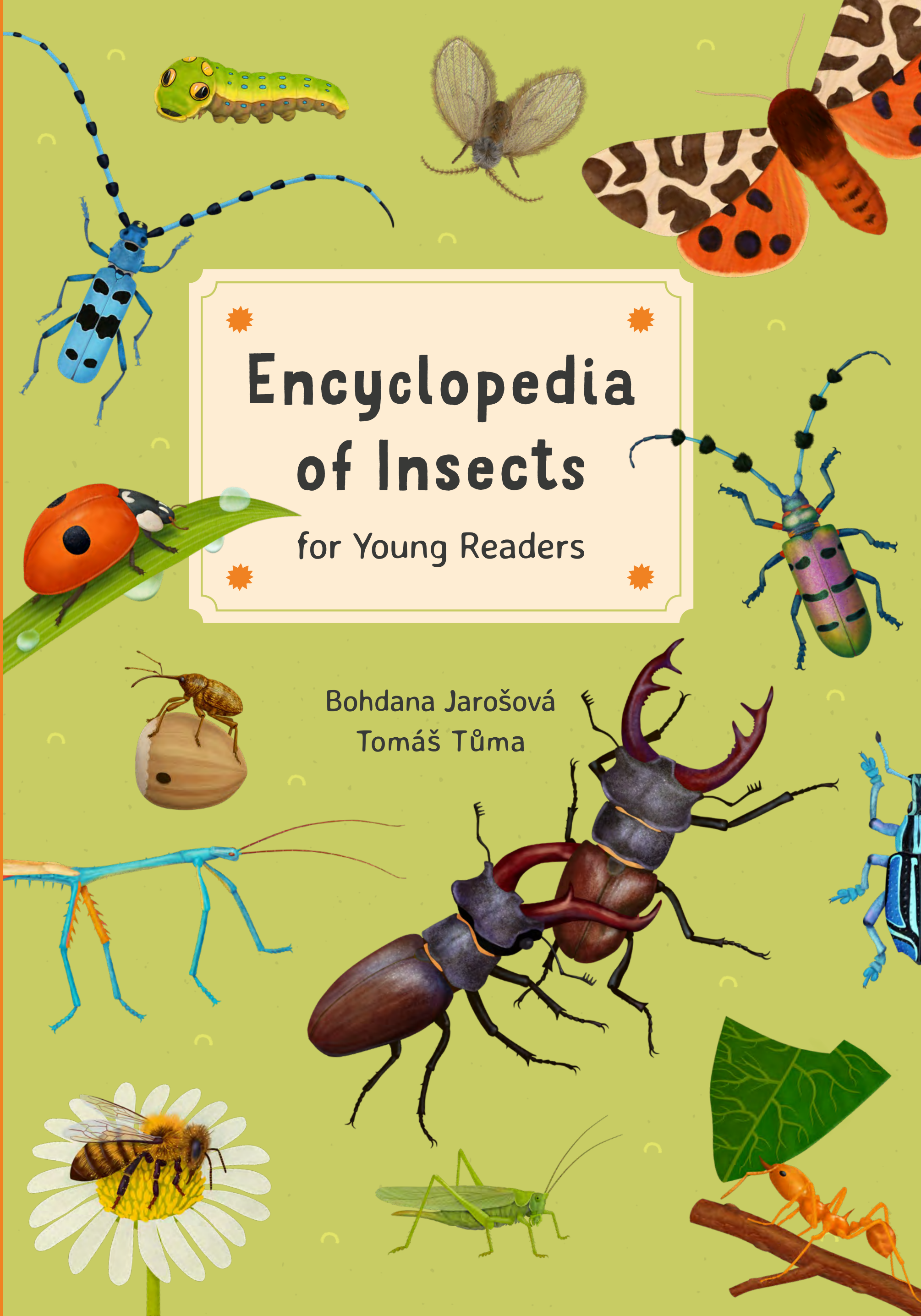




Bohdana Jarošová & Tomáš Tůma



Encyclopedia of Insects for Young Readers



Encyclopedia of Insects

for Young Readers

Bohdana Jarošová
Tomáš Tůma

CONTENTS



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	BUTTERFLIES AND MOTHS	
	Caterpillars	4
	The largest butterflies and moths	6
	Butterflies	8
	Moths.....	10
	MEMBRANOUS WINGS	
	Dragonflies and damselflies	12
	Flies	14
	Mosquitoes and other long-legged insects	16
	Bees	18
	Wasps and hornets.....	20
	Smaller flies, bees, and wasps	22
	Ants	24
	STRONG LEGS	
	Mantises and crickets.....	26
	Grasshoppers and stick insects.....	28
	Long-legged water bugs	30
	HARD WING CASES	
	The largest beetles.....	32
	Warrior beetles	34
	Tree-dwelling beetles.....	36
	Ground-dwelling beetles	38
	Ladybugs.....	40
	The most colorful beetles.....	42
	INSECTS AROUND US	
	In our homes I	44
	In our homes II.....	46

Butterflies and Moths

CATERPILLARS

As soon as a caterpillar larva hatches, it starts devouring food—usually leaves specific to its species—and it doesn’t stop munching, even at night! In just a few weeks, it will need to eat enough to grow several times larger and be able to pupate. That’s when the caterpillar undergoes a process called metamorphosis, transforming into a beautiful butterfly or moth.

Scarce fritillary

This striking caterpillar with black bristles and bright yellow spots feeds on lungwort, violets, broadleaf plantain, and other herbs. After pupating, it transforms into the rare fritillary butterfly.

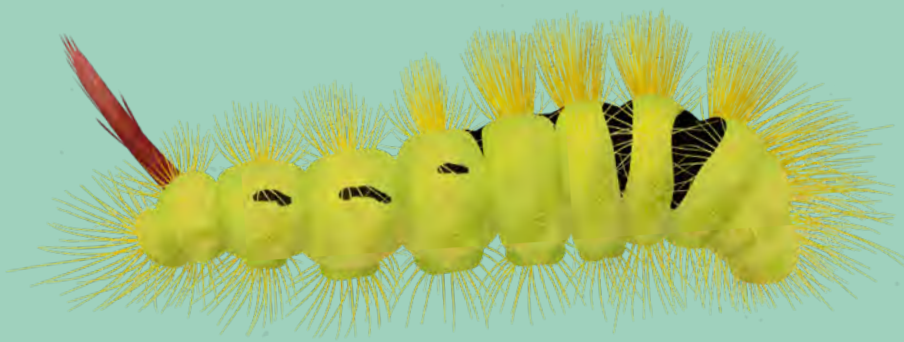
Spicebush swallowtail

This common butterfly, whose yellow-green caterpillar adores fragrant shrubs, ranges from Canada down to Florida. During the day, it hides in the curled-up leaves of a spicebush.

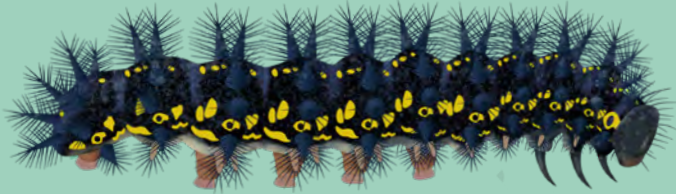
Leopard lacewing

The yellow-and-burgundy striped caterpillar of the leopard lacewing lives in South Asia, where it feeds on the leaves of fragrant passionflower. The adult butterflies feast on nectar from flowers.

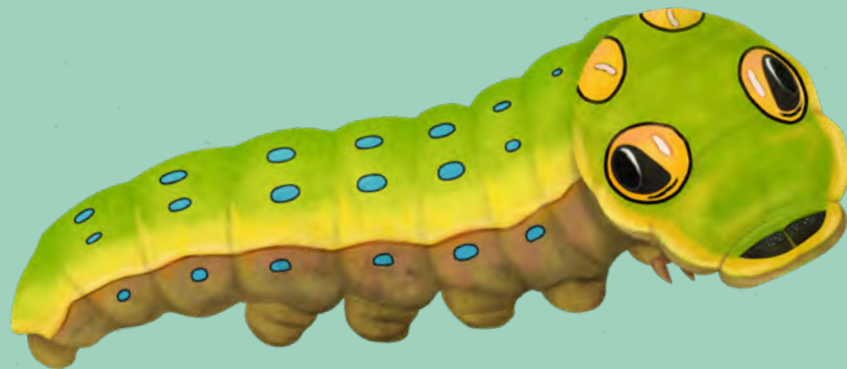
Pale tussock moth



Scarce fritillary



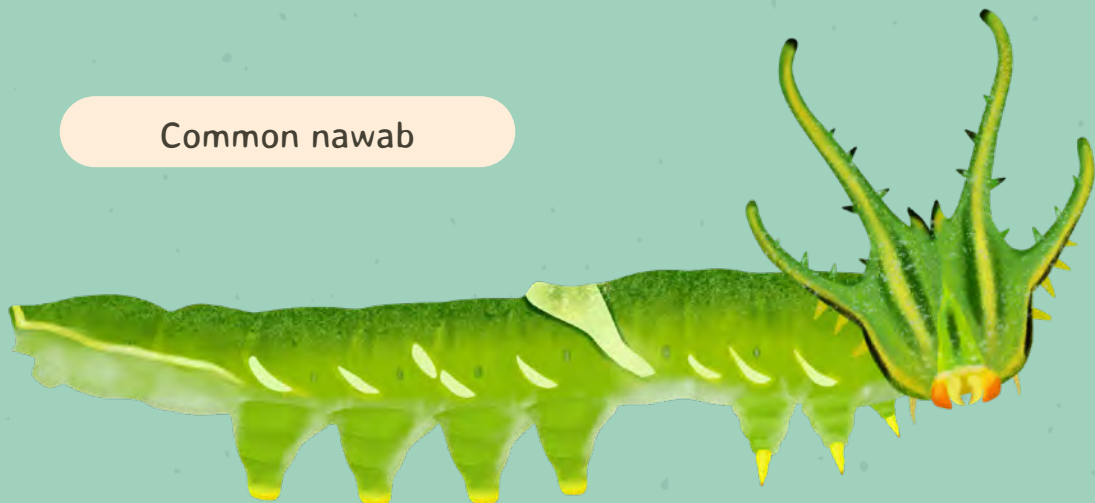
Spicebush swallowtail



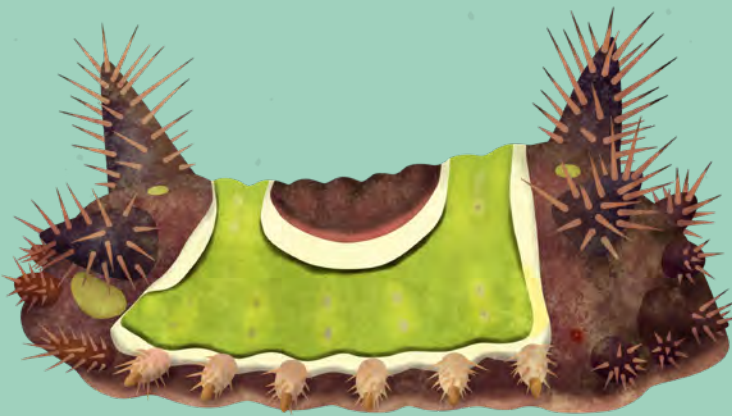
Leopard lacewing



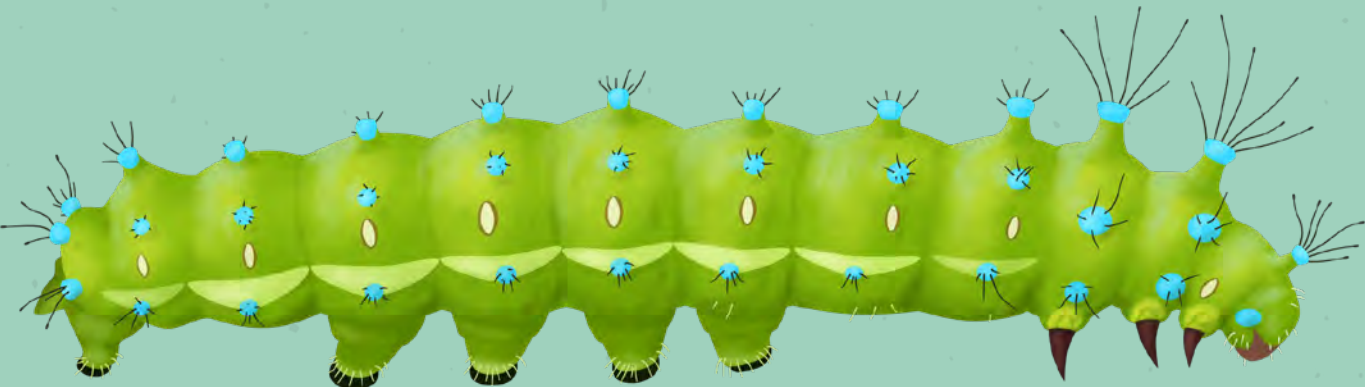
Common nawab



Saddleback caterpillar



Great peacock moth



Southern flannel moth



Old World swallowtail



Pale tussock moth

The bright yellow pale tussock moth caterpillar has a clever way of defending itself. When it feels threatened, it curls up into a ball, exposing its spiky hairs, which can cause an allergic reaction and an itchy rash if they touch skin.

Common nawab

The Himalayas, Sri Lanka, and surrounding areas are home to this “dragon-headed” caterpillar. After pupating, the green, slug-like creature transforms into one of the world’s fastest butterflies.

Saddleback caterpillar

This North American caterpillar looks like it has a saddle on its back, but it’s best not to sit on it, as its venomous bristles stick out in all directions. After pupating, it becomes a moth with velvety wings.

Great peacock moth

This long, yellow-orange caterpillar larva with bright turquoise bristles grows up to 5 inches long and transforms into one of the largest nocturnal moths in Europe.

Southern flannel moth

Although it looks like a stray tuft of ginger hair, this is actually the caterpillar of an American moth, covered in long, silky hairs. But don’t touch it—the spines are venomous!

Old World swallowtail

This butterfly from North America, Asia, and Europe begins life as a caterpillar with black with red spots. Later, it turns green and develops a black-and-orange pattern. It feeds on the leaves of carrots, parsley, and dill.

Membranous Wings

DRAGONFLIES AND DAMSELFLIES

Did you know that dragonflies and damselflies descend from some of the oldest insects on Earth? Long ago, their 2-foot-long ancestors flew over prehistoric swamps. Over time, these water-loving insects became smaller but retained many of their remarkable abilities. With acute vision and four wings that move independently, they're among the fastest flying insects, able to change direction mid-flight and even fly backward.

Blue-winged helicopter

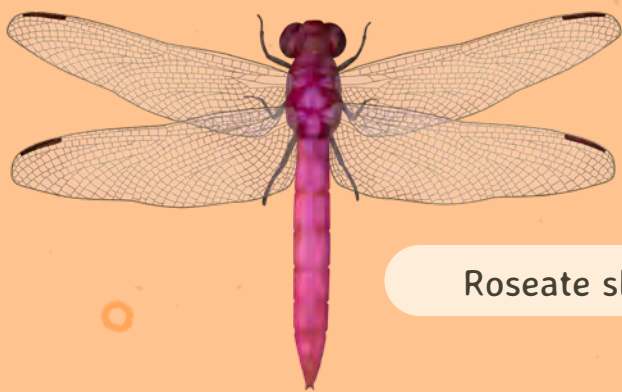
An inhabitant of the forests of Central and South America, this large damselfly is an expert at hunting spiders in their own webs. It hovers over its chosen prey like a little helicopter—and strikes!

Racket-tipped rubyspot

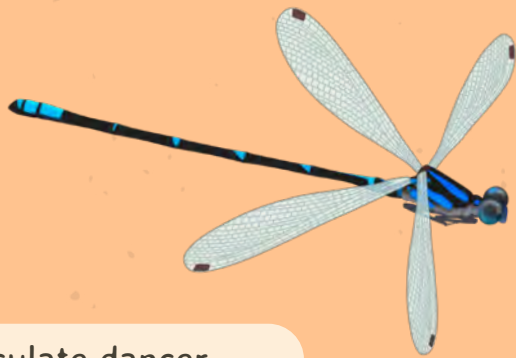
This damselfly isn't the quickest insect, gently weaving in the air as it flies, but it's truly beautiful. With bright red and golden markings on its wings and body, it's like a flying jewel.

Brown hawker

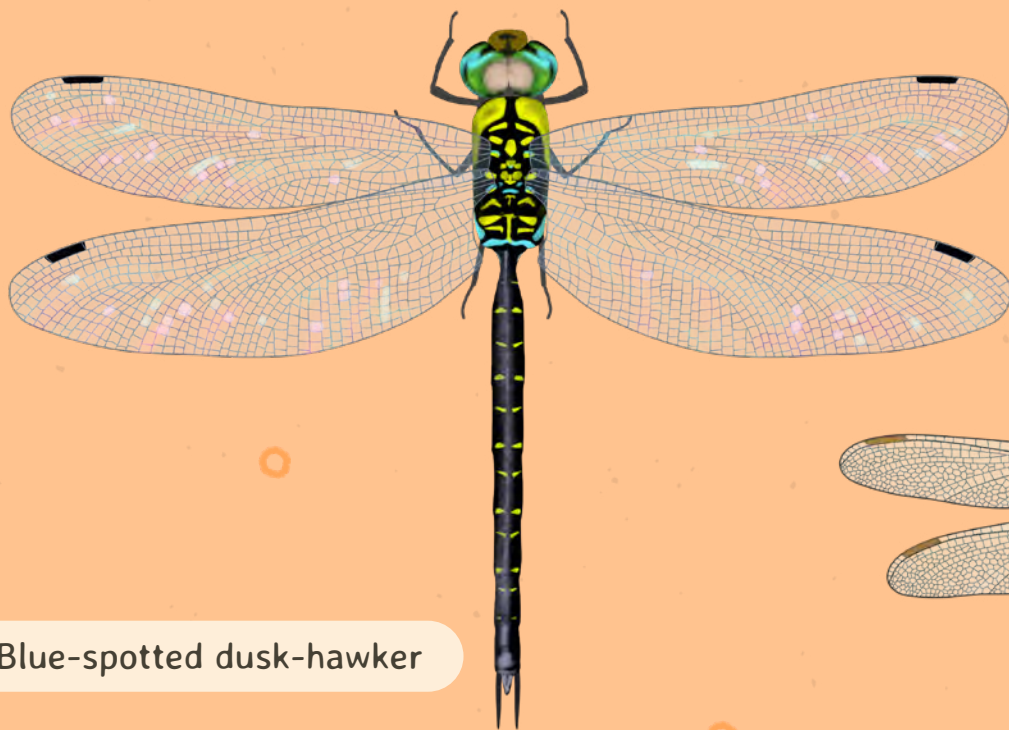
With its slender, bronze body and golden-brown wings, this dragonfly is among the fiercest hunters of its kind. It chases flying insects in sunny clearings and along forest edges.



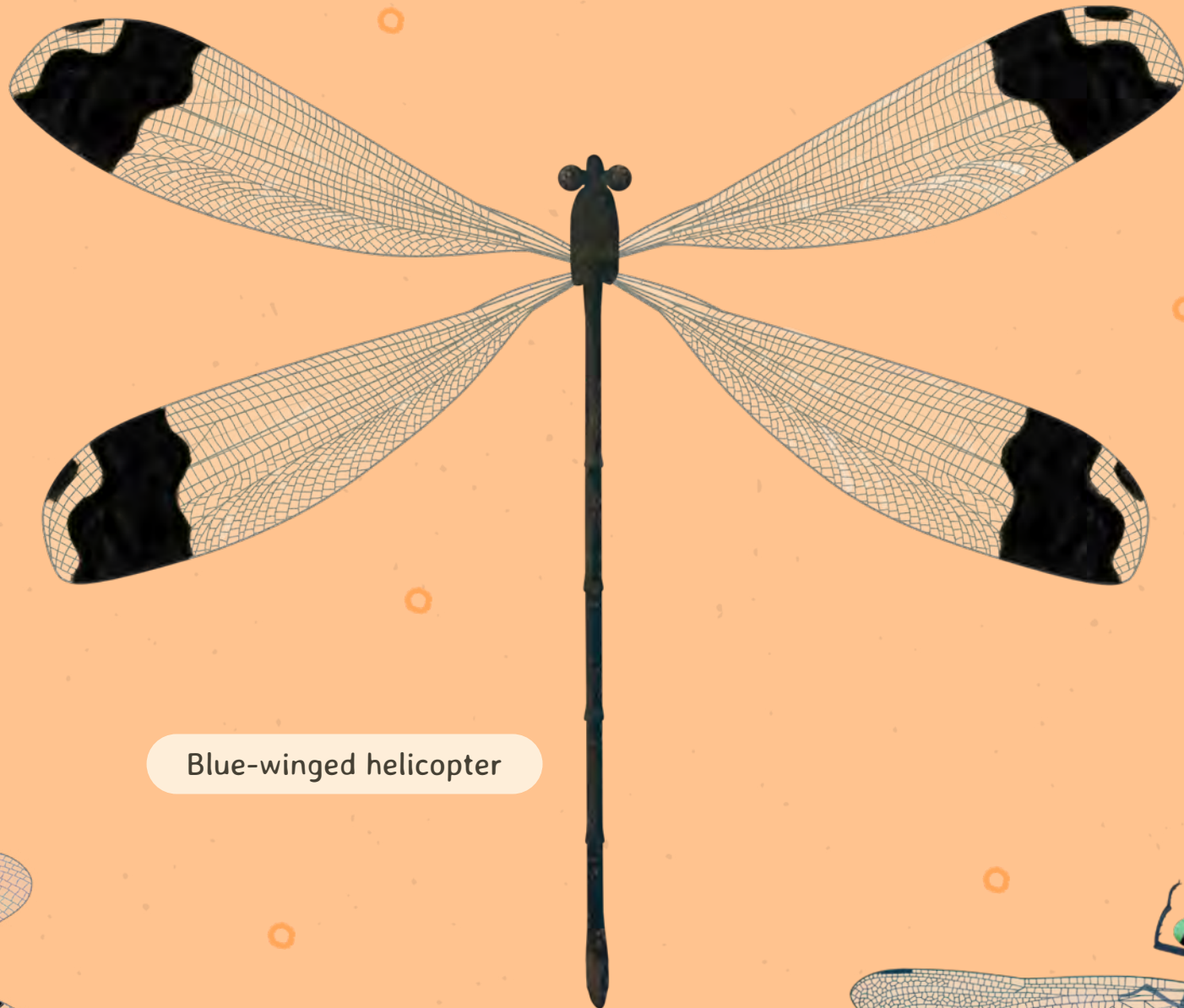
Roseate skimmer



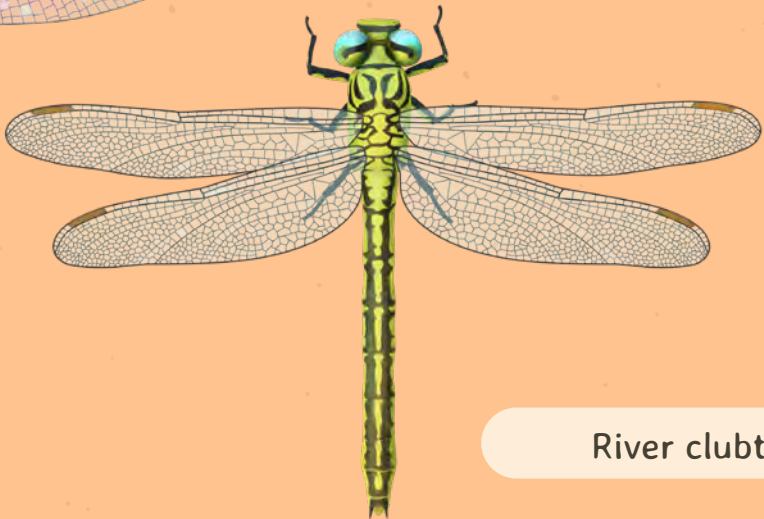
Oculate dancer



Blue-spotted dusk-hawker



Blue-winged helicopter



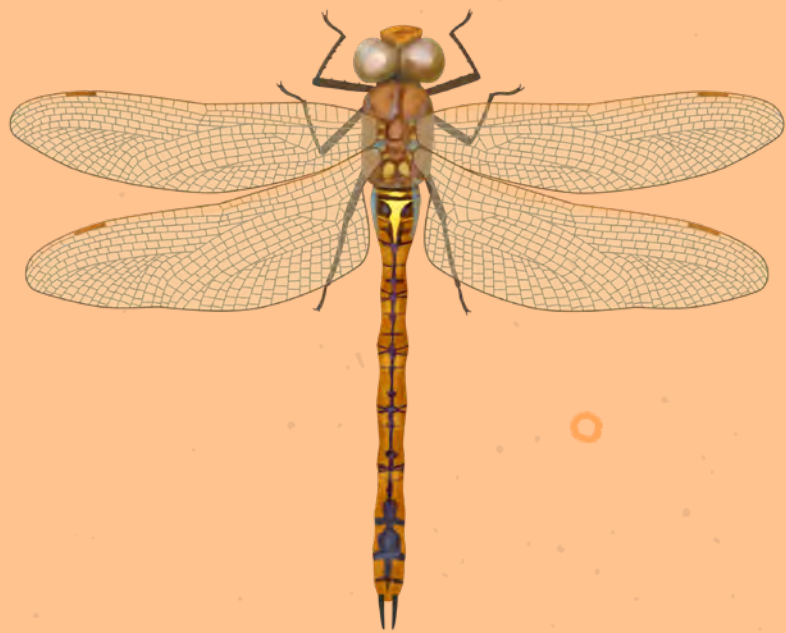
River clubtail



Balkan goldenring



Racket-tipped rubyspot



Brown hawker



Small red-eyed damselfly

Roseate skimmer

This small dragonfly loves large ponds and lakes where it can fly undisturbed. The male is pink, while the female is orange. It lays its eggs in or near the water.

Oculate dancer

Tiny and beautifully colored, this blue-black damselfly is called "dancer" thanks to its jerky, fluttery flying style. It soars high above the grass, taking breaks to rest on sun-warmed ground and rocks.

Blue-spotted dusk-hawker

This shimmering dragonfly with turquoise eyes has an unusual daily routine. While most dragonflies love the sunshine, this Japanese species flies when the sun is rising or setting.

River clubtail

With its vibrant yellow body and long black stripes, this dragonfly is found near rivers. The female lays eggs on the water's surface while in flight. Then the current carries them off until they settle on the sandy riverbed.

Balkan goldenring

This striking, yellow-and-black striped dragonfly with green eyes is one of Europe's largest species. It likes to take a midday break, resting in sunny spots.

Small red-eyed damselfly

Europe, North Africa, and Central Asia host this little damselfly with a pale blue tail. It adores ponds and lakes, especially where water lilies or yellow spatterdock bloom.

Membranous Wings

SMALLER FLIES, BEES, AND WASPS

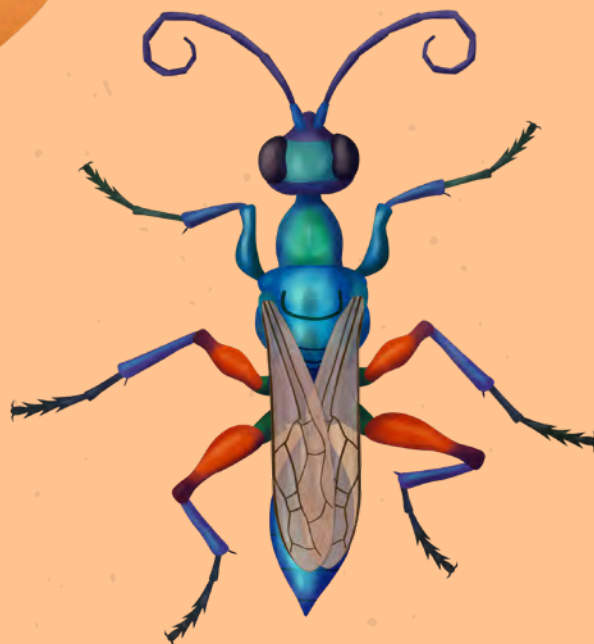
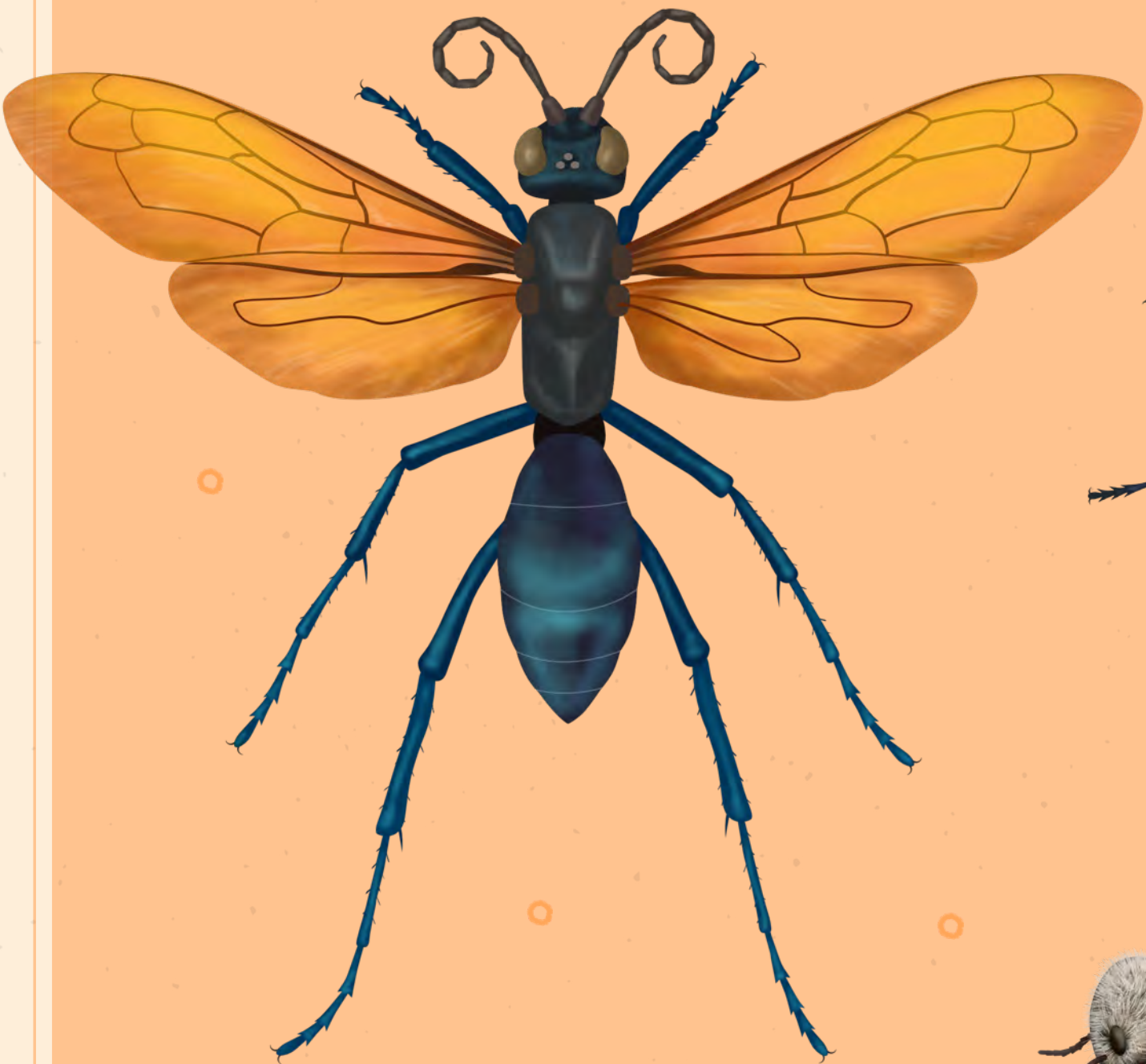
The wild is also home to many smaller species of flies, bees, and wasps that are often more delicate than their larger counterparts. They come in a wide range of colors, some even sparkling like jewels, but they all have their own particular habits. Some lay eggs in the sand, others prefer the inside of flower blossoms, and a few even use beetle larvae as living lunchboxes for their offspring.

Emerald cockroach wasp
This dazzling wasp is a cockroach's worst nightmare. It catches its cockroach prey with a paralyzing sting before taking it back to the nest. There, a larva eats the cockroach alive and pupates inside its body.

Giant woodwasp
Although it looks like a wasp, this sawfly poses no danger to humans or animals. Foresters don't like it, though, as the female lays its eggs under tree bark, weakening the tree.

European beewolf
This solitary wasp is an expert at hunting bees. It strikes when they're resting on flowers or flying back to their hives. A special antibiotic substance is produced on its antennae, used to protect its offspring.

Tarantula hawk



Emerald cockroach wasp



Euspinolia militaris



Ruby-tailed wasp

Giant woodwasp



Pale-saddled Leucozona



Red-banded sand wasp



European beewolf



Green orchid bee



Tarantula hawk

The female of this American wasp flies close to the ground, hunting for spiders—the bigger, the better. Its venom can paralyze even a large tarantula, which it then hauls back to its nest.

Ruby-tailed wasp

With its shiny, metallic coat and large compound eyes, the dazzling appearance of this tiny wasp makes it easy to recognize. It flies in hot, sunny weather, looking specifically for white and yellow flowers.

Euspinolia militaris

Sometimes called the "panda ant" on account of its black-and-white coloring, this furry insect is in fact a species of wasp—with an extremely painful sting.

Pale-saddled Leucozona

In high mountain areas, this useful hoverfly plays a bee-like role, pollinating flowers, such as orchids. There are over 6,000 species of hoverfly, and they live in all parts of the world outside of Antarctica.

Red-banded sand wasp

This slender, black digger wasp has a rust-brown abdomen. A shy and solitary insect, it loves warm, sandy soils, where it carefully buries its eggs.

Green orchid bee

This beautifully colored bee has a special love for orchids, which it pollinates with a long, thin tongue. The female constructs a solitary nest out of propolis, a sticky substance taken from plants.

Strong Legs

MANTISES AND CRICKETS

Mantises are carnivores, and catching insects is what they do best, ambushing anything that wanders within reach. The forelegs of a mantis are called raptorial for a reason: They're lined with sharp spikes, and when a mantis snatches its prey, it often slices off the victim's head in the process. Crickets, on the other hand, are omnivores and therefore much less picky about their food. If there are no little insects around, they'll settle for grass or leaves.

Devil's flower mantis

This mantis species, one of the largest in the world, lives in Africa. If a fly, butterfly, or moth gets too close, the mantis traps it with powerful legs and kills it with one quick strike.

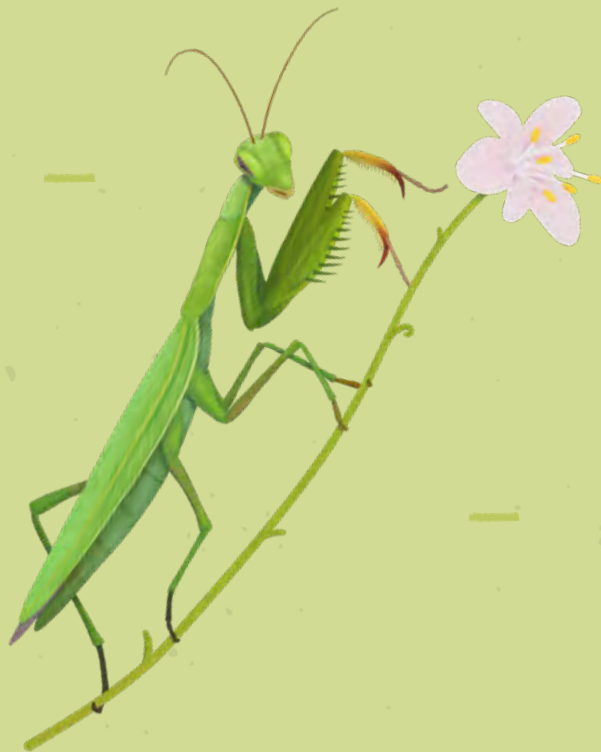
Red-eyed katydid

This red-eyed North American grasshopper hunts in dry grasslands, overpowering prey, such as other grasshoppers, small lizards, and even tiny frogs. It defends itself with sharp bites and powerful kicks.

European mole cricket

The mole cricket spends most of its life underground, digging tunnels in moist soil. It feeds on insects and earthworms. Like all crickets, the male chirps in the evening to attract females.

Praying mantis



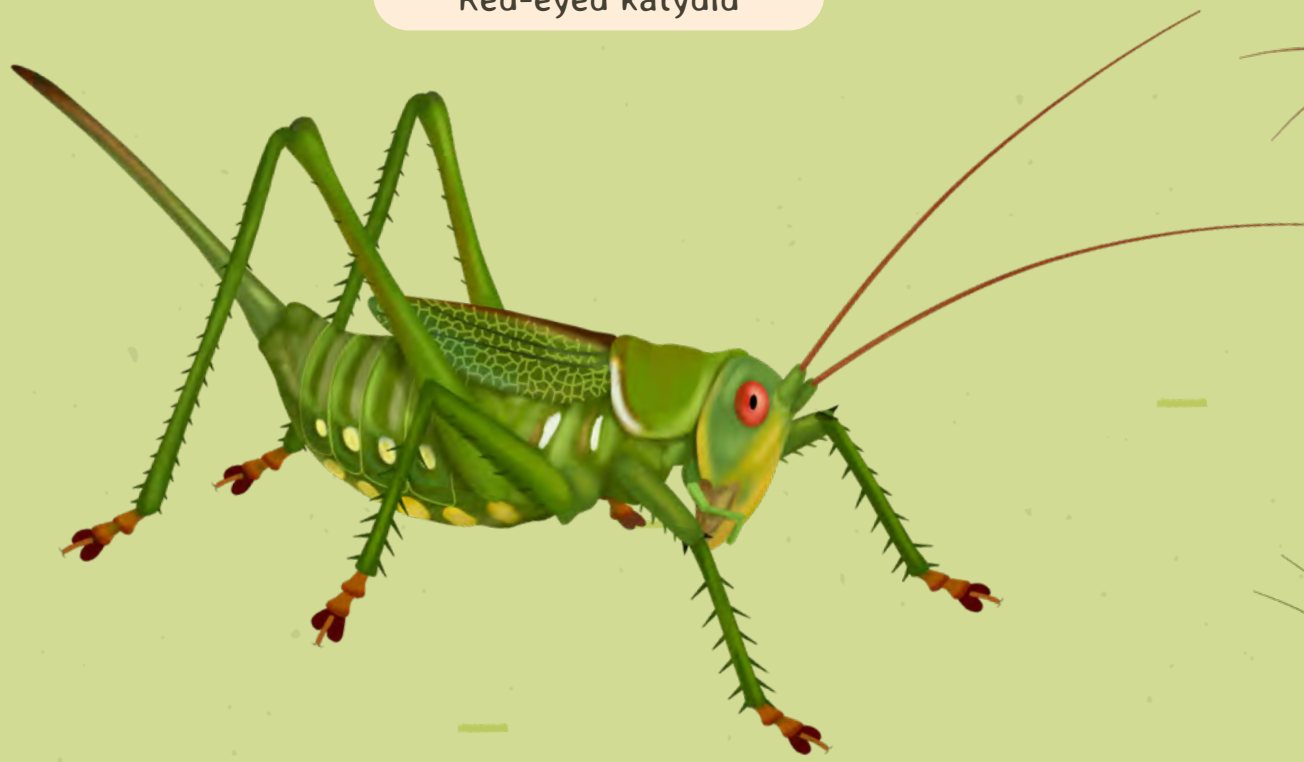
Spiny flower mantis



Devil's flower mantis



Red-eyed katydid



European mole cricket



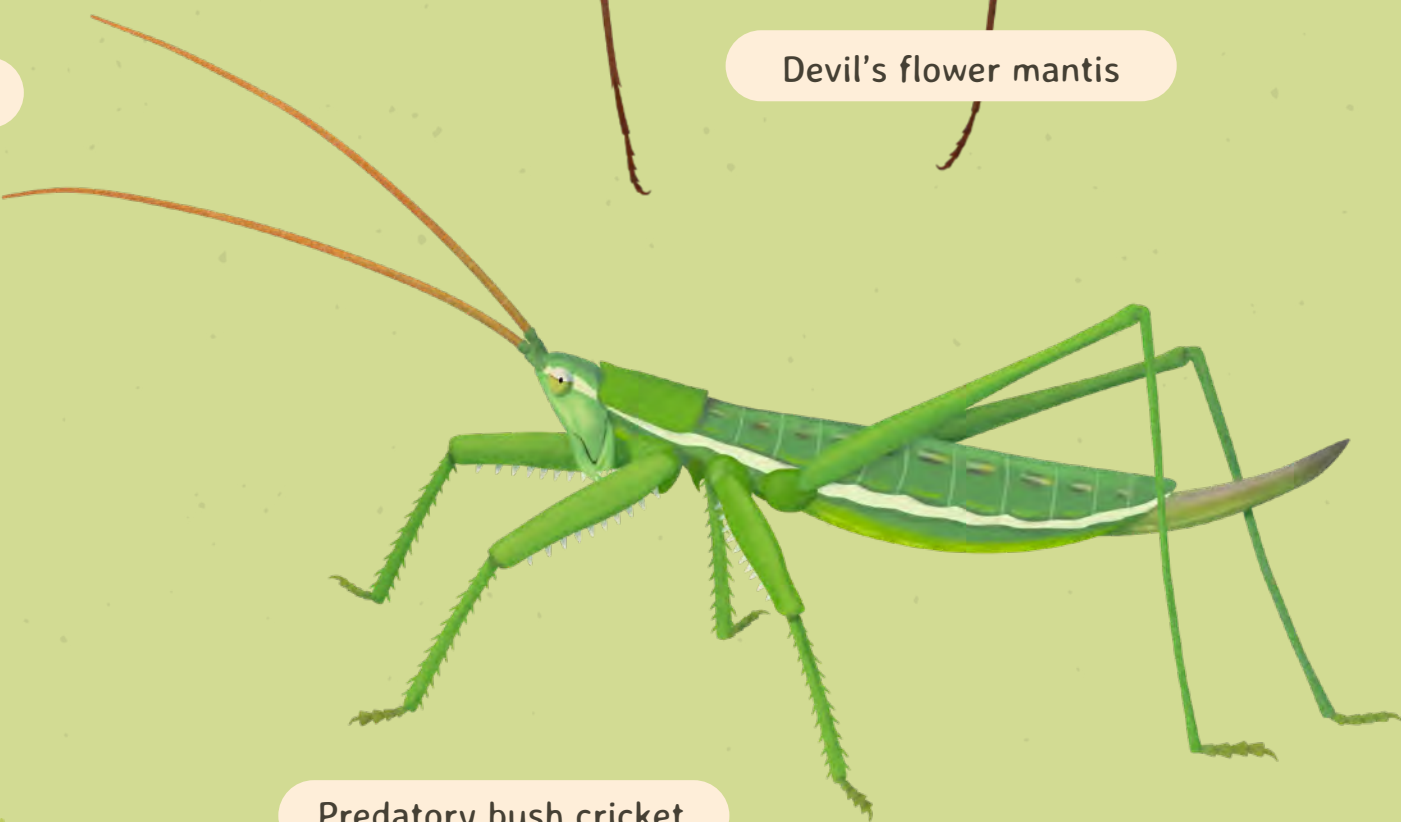
Great green bush cricket



Walking flower mantis



Predatory bush cricket



Cave cricket



Praying mantis

This green mantis with a triangular head is commonly found in warmer climates around the world. When food is scarce, the female may bite off the male's head to nourish her developing eggs.

Spiny flower mantis

This native of East Africa has large, eye-shaped markings on its wings and a hearty appetite. Disguised as a pink or red flower, it ambushes prey. This mantis prefers winged insects but won't say no to a spider.

Predatory bush cricket

In sun-warmed vineyards and meadows, the predatory bush cricket hunts other crickets and bees. One of the largest species in Southern Europe, it's fierce enough to take on a praying mantis, but it isn't safe from birds and frogs.

Walking flower mantis

In the rainforests of Southeast Asia, this well-camouflaged mantis lies in wait for bees and wasps. Each of its legs resembles a flower petal, swaying gently like a pink orchid in the breeze.

Cave cricket

To find this tiny grasshopper with black and green spots, you need to go underground or, more precisely, into warm and humid caves. It can't see very well, so it uses long antennae to explore its surroundings.

Great green bush cricket

Active day and night, this cricket hunts caterpillars, butterflies, flies, and aphids in gardens and fields. In the afternoon, it perches on a plant or tree and chirps long into the night.

Strong Legs

LONG-LEGGED WATER BUGS

Long legs can help you get just about anywhere—and even walk on water. The long, wide-reaching legs of water striders keep them balanced as their back legs push them forward and the middle legs steer like a rudder. Why don't they sink? Because their legs are covered in thousands of tiny hairs with air pockets that work like little floaties.

Water scorpion

In Japan's rice paddies, there lives a bug that loves still, muddy waters. At the end of its abdomen is a long breathing tube, which allows it to hunt underwater for as long as it likes.

Giant water bug

This predator found around the world has a big appetite, sometimes even preying on tiny fish and crustaceans. It attacks unsuspecting prey with lightning speed, and its bite is even painful to humans.

Sea skater

There's not much insect life in the ocean, which makes the sea skater a rare creature. Found in tropical seas, it can jump up to 5 inches above the water's surface in order to escape predators.



Water stick insect



Water scorpion



Common water strider



Giant water bug



Sea skater



Common water measurer



Water cricket



Saucer bug



Common backswimmer

Water stick insect

This bug looks like a stick, but it's a carnivore, snacking on insects, tadpoles, and small fish. The breathing tube at the end of its abdomen allows it to lurk in ponds or lakes for prey. Instead of swimming, it walks underwater.

Common backswimmer

With a body perfectly adapted to hunting both atop and below the water's surface, this bug swims on its back, paddling with its legs. A thin layer of air covers its body, giving it a shiny, silver look underwater.

Common water strider

This insect is only half an inch long, but it can skitter a whole yard across the water's surface in a single glide. That's amazingly far! It uses its front pair of legs like hands for catching tiny insects.

Common water measurer

This long-legged insect isn't very quick. Around sunset, it steps carefully through water plants in search of food. A skilled hunter, it feeds on mosquito larvae.

Saucer bug

The saucer bug's sting is so painful that it's sometimes called the "water wasp." It swims on its back, using its hind legs to move and its front legs to catch prey. Though adults have fully developed wings, they rarely fly.

Water cricket

This hardy little beetle is full of surprises. One moment it's skating across the water, and the next it's walking upside down, just under the surface. It'll keep skating until the water freezes over.

THE LARGEST BEETLES

☀ Sabertooth longhorn beetle

This giant beetle with huge mandibles spends most of its life as a larva, hidden deep inside rotting wood, sometimes for up to 10 years. As an adult, it only has a few short months to live.

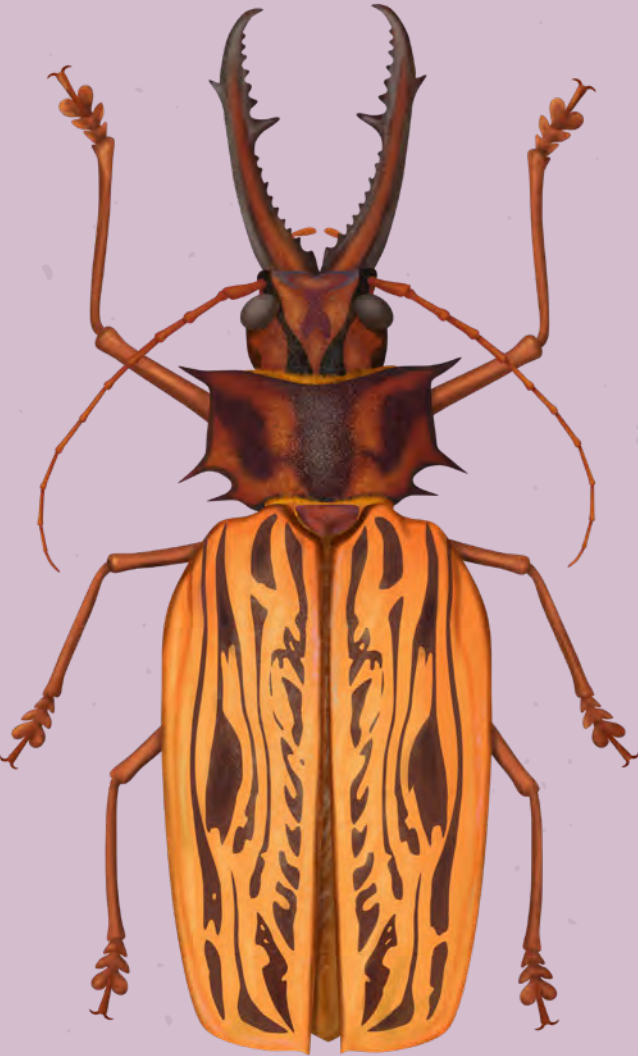
☀ Goliath beetle

One of the biggest beetles on Earth lives in Africa, feeding on fruit and even honey. The male has brown wing cases and striking black-and-white markings on its body.

☀ Neptune beetle

With claw-like horns, this imposing black beetle inhabits tropical rainforests, feeding on fruit. The male has smoother and shinier wing cases than its female counterpart.

Sabertooth longhorn beetle



Goliath beetle



Neptune beetle



Titan beetle



Hercules beetle



Elephant beetle



Only in the rainforests of South America might you cross paths with a beetle larger than your hand—and not just one! That's because the Amazon is home to some of the biggest beetles on Earth, as far as we know. But the biggest one of all could still be out there, waiting to be discovered.

☀ Hercules beetle

This beetle lives in Central and South America. Including its horn, which it occasionally uses in fights, it can measure up to 7 inches long. It's strong, too, capable of lifting up to 100 times its own weight.

☀ Elephant beetle

Native to Central America, this hairy beetle feeds on tree sap and juices from fruits. The male fights other males, using large horns that resemble elephant trunks. The female doesn't have horns.

☀ Titan beetle

The largest known beetle lives in the rainforests of South America. Its body alone measures nearly 7 inches long and weighs more than 2 ounces. But it's still a mystery to scientists, as they have yet to discover where it hides its larvae.

Hard Wing Cases

WARRIOR BEETLES

Horned beetles are some of the strongest and most feared creatures in the insect world, but they must all survive a hard journey to adulthood. Their long larval phase has them living for years underground or in rotting wood. After that, they spend a few months in the pupal phase before emerging as fully developed adult warriors. There are around 1,300 species of stag beetles alone, but those aren't the only beetles with horns—or the courage to fight.

☀ **Rhinoceros stag beetle**

Preferring cooler regions, this beetle often lives in beech forests, and it looks like a tiny rhino. Only the male grows a horn on its head, though, while the female has just a little bump.

☀ **European rhinoceros beetle** ☀ **Giraffe weevil**

Found in Europe, Asia, and North Africa, this beetle has a long horn and glossy brown wing cases. Its larva, commonly found in garden compost heaps, is twice the size of an adult.

This shiny red beetle with a superlong neck lives in Madagascar. Scientists discovered it in the twenty-first century and named it after a giraffe, though the beetle's neck is used for fighting rather than reaching food.



Rhinoceros stag beetle



European rhinoceros beetle



Fighting giant stag beetle



Atlas beetle

Giraffe weevil



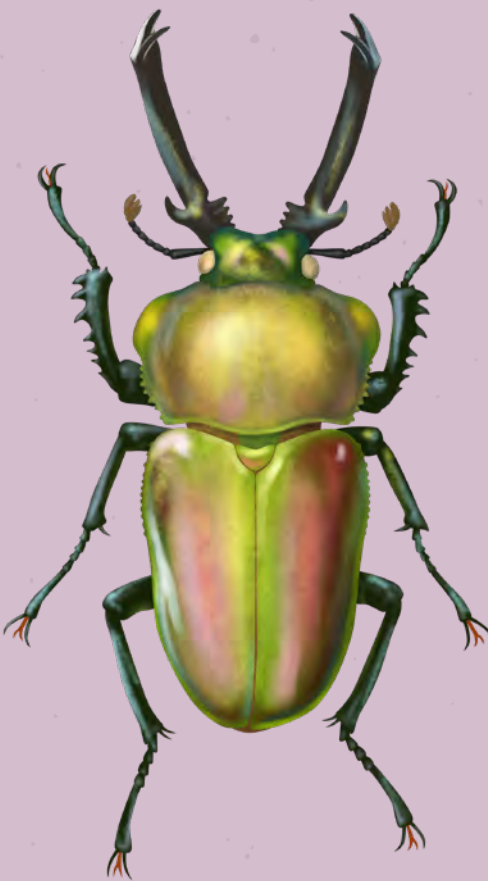
Palawan stag beetle



European stag beetle



Rainbow stag beetle



Brown rhinoceros beetle



☀ **Atlas beetle**

One of the strongest beetles in the world is found in Southeast Asia. The Atlas beetle is a great fighter, armed with three large horns. Even its larvae are aggressive, known to fight over food when there's not enough to go around.

☀ **Brown rhinoceros beetle**

The male of this Indonesian species has two horns, which it uses like a pitchfork in battle, especially when competing with other males for a female. When angry, it makes a loud hissing sound.

☀ **Fighting giant stag beetle**

With its orange and brown wing cases, this species from Southeast Asia is one of the most aggressive stag beetles. It will attack anything that comes close to it.

☀ **Rainbow stag beetle**

With shimmering, iridescent wing cases in blue, red, and green, this inhabitant of the Australian rainforest is one of the most stunning stag beetles. Its spiky legs can grip even tighter than its powerful jaws.

☀ **Palawan stag beetle**

In rotting wood in the tropical forests of the Palawan region of the Philippines lives this dark beetle with a flat body. The tips of its jaws look like tiny deer antlers.

☀ **European stag beetle**

Europe's largest beetle makes a distinctive buzzing sound when flying. The male takes off at dusk, searching for food or females. Its many enemies include hedgehogs, jays, and foxes.











Insects are everywhere. If you step outside, you'll see all sorts of tiny creatures busying about. A butterfly flutters by, a mosquito buzzes near your ear, a bluebottle lands on your head, a curious ant climbs up your leg. Thanks to bees and bumblebees that pollinate plants, we have food on our plates, although other insects will gladly help themselves to it when we're not looking. Bugs aren't only found outside, though; some live right in our homes—in the kitchen, in the pantry, or hiding behind furniture. Scientists estimate that there are up to 10 million different insect species on our planet, every part of which has its own unique biodiversity of insect life. Come have a closer look at the amazing world of insects!

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