting insects such

as butterflies and bees which the

mantis consumes.

### 3: Spiny flower mantis

*Pseudocreobotra wahlbergi*

Length: Up to 40mm

This small African mantis resembles

an elaborate creamy flower when

motionless. If the camouflage fails and

the insect finds itself under attack, from

a predator, it can flash large eyespots

on its wings which gives the impression

that it is a much larger creature.



# Habitat: Ponds, Streams and Rivers

So long as they are unpolluted, freshwater habitats are often extraordinarily rich in insect life. Colourful dragonflies and damselflies soar above the water surface, seeking mates, prey, or somewhere to lay their eggs. Swarms of mayflies flutter weakly above the water, their wings silver in the sunlight. In the shade beneath overhanging trees drift clouds of tiny black dance flies. One of the reasons that there are so many insects in ponds is because insects can fly, so are able to quickly find and colonise ephemeral ponds – ponds that only exist for a short amount of time. These ponds also usually lack predators such as fish.

Across the water surface, pond skaters skip, water measurers plod sedately and groups of whirligig beetles indulge in frenzied gyration. And beneath the water lie many more insects: dragonfly nymphs, water beetles, backswimmers, water scorpions, caddisfly and hoverfly larvae, to name just a few.

Drawn by this richness of insects, birds such as dippers, swallows and waders come to freshwater to feed. The insect life in rivers and lakes also supports fish such as trout and salmon, and amphibians such as frogs, toads and newts.

## Key to plate

### 1: Pond skater

*Gerris lacustris*  
Length: Up to 10mm  
These insects skim across the surface of the water in ponds and streams, using water-repellent feet to stay afloat. They are predators, drawn to the ripples created by insects that have fallen into the water.

### 2: Great silver water beetle

*Hydroporus picus*  
Length: Up to 50mm  
These shiny pond-dwelling beetles can live up to three years. The adults are omnivores, while the grubs, which can reach up to 70 millimetres in length, are specialist predators of pond snails.

### 3: Giant water bug

*Lethocerus americanus*  
Length: Up to 90mm  
These fearsome true bugs are capable

of eating small snakes, turtles, fish and frogs. While their bite is very painful, it is not serious to humans.

### 4: Tiger hoverfly

*Helophilus pendulus*  
Length: Up to 12mm  
This hoverfly species breeds in small ponds and puddles and is found across Europe. The aquatic larvae have elongated tails, which they use as snorkels to breathe, earning them the name rat-tailed maggots.

### 5: Caddisfly

*Limnephilus flavicornis*  
Length: Up to 15mm  
Caddisflies are related to moths. The larvae are aquatic, and live within protective cases that they construct from pieces of leaf, twigs or grains of gravel and sand, all stuck together with silk.

### 6: Globe skimmer

*Pantala flavescens*  
Wingspan: Up to 60mm  
This dragonfly undergoes the longest known insect migration from India across the Indian Ocean to Uganda, then south to South Africa and back to India. The dragonflies appear to be following the monsoon rains and cover about 18,000 kilometres in total in three or more generations.

### 7: Roseate skimmer

*Orthemis farnaginis*  
Wingspan: Up to 65mm  
This gorgeous dragonfly appears either pink or purple, depending on the light. It is found from the United States southwards to Brazil, breeding mainly in small ponds and ditches.



INSECTARIUM

*Gallery 5*

# Beetles and Relatives



*Beetles*

*Common Eastern Firefly*

*Ladybirds*

*Twisted Wing Flies*

*Habitat: Tropical Rainforests*

# Wasps

Wasps, bees and ants all belong to a highly successful group of insects known as the Hymenoptera, with 150,000 known species. The Hymenoptera contains most of the 'eusocial' insects – those that live in large nests with the majority of individuals being workers with just one, or a few, queens.

The earliest known wasps appeared about 200 million years ago in the Jurassic period and today more than 100,000 species of wasp have been identified. When most people think of a 'wasp' the common yellow and black social species (known as yellowjackets in North America) comes to mind – the type that tend to cause a nuisance at picnics. These are not typical wasps however. The large majority of known species of wasp are 'parasitoid' wasps: solitary insects that as larvae live on or in hosts (usually other insects). These wasps invariably kill their host, bursting from its corpse in a manner that almost certainly inspired the movie *Alien* (1979). Most parasitoids are small and easily overlooked, and so it is highly likely that huge numbers of species are yet to be discovered.

Most of the social wasps, such as yellowjackets, build nests from chewed up and regurgitated wood pulp. They create a light and strong papier mâché that is fashioned into an insulating papery ball containing sheets of hexagonal honeycomb-like cells. In social wasps, the egg-laying tube of the female has evolved into a sting used particularly if the nest is under attack. The nests are typically short-lived, founded by a queen in early spring and dying out with the onset of autumn.

Wasps are much maligned, yet they serve many important functions as biocontrol agents and important pollinators.

## Key to plate

### 1: European beeewolf

*Pezomachus tringulum*  
Length: Up to 14mm  
A handsome wasp, the beeewolf specialises in feeding on honey bees, which are paralysed and stored in burrows underground for the offspring to consume. Many females may nest near one another in dense aggregations in sandy soil.

### 2: Giant Asian hornet

*Vespa mandchurica*  
Length: Up to 45mm  
Sometimes known as the murder hornet, this is the largest hornet species and has a potent sting. It is from Asia, but recently colonised northwest North America. It is a fierce predator commonly attacking and destroying honey bee colonies.

### 3: Common wasp

*Vespa vulgaris*  
Length: Up to 13mm  
Nests are founded by a queen in spring

and built of paper. They can grow to house several thousand workers by late summer. These wasps are important predators of crop pests.

### 4: Emerald cockroach wasp

*Ampulex compressa*  
Length: Up to 22mm  
This colourful insect has a sinister lifestyle. They are parasitoids of large cockroaches, stinging their prey in a particular part of its brain so that the cockroach loses the ability to run away, but is otherwise unharmed. The wasp then leads its victim by one of its antennae, like a dog on a lead, back to its lair where it lays an egg on the roach. The cockroach then stands helpless for days while it is consumed alive by the wasp's offspring.

### 5: Tarantula hawk wasp

*Pepsis grossa*  
Length: Up to 50mm  
These splendid blue-black insects have distinctive rusty orange wings. They

prey on tarantulas which they paralyse, drag back to their nest and lay a single egg upon. The grub then burrows into the spider and eats it alive. Said to have one of the most painful stings of any insect, the tarantula hawk wasp is also one of the largest wasp species.

### 6: Red velvet ant (female)

*Dinomyia occidentalis*  
Length: Up to 19mm  
The wingless females resemble fairy ants. Their bright colours warn of a powerful sting. Velvet ants are parasitoids; eggs of this species are laid on the brood of various solitary wasps.

### 7: Giant scoliid wasp

*Megacolia procer*  
Length: Up to 77mm  
Perhaps the largest wasp species, the giant scoliid is a parasitoid of atlas beetle grubs, paralyzing an unfortunate grub with a sting, laying an egg on it and then burying it for the emerging wasp grub to consume at its leisure.

