Dragonflies along the Great Málaga Path and in the Province

IDENTIFICATION GUIDE

José Manuel Moreno-Benítez & Javier Ripoll

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diputación de málaga
Gran Senda de Málaga

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IDENTIFICATION GUIDE

2018

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Photos on the front cover (left to right and downwards)
Anax parthenope, Trithemis kirbyi, Erythromma lindenii. Main photo: *Sympetrum fonscolombii.*

Photo on the back cover
Sympetrum fonscolombii

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Dedicated to everyone who is
eager to preserve our water
ecosystems in some way.

AUTHORS

Crocothemis erythraea

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A lot of people have been necessary to carry out a project like this one.

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AUTHORS

Cordulegaster boltonii

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Trithemis kibyi

Presentation

The Málaga County Council has been decidedly promoting the natural heritage of this province for the last few years. Our citizens were offered the opportunity to get to know and enjoy this land, with due respect for its environment and in a sustainable way, through several projects such as the Great Málaga Path, El Caminito del Rey refurbishment, or the Coastal Path.

'The Identification Guide to the Dragonflies along the Great Málaga Path and in the Province' forms part of the above actions, and brings us nearer to these metallic coloured beautiful creatures, which make our river and lakes more colourful. This publication follows the one about 'The Birds along the Great Path' and 'The Identification Guide to the Diurnal Butterflies along the Great Málaga Path', which has recently been published.

This time we chose another group of winged insects, which are deeply admired by people due to the wonderful flutter and colourful and elegant patterns of their wings.

As well as we intended to do with our previous publication, we aim to present a great variety of dragonflies that live along the Great Málaga Path and the rest of the province. At the same time, we wish to get our population closer to our rivers and wetland, where dragonflies live and give proofs of healthiness of these ecosystems.

Therefore, I invite you to immerse yourselves in these pages, enjoy lovely colours of our dragonflies, their powerful flutter and strategic hunt and get to know their more than interesting life cycle, during which a water larva transforms into an adult insect which is an expert on the art of flying.

Finally, this fascinating journey should serve our aim to make the reader appreciate, admire and protect all beings which are part of our water ecosystems, perfectly represented by these winged insects.

Elías Bendodo Benasayag

President of the
Málaga County Council

Selysiothemis nigra

Introduction

We all enjoyed a walk near the river as kids, admiring black dragonflies and watching them sway while flying among reeds and blackberry bush.

And who didn't spend time by the lake enjoying blue dragonflies flying in group? I am sure you wondered who these beautiful creatures were.

The first one was Calopteryx haemorrhoidalis, while the second was Anax imperator. Actually this is the main goal of the book you are holding: to name the dragonflies that we have always encountered by rivers, streams, lakes, ponds, and so on.

However, their identification was not the only purpose of this edition. We also aim to present this fascinating world and participate in research into them and its protection.

Dragonflies are real survivors as they existed in the same time as dinosaurs, but contrary to them, they survived the massive extinction of the great part of life on Earth from that period. Here they are, hundreds of millions of years later, with slight changes in their basic physical form and biological features. These winged insects achieved to adapt to all kinds of water, even with certain level of salinity and contamination.

Dragonflies are rather necessary in the ecosystems where they live and of great importance for humans. What would happened to us if dragonflies did not exist? Well, no doubt, we would not be fine. While larvae in water and as adult insects, they feed on many insects which, among other negative aspects, can be harmful for humans. For instance, these are mosquitoes. Moreover, they are part of food chains in water ecosystems, together with other animals which live there like fish, amphibians, and birds.

So, please take this guide and choose a river, lake or the nearest pond and get ready to enjoy these wonders of nature. We hope that this moment, when you become aware of what dragonflies are, turns into a new beginning between you and nature.

Marina Bravo Casero

Environment and Territory Promotion
Representative for the Málaga County Council

Trithemis annulata

Introduction to Dragonflies

ORDER ODONATA

Dragonfly is a colloquial expression for the order Odonata. It comes from Greek word 'odontos', which means 'teeth'. This is because one of their features are jaws with teeth inside. The order Odonata can be split in two groups. The first group are called Damselflies or the suborder Zygoptera ('zigo' means 'the same' in Greek, and 'pteron' is 'wing'), and the second group are proper dragonflies or the suborder Anisoptera (meaning 'different wings' from the Greek words 'aniso' - 'different' and 'pteron' - 'wing'). Therefore, one of the main differences between damselflies and dragonflies is the shape of their wing. In the case of damselflies, their forewings are very similar to the hindwings, while in the case of dragonflies these are not the same.

The rest of differences are to be shown further on.

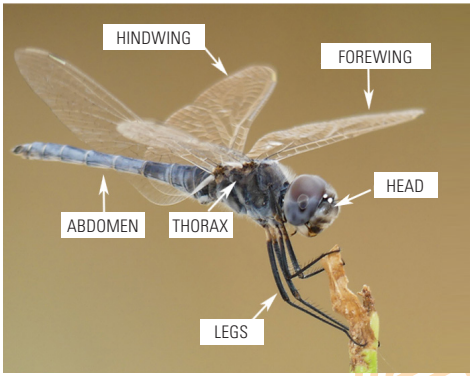
ORIGIN OF DRAGONFLIES

Dragonflies are considered to be one of the oldest insects on earth. Their 320-million-year old fossils were found from the Carboniferous period. Those first dragonflies that we know of were very big insects. Some of them were the largest insects that have ever existed, with a wingspan bigger than 70 cm. In other words, this is a wingspan of a sparrowhawk.

The dragonflies we can see today are rather recent, as they come from the middle of the Permian period (between 300 and 250 million years ago). Then damselflies (Zygoptera) appeared, while proper dragonflies (Anisoptera) came later on, more or less in Jurassic, 200 million years ago.

MORPHOLOGY

As all insects, the Odonata's body is divided in three parts: head, thorax and abdomen. Moreover, they have four wings with membranes – two forewings or front wings and two hindwings or rear wings, which allow them to move while flying; and six legs – two fore, two middle and two hind legs, which they need to stand and rest and capture their prey.



Simplified Morphology of a Dragonfly: *Selysiothemis nigra*

Head

Eyes stand out on the head. Dragonflies that belong to the order Odonata have one of the most developed and complex visual systems in the animal world.

Their eyes consist of thousand facets (parts that make the eye), which allows them to capture a great amount of light and provides them with an exceptional vision. Their keen-sightedness, together with the position of their eyes and head movements give them near-360-degree vision.

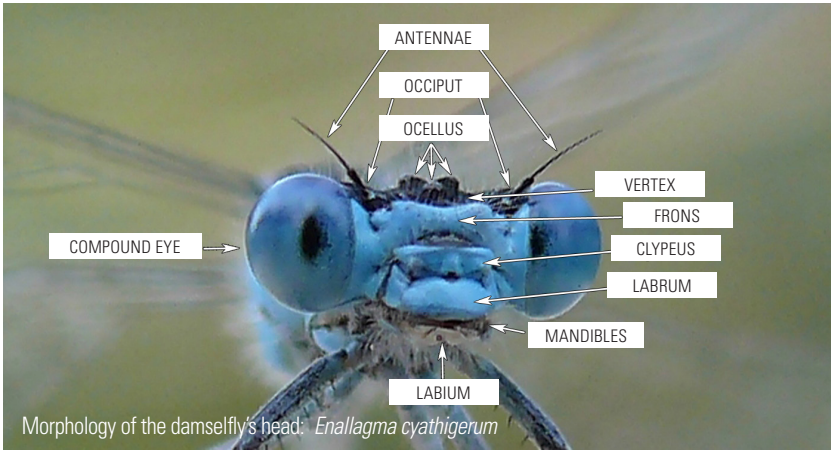
Damselflies and dragonflies have different heads and eyes, so the comparison of these parts of their bodies is the easiest way to make difference between these two groups. Damselfly's eyes are smaller than in the case of dragonflies. They are placed on both sides of their head with a large area between them, called vertex, which makes them look like a hammer.

There are three simple eyes or eyespots (ocellus) on the vertex, two superposition smaller eyes and a bigger one beneath.

The rear area of the vertex which connects the eyes is called occiput. It has spots behind the eyes, which colour and size differ among species. The antennae are very small and bold at the bottom. The frons is below them. There are some sensory hairs under them and on the vertex.

A semicircular area, called clypeus, is placed under the frons. It is divided in two parts: postclypeus (the upper part) and anteclypeus (its lower section).

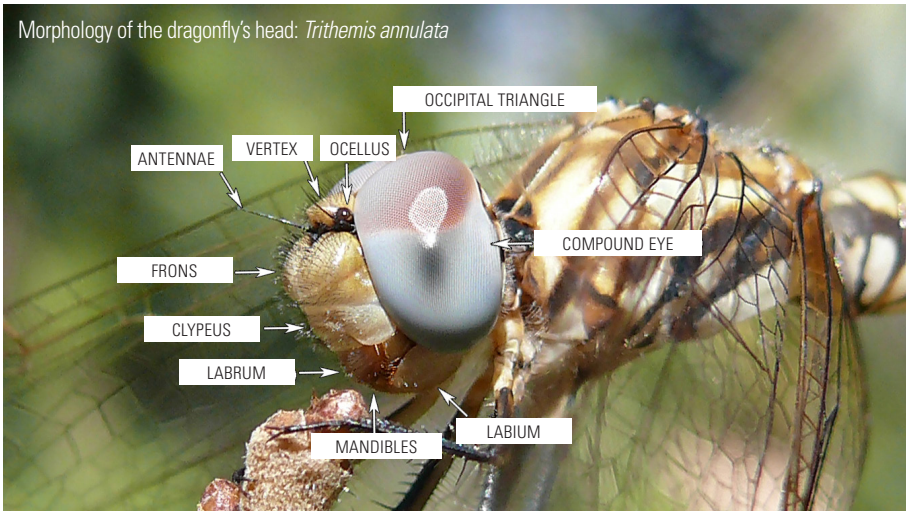
The clypeus and the labrum, which is placed beneath, make a kind of protection shield that protects the jaws, made of two upper mandibles with teeth, two pairs of lower maxillae, and the labium, a lower lip that protects the inside of the mouth.



Morphology of the damselfly's head: *Enallagma cyathigerum*

Dragonfly's head is much bigger and round. The eyes cover a large part of the head and meet at some point of the head, normally on the upper part, except in the case of Gomphidae.

The occiput is reduced to a small occipital triangle behind the eyes, the same as the vertex, so there is little space left for the antennae and the ocellus. It has wide frons and the same organs as damselflies: clypeus, labrum, mandibles and labium. In the case of dragonflies, sensory hairs can be all over the head, except on the eyes.



Thorax

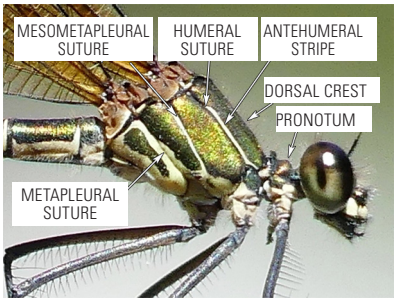
The thorax is split in two segments – prothorax and synthorax. The prothorax is very small comparing to the synthorax, and has bears the first pair of legs – forelegs.

The upper part of the prothorax is called pronotum, and it is often used to make a difference among damselflies species, as in each of them, its shape and colour are different.

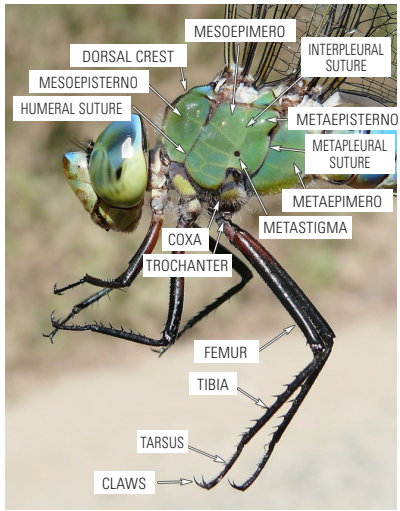
The synthorax is larger and robuster, as most of the important organs are placed there, as well as the wings and the muscles that move them. It consists of two sections, mesothorax and metathorax, which are fused together.

The mesothorax is where the wings, forelegs and middle legs are. The hindwings and the hindlegs are placed on the metathorax. Varied parallel and diagonal stripes stretch over the synthorax. Each of them has its names as well as the space between them. Moreover, there are 'metathoracic spiracles (metastigma)' on each side. These area actually holes for breathing.

In order to avoid the excessive use of this kind of terms and make the reading easier, we will refer to synthorax as thorax and we will use the above expressions only when necessary.



Morphology of the dragonfly's thorax. *Calopteryx haemorrhoidalis.*



Morfología del tórax y patas de una libélula *Anax imperator.*

Legs

Legs are not made for walking, but for handling and trapping prey. Forelegs are shorter than hindlegs. Morpology ot the thorax and legs of a dragonfly Anax imperator.

They are divided in different parts: coxa, trochanter, femur, tibia, tarsus and a pair of claws. Femurs and tibias can have sensory hairs on them, the same as the head and thorax. These help handle food.

Wings

Odonates have long and round ends of the wings, which are covered in membranes and many veins that hold together all its parts. Each vein or the group of veins have their name, although the most prominent are Costa (front margin of each wing), Subcosta (the one below the costa), Nodus (the vein that goes across the costa), radial veins (R1, R2, and so on), interradial veins, and secondary veins. They are normally black but some species can have yellow, orange or reddish veins. The space between each vein is called cell.

Most of species have transparent cells, although sometimes they can be orange, red or black. One of the cells, known as pterostigma, stands out.

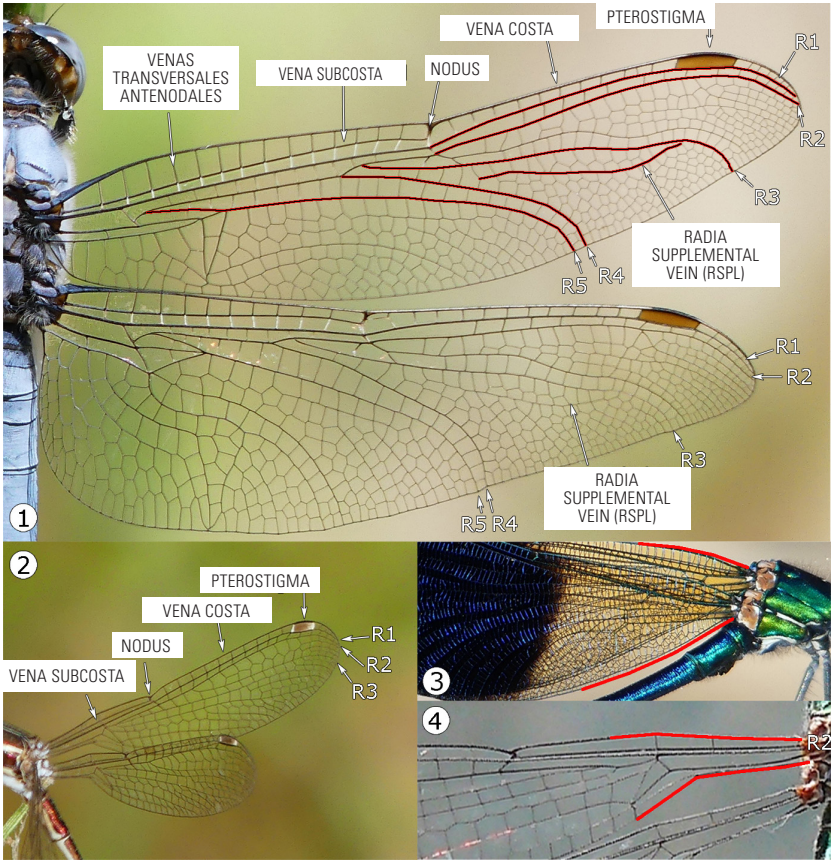
The pterostigma is placed close to the edge of each wing, or the apical angles, is dark and coloured (in some species, it is two-coloured), and its shape, size and colour can often help make difference between species.

All dragonflies and damselflies in Málaga, male or female have a pterostigma, except the Calopterygidae family. In their case male dragonflies do not have them and the females do, but it is hardly developed, though clearly seen, and called pseudopterostigma.

Dragonflies and damselflies have different wings. As said above, damselflies have four rather similar wings, but in dragonflies hindwings are wider than forewings and their veins are different. The base of damselfly's wings have an enlarged and thin part, and it widens a bit further on, except in the case of the Calopterygidae family, whose wings widen from their beginning.

Damselflies flutter is somehow timid. Their flight pattern is sometimes bouncy, while dragonflies fly straight and powerful. When at rest, damselflies hold their wings up or back completely closed or at an angle from the body.

Dragonflies cannot close their wings like this so they usually keep them open while resting. They make a shape of a cross, holding them down or upwards, and covering the thorax.



1-2. Simplified dragonfly's wing structure of the Orthetrum brunneum and the wing structure of a Lestes virens damselfly . 3-4. Difference between the base of the damselfly's wings in the family Calopterygidae (Calopteryx xanthostoma) and the rest of the families (Chalcolestes viridis).

Abdomen

Parts of the digestive and respiratory system, as well as genitalia are placed in the abdomen. It is prolonged and normally cylindrical, although it can be flat in some species. It is divided into ten segments and anal appendages, as well as other reproductive organs. The segments are numbered from 1 to 10. The first one (S1) connects the abdomen to the thorax and is normally reduced.

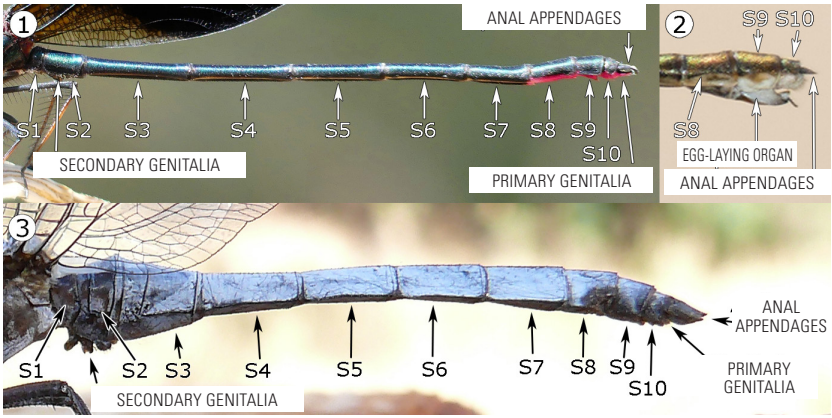
The rest of the segments can are different in size. The last ones, S8, S9 and S10, are usually shorter. The thickness of the abdomen is also changeable, though they are thinner in damselflies than in dragonflies.

Moreover, the segments can have different thickness, as the first ones are usually thicker than those at the end. In the case of some species, the males can have S2 and S3 much thicker than the rest of segments. This is also possible in the case of segments 7, 8 and 9 in some other species. Each of the segments have a hole for breathing. Reproductive organs are placed in last segments in both, male or female dragonflies.

Anal appendages are more developed in the case of the males than in the females. They consist of two superior or upper appendages called *cerci* (singular: cercus) and one lower or inferior appendage in dragonflies and two of each in damselflies.

Moreover, the males have a kind of deposit, called secondary genitalia, which is placed under S2 and holds sperm. The females do not have this secondary genitalia, but they have the cerci on S10 and a well-developed genital structure on segments 8 an 9, which is why they are thicker.

The ovipositor cannot be seen in the species which lay eggs directly into the water while flying as it is underside, but it is external in the case of the species that lay eggs inside the plants.



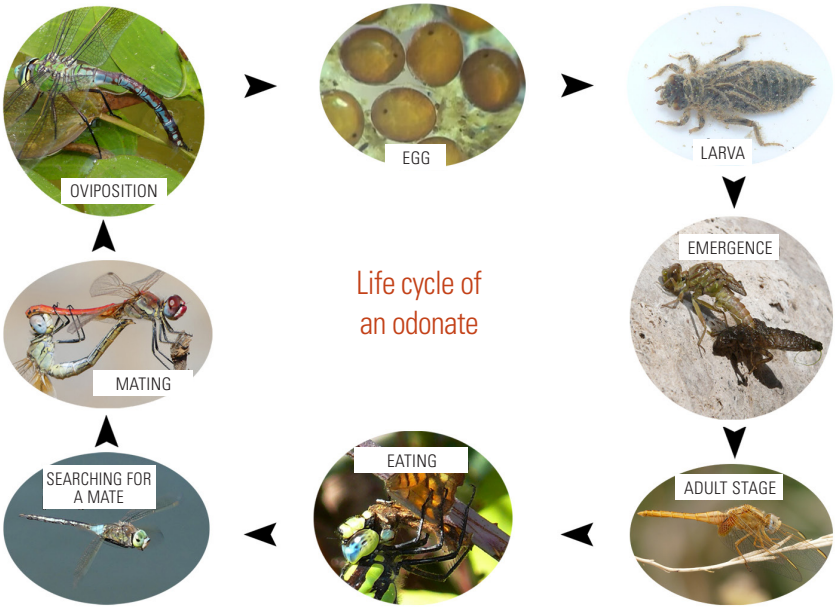
1. Different parts and abdominal organs of a male damselfly, Calopteryx haemorroidalis. 2. Anal area of a female damselfly, C.haemorrhoidalis. 3. Different parts and abdominal organs of a male dragonfly, Orthetrumco erulescens.

1. Anal area of a female dragonfly, Aeshnamixta 2. First thick segments in a male dragonfly, Orthetrum trinacria. 3. Last thick segments in dragonflies, Cordulegaster boltonii. 4. Anal appendages of a male damselfly, Chalcolestes viridis. 5. Anal appendages of a male dragonfly, Onychogomphus forcipatus.

BIOLOGY OF DRAGONFLIES

The biology of dragonflies and damselflies have been some of the most interesting questions regrading them. The fact that two first stages of their life cycle, larva and adult, develop in two totally different environments, such as water and air, have always fascinated people who are keen on studying them.

The stages in the life cycle of odonates are the egg, the larva and the adult stage or imago. All these stages are different and require special attention. These creatures are complex and curious, and show extraordinary behaviour and adapting skills.



Mating

Mating is one of the most interesting moment in the life cycle of odonates, as their bodies make the shape of a heart during it. There are three different stages which happen before, during and after the mating. The whole process starts with a series of events which are rather important for the successful reproduction of the individual.

The male recognizes the female through several features, such as its colour, size, transparency of its wings and its movements during the flight. However, a female Ischnura graellsii and Anax imperator sometimes simulate the colour of males (andromorphism) in order to not to be detected by them, especially during oviposition.

Calopteryx males are rather similar among them, and their varied species can live together at the same place. Because of this, the males lift their abdomen and show the lower part of its last segments which is differently coloured in each species so to be recognized by their species' females. Once they have been recognized, the male tries to find out if the female consents mating.

In the case of dragonflies, females which are not receptive usually reject males by raising the last abdominal segments and slightly opening their wings. Anyhow, the female is the one that chooses the male partner.

In dragonflies which are less territorial as well as most damselflies, the size of males is decisive factor in the choice made by females.

In the case of dragonflies, which are much more territorial, those males that live longer are more successful in reproduction. Before the mating starts, the male must pass the sperm from the main genitalia on the last segments to the secondary genitalia on the lower part of S2. They do that by folding the abdomen until the main and the secondary genitalia join together. Once the sperm gets to the right place, the mating starts. The male flies close to the receptive female.

1. Calopteryx haemorrhoidalis male is showing the lower part of the last abdominal segments to females. Photo: Teodoro Martínez.
2. Visual signs of rejecting mating made by Calopteryx virgo female.

The male holds the female's thorax with its legs and folds its abdomen in order to hold the female's prothorax (damselflies) or the back of the female's head (dragonflies) by its anal appendages (cerci and the lower ones).

This way the female can lean its abdomen in order to join her genitalia with the male's secondary genitalia, when the sperm displacement happens and the copulation wheel in the shape of a heart is made.

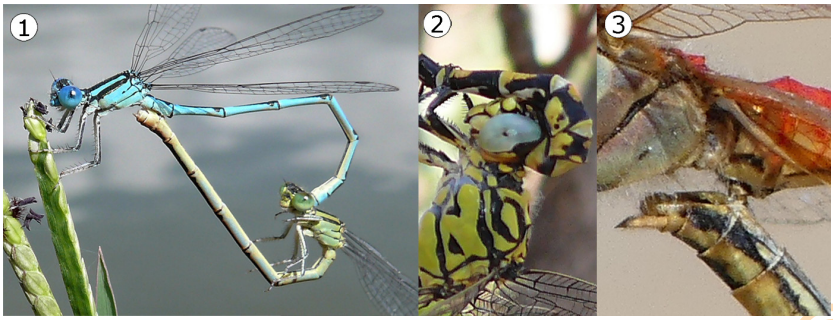
Before mating, they can fly together for some seconds or even hours, which is called premating or 'tandem flight'. They fly in tandem early in the morning and sometimes before the female's consent, as there is to wait for a while before the mating starts.

Damselfies always make the copulation wheel while at rest, while some dragonflies are more likely to do it during flight. Mating normally takes short time, actually, less than a minute. However, it has been evidenced that some damselfly species that can mate for more than six hours.

One female can mate with various males, as it can storage the sperm. It is also possible that the male eliminates the sperm of other males so that he becomes the one that performs the insemination.

Crocothemis erythraea male passes the sperm from the primary to the secondary genitalia.

There are several ways to do so: by scooping out other male's sperm with his spoon-shaped penis and the appendages known as claspers in some species; by displacing the other male's sperm to the parts which the female uses less; by stimulating the areas of the female's genitalia so that the female would throw out the sperm from the previous copulation; and depositing sperm several times so the probability that the female gets inseminated by this one becomes higher.



1. Erytromma lindenii mating process. 2. Hooking-up during the mating process of Onychogomphus forcipatus. 3. Genitalia contact in Sympetrum fonscolombii.

Odonates are not likely to go through hybridization as their genitalia varies in different species, so they are incompatible in the majority of cases. However, some hybridization cases were recorded between some Iberian species, such as Ischnura graellsii and I. elegans.

No hybrids have been seen in species from Málaga, though two different species were observed in tandem. On two occasions, these were Orthetrum trinacria males and O. cancellatum females; O. chrysostigma male and Sympetrum fonscolombii female; Crocothemis erythraea male and Trithemis annulata female.

Tandem between an Orthetrum trinacria male and an O. cancellatum female.

In none of the cases, copulation or oviposition have been seen. After mating, the tandem can separate or carry on. This depends on the oviposition process in each species.

Oviposition

In some species, females lay eggs on their own, while in others males are joined to them. There are also species which are not joined during this process but the male goes around the female and defends her from other males and protects the place with eggs from other females which want to oviposit there.

During oviposition, some species of damselflies behave in a rather curious way. Chalcolestes viridis and Platycnemis latipes, among others, lay eggs while they are still connected, and dozens of pairs can be seen at the same place.

Some females plunge half or all their body into water and lay eggs over the water plants. These are species in the genus Calopteryx, such as Pyrrhosomma nymphula and Erythromma viridulum, which lay eggs while connected to the male or without him. Moreover the male can submerge as well.

There are three different types oviposition depending on the surface it is performed on:

Endophytic oviposition is performed by the female that lays eggs inside aquatic plants tissue, floating pieces of plants or shore plants including bushes and trees. This is a rather primitive egg-laying system which is followed by all damselflies and Aeshnidae family of dragonflies. Females use a bladelike ovipositor or egg-laying organ to saw plants and place the eggs inside their tissue. The eggs are normally placed in aquatic plants or pieces of floating plants, so they are splashed by water at all times. However, there are some Lestidae, which insert eggs under the bark of the willow branches that are close or above water.

• Epiphytic oviposition happens when the eggs are laid on the aquatic plants and not inside them. The eggs are covered by a gelatinous film which sticks them on the plant.

• Exophytic oviposition means laying eggs on the water or some nearby surface by the female or in tandem. Eggs are splashed into the water from a small hight during the flight or placed over the water surface, as the female continuously dips the tip of the abdomen into water while dropping the eggs.

1. Anax imperator is inserting the eggs into the floating plants alone. 2. Sympetrum fonscolombii dragonflies in tandem while laying eggs onto the water. 3-4. Chalcolestes viridis in tandem while inserting the eggs in a blackberry stem of a out of water. 5. Erythromma viridulums in tandem, while the female is laying eggs with the half of her body immersed in the water. 6. Two pairs of Platycnemis latipes that are laying eggs together in the stems of rush.

Egg

Egg-laying strategy defines the appearance of an egg. Endophytic eggs are elongated, while epiphytic and exophytic eggs are round. Their colour ranges from green to brown or orange shades.

The size depends on the species, whereas the smallest belong to damselflies (approximately 480 by 230 µm), and the biggest ones are some species of dragonflies (700 by 600 µm). The development of the embryo can last some eight weeks. Generally speaking, it is longer in the case if dragonflies.

Some eggs take longer to hatch as they start to develop the embryo after they have been placed. Some can even take 150 days to start, and go through a long state of suspended development called 'diapause'. This strategy is the most common in the case of species that lay eggs in autumn, and their larvae emerge at the end of winter and in spring when the water temperature is the best for their development.

There is a kind optional (facultative) diapause when odonates can actually lay eggs without preforming diapause. They hatch very fast in they are laid before summer, or go through diapause.

Larva

After the hatching, the egg becomes the prolarva. This name is due to its small size and amorphous shape, which hardly allows its different parts of the body to be distinguished. It immediately looks for some shelter in water, considering that this is the most delicate period in its life. In the case of Lestes damselflies, which lay eggs on brunches and bushes outside the water, the larva jumps in a rush in order to reach it.

Odonata larvae breathe oxygen which is dissolved in water. Breathing organs are different between damselflies and dragonflies. Dragonflies have their respiratory system on the outside of their body where they have three anal lamellae with a great number of tracheae they use to get the oxygen.

Dragonfly`s respiratory system is also placed at the end of abdomen but, unlikely damselflies, it is inside of the body. It sucks the water and throws it out once the oxygen is taken by tracheal compression movements which they also use to move forwards fast when necessary.

Some species can live in water with a low concentration of oxygen,

Damselflly's larva, the genus Lestes. Three anal lamellae for breathing stand out.

and even get out of the water in humid areas for several days or weeks.

Odonata larva is a predator. Its diet depends on the stage of its life cycle. Therefore, one species can feed differently during its life. It can eat almost any aquatic organism that is smaller or the same size as the larva, from protozoans and young microinvertebrates to small fish and amphibian larvae.

Odoata larvae can even eat other odonates (including their own species' larvae). In the case of big dragonflies, they can even eat female damselflies which lay eggs under water.

There are two techniques larvae applies when hunting. The most common one is to hide under stones, plants, or half-buried in the bottom of the water and wait for the prey to come. Another less common technique is to be 'on patrol' and attack everything that comes on their way.

Once larvae choose their prey they take out their 'mask', something common in damselflies and dragonflies. This is a retractile appendage made by transforming the lower lip into long palps with moveable hooks which allow it to hold the prey. This is how larva can hunt from some distance in a similar way to chameleons that catch the prey with their tongue.

Larvae grow and change their skin all the time. They do it between ten and twenty times depending on the species, as the skin can stretch but it cannot grow. The time a larva takes to grow depends on the food it can approach to and the water temperature. In some cases, these two things are related.

In the south of Europe, the higher the temperature is, the more prey exist, and, therefore, larvae develop faster. However, in northern areas, where the water temperature is lower, food supply is poorer and they grow more slowly. Some species, actually take months or years to complete their larval stage.

In this situation, larvae start the winter diapause and they wake up when the conditions are appropriate. On the other hand, some specie finish this stage rather soon and can have several generations a year thanks to the good weather conditions, above all in southern areas.

Larva (left) and the 'mask' (right) of Anax Imperator. *Photo: Francisco de Erit Vázquez Toro.*

Metamorphosis

This is a previous step to emergence. During the last larval stage, there are series of changes in the larva's appearance, physiology and behaviour. One or two weeks before they emerge, larvae stop eating due to a hormonal change. Juvenile hormone, which inhibits metamorphosis, is produced less so the transformation process is possible.

Thanks to this, the adult insect starts forming inside the cuticle. Its eyes start growing and getting darker, the lower lip draws in, and the traces of the wing bags start inflating. At the same time, the nymph goes away from deeper water and closer to the shore. It even breaths out of water in order to slowly start getting used to living on the surface.

Emergence

Dragonfly or damselfly larvae carefully choose the place where to emerge. These places need to have a series of features, like a surface where to grasp, certain amount of light and weather conditions. Different species use different surface for emerging.

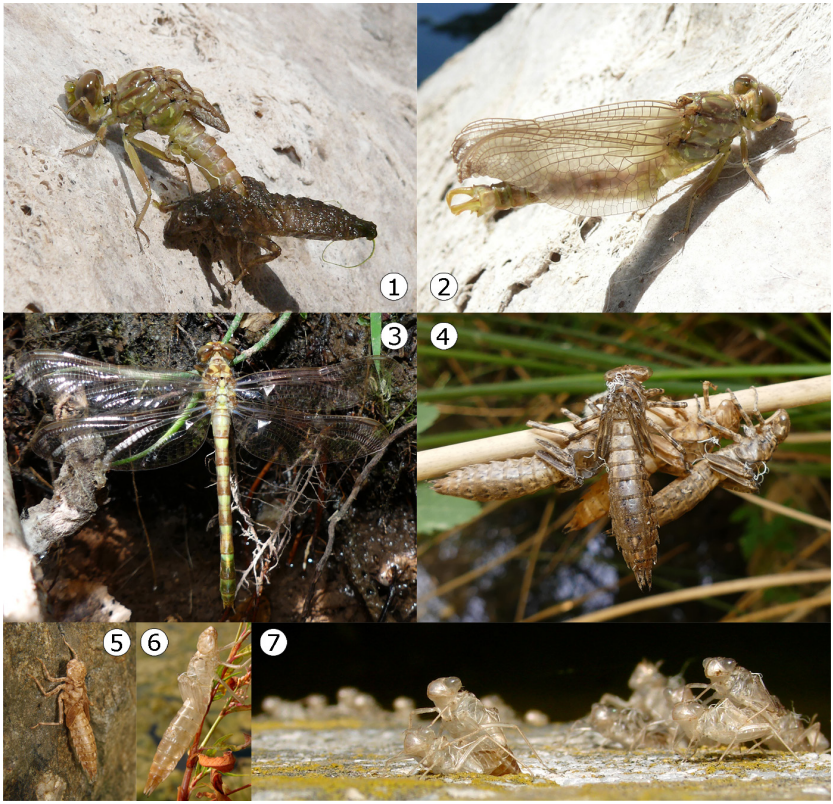
Damselflies and some dragonflies prefer vertical surface, such as reeds or reedbed and bulrush, as well as other woody plants on shore or in water. Other dragonflies emerge on horizontal surface, above all stones or stalks. Generally speaking, larvae can climb up to the places where they emerge from 5 to 20 cm high, but some can even climb rocky walls and trees as high as five metres, and go far away from the shore.

Having chosen a suitable place and grasped the surface with their legs, larvae start emerging. They tear skin on the outside along dorsal area, and first emerge their head and thorax. After a short break, their abdomen gets out as well.

This is the most critical moment in the life of damselflies and dragonflies. They cannot go back to the water as they are no longer nymphs, but they can neither fly because their body is still weak and their wings shrunk and wrinkled.

The emergence process starts when larvae abandon water and ends when imagos are able to fly, which all takes between one and three hours.

When they emerge, odonates leave behind their last larval moult, called 'exuvia'. This one can remain at same place for days or weeks, and it is the best way to confirm the reproduction of a species, which can be identified thanks to the morphology of moults if one knows what is necessary. It is not rare that exuvia becomes shelter for some arthropods, especially spiders, so there is to be careful when handling it. Plenty of exuvia can be seen on the wall or plants on the shore at the places with very few surfaces that can be used for emergence, such as lakes or river banks with hardly any plants.



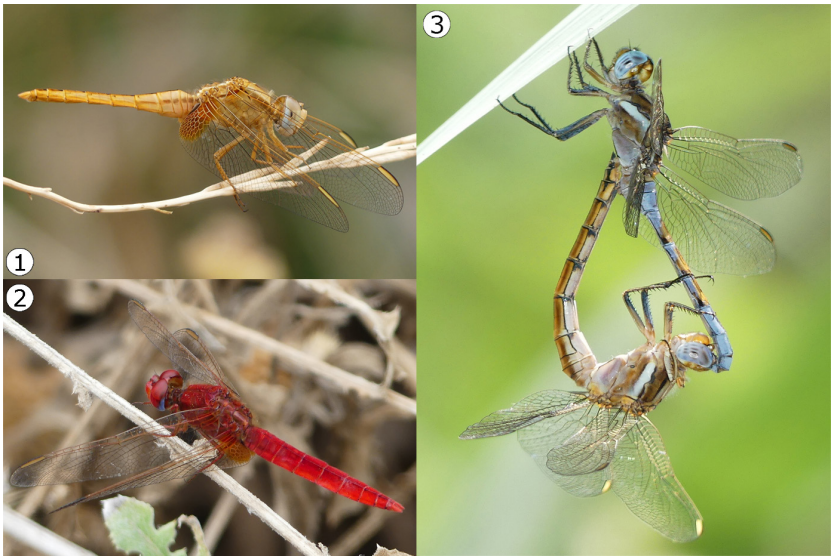
1-2. Emergence of Onychogom phusuncatus macho. 3. Recently emerged Onychogom phusuncatusfemale. 4-5. Boyeria irene's exuvia. 6. Anax imperator's exuvia. 7. A build-up of Libellulidae spp. 'sexuvias. Photos: Francisco de Erit Vázquez Toro (5-7).

Adult

Ones it emerges, the imago with open and strong wings starts looking for the ways to reproduce and continue with its species, which is the final aim of the adult stage. Before that it needs to become sexually mature.

The young Odonata has nothing to do with the mature Odonata's colouring. Generally speaking, their colouring is dull, such as greyish-brown and ochre, in order not to be unnoticed.

Normally, their colouring and markings become definitive only when the Odonata are sexually mature. However, there are some exceptions, like in the case of Orthetrum chrysostigma, which can mate before obtaining colours of its adult stage. Damselflies, which fly in a less powerful way and, generally speaking, live shorter than dragonflies, reach their adult stage faster than the latter ones, and keep close to the water and river banks, hiding between plants until they start mating.



Different colouring in an immature male (1) and an adult male (2) Crocothe miserythraea. 3. Mating of Orthetrumchry sostigma. It can be seen that the adult dragonfly that has not reached its final colouring yet, and has some yellowish stretches on the abdomen.

Sympecma fusca is an exception as it emerges in summer and gets far away from water, sometimes even several kilometres away, in order to spend autumn and winter growing so it can mate in spring.

Dragonflies usually grow longer than damselflies and can move further. Some do not go far away from water, and others go far away, and migrate as far as hundreds of kilometres away, as the species Anax ephippiger, which reproduces in the north of Africa and then moves north, stops in Scandinavia and Iceland several generations later, after having reached adult stage, in order to mate.

Other species like Aeshna mixta emerge in spring and spread to hide in big forest and mountainous areas. In autumn, when they become

Aeshna mixta female: while it is immature and hidden in a forest, far from water (up) and in the adult stage in the water while laying eggs (down).

sexually mature, they go back to their reproduction sites in order to complete the cycle.

Dragonflies and damselflies are voracious predators, both in their larval and their adult stage. From their emergence to the moment they become adults, their main aim is to feed themselves.

When they reach their full sexual maturity, their interest starts focusing on actions related to mating: choice and defence of the territory, courtship, and copulation. Some species males help females lay eggs or they protect them.

They feed on all kinds of insects, which they chew with their strong jaws. Their most common prey are insects from the order Diptera (flies and mosquitoes), the Hymenoptera (wasps and bees) or the Lepidoptera (butterflies).

Damselflies eat aphids (greenflies) and the Diptera they find in vegetation due to the fact they fly more slowly. However, dragonflies can catch wider range or preys, which includes other Odonata.

In the Province of Málaga, the most voracious predator of other Odonata that has been observed is Orthetrum trinacria. These damselflies are very good at hunting and eating, including small species, such aslschnura graellsii, and big ones likeCrocothemis erythraea. Nevertheless, Anax parhenope stands out because it can detect other aeshnids, like Aeshna mixta.

Orthetrumtrinacria while eating a butterfly Polyommatuscelina (1) and a dragonfly Crocothemiserythraea (2). Anax parthenope eating a Aeshna mixta (3).

Most of dragonflies and damselflies hunt while flying. Some can eat their prey while flying as well, while others rest and then start eating. They visually detect their prey. Their extraordinary vision allows them to see their food at a distance of twenty metres or more, like aeshnids do. Binocular vision is more developed in damselflies as they can see their prey better between plants.

The Odonata males are rather territorial, especially dragonflies. Once they find appropriate water habitat where the female can lay eggs, they defend it fiercely. Therefore, it is normal to see adults that belong to the same or different species compete between themselves at some places. They can chase one another, hurt or even cause one's death. Generally speaking, damselflies are not so territorial considering that we can many couples laying eggs close to each other, as it was previously said.

ENEMIES OF DRAGONFLIES AND DAMSELFLIES

Dragonflies and damselflies' larvae and adults are both rather skilled predators. However, they belong to the food chain and have a series of enemies that hunt them whenever possible. The Odonata larvae can be eaten by fish, birds (dipers, kingfishers or the white wagtail, for instance), and other larvae form their own order.

In order to protect themselves, they hide or camouflage themselves, although dragonfly's larvae can escape by expelling water through a hole on their anal zone that they use to breathe. When they become adults, they have a large rang of enemies, which can be predators or parasites. The first group mainly consists of birds. While the imago is emerging, chiffchaffs, dipperss and wrens can detect it, above all if it is a dragonfly.

When adult dragonflies or damselflies start flying their biggest predator is a bee-eater. This bird which is specialized in catching flying insects can eat a big number of odonates, above all dragonflies, some of which are larger like aeshnids and Cordulegaster boltonii.

Beside birds, dragonflies and damselflies are also preyed upon by other invertebrates. Spiders can above all

A bee-eater with a Cordulegaster boltonii in its beak. *Photo: José Manuel Gaona Ríos.*

trap damselflies, though some larger dragonflies, such as Oxygastra curtisii, have also been seen in their webs.

The Asilidae or the robber fly family and hornets also feed on dragonflies. The Odonata are also preyed on by other Odonata, as it was said in the previous chapter.

On the other hand, parasites do not kill the Odonata but they make their life shorter. These are normally the mites larvae (the red-coloured genus Arrenurus). They damage the thorax, abdomen and wings of the Odonata by exposing them to bacteria, which can reduce the body thickness and make the Odonata weaker and more vulnerable to the predators, or make females less fertile and even kill them.

Pyrrhosomma nymphula damselflly trapped by a Asilidae fly.

THREATS

As said in the previous section, the Odonata have many enemies, but only one of them, not mentioned above, represents a serious danger. It is a human. Even today, in the 21st century, there are still a lot of people who have no knowledge and have a lot of prejudice of dragonflies and damselflies.

The Odonata do not sting or bite, and they are neither poisonous. They are clearly not harmful for humans nor their activities, but quite the contrary. As it has been shown previously, they are rather useful as they eat other insect which can be harmful, such as flies and mosquitoes.

Considering that dragonflies and damselflies are connected to water ecosystems, preservation problems regarding these creatures depend on maintaining some minimum requirements for living conditions in suitable habitats.

Changes made on river beds and their destructions is a common threat for these animals in our province. In the 20th and 21st century, there were many changes on river flows made by building reservoirs and dams, and even drying some of the large rivers' sections, which lead to poorer biodiversity and fewer Odonata.

Today, we can still see how untreated toxic waste and sewage are being dumped into rivers and streams, which results in highly degraded water quality. Large infrastructures and buildings have helped destroying habitats at some sections of the rivers and streams, where canals or vaults were made at worst, so the life in water at these places became considerably poorer.

Destruction and/or changes made on river and stream flows are one of the biggest dangers for the dragonflies in the Province of Málaga.

On the other side, there is a great demand for water due to the high population density in the coastal area, which mostly depends on tourism and service supplies, such as golf courses, swimming pools, water parks, etc. There is also to add the latest increase in irrigated cropland.

The case of crops and golf courses are controversial. The water used for irrigation comes from aquifers, rivers and streams, where water is storage in reservoirs and taken to big ponds. When water is taken from the aquifers, their groundwater level becomes lower, which can result in a smaller amount of water on the surface of nearby rivers and streams, and sometimes it ends in dry springs and some rivers' sections.

Moreover, the changes made in natural water ecosystems by building dams or reservoirs, and the resulting fall in water flow, affect the natural balance of rivers and streams. These actions have negative impact on a large number of species, above all, those which reproduce at rivers. However, thanks to the water transfer to big ponds and artificial lakes, new habitats are made, and these can be inhabited by more common species.

There is also to mention how water is misused by residents and its waste in the water supply network, which also leads, though to a lesser extent, to a decrease in surface water in the case of the rivers, and in underground water as well.

The above factors which harm this kind of ecosystems also include climate change, which will probably cause more droughts, and, consequently, decreased river flow and less surfaces covered in water.

There is to underline that in spite of all these threats, there are still preserved river flows, which shelter real gems in the Province of Málaga, such as Critically Endangered (CR) Macromia splendens, and Endangered (EN) Oxygastra curtisii and Gomphus graslinii.

For the sake of preservation of dragonflies and damselflies in this province, it is necessary to provide an effective protection of water resources, something which depends on the willingness and need of society and people in charge to protect biodiversity in general, and the above insects in particular. It is also necessary to raise public awareness of environmental issues.

These creatures are to be presented to residents in a way they can start to appreciate their beauty and see how beneficial they are to ecosystems. Associations, such as 'El Bosque Animado' [Lively Forest] through the ROLA (Andalusian Dragonflies Watchers Network), have been studying the Odonata and offering workshops related to them in the resent years in order to raise knowledge and passion for these animals.

The Málaga County Council takes part in the promotion activities related to raising environmental awareness through this guide and varied workshops, such as the one celebrated in July 2017 in El Burgo. These actions are crucial for the preservation of dragonflies and damselflies in the Province of Málaga, considering that what is unknown cannot be loved and therefore protected.

Poster of the first workshop on dragonflies celebrated in the Province of Málaga by the asociatión 'El Bosque Animado' (on the left) and a moment form the workshop on raising environmental awareness organized by the Málaga County Council in El Burgo (on the right). *Photo: Jesús Ponce.*

Anax parthenope

Habitats in the Province of Málaga

INTRODUCTION

Málaga covers and area of approximately 7,300 km^2. It is placed in the south of the Autonomous Region of Andalusia (or Autonomous Community of Andalusia), and form parts of the Mediterranean as a biogeographic region.

This is a rather mountainous province, as there is the Baetic System, extending south-east and north-east, and makes a mountain rage which is approximately 170 km long from the west to the east coast. These mountains separate at the point which is furthest from the sea (at 35 km) and can reach an altitude of 2,000 km. This mountainous range divides the province in two parts.

On one side, we have the north area with a kind of continental climate, colder winters (occasionally freezing weather), rather hot summers and lower relative humidity in general. On the other side, there is the south area with mountains and few plains (except for some river valleys), where sea affects this more Mediterranean climate, winters are not as cold, summers are cooler and the relative humidity is higher.

The Arco Calizo Central (the Central Málaga Limestone Mountain Range) makes an obstacle for the storms coming from the Atlantic Ocean. Therefore, it rains more in the west area as storms are kept there and they decrease as we move eastwards.

Simplified orographic map of the Province of Málaga.

Most of the rivers in Málaga flow into the Mediterranean Sea. Some rivers and streams in the north of the province flow into the River Guadalete or the Guadalquivir, such as the upper basin of the Carbones River and the tributaries of the river Genil, which makes the border between Málaga and other Andalusian provinces.

The main river basins in Málaga, which form part of the Mediterranean area and spread from the west to the east, are the Guadiaro tributaries (including the RiverGenal), Verde, Fuengirola, which consists of the rivers Ojén and Alaminas and the Pasadas), Guadalhorce (including its main tributaries the Guadalteba, the Turón, Grande and Campanillas), Guadalmedina and Vélez.

Some river basins are less prominent and smaller, such as the south basin of the Sierra Bermeja, or the rivers and streams in the Tejeda and Almijara Mountains (those which do not end in the river Vélez).

The peculiar geological features of the Province of Málaga, where chalky areas are noticeable in the mountains, except in the Sierra Bermeja, which is formed by peridotite rocks and schist (these are also present in wider areas, especially, in the east of the province), have impact on the amount of water in its rivers and streams.

Generally speaking, all rivers in Málaga go through periods of law water level to a greater or lesser extent. This is above all due to the geomorphological features of the zone and the lack of rain for several months in the year, but it is also related to the dams and the use of underground water for homes and farming. The latter reason results in lower groundwater levels, and dry springs, river sources, fountains, large river sections or streams.

As for the reservoirs, all river basins, except those that belong to the rivers Guadiaro and Fuengirola, have some, and they can be small or large. However, varied projects that still have not been executed, aim to build reservoirs on the two basins which do not have them.

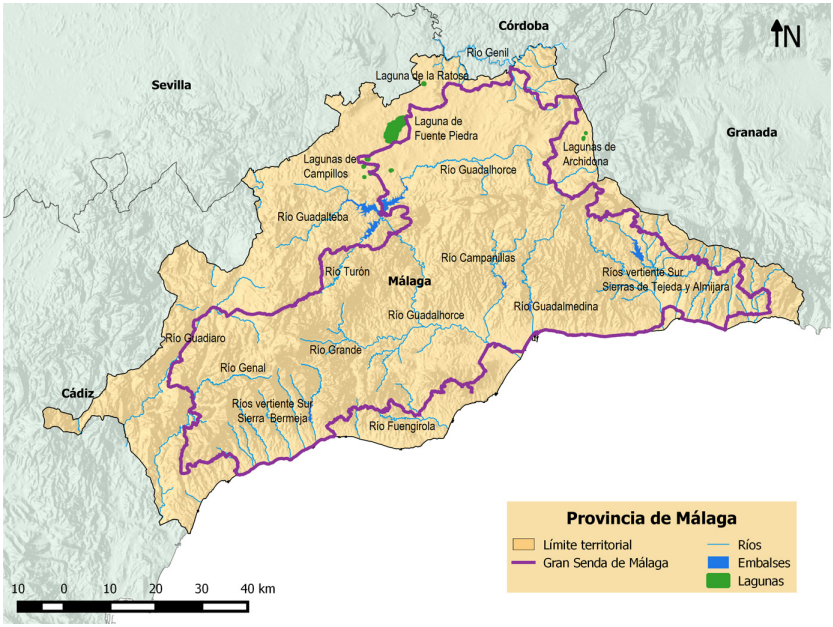
The Guadalhorce river basin has the most reservoirs. There are five on it: one is the reservoir of the Guadalhorce and Guadalteba; one on the Guadalhorce; The Conde del Guadalhorce (the Count of Guadalhorce) Reservoir; the reservoir on the River Turón. They all form the complex called the Guadalhorce Reservoirs. There is also the reservoir at Casasola Dam, on the river Campanillas, and a smaller one at Tomillar, on the Pilones Stream. Other reservoirs are la Concepción on the River Verde, Agujero and Limonero on the River Guadalmedina, and La Viñulla on the River Vélez.

The above river basins with reservoirs have wide sections below the dam that are dry throughout a long period of time during the year, while their upper sections have water almost all year round. In the north of the province, there is a series of lakes, most of which are endorheic, that is to say, they do not flow into sea, so they keep the water that comes from rain. These lakes are: Archidona, De Fuente, De Piedra, De Campillos, La Ratosa and Castañuela.

The number of freshwater lakes is the same as the number of salty water lakes. Due to drought and the increase in the number of wells used in farming for watering, the water in

most of these lakes take less time to disappear.

In the north of the province and, especially, on the coast, where rivers and streams have been particularly damaged because of the urban development, reservoirs for livestock-farming and agriculture, and artificial ponds, ornamental fountains, water tanks, canals and any other source of water which is not affected by biocide are particularly important for dragonflies.



Simplified map of the river system in the Province of Málaga and the Great Málaga Path.

HABITAT

Lotic Ecosystems

Lotic ecosystems refer to places with flowing or running water, which can run fast or slow, and it is channelled. It mainly includes rivers and streams or springs.

There are two types of these systems:

They can be perennial and temporary water bodies. However, these two types can exist in the same river or stream, especially when there is drought throughout the year, or because of factors that are not natural, such as the existence of reservoirs or when water is sucked from underground sources.

There can be several sections along river basins:

• **Upper course.** The water here is pure, cold and its flow continuous. It is also shallower and its river bed steeper. There are big rocks and gravel in the river bed, as well as fewer trees around, so it is rather sunny. Normally, river sources and cold pure springs can be found in these upper sections. Not many species can adapt to these conditions.

• **Middle course.** Generally speaking, these sections have continuous flow nearly throughout the year. Their river beds are not as steep as the upper course and have more trees and bushes on the riverbanks. Above all, there are willows and oleanders, although some rivers that flow through peridotite rocks have more open spaces on the riverbanks. In summer, some parts can get dry, and separated river pools can be created.

• **Lower course.** These river beds are wide and sunny, with slow running water, probably, a bit deeper than in other sections and cloudy or murky due to the sediments they carry. The plant life beside rivers mainly consists of oleanders, rushes and reeds, bulrushes and trees, such as willows and poplars. Parts or entire lower river sections tend to get dry. At the river mouths, water can dam up for a long time, actually, for months or years, and make ponds, which are to be explained in further sections.

1. Upper course of the River Verde. 2-3. Middle course in the rivers Ojen and Castor. 4. Lower course of the River Fuengirola.

Other lotic ecosystems are:

• **Perennial streams.** Generally speaking, the water in these streams is pure and shallower sections alternates with those that have higher water velocity. These courses are narrow and can have more or less plant life on the riverbanks, depending on the geological features of the terrain and its use.

• **Temporary streams.** These streams are placed in the higher areas, at the beginning of the river basins, but they can also be in the middle or lower altitudes. Anyhow, they are tributaries of other rivers or large streams, and they only have water during the periods of rain. The water they carry is flowing and clean, but when the rain is torrential, these streams can carry sediments.

• **Springs.** These water bodies are clear, cold and with a small flow, which can be more powerful. They can be often found in the higher mountainous areas, and there are not many water plants, but rushes, oleanders and blackberries can be seen on their banks.

• **Canals and irrigation channels.** There is to make a difference between two kinds of canals or channels. Some of them are irrigation channels that are usually narrow but deep, so there are not likely to be homes for dragonflies. Other canals are used for draining water from the rain or to channel streams. These are wider, carry smaller amounts of water and the plant life close to the ponds made by rivers and streams. The second kind can be shelter for a large number of species.

A kind of ditches called "acequias" are small irrigation channels used for channelling water for irrigation. Most of these water bodies are temporary, which means that the water is transferred only when it is necessary for watering an area.

Majar de la Parra Streamin Ojén: Perennial spring (on the left) and the spring at the source of the Jorox in Alozaina (on the right).

Los Pilones Stream (on the left) in Mijas: temporary stream that has water during rainy period. Rainwater channel (on the right) in Teatinos neighbourhood in Málaga.

Lentic Ecosystems

Lentic ecosystems are characterized by still terrestrial waters, such as lakes or ponds. They can be natural or artificial. The main difference between these and lotic ecosystems is the water temperature, which is often higher in the former ones. They are also richer in aquatic plants, particularly emergent ones.

On the whole, temporary ponds comprise some other lentic ecosystems which dry up in summer, such as artificial ponds or reservoirs, ditches, lakes and pools, as well as mining ditches.

- **Temporary ponds.** They are normally small and shallow, and can be completely dry for some time during the year, as they usually get fulfilled with rain. These ponds can be natural or artificial bodies of water, though they are mainly made for giving water to livestock and wild animals. Their banks are usually covered in rushes. They are likely to be found in open sunny areas, but also in forests, where water temperature is lower thanks to the shady areas.

Temporary ponds at the olive groves in Archidona.

• **Small lakes.** These are standing water resources that tend to be larger than temporary ponds or pools and have perennial water bodies. They get water from streams filled with rain and surface runoff or from groundwater. They can have salty or freshwater. The vegetation on their shores is typical for riverbanks and varied. It includes reeds or reedbed, bulrush, cane reed and bushes, above all.

This kind of spots is rather suitable for dragonflies, above all in the case of freshwater lakes, which can shelter a large range of species. Salty water lakes or lagoons are less diverse in dragonflies, but those species that can be found here are rather important like Lestes macrostigma.

Some deserted and flooded quarries, as well as river and stream sources can be added to this group if they are separated from the sea and stop getting the surface water from a river. Species diversity depends on many factors, such as the geologic features on the terrain, the depth of the pools and the number of aquatic or shore plants. Sometimes, the flooded quarries and the river or stream sources can both be inhabited by dozens of species.

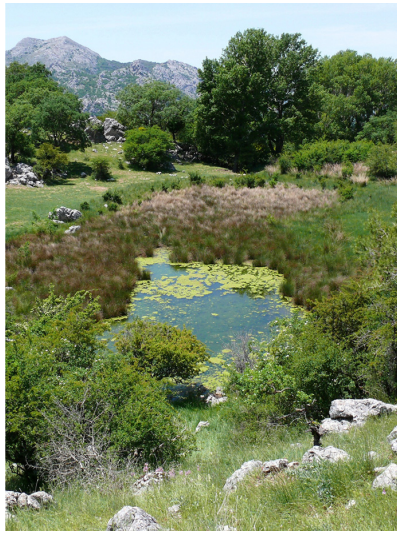
Small lakes: 1. Laguna Grande [Large Lagoon] in Archidona 2. Group of lakes if La Ratosa-Castañuela (Aameda - Humilladero). Bodies of water similar to a lake: 3. Soliva Lake in Málaga City, an old clay quarry, which has been naturalized (photo taken in 2017). 4. Source of the River Vélez (in Vélez-Málaga), which is often not supplied by surface water and does not flow into the sea.

• **Lakes and ponds in high areas.** These bodies of water are usually small and placed at an altitude of over 1,000 metres, which is why the water is cold almost all year round, especially if they are deeper, when this water gets warmer only in summer.

The altitude and the temperature affect the presence, as well as the number of aquatic or shore plans and dragonflies, which are fewer than in lower areas. These waters can be perennial and temporary, which also restricts the presence of the Odonata in these spots.

• **Reservoirs.** The main feature of the reservoirs are changeable water levels and their depth, which is why there are no aquatic and shore plants nor most of dragonfly species.

In Málaga, there are small and medium reservoirs which keep the same water levels, as they are not used for watering or for supplying homes, and, eventually, they became part of nature, where a rich and diverse colonies of dragonflies live. There are also dams on small rivers, where some important communities of dragonflies can be found as well.



Hondonero Lake in Villanueva del Rosario, one of few small lakes in the mountains in Málaga at an altitude of approximately 1,210 metres.

1. El Nacimiento Dam at the river source in El Burgo. 2. Medrana Dam in Marbella 3. Caicunes Reservoir in Alozaina.

• **Artificial Ponds.** These include small ornamental pools in parks and gardens, as well as big reservoirs which supply with water for farming and livestock, golf courses and fire safety. These ponds are normally waterproof, so they have no contact with groundwater and the water-bearing stratum; the water is chlorinated, and therefore almost all aquatic life is eliminated, and aquatic plants are regularly being cut together with the animals on them. Sometimes there are only few or no plants due to the features of the ponds (their depth, vertical position of the walls, no ground where the plants can grow, and so on).

All these factors reduces dragonfly diversity. However, those ponds which are not taken care of and they become naturalized can become similar to small lakes, and even have the same species. This way they can become a real oasis for dragonflies and damselflies.

This group of ecosystems includes small springs and fountains, or rubblework drinking troughs for livestock. These water bodies are perennial and they are normally placed close to villages or in the countryside.

Depending on how they are use and the features of the pool, such as its size, depth, plant life, as well as the characteristics of the surrounding (altitude, habitat where they are placed, exposure to the sun, overflowed water, and so on.) there are some Odonata, like Orthetrum chrysostigma o Cordulegaster boltonii, which can adapt to this kind of structures.

1. Big manufactured pond in the Industrial area Parque Tecnológico de Andalucía in Málaga. 2. A small pond in the Town Garden Center in Torremolinos. 3. Reservoir for watering a golf course in Marbella. 4. Drinking through and spring in the Sierra de las Nieves in Yunkera.

Ischnura graellsii

Dragonfiles in Málaga

LIST OF SPECIES

In the province of Málaga, 54 different species of the Odonata have been spotted. This is 69% of all the Odonata in the Iberian Peninsula (79 species) or 7out of 10. Málaga is one of the most studied province on the Iberian Peninsula regarding dragonfly and damselfly species diversity. More research on them is carried out only in Valencia, Castellón, Lérida, Gerona and Madrid.

The following is the list with the species that live in this province:

Zygoptera (damselflies).

Family Calopterygidae.

Calopteryx xanthostoma (Charpentier, 1825).
Calopteryx virgo (Linnaeus, 1758).
Calopteryx haemorrhoidalis (Vander Linden, 1825).

Family Lestidae.

Lestes barbarus (Fabricius, 1798).
Lestes virens (Charpentier, 1825).
Lestes macrostigma (Eversmann,1836).
Chalcolestes viridis (Vander Linden, 1825).
Sympecma fusca (Vander Linden, 1820).

Family Coenagrionidae.

Ischnura graellsii (Rambur, 1842)
Ischnura pumilio (Charpentier, 1825).
Enallagma cyathigerum (Charpentier, 1840).
Coenagrion mercuriale (Charpentier, 1840).
Coenagion scitulum (Rambur, 1842).
Coenagrion caerulescens (Fonscolombe, 1838).
Erythromma viridulum (Charpentier, 1840).
Erythromma lindenii (Selys, 1840).
Pyrrhosoma nymphula (Sulzer, 1776).
Ceriagrion tenellum (de Villiers, 1789).

Family Platycnemiidae.

Platycnemis acutipennis Selys, 1841.
Platycnemis latipes Rambur, 1842.

Anisoptera (dragonflies).
- Family Aeshnidae.
  - *Aeshna mixta* Latreille, 1805.
  - *Aeshna cyanea* (Müller, 1764).
  - *Anax imperator* Leach, 1815.
  - *Anax parthenope* (Selys, 1839).
  - *Anax ephippiger* (Burmeister, 1839).
  - *Boyeria irene* (Fonscolombe, 1838).
- Family Gomphidae.
  - *Gomphus graslinii* Rambur, 1842.
  - *Gomphus simillimus* Selys, 1840.
  - *Gomphus pulchellus* Selys, 1840.
  - *Onychogomphus uncatus* (Charpentier, 1840).
  - *Onychogomphus forcipatus* (Linnaeus, 1758).
  - *Onychogomphus costae* Selys, 1885.
  - *Paragomphus genei* (Selys, 1841).
- Family Cordulegastridae.
  - *Cordulegaster boltonii* (Donovan, 1807).
- Family Corduliidae.
  - *Oxygastra curtisii* (Dale, 1834).
- Family Macromiidae.
  - *Macromia splendens* (Pictet, 1843).
- Family Libellulidae.
  - *Libellula depressa* Linnaeus, 1758.
  - *Orthetrum cancellatum* (Linnaeus, 1758).
  - *Orthetrum coerulescens* (Fabricius, 1798).
  - *Orthetrum brunneum* (Fonscolombe, 1837).
  - *Orthetrum nitidinerve* (Selys,1841).
  - *Orthetrum chrysostigma* (Burmeister, 1839).
  - *Orthetrum trinacria* (Selys, 1841).
  - *Sympetrum fonsco/ombii* (Selys, 1840).
  - *Sympetrum striolatum* (Charpentier, 1840).
  - *Sympetrum meridiana/e* (Selys, 1841).
  - *Sympetrum sinaiticum* Dumont, 1977.
  - *Crocothemis erythraea* (Brullé, 1832).
  - *Trithemis annulata* (Palisot de Beauvois,1807).
  - *Trithemis kirbyi* Selys, 1891.
  - *Brachythemis impartita* (Karsch, 1890).
  - *Diplacodes lefebvrii* (Rambur, 1842).
  - *Selysiothemis nigra* (Vander Linden, 1825).
  - *Zygonyx torridus* (Kirby, 1889).

BIOGEOGRAPHY

The dragonflies that exist in Málaga can be divided in the following groups according to their origin and general distribution:

• **Holarctic groups.** Holarctic species are spread in the Holarctic region, which encloses Eurasia (except South-east Asia), the north of Africa and North America. The only species from this group in Málaga is Enallagma cyathigerum.

• **Western Mediterranean group.** These species mostly live in the Western Mediterranean in the Maghreb, the Iberian Peninsula, the south of France, Italy and its islands. Dragonfly and damselfly species that exist in Málaga and belong to this group are: Calopteryx virgo, C. haemorrhoidalis, Chalcolestes viridis, Ceriagrion tenellum, Pyrrhosomma nymphula, Boyeria irene, Onychogomphus forcipatus and Cordulegaster boltonii.

• **Eurosiberian group.** This region includes the biggest part of the north of Asia and the north of Europe. Aeshna mixta and Sympetrum striolatum are the species that belong to this group and can be found in Málaga.

• **Iberian-Maghrebi group.** As its name indicates, this region includes the Maghreb (north-east Africa) and the Iberian Peninsula, although some species can live in the south and the south-east France and Liguria in Italy. There are fifteen species that belong to this group in Málaga: Calopteryx xanthostoma, Lestes virens, Platycnemis acutipennis, P. latipes, Coenagrion caerulescens, C. mercuriale, Ischnura graellsii, Gomphus graslinii, G. pulchellus, G. simillimus, Onychogomphus uncatus, O. costae, Macromia splendens, Oxygastra curtisii and Orthetrum nitidinerve.

• **Pontus-oriental group.** This group comprises species that live in Asia Minor and the Balkan Peninsula up to the European part of the Mediterranean basin, Central Europe and the Middle East. In Málaga, there are eight species that form part of this group: Lestes barbarus, L. macrostigma, Ischnura pumilio, Anax parthenope, Libellula depressa, Selysiothemis nigra, Sympetrum meridianale and S. sinaiticum.

• **Holo-Mediterranean group.** The faunal elements that belong to this group have been found in the north-east of Africa, in the north of the Mediterranean and to the east up to Asia Minor. There are nine of these species in Málaga: Sympecma fusca, Coenagrion scitulum, Erythromma lindenii, E. viridulum, Aeshna cyanea, Orthetrum brunneum, O. coerulescens, O. cancellatum and Sympetrum fonscolombii.

• **Ethiopean group.** The faunal elements from this group are spread in tropical and subtropical part of Africa, though some species can be found in the Mediterranean area as well. The species that represent this group and can be found in Málaga are: Anax imperator, A. ephippiger, Paragomphus genei, Brachythemis impartita, Crocothemis erythraea, Diplacodes lefebvrii, Orthetrum chrysostigma, Orthetrum trinacria, Trithemis annulata, T. kirbyi and Zygonyx torridus.

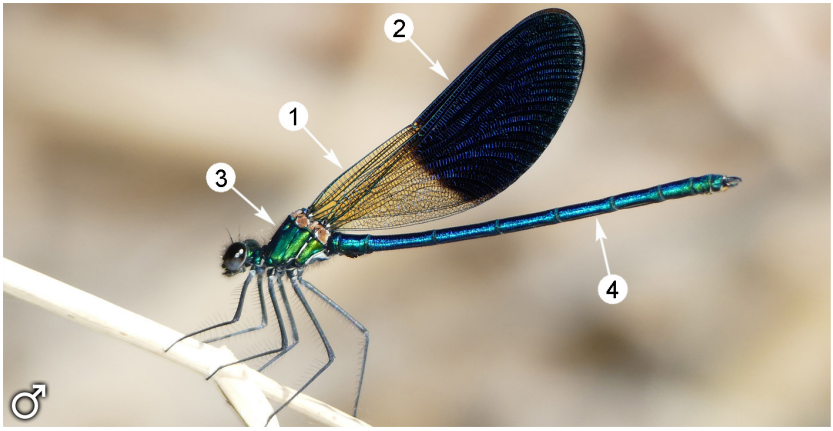
According to the above classification of the biogeographic elements, we can say that the Odonata in Málaga mainly consists of species that live in the Mediterranean with a big number of Iberian-Maghrebi endemic species. There are also a lot of Ethiopean species due to the position of Málaga, in the south of the Iberian Peninsula, where these species enter to Europe. The species from the Central and Northern Europe and Asia are less frequent.

Brachythemis impartita.

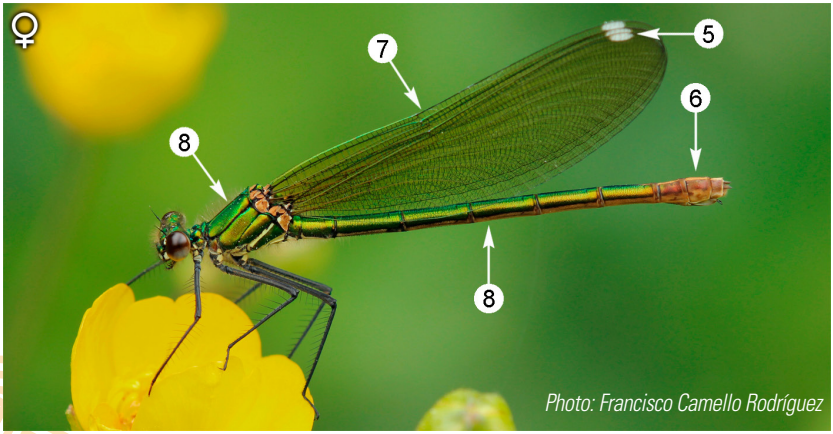
Mating of *Orthetrum chrysostigma*

Descriptive Catalogue

Calopteryx xanthostoma



Length: From 45 to 48 mm. Hindwing spam: From 28 to 48 mm.
Male: 1. Transparent wing base **2.** The rest of the wing is dark blue. **3.** Green or blue thorax, depending on the light. **4.** Metallic blue abdomen.
Female: 5. White pseudopterostigma is closer to the apex than in the case of Calopteryx virgo. **6.** They are brown from S8 to S10 with no metallic shades. **7.** Completely transparent wings. **8.** Metallic green thorax and abdomen.



HABITAT

This species shows where good environmental conditions are.

They normally live in water with enough oxygen in the middle and upper river course that go through forests and groves on the riverbanks. These are mainly oleander and willow groves in shady areas with a lot of plants like blackberries and reeds.

They can live with C. haemorrhoidalis, which is the most frequent and numerous, so the former can be unnoticed.

WAY OF LIFE

They feed on small insects which can be found resting on plants. This is why they fly short distances, and often rest for a long time on shore plants, above all reeds, blackberries and lower branches of trees and bushes.

WHEN TO SEE THIS SPECIES

These damselflies fly, above all, in June in Málaga, though they can be seen from May to September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

This species is rare and it is confined to certain places, like the rivers Verde, Turón and Genal.

It has not been seen along the Great Málaga Path, but it is likely to be found on the stages that go along the river Turón (22, 23), Guadiaro (24, 25) and Genal (27, 28).

It is also possible that they exist on the stages that go across the rivers in the Almijara Mountains.

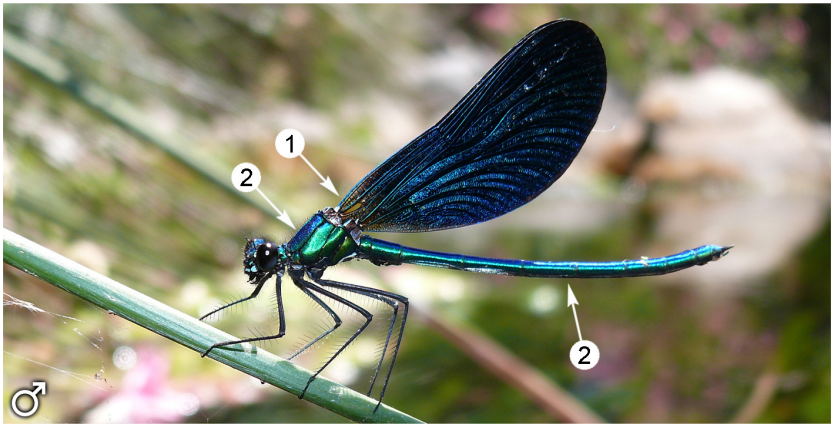
SIMILAR SPECIES

Calopteryx virgo and C. haemorrhoidalis.

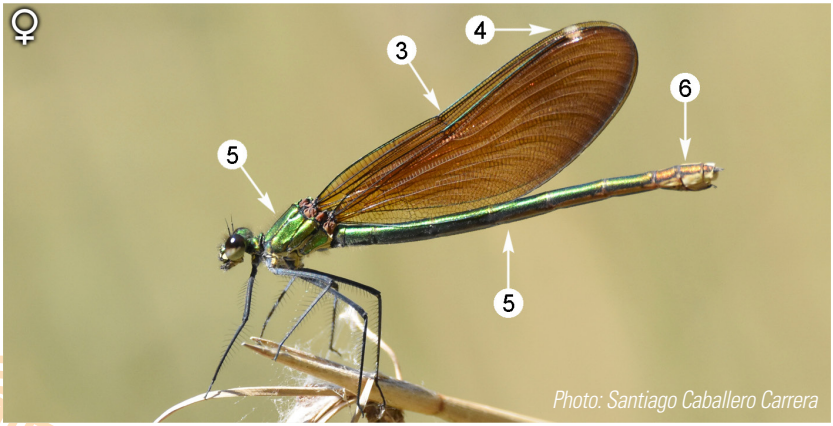
CONSERVATION STATUS

This species is considered to be Vulnerable (VU) in the Red List Status of Invertebrates in Andausia ('Libro Rojo de los Invertebrados de Andalucía' 2008), though it is not specially protected by the current environmental laws.

Calopteryx virgo



Length: From 45 to 49 mm. Hindwing spam: From 24 to 36 mm.
Male: 1. Completely black wings with blue shades. **2.** Green or blue thorax, depending on the light. **Female: 3.** Smoky brown wings. **4.** White pseudopterostigma is closer to the centre of the wing than in the case of Calopteryx xanthostoma **5.** Metallic green thorax and abdomen. **6.** Metallic shades from segment 8 to 10.



HABITAT

This species shows where very good environmental conditions are.

It can be found in the middle and upper river and stream courses. These damselflies can very often be found in shady rocky areas, around pools with clear water, where they rest on numerous shore plants, blackberries, reeds and oleanders.

In general, they live in colder waters at a higher altitude, but they can also live together with Calopteryx haemorrhoidalis, which belong to the same genus.

WAY OF LIFE

They feed on small insects which they hunt between plants.

They fly a short distance between shore plants, such as reeds, blackberries, branches and bushes, where they also rest.

WHEN TO SEE THIS SPECIES

The species flies from May to August, above all in July, in Málaga.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is rare and confined to certain locations in the province. It has only been spotted in the middle and upper courses of the rivers Hozgarganta and the Pasadallana Gorge (Cortes de la Frontera), some streams in the Sierra Bermeja, the River Verde (Istán), and the upper courses of the River Chillar, which is the only location that belongs to this province.

It has not been seen along the Great Málaga Path but it is possible that it can be spotted near the paths that go along the rivers and streams in the Almijara Mountains, especially on stages 5 and 6.

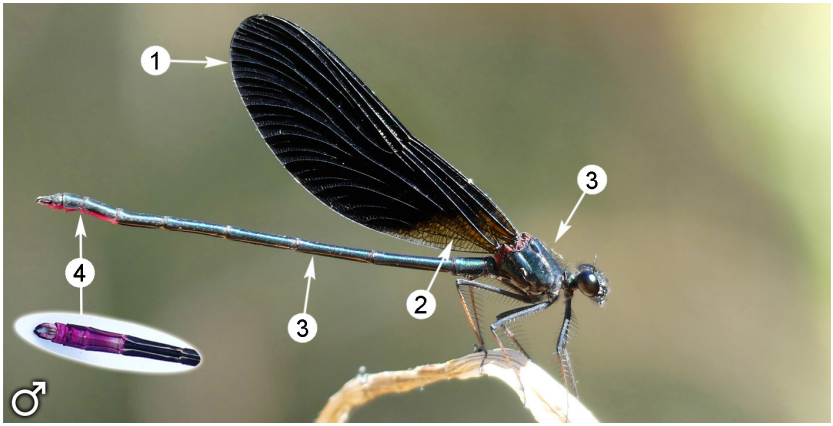
SIMILAR SPECIES

Calopteryx virgo and C. haemorrhoidalis.

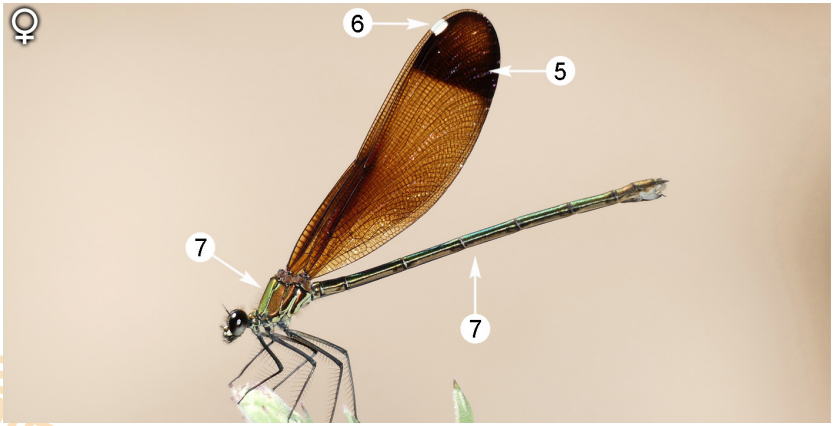
CONSERVATION STATUS

The species is not endangered nor protected by the current environmental law.

Calopteryx haemorrhoidalis



Length: From 45 to 48 mm. Hindwing spam: From 23 to 37 mm.
Male: 1. Wings are black. **2.** Transparent wings base. **3.** Dark thorax and abdomen with some reddish or bronze shades. **4.** S8, S9 and S10 are bright red or pink underneath. **Female: 5.** Smoky brown wings. Darker and well outlined apex on the hindwings. **6.** White pseudopterostigma. **7.** Metallic green or copper shades on the thorax and abdomen.



HABITAT

On the whole, the species can be found in rivers and streams with shallow flowing water, and above all in the middle and upper courses. It is rare and confined to certain places in lower courses.

These damselflies live in forests and mountains; in shady places with groves and bushes on the riverbanks, such as willows, oleanders, blackberries, bushes and reeds.

WAY OF LIFE

They fly a short distance and rest on the shore plants.

They feed on small insects which they find on plants.

The male usually lifts the abdomen in order to show the colours on its last ventral segments in order to attract females.

WHEN TO SEE THIS SPECIES

In Málaga, they can be seen almost all year round, though they are more common and numerous from may to September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

This is the most common and the most widely distributed Calopteryx in the province.

It can be seen along the Great Málaga Path around many rivers and streams, especially, at the rivers Chillar and Higuerón (stage 5), Turón (23), Guadiaro (24 and 25), Genal and its tributaries (27 and 28), as well as the rivers and streams in the Sierra Bermeja (29) and Alpijata (32).

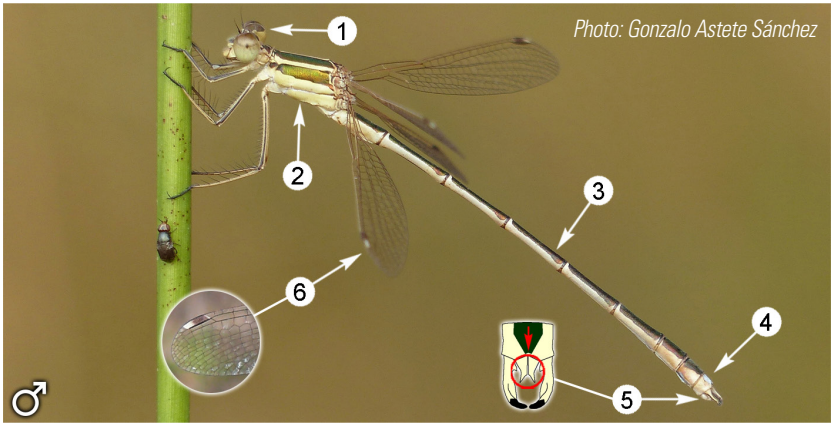
SIMILAR SPECIES

Calopteryx xanthostoma and C. virgo.

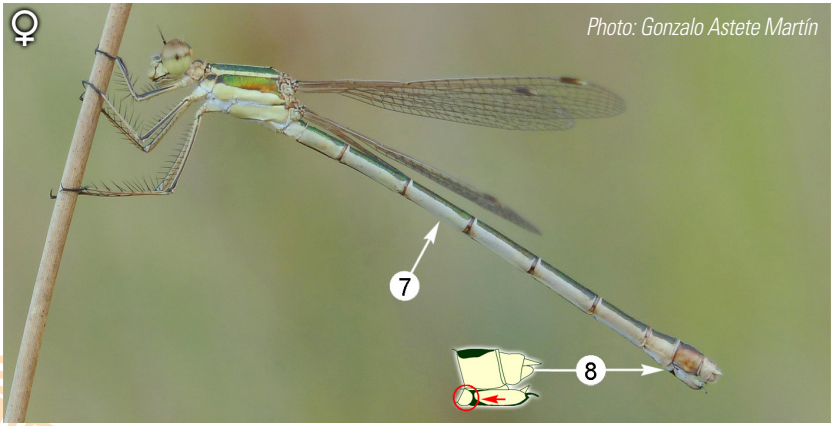
CONSERVATION STATUS

This species is not endangered nor is it protected by the current environmental laws.

Lestes barbarus



Length: From 40 to 45 mm. Hindwing spam: From 20 to 27 mm.
Male: 1. The upper part of its eyes is brown. **2.** Straw-coloured thorax with wide metallic green stripes. It can also have some light bronze shades. **3.** The colour of the abdomen is similar to the one of thorax, but the upper part is green. **4.** S9 and S10 with no blue waxy sheen, but off-white and only on S10. **5.** Underside anal appendages curved outwards. **6.** Brown and pale yellow pterostigmata. Both halves are similar length. Female: Females are similar to males as for the patterns and colours. They are sturdier and have thicker abdomen **(7)**, as well as the egg-laying organ. The difference between this species and Lestes virens is in the flap around its genitalia, which is round in L. barbarus and pointed in the other species **(8)**.



HABITAT

They mate in the places which often get dry, such as temporary ponds and some small endorheic lakes rich in shore plants and rushes.

The species can also be found along the river courses, above all in slow rivers and stream with forests on the riverbanks, such as willow grove with shrubs.

WAY OF LIFE

The can spread and become the first inhabitants of some recent or rather temporary water bodies, where they often lay eggs on the plants in the places which are completely dry.

They eat little flying insects they find on plants, where they often rest as they fly short distances.

WHEN TO SEE THIS SPECIES

This species has been spotted in Málaga from March to October, though it is normally seen from May to July.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is rare and confined to certain places. It has only been spotted at some lakes like Fuente de las Piedras Lagoons on stage 18 of the Great Málaga Path, Salada and Dulce, Capacete and Toro (stage 19), La Ratosa in Alameda, Grande in Archidona, and in Campamento Benitez in Málaga City.

It also exists at the mouth of the Guadalhorece and La Pulga Stream in Cortes de la Frontera.

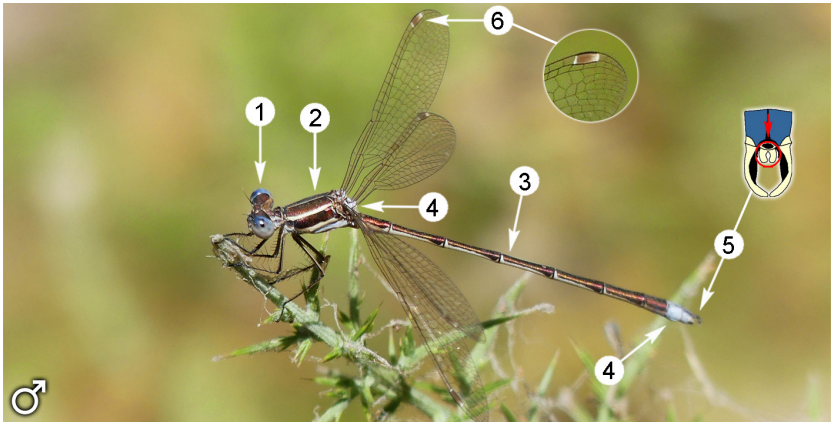
SIMILAR SPECIES

Above all Lestes virens.

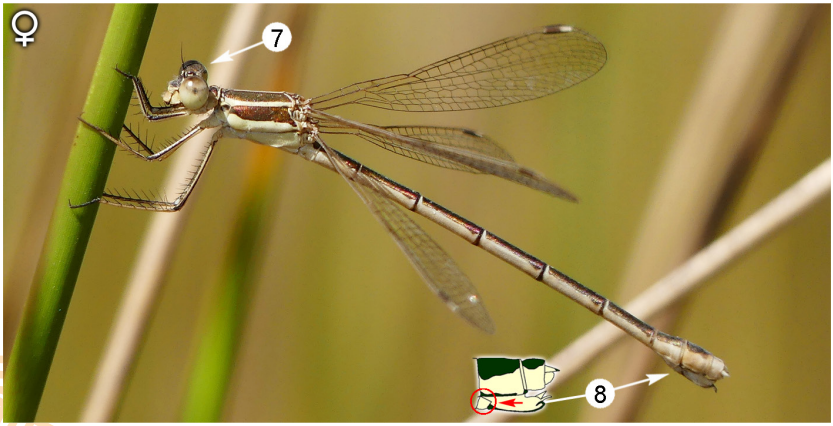
CONSERVATION STATUS

The species is not endangered nor protected by the current environmental law.

Lestes virens



Length: From 30 to 39 mm. Hindwing spam: From 19 to 23 mm.
Male: 1. Bluish eyes. **2.** Bronze or greeny shades on the thorax, depending on the light. Bright stripes. **3.** The colour of the abdomen is similar to the colour the thorax. **4.** S9, S10 and the insertion of the wings, which are covered in blue waxy sheen. **5.** Underside anal appendages that are curved inwards and converge. **6.** Brown pterostigma with bright ends and wider on the outside. Female: Similar patterns and colours to males. **7.** Brown eyes. **8.** The flap of the egg-laying organ is pointed, not round like in Lestes barbarus females.



HABITAT

In general, this species lives in shallow bodies of water, such as endorheic and forest lakes. They can also be seen in small reservoirs and streams with lower flow

They can also live in places that get dry in summer.

They al ways live in the bodies of water surrounded by plenty of riverbank plants, above all rushes and thicket, like blackberries.

WAY OF LIFE

These damselflies are difficult to see as they hide in rushes, blackberries and other thickets, and they normally hang diagonally with half-open wings.

While growing, they can be seen in the bushes far from water.

WHEN TO SEE THIS SPECIES

This species flies from June to October in Málaga. They are more likely to be seen in August and September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is very rare and limited to some locations in the Province of Málaga. It has only been spotted in few distanced towns, including the area through which the GMP (Great Málaga Path) goes, such as Fuente de Piedra Lagoon (stage 18) and Nieblín Stream in Archidona (stage 13).

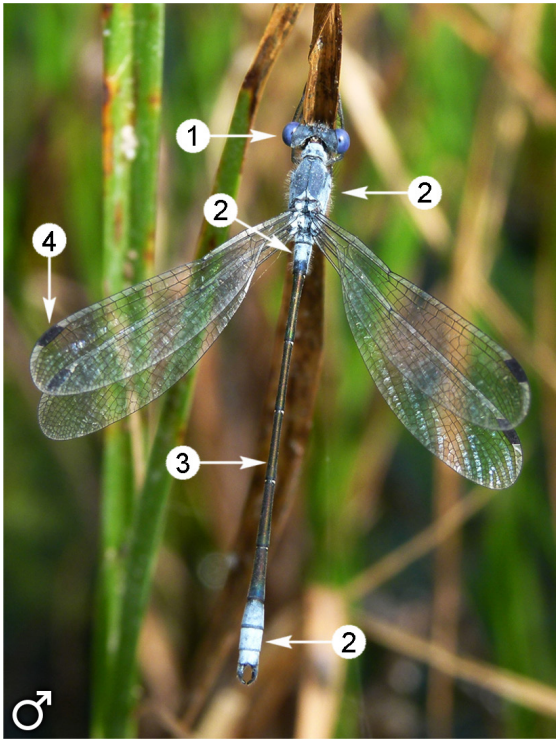
SIMILAR SPECIES

Above all L. barbarus.

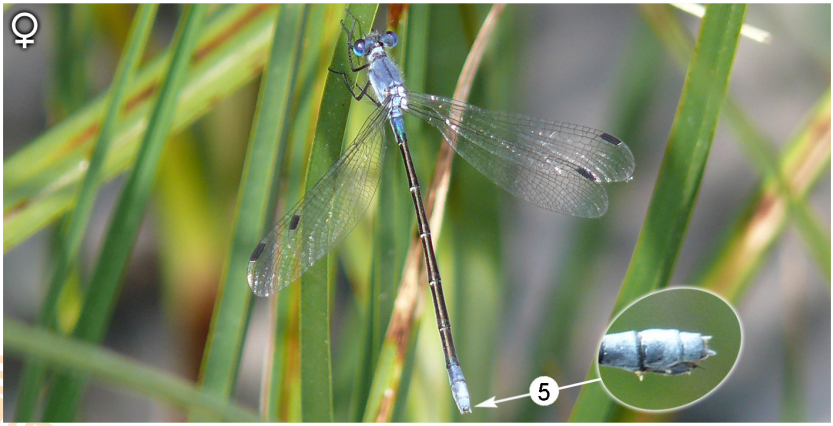
CONSERVATION STATUS

The species is not endangered nor is it particularly protected by the current environmental law.

Lestes macrostigma



Length: From 39 to 48 mm. Hindwing span: From 24 to 27 mm. **Male: 1.** Blue eyes. **2.** Thorax and abdominal segments S1, S2, 28, S9 and S1 have blue waxy sheen. **3.** The rest of the abdomen is dark with metallic green or blue shades, depending on the light. **4.** Large dark pterostigma. **Female:** The colours on females are similar to those on males. However, the abdominal appendages are less developed and there is the egg-laying organ or ovipositor.



HABITAT

They reproduce in shallow fresh or salty water bodies, surrounded by plenty of bulrushes, such as Bolboschoenus maritimus y Scirpus inclinatus.

This species is most commonly found at inland and coastal lakes, which can be both, perennial or temporary, deserted salt mines, canals or river and stream mouths where salty and fresh water mix.

WAY OF LIFE

They are not great flyers nor they fly high, as they spend most of the day resting on reeds and attract no attention.

When at rest, they tend to hand vertically with half-open wings.

WHEN TO SEE THIS SPECIES

They fly from April to June in Málaga.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

This species is rare and lives in a limited area in the province. It can be seen at Fuente de la Piedra (stage 18 of the Great Málaga Path).

It sometimes appears around the lakes La Ratosa (Alameda), Salada, Dulce and Dulce de Campillos (stage 18) and the surroundings of the mouth of the Guadalhorce (Málaga).

They might also exist at Campillos lake on stage 19 of the GMP.

SIMILAR SPECIES

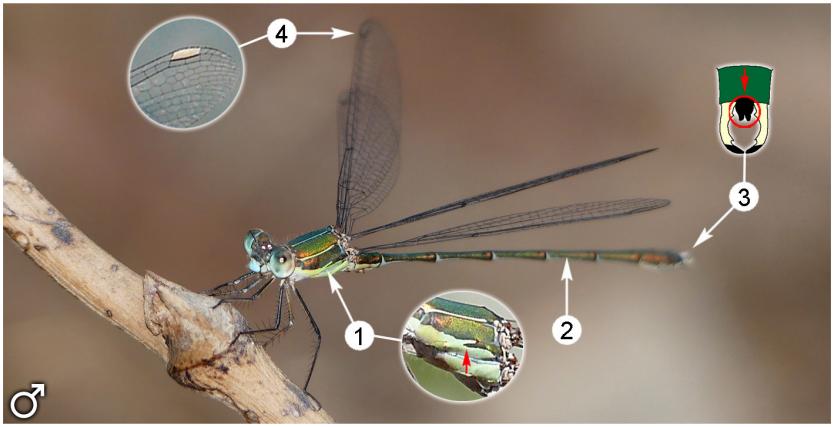
Blue shades and dark pterostigmata make this species unique.

CONSERVATION STATUS

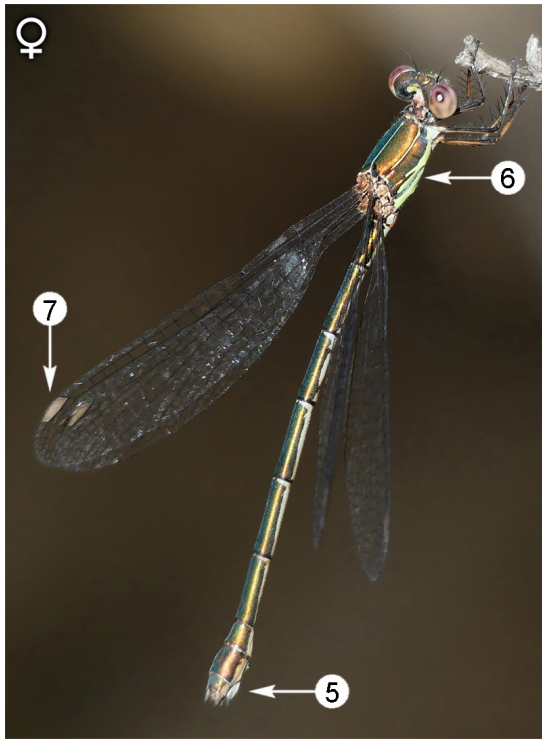
It is considered to be Vulnerable in the Atlas and Red List Status of Invertebrates in Spain (Atlas y Libro Rojo de las Invertebrados de España, 2011) and the Red List Status of Invertebrates in Andausia (Libro Rojo de los Invertebrados de Andalucía, 2008).

Nevertheless, it is not specially protected by the current environmental laws.

Chalcolestes viridis



Length: From 39 to 48 mm. Hindwing spam: From 23 to 48 mm. **Male: 1.** The upper part of the thorax is metallic green and it can have some bronze shades, depending on the light. It has a marking in a shape of a splinter on the side. **2.** The colour of the upper part of the abdomen is similar to that of the thorax without waxy sheen. **3.** Black anal underside anal appendages. **4.** Large light pterostigma. **Female:** Females are similar to males, but their anal appendages are shorter and they have an egg-laying organ. The marking in the shape of a splinter **(6)** and the large light pterostigma **(7)** are different in Lestes if we compare it to other species.



HABITAT

It mates in stagnant or slow-flowing water bodies, normally in the rivers and streams with lower flow that go through forests with abundant plant life on the riverbanks, such as willows, oleanders and blackberries.

WAY OF LIFE

It flies between plants and often rests in the blackberries, trees and bushes, close or far away from water.

The female lays eggs in tandem with the male by placing them in tree branches or the stalks of the bushes that lean over water.

WHEN TO SEE THIS SPECIES

It can be seen from May to November, but it is the most common in July, August and September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

This is the most common Lestidae and the most widely distributed in the county, and it is rather copious in certain places close to the preserved rivers and streams.

It can be seen on many of the stages that belong to the Great Path of Málaga, above all in forests and in the mountains, close to water and the rivers that meet streams.

It is likely to be seen along the following stages, though there are chances it can be found on others as well: 5, 6, 7, 8, 9, 10, 12, 23, 24, 25, 26, 27, 28, 29 and 32.

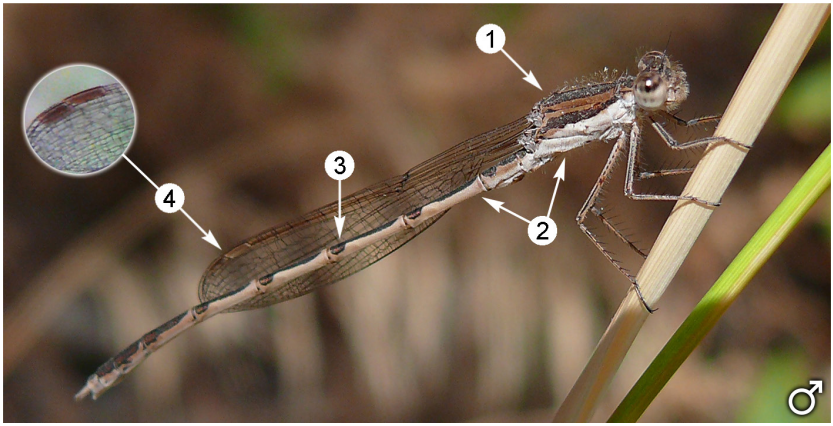
SIMILAR SPECIES

Lestes barbarus and L. virens.

CONSERVATION STATUS

The species is not endangered nor is it particularly protected by the current environmental law.

Sympecma fusca



Length: From 34 to 39 mm. Hindwing spam: From 18 to 23 mm. Older individuals can be very dark and have bluish upper part of the eyes.
Male: 1. The upper part of thee thorax has brown and dark bronze lines. **2.** Underside is light. **3.** Long spots, which are wider at the bottom, on the side of the abdomen. **4.** Forewings pterostigmata do not cover those on the hindwings.
Female: Females are similar to males, and can be easily distinguished from them thanks to the egg-laying organ **(5)**.

HABITAT

In general, this species mates in small rivers and streams in the areas with low and slow-flowing water bodies.

They can also appear in endorheic lakes. They always live among shrubs on riverbanks bulrushes and rushes.

In autumn and winter, they can spread and go far away from the water, above all forests boundaries and meadows with thickets.

WAY OF LIFE

They are difficult to be found due to their cryptic colouration and shy behaviour, as they often rest on riverbank plants or thicket, so they remain unnoticed.

They rest with their wings closed over the abdomen, so their pterostigmata, which do not cover up, can be seen.

WHEN TO SEE THIS SPECIES

It can be seen throughout the year, as it is the only Odonata that spends winter as an adult.

In Málaga, it is common in spring and summer, from April to October.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is confined to certain places where it spreads over the rivers and lakes in the county. As for the Great Málaga Path, it has been spotted at specific places on stages 13, 23 and 33, as well as in the areas around stages 18 and 21. Due to their tendency to scatter, they may exist along all stages.

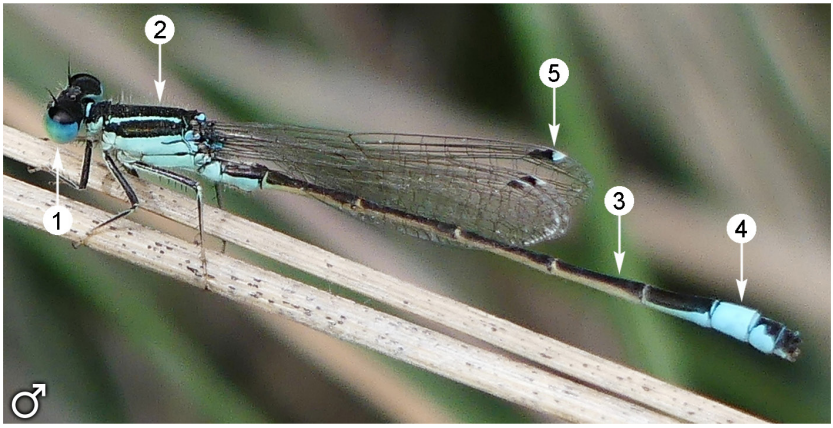
SIMILAR SPECIES

This species is unique thanks to its size, as it is larger than most of Zygoptera which can close their wings completely, as well as due to their colour patterns.

CONSERVATION STATUS

The species is not endangered nor protected by the current environmental law.

Ischnura graellsii



Length: From 26 to 48 mm. Hindwing spam: From 13 to 19 mm.
Male: 1. The upper part of the eyes is black and the lower blue. **2.** Thorax is blue with blue stretches on the back and on the sides. **3.** The upper part of the abdomen is black and the lower yellowish and orangey. **4.** S8 and the lower parts of S7, S9 and S10 are blue. **5.** Pterostigma is two-coloured. **Female:** Females can be similar to males or andromorphic or be differently coloured. The difference between them and males is the egg-laying organ. **(6)**

HABITAT

This species can live in all types of water bodies that are slow or stagnant, in shiny with small herbaceous plants on the shore, especially paspalum (Paspalum spp.).

It does not need some special water conditions so it can be found in salty bodies of water, as well as in those which are moderately polluted.

Lower and middle courses of rivers and streams, lakes and lagoons or small lakes, reservoir shores, artificial ponds, canals, irrigation channels, reservoirs for livestock-farming and agriculture, or for watering golf courses.

WAY OF LIFE

They fly low and slowly, above the shore and between rushes and other plants. They sometimes rest on plants, usually, close to water. It is easy to be spotted. Females lay eggs alone, on emergent or dead floating plants.

WHEN TO SEE THIS SPECIES

It flies from March to November in the Province of Málaga, but it is most common in June and September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is rather common and widely scattered through the county. There are specific places along stages of the Great Málaga Path where it can be found: 2, 3, 4, 10, 12, 13, 16, 18, 19, 23, 24, 25, 27, 30 , 35, and maybe more.

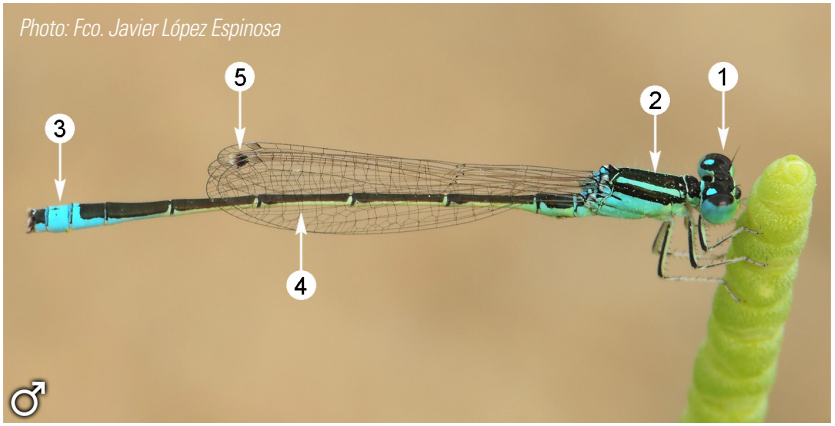
SIMILAR SPECIES

Above all Ischnura pumilio.

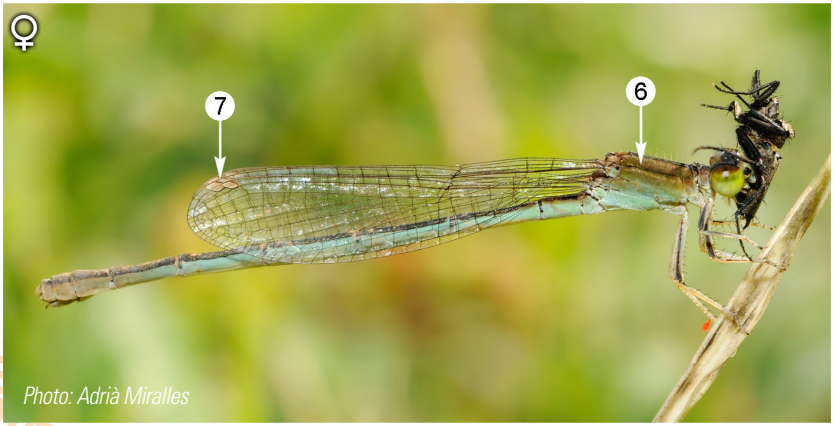
CONSERVATION STATUS

The species is not endangered nor protected by the current environmental law.

Ischnura pumilio



Length: From 26 to 31 mm. Hindwing spam: From 14 to 19 mm.
Male: 1. The upper part of the eyes is black and the lower blue. **2.** Thorax is blue with black stripes, which are on the back and on each side. **3.** The upper part of the abdomen is black, except S9 and a part of S8, which are blue. **4.** The underside of the abdomen is yellowish or orangey. **5.** Pterostigma on the forewings is two-coloured. Female: It is mainly greeny or bluish. **6.** There are very thin or almost invisible stripes on the sides. **7.** Pterostigmata on the hindwings are smaller.



HABITAT

They live in similar habitats to I. graellsii. These two species can even live in the same place.

They live in warm places with herbaceous plants on the shore, such as slow or stagnant lower or middle river or stream courses, small lakes, reservoirs, an artificial ponds.

WAY OF LIFE

Their flutter is timid. They usually move among grass and other shore plants, and sometimes they rest. As they live together with I. graellsii, which is much more common and numerous, they can be unnoticed. This is why you need to look carefully every colony in order to spot this species.

WHEN TO SEE THIS SPECIES

They fly from April to September in Málaga.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is rare and exist in a confined space. They have been seen in scattered spots, including stage 18 of the Great Málaga Path, which goes around lakes, such as Fuente de la Piedra Lagoon and Dulce in Camplillos. Moreover, it can be found on stage 35 and close to the mouth of the Guadalhorce.

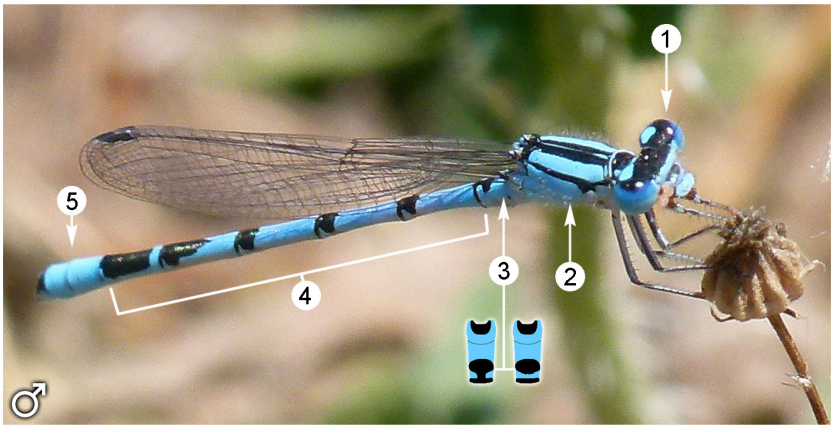
SIMILAR SPECIES

This is above I. graellsii.

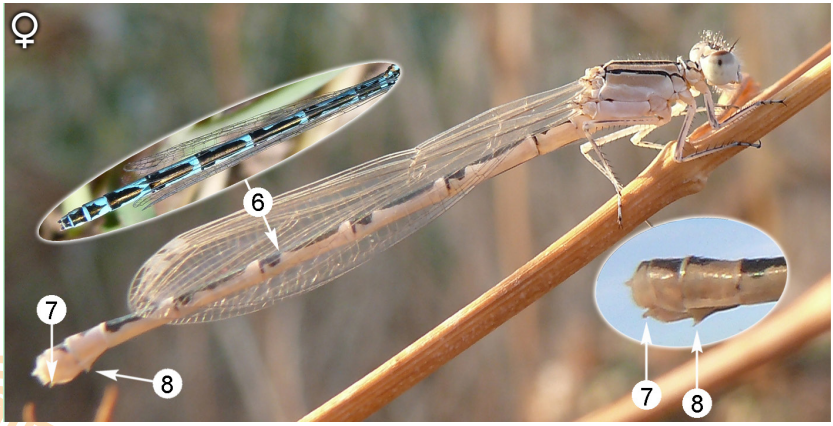
CONSERVATION STATUS

The species is not endangered nor protected by the current environmental law.

Enallagma cyathigerum



Length: From 29 to 36 mm. Hindwing spam: From 15 to 21 mm.
Male: 1. The upper part of the eyes are black with two blue spots. **2.** Blue thorax with black stripes on the back and sides with hardly developed or no line between sutures. **3.** Marking in the shape of a mushroom on S2, sometimes incomplete. **4.** Black markings which gradually become shorter. **5.** S8 and S9 are completely blue. Female: They can be blue like males or light brown. **6.** They have black spots on the abdomen in the shape of a torpedo, almost all along the segment. **7.** Egg-laying organ. **8.** Vulvar spine stands out on S8.



HABITAT

This species lives in all kinds of stagnant bodies of water, even if they are salty, whenever they are sunny.

In Málaga, they mainly live in the pools in endorheic lakes and temporary ponds, slow running rivers, small dams, reservoirs and spillways, artificial ponds and deserted flooded quarries.

WAY OF LIFE

They often fly nervously above flat water, like only few Zygoptera, including the genus Erythromma. They rest on shore plants, with their wings closed over the abdomen or slightly opened.

WHEN TO SEE THIS SPECIES

In the province of Malaga can be seen from March to October.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		■	■	■	■	■	■	■	■		

WHERE TO SEE THIS SPECIES

It is common but confined to certain places in the province and it lives in colonies. These damselflies can be seen on stages 18 and 19 along the Great Málaga Path at the spot where they go around Fuente de Piedra and Campillos. It could be present on other stages that go past big rivers in the province.

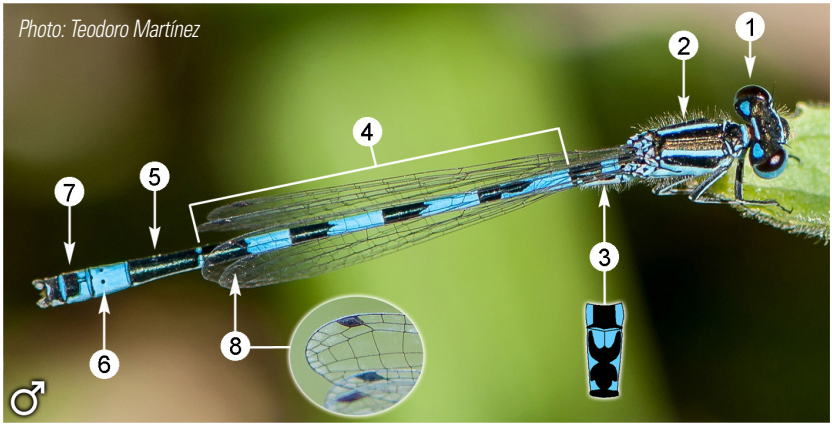
SIMILAR SPECIES

Genera Erythromma and Coenagrion.

CONSERVATION STATUS

The species is not endangered nor protected by the current environmental law.

Coenagrion mercuriale



Length: From 27 to 31 mm. Hindwing spam: From 19 to 27 mm.
Male: 1. The upper part of the eyes is black with two blue spots. **2.** Blue thorax with black stripes on the sides, back and with lines between sutures from the base of the wings (the upper shorter than the lower). **3.** Black marking in the shape of a helmet with horns on S2. **4.** From S3 to S4 there is more blue than black colour. **5.** S7 is completely black. **6.** S8 is blue with two black dots. **7.** S9 is blue and black. **8.** Pterostigma is dark and in the shape of a diamond. **Female:** They can be blue or greeny with dark dorsal abdomen **(9)**. It is very difficult to make a difference between this and other similar species if you do not have it in the hand. The pronotum is straight at the back and has a small lump in the centre **(10)**.

HABITAT

They usually mate in streams with clean law slow-flowing water bodies with lush aquatic and shore plant life, such as watercress, reeds, bulrushes and rushes. They are also seen in canals and irrigation channels. They can live in salty water.

WAY OF LIFE

It is hardly noticeable and difficult to find. It flies low, close to the water and rests on the emergent or shore plants.

WHEN TO SEE THIS SPECIES

In the Province of Málaga, it can be seen from April or September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is rather rare and confined to certain places in the province. It ahs only been spotted in Almargen and some streams in Archidona, close to stage 13 on the Great Málaga Path.

It can be present in some other routes, mainly in the north of the province, from stage 12 to 19.

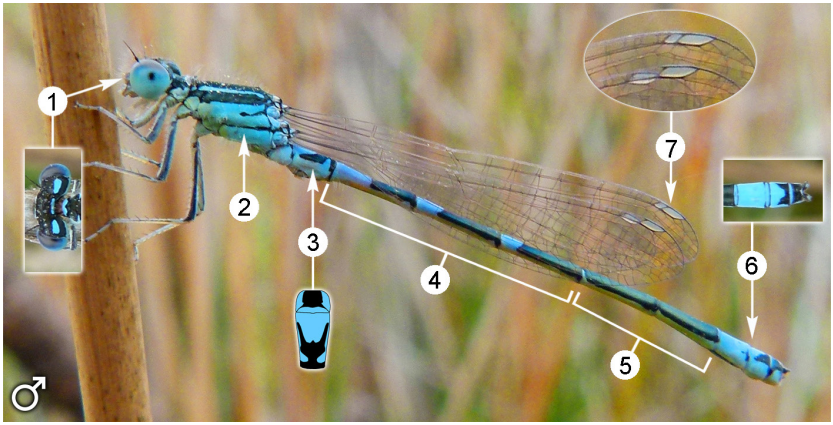
SIMILAR SPECIES

Genus Enallagma, Erythromma and Coenagrion.

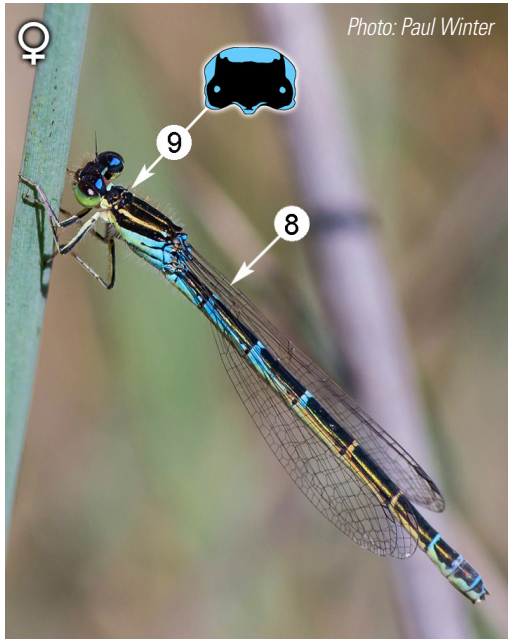
CONSERVATION STATUS

It is considered to be Vulnerable in the Atlas and Red List Status of Invertebrates in Spain (Atlas y Libro Rojo de las Invertebrados de España, 2011) and the Red List Status of Invertebrates in Andausia (Libro Rojo de los Invertebrados de Andalucía. 2008). As for legislation, it is part of the List of Protected Wild Species in Spain and Andalusia (Real Decreto / Royal Decree 139/2011 and Decree 23/2012 , respectively).

Coenagrion scitulum



Length: From 30 to 33 mm. Hindwing spam: From 14 to 20 mm. **Male: 1.** The upper part of the eyes is black with two blue spots. **2.** Thorax is blue with black stripes. One of them is very wide on the back and one is narrower on the sides, and has a thin short line between the upper and lower suture that stretches from the base of the wings, and another one that goes along the lower suture. **3.** Black spot in the shape of a cat's head or a spoon on S2. This feature can vary, and it is similar to the one in Coenagrion caerulescens. **4.** From S3 to S5, black colour gradually becomes dominant. **5.** S6 and S7 are fully black. **6.** S8 and S9 are blue and have triangular markings that point towards S8. **7.** Pterostigma is light and long. **Female:** They can be blue or greeny. The dorsal part of the abdomen has more black colour on it than the one in males **(8)**. It is very difficult to make a difference between this species' females and other species if you do not observe them while they rest on your hand. The pronotum is wavy at the back and has a large lump in the centre **(9)**.



HABITAT

They normally mate in streams with low and slow flow and endorheic lakes, which sometimes go through the process of eutrophication, and have plenty of aquatic and shore plants.

WAY OF LIFE

The Odonata's timid behaviour makes them difficult to be found. They fly low between plants on the shore, where they often rest, as well as on aquatic plants. When at rest, they stretch horizontally or diagonally with their wings closed on the abdomen.

WHEN TO SEE THIS SPECIES

In the Province of Málaga, it flies from March to July.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is rare and confined to certain locations in Málaga. It has only been spotted in or around Casarabonela Stream, the lakes in Archidona and Nieblin Stream, The latter is placed o stage 13 of the Great Málaga Path. It might exist along other routes, as thoose that go around CFuente de Piedra and CCampillos lakes (stage 18 and 19, respectively).

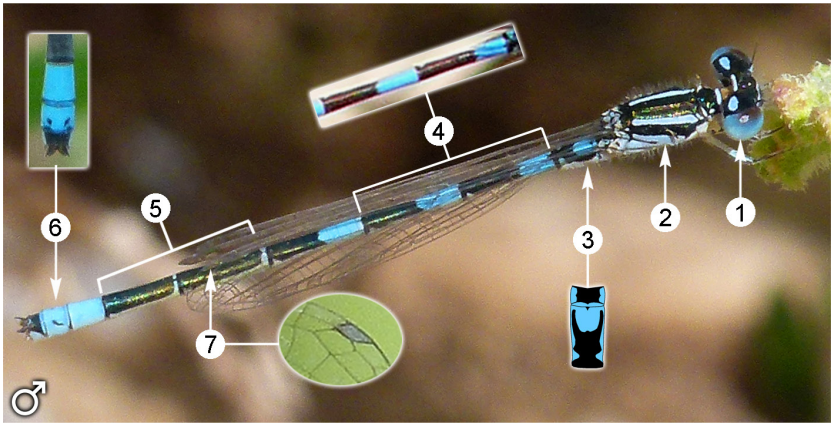
SIMILAR SPECIES

Genera Erythromma, Enallagma and Coenagrion.

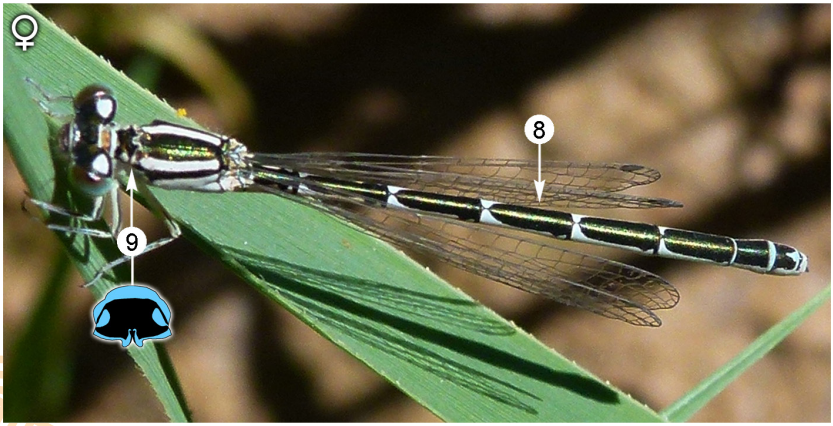
CONSERVATION STATUS

It is considered to be Vulnerable in the Atlas and Red List Status of Invertebrates in Spain (Atlas y Libro Rojo de las Invertebrados de España, 2011) and the Red List Status of Invertebrates in Andausia (Libro Rojo de los Invertebrados de Andalucía. 2008). Nevertheless, it is not specially protected by the current environmental laws.

Coenagrion caerulescens



Length: From 30 to 33 mm. Hindwing spam: From 14 to 21 mm.
Male: 1. The upper part of the eyes is black with two blue spots. **2.** Blue thorax with black stripes. One of them is wide on the back and one narrower on the sides. There are short thin lines between sutures that go from the base of the wings. **3.** Black spots on S2 in the shape of the cat's head, but with longer ears and chubbier cheeks than in the case of C. scitulum. **4.** S3 is proportionally blacker than S4. **5.** S6 and S7 are black. **6.** S8 and S9 are blue. The latter one has black markings. **7.** Pterostigma is light and squared with one pointed end. Female: They can be blue or green with a dark back **(8)**. It is difficult to make a difference between this species and other females. For that purpose, it must rest on one's hand. The pronotum is wavy at the back and has two lumps in the centre **(9)**.



HABITAT

It mates in clean streams with low and slow flow, where it lives in open and sunny areas with aquatic and shore plants, such as rushes and bulrushes.

WAY OF LIFE

They flutter so they can often pass unnoticed and be difficult to spot. They rest on shore plants, normally horizontally or diagonally, with their wings closed over the abdomen or slightly opened. They live together with other Coenagrionidae.

WHEN TO SEE THIS SPECIES

They fly from April to September in Málaga.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

These damselflies are the most common Coenagrionidae in Málaga, but they are still rare and confined to the north of the province. They can be seen on stage 16 of the Great Málaga Path, at the Burriana Stream in Cuevas Bajas. Some of them also exist at Nieblín Stream in Archidona close to stage 13. They can also be found along some other routes halfway to the north of Málaga.

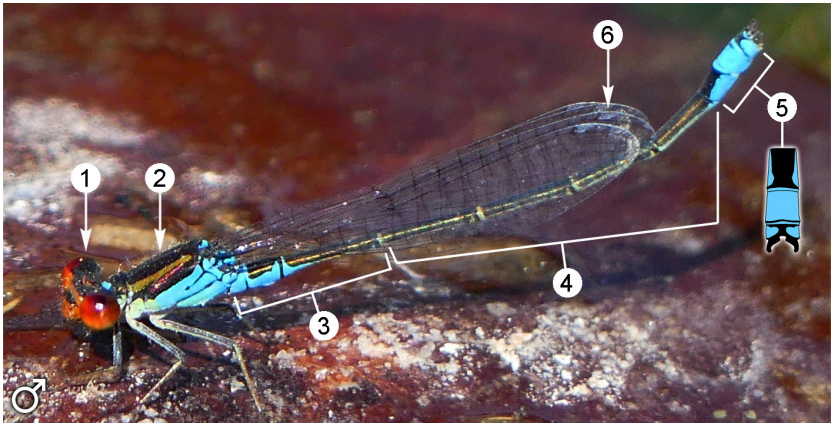
SIMILAR SPECIES

Genera Erythromma, Enallagma and Coenagrion.

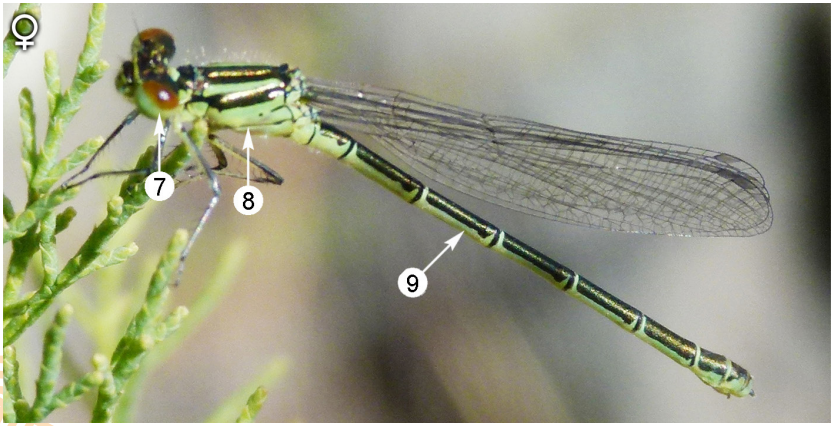
CONSERVATION STATUS

It is considered to be Vulnerable in the Atlas and Red List Status of Invertebrates in Spain (Atlas y Libro Rojo de las Invertebrados de España, 2011) and the Red List Status of Invertebrates in Andausia (Libro Rojo de los Invertebrados de Andalucía. 2008). Nevertheless, it is not specially protected by the current environmental laws.

Erythromma viridulum



Length: From 26 to 32 mm. Hindwing spam: From 16 to 20 mm.
Male: 1. The upper part of the eyes is red. **2.** Thorax is black at the top and blue on the sides. There is sometimes an antehumeral golden stretch. **3.** S1, S2 and S3 have black upper part and blue sides. **4.** S4, S5, S6 and S7 are black. **5.** S8 is black at the top. S9 is blue and S10 is blue with a black letter X. **6.** Pterostigma is light with the shape of a trapezoid. **Female:** It can be bluish or greeny. **7.** Eyes are green on the underside and reddish on top. **8.** The upper part of the thorax is black with two black lines on the sides, which are bluish or greeny. **9.** Black abdomen at the top and bluish and yellowish on the underside.



HABITAT

It is more common in open bodies of water, which are sunny with lush emergent water plant life. Endorheic lakes, reservoirs, artificial pools, gravel pits and deserted quarries are some of the places where this species reproduces in Málaga.

WAY OF LIFE

Their flight is weak, but it often rests away from the riverbank, on the emergent or floating plants in water. When at rest, the male usually bends the last segments upwards. The male and the female lay eggs in tandem on the emergent plants. The female can dive in order to lay the eggs in the water.

WHEN TO SEE THIS SPECIES

In the province of Málaga, this species can be seen from March to October, above all, in May or September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is rare and lives in a limited area in the province, above all, in endorheic lakes in the north and La Hoya de Málaga, a hollow. It has not been spotted along the Great Málaga Path, but it might exist on the stages that go through wetlands, such as Fuente de Laguna lakes and Campillos Lake (stages 18 and 19), as well as the mouth of Guadalhorce (35).

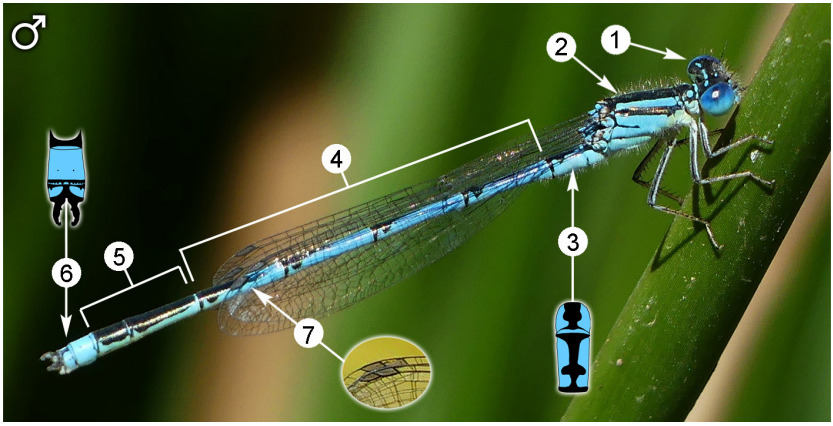
SIMILAR SPECIES

Its bluish and greeny body and red eyes make it unique.

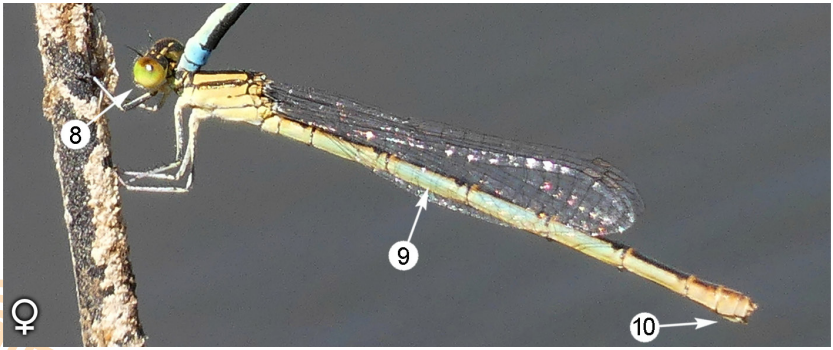
CONSERVATION STATUS

The species is not endangered nor is it particularly protected by the current environmental law.

Erythromma lindenii



Length: From 30 to 36 mm. Hindwing spam: From 19 to 21 mm.
Male: 1. The upper part of the eyes is black with two small blue spots, which can also be missing. **2.** Thorax is black at the top and blue on the sides. **3.** Black spots in the shape of a trophy cup on S1 and S2. **4.** There are black spots from S3 to S6, which vary in size. They are wide at the base and thin at the end. **5.** Black spots from S7 to S8 all over the upper part. **6.** S9 is completely blue and S10 is half blue with a marking in the shape on a X, which stretches to the anal appendages. **7.** Pterostigma is long and light. **Female:** It can be yellowish or bluish with yellow eyes **(8)**; the abdomen is thicker **(9)**, and the egg-laying organ at the end of it **(10)**.



HABITAT

In Málaga, they live in wide pools and around river and stream dams. They can often be seen in forests and among aquatic and shore plants, such as rushes and bulrushes. They also live in endorheic lakes, artificial ponds, gravel pits and deserted quarries.

WAY OF LIFE

The male flies tirelessly above the water, and sometimes rests on emergent or river shore plants in diagonal position with closed or half-closed wings. The female can hardly be seen during mating. She mates in tandem with the male on emergent plants, and she sometimes dives into the water to lay eggs.

WHEN TO SEE THIS SPECIES

In the province of Málaga, it can be mostly seen from May to September, but it can fly from February to October.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is spread all over the county. As for the Great Málaga Path, it can be seen on stages 18 and 19, as they go pass Campillos lakes; stages 22 and 23 at the river Turón, and on 22 and 27 where the tributaries of the rivers Guadiaro and Genal are. There can be plenty of them at certain spots on stage 23. It might also exist along many other routes.

SIMILAR SPECIES

Genera Enallagma and Coenagrion.

CONSERVATION STATUS

The species is not endangered nor protected by the current environmental law.

Pyrrhosoma nymphula

Length: From 33 to 36 mm. Hindwing spam: From 19 to 24 mm.
Male: 1. Red eyes with dark lines. **2.** Black legs. **3.** Black thorax (it can have some bronze shades) with red stretches. **4.** Yellow colour under the metapleural suture with a black pointed marking. **5.** Red abdomen with black markings from S7 to S10. **6.** Dark or red pterostigma, depending on the light. **Female:** In general, they look the same like males in colour patterns. They can have all segments on the abdomen with back markings or only the last ones. The difference between females and males is in the bulkiness on the anal area and the egg-laying organ that females have. **(7)**

HABITAT

They mate in varied habitats, such as middle and lower river and stream courses, artificial ponds and water tanks. They can mostly be found in slow or stagnant water bodies which are rich in shore plants, such as rushes and bulrushes.

WAY OF LIFE

These damselflies fly between plants that are close to the riverbanks, between rushes and bulrushes, and they rest horizontally or diagonally with their wings closed or half-open over the abdomen. They can pass unnoticed and be difficult to spot.

WHEN TO SEE THIS SPECIES

In Málaga, they fly from April to July, above all in July.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

This species is rare and live in a limited area in the county. We do not know about the existence of colonies along the Great Málaga Path, though there are some places close to stages 22 and 32, as they go through the surroundings of the Ortejícar and Mijas Mountains, where they might exist. There is a possibility to find them on the stages that go through the Serranía de Ronda, from Ardales to Estepona (from 22 to 29), and even on those that go from Nerja to Archidona (from stage 5 to 13).

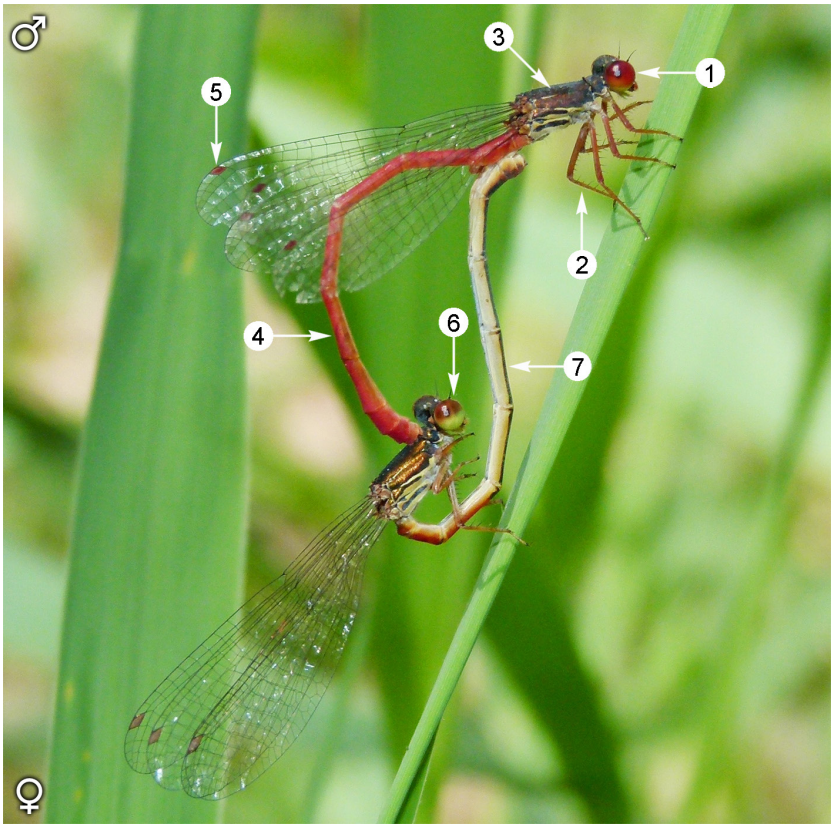
SIMILAR SPECIES

Thanks to its red colour, it can be only be mixed up with Ceriagrion tenellum.

CONSERVATION STATUS

The species is not endangered nor protected by the current environmental law.

Ceriagrion tenellum



Length: From 25 to 35 mm. Hindwing spam: From 15 to 21 mm.
Male: 1. Red eyes. **2.** Red legs. **3.** Black thorax that can also have some light bronze shades. Yellow stretches with back lines at the bottom of the sides. **4.** Abdomen is red with no markings. **5.** Pterostigma is red. **Female: 6**. Their eyes are red at the top and yellowish at the bottom. **7.** Normally, the abdomen is black at the top, from S3 ot S9, while the lower part is lighter. Some of them have completely red or black abdomen.

HABITAT

They live in slow and stagnant water bodies which are shallow and have plenty of shore and emergent plants, such as low-flow rivers and streams and springs.

WAY OF LIFE

They are difficult to be spotted as they fly little and spend a lot of time resting on rushes and other plants close to the riverbanks. They rest in a horizontal position with their wings closed over the abdomen, and they fly away when they think they are in danger.

WHEN TO SEE THIS SPECIES

This species can be seen from April to September in Málaga, and above all in August.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

They are one of the least common damselflies in the province, as we are only familiar with one colony in Almargen. It has not been seen along the Great Málaga Path, but it might live in certain places in the Arco Calizo Central, from stage 12 to 19.

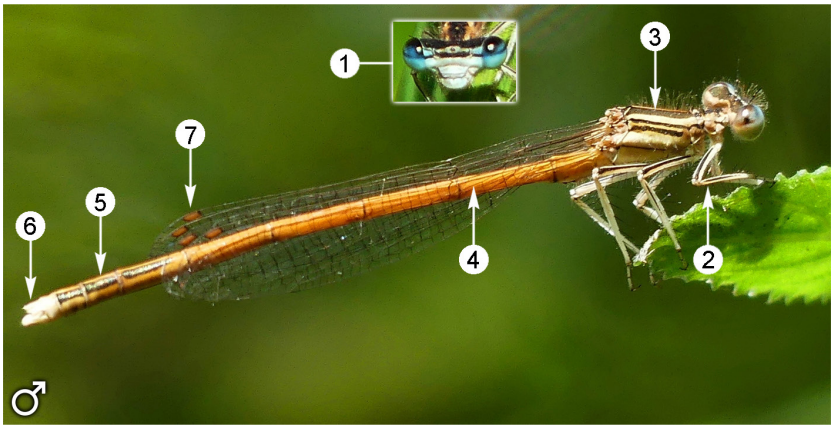
SIMILAR SPECIES

Thanks to their red colour, they can be only mixed up with Pyrrhosoma nymphula.

CONSERVATION STATUS

The species is not endangered nor is it particularly protected by the current environmental law.

Platycnemis acutipennis



Length: From 34 to 37 mm. Hindwing spam: From 18 to 19 mm.
Male: 1. Eyes are separated and connected by a black stripe. Their lower part is bluish and their upper part black. **2.** Legs are white with black lines on the upper part. **3.** Thorax is light with dark stripes. **4.** Abdomen is reddish or orangey. **5.** Black parallel markings from S7 to S9. **6.** S10 and anal appendages are light. **7.** Pterostigmata are red. **Female:** Their patterns are similar to males but their colour is duller, eyes are orangey and they have black markings all over the abdomen, though these can sometimes be blur **(8)**. Anal appendages are shorter and they have the egg-laying organ. **(9)**

HABITAT

They reproduce in slow rivers and streams or river pools and perennial streams. This is normally in forests, above all, willow groves rich in shore plants, such as rushes and blackberries.

WAY OF LIFE

They are difficult to be spotted as they hardly ever fly and rest between plants on riverbanks. They normally rest in horizontal or diagonal position with their wings closed over the abdomen. Sometimes they live with Platycnemis latipes, though P. acutipennis is more uncommon and they fly earlier.

WHEN TO SEE THIS SPECIES

They mainly fly in May and June, although they can be seen from March to July.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is spread in main rivers in Málaga, but it lives in limited areas and in colonies. It can be found at some places along the Great Málaga Path, such as the rivers and streams on stages 12, 13, 23, 25, 26, 27 and 28, though the possibility that it also exists from stage 5 to stage 10, and on stages 10, 22, 24, 29 and 32 cannot be ruled out.

SIMILAR SPECIES

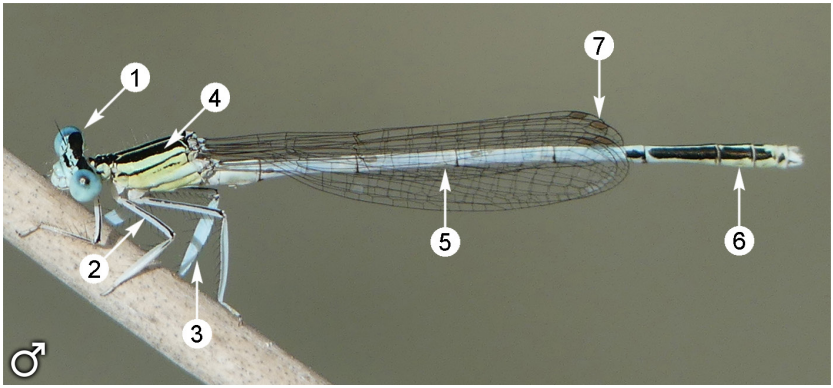
Males can easily be recognized due to the combination of blue eyes and reddish body.

The immature female is similar to P. latipes.

CONSERVATION STATUS

The species is not endangered nor protected by the current environmental law.

Platycnemis latipes



Length: From 33 to 37 mm. Hindwing spam: From 18 to 22 mm.
Male: 1. Eyes are separated. They are grey or bluish with a black stripe at the top of the head. **2.** Legs are white with black lines on the upper part. **3.** Middle and hind legs' tibias become rather wide closer to the centre, and have a black line which is rather blur or missing. **4.** Thorax is yellowish with black stripes. **5.** Abdomen is white from S1 to S6. **6.** Black parallel stripes from S7 to S10 (sometimes also in S6), with more or less markings. **7.** Light pterostigma. **Female:** Similar to male, but lighter. **8.** Egg-laying organ. Black stripes on S10, which can sometimes be missing. **9.** Middle and hind legs' tibias become wider towards the centre.

HABITAT

This species can be seen in rivers and streams, at the places where the flow is slower and in the pools. In general, these spots have plenty of plants, such as rushes and blackberries, on the riverbanks. The individuals which are becoming adults live far away from water in open surrounding area on river terraces and on river beds.

WAY OF LIFE

These damselflies live together with Platycnemis acutipennis, but P. latipes emerge later and longer. Their flight pattern is bouncy and they are light-coloured, so they can be easily seen among green plants. They rest close to water, on rushes, blackberries and high or low branches. Then, their position is horizontal or diagonal, and their wings closed over the abdomen.

The female lays eggs in tandem with the male on the emergent or floating plants. There might be several couples laying eggs at the same place.

WHEN TO SEE THIS SPECIES

They can be seen from April to October, but they are more common and copious from June to September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

These are one of the most common and the most widely distributed in the province, where they normally live in colonies which are spread but often not very copious. They can be seen along the following stages of the Great Málaga Path which are close to the rivers and streams: 5, 6, 7, 8, 9, 10, 12, 13, 22, 23, 24, 25, 26, 27, 28, 29 y 32.

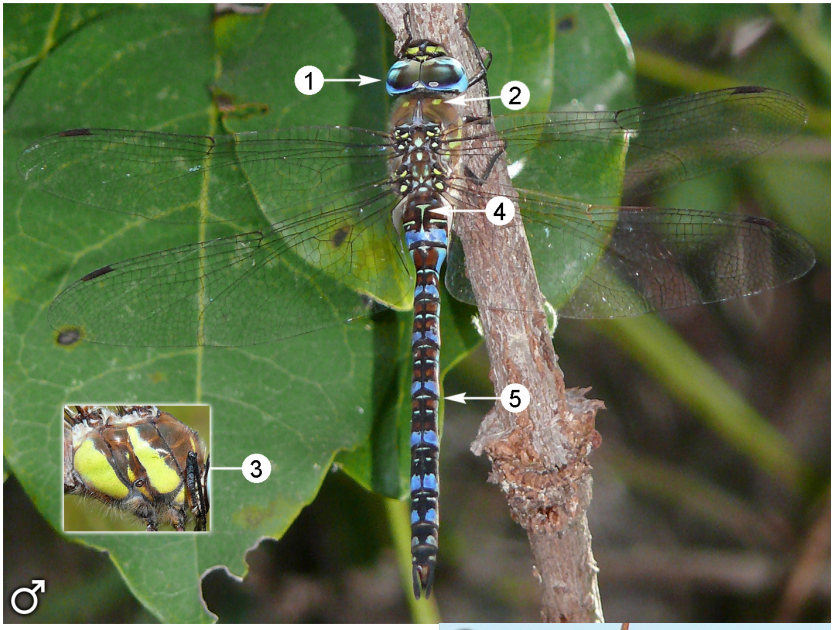
SIMILAR SPECIES

Immature females are similar to P. acutipennis.

CONSERVATION STATUS

The species is not endangered nor protected by the current environmental law.

Aeshna mixta



Length: From 56 to 64 mm. Hindwing spam: From 37 to 42 mm.

Male: 1. Bluish eyes. **2.** Thorax is brown with small yellow antehumeral (upper) stripes. **3.** Wide yellow stripes on the sides. **4.** On the upper part of S2, there is a yellow marking in the shape of a champagne glass. **5.** There are small yellow and bright blue stripes on the abdomen, which make contrast with the black colour. **6.** Long anal appendages. **Female:** Females are similar to males but they are lighter yellow, above all, its abdomen and it has an egg-laying organ **(7)**.

HABITAT

They breed in stagnant water bodies, such as small lakes, reservoirs and pools for watering land and golf courses if they are naturalized and have rushes and bulrushes on the shore. They can also be seen in forests and mountains far away from water, even many kilometres away, when they are in the phase of spreading.

WAY OF LIFE

When they emerge, many adults spend months away from the place where it happened, and they come back after mating or when they become mature. There can be groups of hundreds of individuals at certain places. In these cases, they are rather flighty and active all day long. They fly high, sometimes even several metres above trees.

Anyhow, this species is difficult to be spotted when at rest. They do this at a big altitude, hanging vertically with their four wings open in the shape of a cross. They can live with other aeshnids.

WHEN TO SEE THIS SPECIES

Their emergence takes place in June, and they come back from the places where they mate between September and November. Some individuals can be seen until December.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

Considering that they tend to scatter, they can be found in any place in the province, although there are not many places where they breed. This species has been seen spotted on the following stages of the Great Málaga Path: 5, 6, 18, 19, 23,25, 26, 27, 30, 32, 33 and 35. In all cases, only separated individuals have been seen.

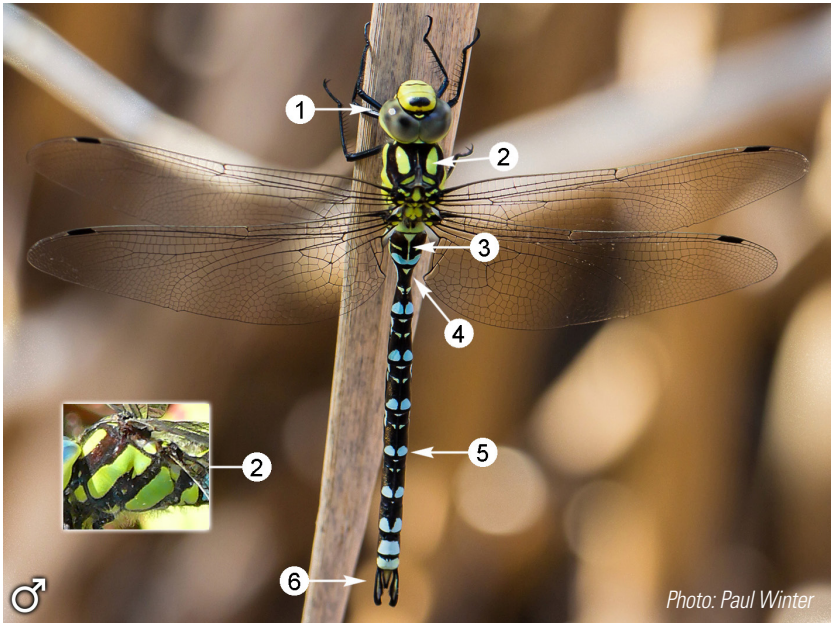
SIMILAR SPECIES

Above all Aeshna cyanea.

CONSERVATION STATUS

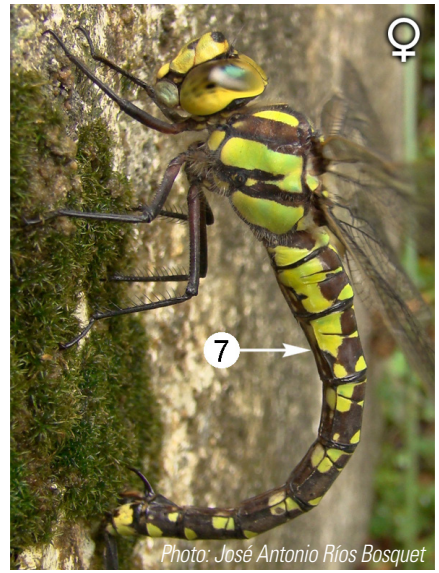
This species is not endangered nor is it specially protected by the current environmental laws.

Aeshna cyanea



Length: From 67 to 76 mm. Hindwing spam: From 43 to 42 mm.

Male: 1. Blue or grey eyes. **2.** Black thorax with large yellowish or greeny stripes, on the upper part and on the sides. **3.** On the upper part of S2, there is a yellow marking in the shape of a champagne glass. **4.** A narrow section on S3. **5.** Abdomen is black with blue, yellow or small green spots. **6.** Long anal appendages. **Female:** It is similar to the male as for the patterns, but they have more yellow and green parts **(7)**.



HABITAT

They mate in stagnant bodies of water, which are not necessarily large, but as big as small lagoons or lakes, ponds, and even water tanks and drinking troughs. They can also be found in shady streams covered in plants. This species can be spotted far away from water, above all, in the mountains or forests.

WAY OF LIFE

The same as Aesha mixta, this species tends to scatter after emerging, and it goes back to the place where it was bred when it becomes mature. It is easier to spot males, which are territorial, so they can hardly be seen at the same place.

This species is a great predator, which can even prey on butterflies, among other insects. It flies tirelessly, and it hardly ever rests but when it does, it can be found a bit higher, between trees and bushes, where it hangs vertically.

WHEN TO SEE THIS SPECIES

It flies from June to December but it is easier to be seen in September and October, when it comes to specific paces for mating.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

This species appears erratically and it is rare in the province. There are only few spots where the young can be seen on a regular basis. It has been spotted only on stage 4 along the Great Málaga Path, at the spot where it gets to Nerja by following the River Chillar. It is likely to be seen on many of the stages, above all, from stage 5 to 13 and 20 to 34, but only very occasionally.

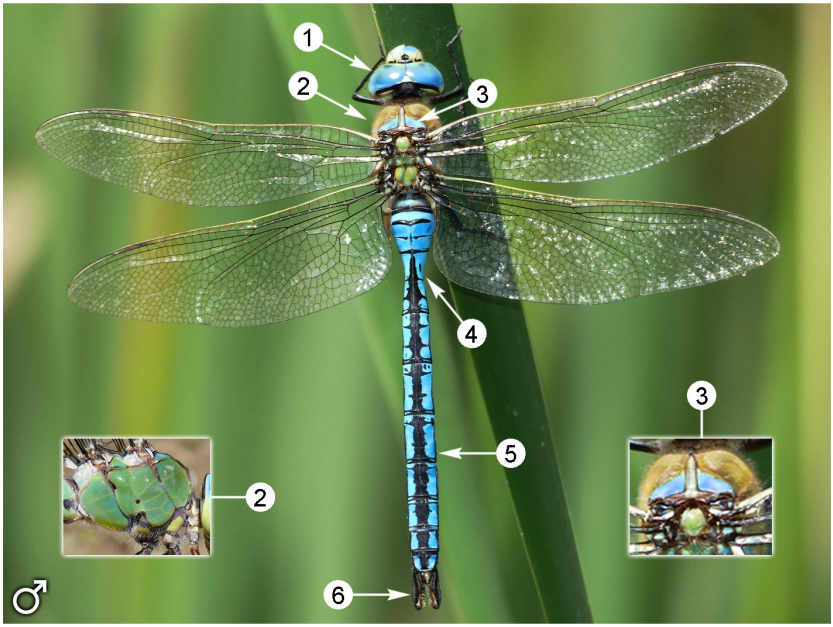
SIMILAR SPECIES

Above all Aeshna mixta.

CONSERVATION STATUS

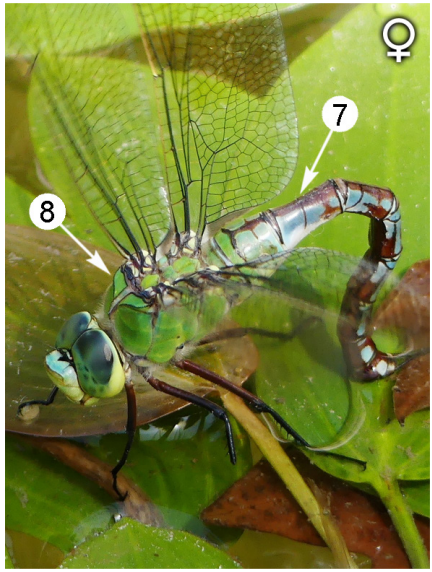
This species is not endangered nor is it specially protected by the current environmental laws.

Anax imperator



Length: From 66 to 84 mm. Hindwing spam: From 45 to 52 mm.

Male: 1. The upper part of the eyes is blue. **2.** Thorax is completely green, although the upper part of it can be brownish. **3.** There are two blue markings on the upper part of the thorax, above the wings base. **4.** Narrow section on S3. **5.** Abdomen is more blue than black. **6.** Long anal appendages. Female: It is with similar patterns to the male but its colour is duller and it is not as narrow as the male on S3 **(7)**. The spots in front of the wings base are green not blue **(8)**.



HABITAT

They mate in all kinds of lentic ecosystems, whether they are perennial or temporary bodies of water, including pools in rivers and streams, small reservoirs, artificial ponds, deserted quarries, and reservoirs that supply farms and golf courses with water. They always live in places with emergent plants and the parts of floating plants. Occasionally, some adults can be seen in terrestrial habitats far away from water.

WAY OF LIFE

Males fly powerfully, and spend hours patrolling round their territory. They protect it from other males and from other dragonfly species, which they can also feed on. Females are shy and can only be seen when it comes to water to reproduce. They lay eggs on emergent vegetation or on what is left of floating plants. They do it alone, unlikely to some other Anax species, which do it together with the male in tandem. They hardly ever rest during the day, but when they do, they take up a vertical position.

WHEN TO SEE THIS SPECIES

It lives in Málaga throughout the year, except in December, but it is more copious from June to September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is one of the most common dragonflies and widespread in the province, so it can be found wherever the environmental conditions match its needs. It is likely to be seen on any stage of the Great Málaga Path, although it is rarer in the north, from stage 13 to 19.

It is common on stages that are close to the shore and place at river and stream mouths which have water almost throughout the year (from 1 to 5 and 30).

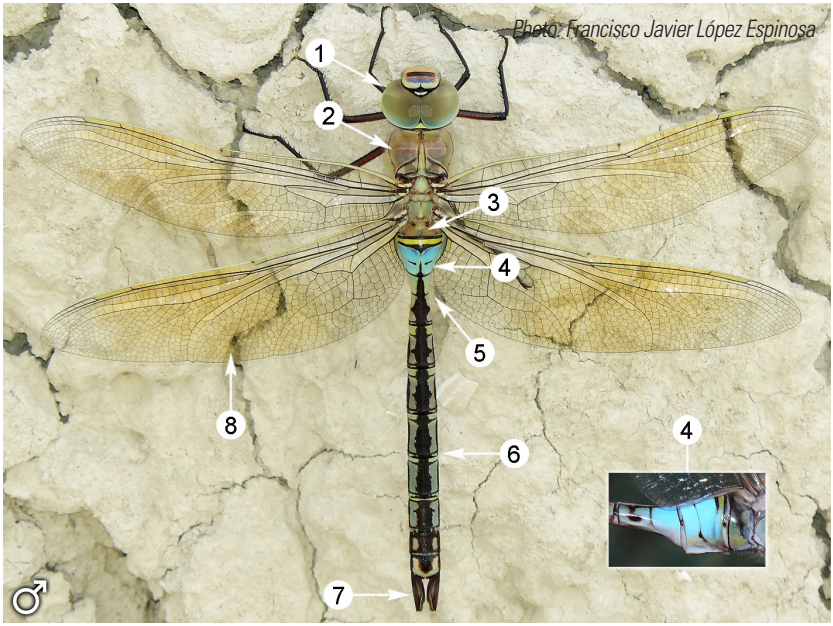
SIMILAR SPECIES

Above all Anax parthenope.

CONSERVATION STATUS

This species is not endangered nor is it specially protected by the current environmental laws.

Anax parthenope



Length: From 62 to 75 mm. Hindwing spam: From 44 to 51 mm.

Male: 1. The top of the eyes is green. **2.** Brown thorax. **3.** S1 is brown. **4.** S2 and the part of S3 is blue, as well as the sides. There is a yellow ring outlined in black on S2, at the place where it is joined with S1. **5.** Narrow section on S3. **6.** Grey or brown abdomen with an upper black stripe. **7.** Long anal appendages. **8.** Wings are slightly yellow in the centre. **Female:** It is similar to the male in patterns, but it is not so narrow on S3 and S2 and S3 are not brightly blue. **(9)**

HABITAT

It mainly lives in slow-flowing or standing water bodies, such as pools in rivers and streams, reservoirs for watering land and golf courses, other reservoirs, artificial ponds and deserted quarries. It usually lives in emergent water vegetation, rushes, bulrushes and cane reeds.

WAY OF LIFE

Males are very territorial and they protect breeding spots.

They hardly ever rest during the day, but when they do so, they take up a vertical position. Normally, they hang in the vegetation. Females can hardly ever be seen. Only when they come to water to reproduce. They lay eggs on emergent plants with the male in tandem. They feed on all kinds of flying insects, including large dragonflies, such as Aeshna mixta.

WHEN TO SEE THIS SPECIES

It can be seen in Mélaga throughout the year. It is more common from June to October. However, it is generally abundant in September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is common and widespread in the province. Along the Great Málaga Path, it can be seen individually on any of its stages, although it decreases in range northwards, from stage 13 to 19 and on the stages that are close to the coast (from 1 to 5 and 30).

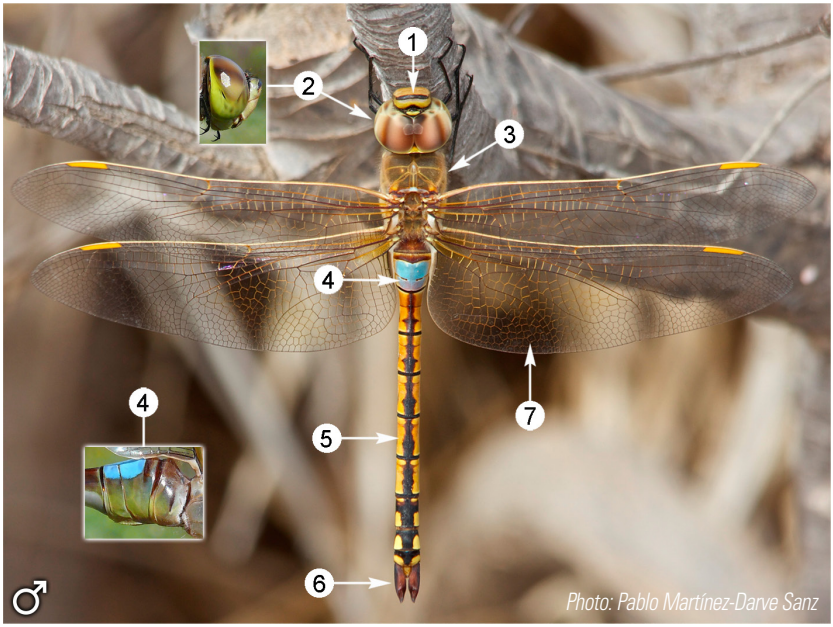
SIMILAR SPECIES

Anax imperator and A. ephippiger.

CONSERVATION STATUS

The species is not endangered nor is it particularly protected by the current environmental law.

Anax ephippiger



Length: From 61 to 70 mm. Hindwing spam: From 43 to 48 mm.
Male: 1. Two black bold lines on the frons. **2.** The upper part of the eyes is brown and the lower green. **3.** Brown thorax. **4.** Only the upper part of the S2 is blue, and this colour spreads up to the middle of the sides. **5.** Abdomen is light brown or yellowish with a black stripe that stretches across it. **6.** Long pointed anal appendages. **7.** There is a yellow spot on the hindwing. **Female:** They are similar to males in patterns, but S2 is normally duller and the blue colour on S2 is not as bright or it does not exist. There is a black stripe that goes across the abdomen. **(8)**

HABITAT

It can be found in all kinds of habitats, whether they are bodies of water or not, as this is a migratory species. It is unknown if there is a breeding spot this species has in the Province of Málaga, but they are likely to mate in standing water bodies with plenty of vegetation on the riverbank (above all rushes and bulrushes). These can be perennial or temporary, such as small reservoirs and dams, artificial ponds, deserted quarries and polls in rivers and streams.

WAY OF LIFE

This species migrates from Africa and the Mediterranean to a large part of Europe, where it reaches Iceland (only this Odonata from that country has been seen here). The same as other dragonflies from this genus, they fly throughout the year and almost all day long without resting. When at rest, their position is vertical, as they normally hang on marshy plants or trees and bushes. The female lay eggs in tandem with the male.

WHEN TO SEE THIS SPECIES

In Málaga, it appears every month, though it is the most common in March, after emerging, and in September, when it comes back to the place where it was bred.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

As a migratory species, it can be seen at any spot in the province, although it is more likely to be found close to the coast. It has been seen on the following stages of the Great Málaga Path: 2, 5, 18, 19, 32, 33, 34 and 35.

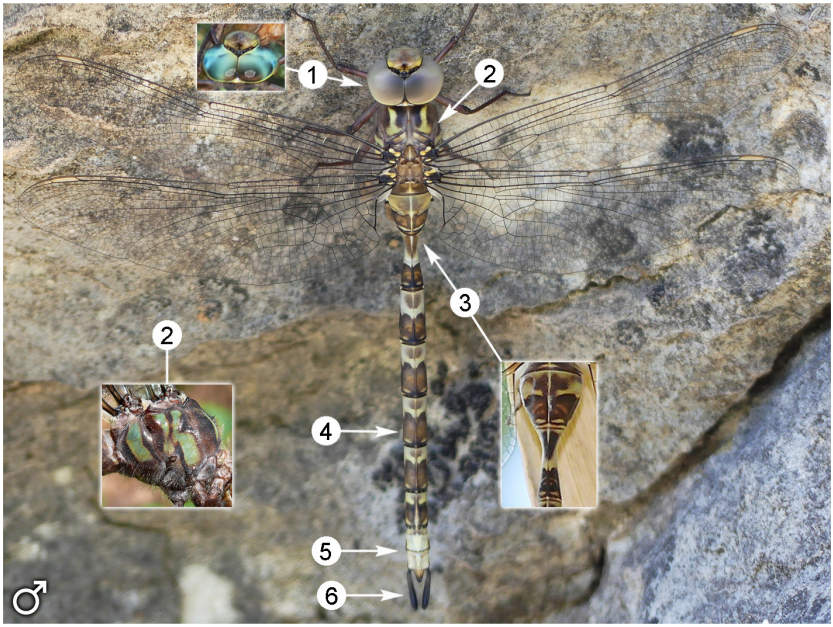
SIMILAR SPECIES

Above all Anax parthenope.

CONSERVATION STATUS

The species is not endangered nor protected by the current environmental law.

Boyeria irene



Length: From 63 to 71 mm. Hindwing spam: From 39 to 45 mm.
Male: 1. Green eyes with a bluish tint, which changes depending on the light, and greyish shades on immature individuals. **2.** Thorax is brown with yellowish or greeny stripes. **3.** Narrower section on S2. **4.** Abdomen is green or yellowish with black markings. **5.** S9 and S10 are light, without black markings. **6.** Long anal appendages. Female: It is similar to male in patterns, but its colour are duller. **7.** Brown eyes. **8.** S2 is not as narrow as in males. **9.** S9 and S10 have dark markings and short anal appendages.

HABITAT

It lives is middle and upper river and stream courses with plenty of trees on the riverbanks, above all willows. They also live in small canyons, called 'cahorros' in Spanish.

WAY OF LIFE

Their flight pattern is slow and bouncy. They often fly at a low altitude, patrol continuously and explore shady shores, between rocks, roots and low vegetation. They fly for hours and hardly ever rest on plants. When at rest, they hang relatively high in a vertical position in vegetation or on the walls of canyons or riverbanks. Females lay eggs alone, on rocks or trunks that are close to water and in riverbank vegetation.

WHEN TO SEE THIS SPECIES

In Málaga, it can be seen from March to October, above all, from the beginning of May. Some individuals can exceptionally fly until December.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is widespread in the rivers and streams in the province. It has been seen along the following stages of the Great Málaga Path: 5, 7, 10, 13, 22, 23, 24, 25, 26, 27, 28 and 31.

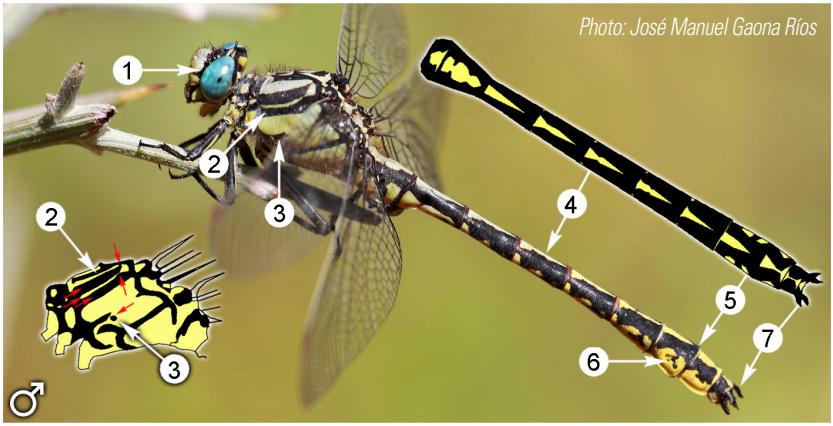
SIMILAR SPECIES

Their colour patterns which help it camouflage make this species cannot be confused with others.

CONSERVATION STATUS

The species is not endangered nor is it particularly protected by the current environmental law.

Gomphus graslinii



Length: From 47 to 50 mm. Hindwing spam: From 27 to 30 mm.
Male: 1. Separated turquoise eyes. **2.** Yellow thorax with black stripes. The black stripes in the upper part of the sides are wide and joined. There is a thin yellow line between them. They can all merge between them and the black stripe on the back. Gomphus simillimus has narrower black stripes on the sides and wider yellow line. **3.** Short black interpleural suture does not go over the black spot (metastigma). **4.** Black abdomen has yellow markings in the shape of a wedge. **5.** S8 and S9 are narrower than in G. simillimus. **6.** Sides on S8 are yellow with small black spots. **7.** Small forked anal appendages. **Female:** It is similar to male in patterns, but it appears more blue in colour of its eyes. **8.** S8, S9 and S10 appear more yellow in colour and the anal appendages are shorter.

HABITAT

It can live in perennial rivers and streams, as well as in irrigation channels, especially in slow-flowing bodies of water with riverbank vegetation, above all willows, and sandy bottom with detritus, where larvae usually hide.

WAY OF LIFE

They act cautiously. It usually rests on low branches in tree vegetation which is close to the shore, and on the rocks. When at rest, its position is horizontal or slightly diagonal with open wings. When it is hot and sunny, it hides in vegetation, so it is difficult to be spotted.

WHEN TO SEE THIS SPECIES

In the Province of Málaga, it flies from May to September, above all, in June.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

In this area, this Odonata is the only one that comes from the northeast of Africa and the south-east of Europe. In this province, it is rare and confined to certain locations. It has only been spotted in the rivers Hozgarganta, Guadiaro, Genal, Ojén and the Laurel stream.

As for the Great Málaga Path, it can be seen on stage 27, but there are possibilities that it lives on those stages that go along the river Guadiaro and on stage 29 and 32, which go across or over the streams in Sierra Bermeja and Sierra de la Alpujata, respectively.

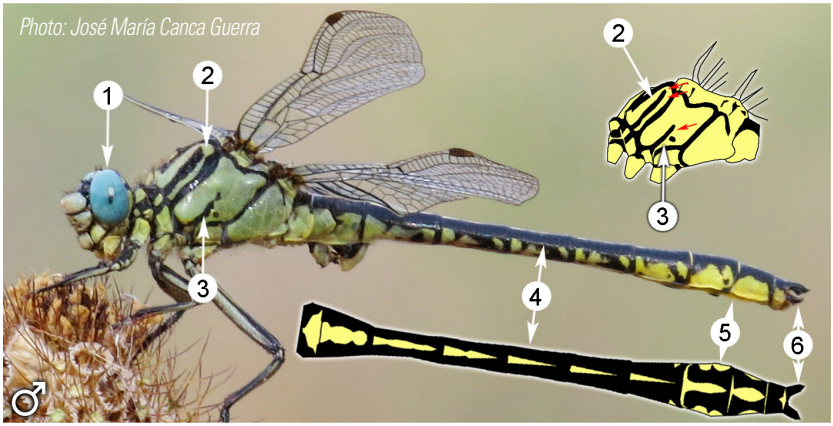
SIMILAR SPECIES

Above all Gomphus simillimus.

CONSERVATION STATUS

It is considered to be Endangered in the Atlas and Red List Status of Invertebrates in Spain (Atlas y Libro Rojo de las Invertebrados de España, 2011) and the Red List Status of Invertebrates in Andausia (Libro Rojo de los Invertebrados de Andalucía. 2008).The existing legislation includes it in the List of Wild Species which are Specially Protected in Spain and Andalusia (Real Decreto 139/2011 and Decree 23/2012, respectively).

Gomphus simillimus



Length: From 45 to 50 mm. Hindwing spam: From 29 to 33 mm.
Male: 1. Separated turquoise eyes. **2.** Yellow thorax with black stripes. Black stripes on the sides are narrow, and the yellow one in the middle is wider. Black stripes on the sides are wider in Gomphus graslinii, and the yellow stripe is narrower. **3.** Short black interpleural suture goes over the black spot (metastigma). **4.** Black back of the abdomen has yellow markings in the shape of a wedge. **5.** S8 and S9 are wide (wider than in G. graslinii). **6.** Shorter anal appendages. They are not forked. **Female:** Females are similar to males in patterns, but there are more blue sections on their eyes. **7.** Anal appendages are shorter and last segments thicker.

HABITAT

They reproduce in the middle courses of rivers and perennial streams, in open areas with riverbank vegetation, such as willows and rushes. In general, the bottoms are rocky and sandy so their larvae can hide.

WAY OF LIFE

They are rather cautious when it is about showing up and, because of this, difficult to be spotted. They rest on the ground, rocks and lower branches of trees and bushes. Their position is normally horizontal or slightly diagonal, and their wings completely open.

WHEN TO SEE THIS SPECIES

In Málaga, they can be seen from May to July. They are more common in June, though they have been spotted in March, April and October.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

This species can be only seen in the west of the Mediterranean: France, the Iberian Peninsula and Morocco. As for the Province of Málaga, it is rare and it only lives in rivers and streams in the Serranía de Ronda.

It has been spotted on stages 10, 12, 27 and 28 of the Great Málaga Path, although it is likely to be found on many of the routes, especially those that go along the rivers Guadiaro, Genal and Turón.

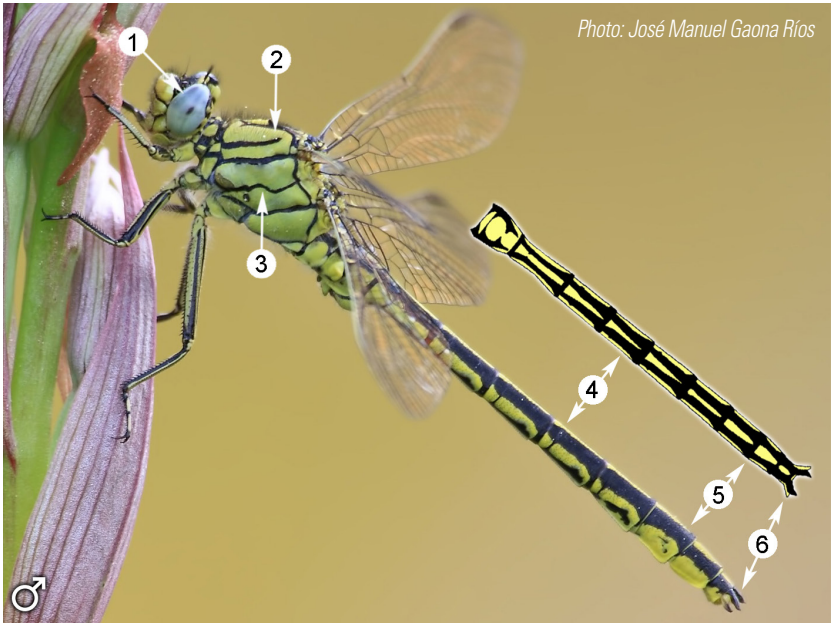
SIMILAR SPECIES

Above all G. graslinii.

CONSERVATION STATUS

It is considered to be Vulnerable in the Atlas and Red List Status of Invertebrates in Spain (Atlas y Libro Rojo de las Invertebrados de España, 2011) and the Red List Status of Invertebrates in Andausia (Libro Rojo de los Invertebrados de Andalucía. 2008), but it is not specially protected by the current environmental law.

Gomphus pulchellus



Length: From 47 to 50 mm. Hindwing spam: From 27 to 31 mm.
Male: 1. Greeny, bluish or greyish separated eyes. **2.** Yellow thorax with thin black stripes. They are thinner than in other Gomphus species. **3.** Wavy black interpleural suture is black and wavy and goes across the entire thorax. **4.** The upper part of the abdomen is black with yellow markings in the shape of a wedge. **5.** Hardly noticeable widening on S8 and S9. **6.** Short anal appendages, which are forked. **Female:** Similar to males in patterns. **7.** Abdomen is thicker than in males, above all first segments. **8.** Shorter anal appendages.

HABITAT

In general, the water bodies they reproduce in are slower than in other species from the same genus. These are the pools in perennial rivers, streams and endorheic lakes with sandy bottom.

WAY OF LIFE

Their timid behaviour makes them difficult to be found. They like sunny places, where they rest horizontally or kind of diagonally with stretched wings in the shape of a cross or leant forward. It rest on the riverbank, gravel, big rocks, and surrounding plants.

WHEN TO SEE THIS SPECIES

In Málaga, it appears earlier than other Gomphus species, as it mostly flies from March to June.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

This is the most common and widespread species from the above genus in this province. However it is as rare as other Gomphus species and lives in a limited range of habitats.

It has been recorded on stages 19 and 27 of the Great Málaga path, more specifically, round the Guadalhorce reservoir and the River Genal. It could also live on most of the routes in the province, including stages from 21 to 32.

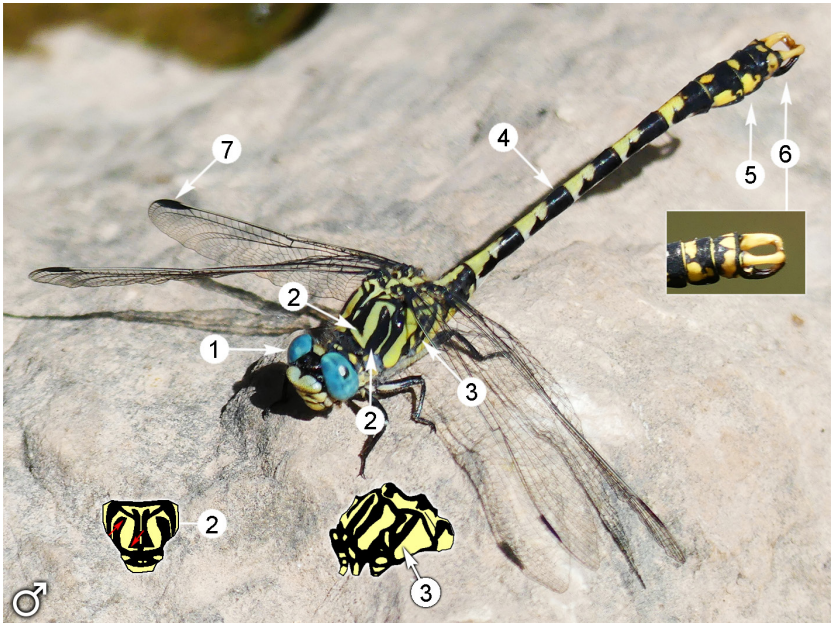
SIMILAR SPECIES

Gomphus graslinii and G. simillimus.

CONSERVATION STATUS

This species is not endangered nor is it particularly protected by the current environmental laws.

Onychogomphus uncatus



Length: From 50 to 53 mm. Hindwing spam: From 29 to 33 mm.
Male: 1. Separated turquoise eyes. **2.** Black stripes, which are cut at the top, on the upper part of the thorax. **3.** Two thick black stripes across the sides of the thorax that merge. **4.** Black and yellow thorax. **5.** Last segments are much thicker. **6.** Long anal appendages in e shape of hooks. Two of them are upper and one lower. **7.** Black pterostigma. **Female:** Similar to male in patterns. **8.** Greyish eyes. **9.** Last segments are not thicker. They have short anal appendages.

HABITAT

In general, they can be found in perennial rivers and streams with lower flow with rocks and shore plants, such as oleanders and willows. They live in open areas.

On the whole, they live more in forests than Onychogomphus forcipatus. Both species can live together in open areas.

WAY OF LIFE

It easy to be seen as it flies low and often rests on the ground, rocks and pebbles in dry river beds. They usually rest horizontally with their wings leant forward and covering the thorax. Males usually do not go far away from water, but females do.

WHEN TO SEE THIS SPECIES

In Málaga, they fly from May to September, although they are more common in June and July.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is widespread round the main rivers and streams in the province. It is present on stages 5 (Chillar and Higuerón Rivers), 10 (River Sábar), 13 (Marín Stream), 23 (River Turón), 27 (River Genal), 28 (River Almarchal) and 32 (streams in the Sierra de Alpujata). It can also live on other stages, more probably, on those stages along the River Guadiaro (24 and 25) and the rivers and streams in the Bermeja Mountains (29).

SIMILAR SPECIES

Mainly O. forcipatus.

CONSERVATION STATUS

The species is not endangered nor is it particularly protected by the current environmental law.

Onychogomphus forcipatus

Length: From 46 to 50 mm. Hindwing spam: From 25 to 30 mm.
Male: 1. Separated turquoise eyes. **2.** Black stripes on the upper part of the thorax, which merge at the top. **3.** The subspecies Unguiculatus, which is the most present on the Iberian Peninsula, has two black stripes across the sides of the thorax. The upper is cut in the middle and has clubbed ends. **4.** Black and yellow abdomen. **5.** Last segments are much thicker. **6.** Long anal appendages in the shape of hooks. There are two upper and two lower hooks. **7.** Black pterostigma. **Female:** Similar to male in patterns. **8.** Greyish eyes. Last abdominal segments are not thicker. Anal appendages are short.

HABITAT

It lives in perennial slow-flowing rivers and streams. It is usually in open space, on rocks and shore plants, willows, oleanders, blackberry bushes and rushes. On the whole, it is more present on clear land than O. uncatus. These two species can live together.

WAY OF LIFE

It easy to be seen as it flies low and often rests on the ground, rocks and pebbles in dry river beds. It can hardly ever be seen in vegetation. It rests horizontally or kind of diagonally with completely open wings or slightly leant forward. Males never go far away from water, but females only come there to mate.

WHEN TO SEE THIS SPECIES

In Málaga, it flies from May to September. However, it increases in range and it is more copious in June and July.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is more common and widespread than O. uncatus in this province. It is present along the following stages of the Great Málaga Path: 10 (River Sabar), 13 (Marín Stream), 23 (River Turón), 24 (River Guadalevín), 25 (River Guadiaro), 27 (River Genal) and 32 (streams in the Sierra de Alpujata). It can live on some other stages as well, above all, on those which goo along the riverss and streams in the Tejera and Almijara Mountains (stage 5 to 9), and the rivers and streams in the Bermeja Mountains (29).

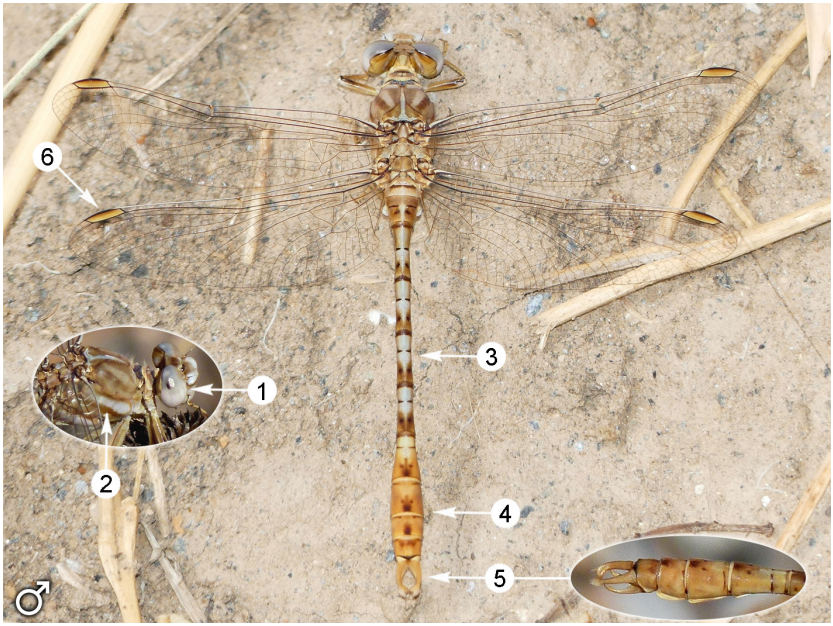
SIMILAR SPECIES

Above all O. uncatus.

CONSERVATION STATUS

The species is not endangered nor particularly protected by the current environmental law.

Onychogomphus costae



Length: From 43 to 46 mm. Hindwing spam: From 22 to 27 mm.
Male: 1. The upper part of the eyes is blue-grey, while the lower is pinkish. **2.** Straw-coloured thorax has dark stripes, which are blur on the upper part, and two wide ivory-coloured stripes. **3.** Earthy-yellow and brown abdomen with hardly any black markings. **4.** Last segments are thicker. **5.** Long anal appendages in the shape of hooks. The lower one is shorter than the upper ones. **6.** Light orange pterostigma. Female: It is similar to the male in patterns and colours, but its abdomen is is not much thicker at the last segments **(7)** and the anal appendages are very short. **(8)**

HABITAT

It reproduces in slow-flowing rivers and streams or in standing water bodies. It usually lives in pools with sandy bottom in drier rivers and streams.

WAY OF LIFE

It acts timidly, flies low and short distances. Its position is horizontal or slightly diagonal with completely open wings when it rests on ground, sand, pebbles or riverbanks. This and its cryptic colouration helps it be unnoticed and difficult to spot.

WHEN TO SEE THIS SPECIES

In Málaga, it can be found from June to September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

This species is rare and its range is limited. It has only been recorded at some spots along the rivers Guadiaro, Genal, Guadalhorce, Grande, the River de la Venta and Las Piedras Stream. One of its colonies at the River Guadalhorce is close to stages 20 and 21 of the Great Málaga Path, which go through El Chorro village. It could also be present on the routes that go along he rivers Guadiaro (stages 24 and 25) and Genal (27).

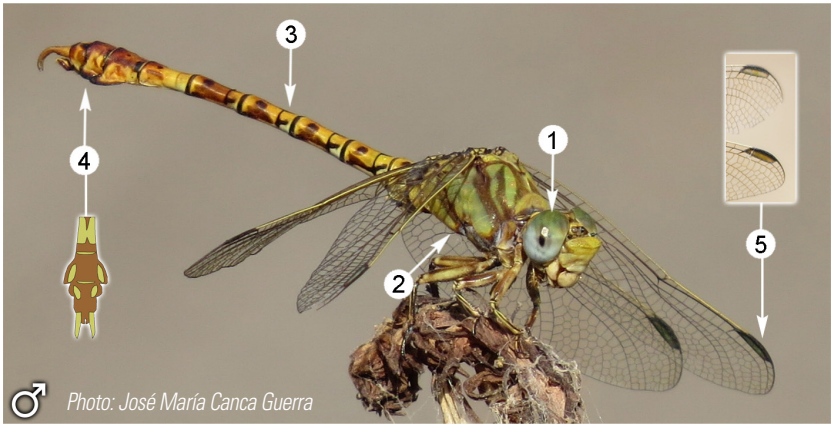
SIMILAR SPECIES

It can only be confused with Paragomphus genei.

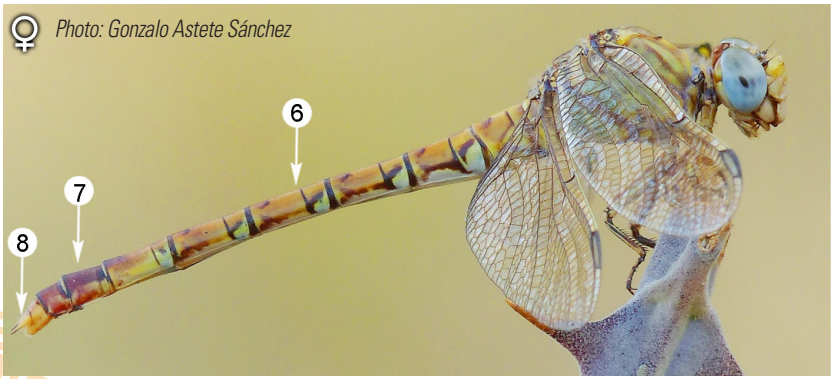
CONSERVATION STATUS

This species is considered to be Vulnerable in the Atlas and Red List Status of Invertebrates in Spain (2011). However, it is not particularly protected by the current environmental law.

Paragomphus genei



Length: From 37 to 50 mm. Hindwing spam: From 21 to 26 mm.
Male: 1. The upper part of the eyes is greenish, while the lower is blue-grey. **2.** Light green thorax with brown stripes. **3.** Yellow abdomen with brown and black spots. **4.** S8 and S9 are thicker. They have leaf-like expansions on the sides, and long appendages. **5.** Dark pterostigma with the lighter centre. **Female:** It is similar to male in patterns and colours, but it has thicker abdomen **(6)**; it has no leaf-like expansions on the sides **(7)**; so the last segments do not stand out as much as in males. Anal appendages are short **(8)**.



HABITAT

It can be seen in stagnant water or in the rivers and streams with low flow. It normally lives on a clear rocky land, with gravel and sand. It can also be seen in small reservoirs with sandy bottom in forests.

WAY OF LIFE

It flies low and usually rests in dry vegetation which is close to the shore. However it occasionally goes away from it and rests in surrounding thickets. When at rest, its position is horizontal or slightly diagonal. They lift their abdomen or not, and their wings are leant a bit backwards, covering the thorax.

WHEN TO SEE THIS SPECIES

They fly from June to August in the Province of Málaga.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

This is one of the least common Odonata in Málaga. There are records of only three colonies, all of which are in the Sierra de Ronda.

It was recorded only on one stage of the Great Málaga Path (27), which goes close to the above locations, more precisely, along the Genal River. It might exist along some other stages, above all, those which go along the rivers Turón (23) and Guadiaro (24, 25, and 26).

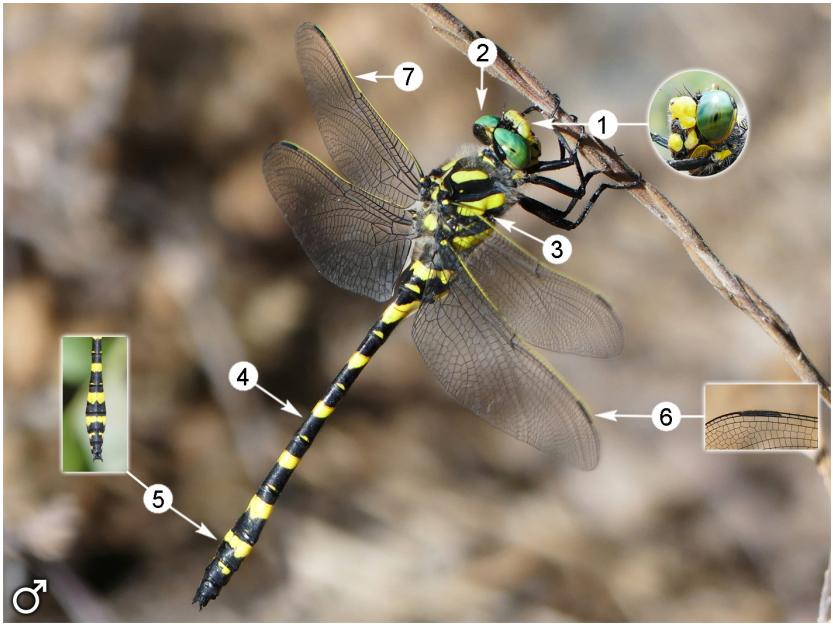
SIMILAR SPECIES

It can only be confused with Onychogomphus costae.

CONSERVATION STATUS

The species is not endangered nor particularly protected by the current environmental law.

Cordulegaster boltonii



Length: From 74 to 85 mm. Hindwing spam: From 40 to 51 mm.
Male: 1. Yellow frons, clypeus and jaws. **2.** Green eyes. **3.** Black thorax with wide yellow stretcheson the back and on the sides. **4.** Black abdomen with yellow markings. **5.** Thicker S7 and S8. **6.** Thin prolonged small black pterostigma. **7.** Front margin of yellow wings (vein Costa).
Female: It is similar to the male in patters and colouration, but it is larger; its abdomen is thicker **(8)** and there is vulvar spine that looks like a long and striking thorn **(9)**.

HABITAT

In general, it reproduces in middle and upper river and stream courses with perennial water bodies that are cold and supplied with oxygen. It can also be found in springs, water tanks, fountains and drinking troughs in middle and upper mountains. It is a good indicator of water quality.

WAY OF LIFE

It usually flies low along the rivers and streams where the vegetation is dense and there are, above all, willows. When at rests, it hangs vertically or diagonally and it fully opens its wings. It rests on trees, bushes and tall grasses on sunny mornings and in shady areas when it is hot. It flies far away from the place where it mates, so it can be seen well away from water bodies.

WHEN TO SEE THIS SPECIES

In Málaga, it flies from May to September, but it is the most commonly seen in June and July.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is widespread in the province, but its range is limited. It has been seen along the following stages of the Great Málaga Path: 5, 7, 11, 23, 27, 31, 32 and 33. Due to its tendency to spread, it is likely to be found along many of the routes, especially, on those that go through locations which are suitable for this species.

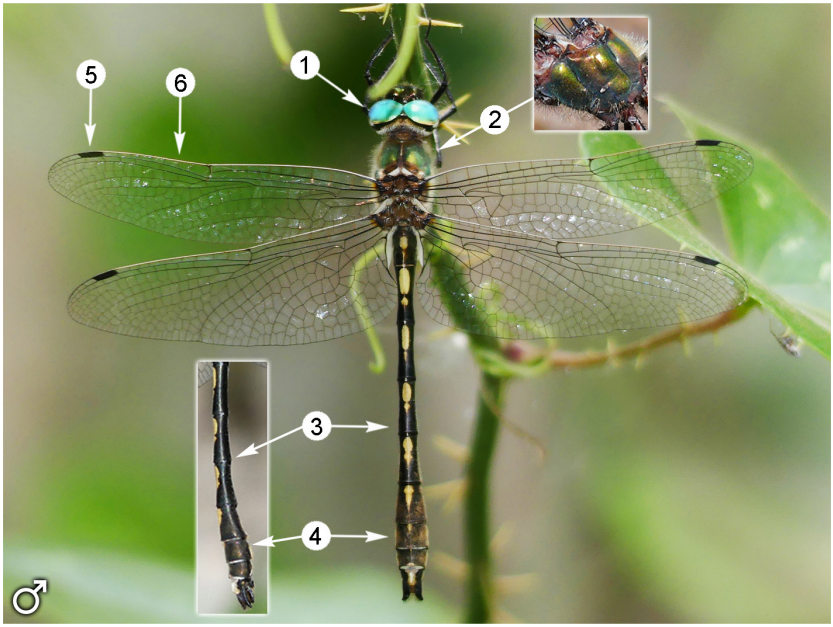
SIMILAR SPECIES

It can be mostly confused with Macromia splendens.

CONSERVATION STATUS

The species is not endangered nor particularly protected by the current environmental law.

Oxygastra curtisii



Length: From 47 to 54 mm. Hindwing spam: From 33 to 36 mm.
Male: 1. Separated turquoise eyes. **2.** Metallic green thorax, which might have golden or bronze tints, with no stripes. **3.** A bit curvy thin abdomen is black with yellow markings on the back. **4.** Last segments are thicker. **5.** Thin prolonged black pterostigma. **6.** Wing's front margin is yellow (Costa). **Female:** It is similar to the male in patterns and colouration. It has yellowish wings, thicker abdomen **(7)** and shorter anal appendages **(8)**.

HABITAT

This species indicates good conditions of water ecosystems as it only lives in clean rivers and streams with well-preserved riverbanks groves, above all, willows.

WAY OF LIFE

It spends a lot of time patrolling along the river bed and hardly ever rests, but when it does, it stops at middle altitude, on trees and bushes, and takes vertical position with open wings. It can go dozens of metres away from the place where it breeds in order to grow and eat.

WHEN TO SEE THIS SPECIES

In Málaga, it flies from May to July. However, it increases in range in June.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

In this province, it is spread along the main rivers and streams in the mountains and its range is limited. It has been recorded on stages 10, 23, 27 and 31 of the Great Málaga Path, though it is possible it lives on more routes, especially those that go along the River Guadiaro and the rivers and streams in the Sierra Bermeja.

SIMILAR SPECIES

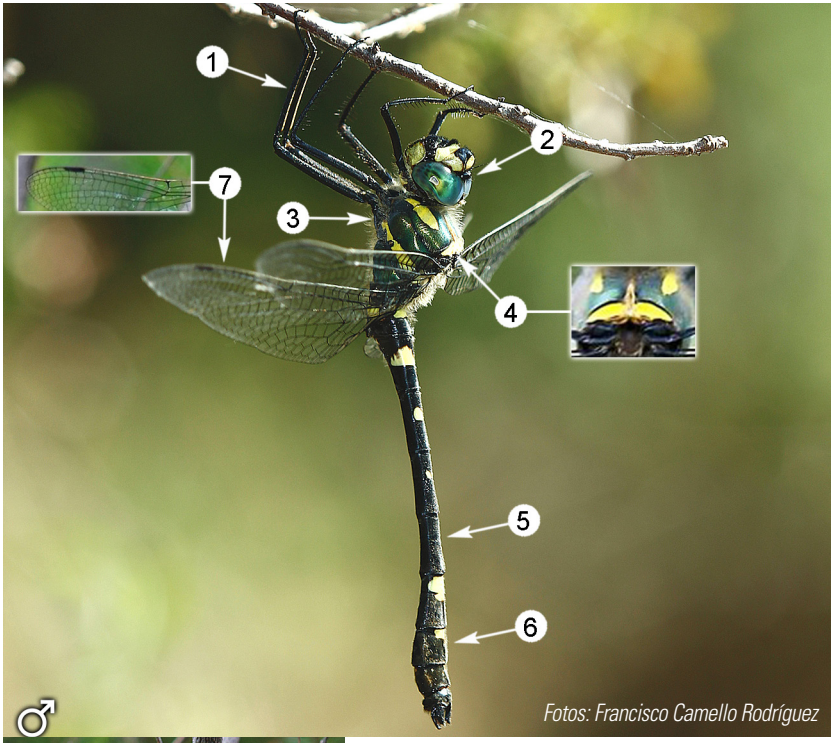
Thanks to its patterns and colouring, it cannot be confused with other species.

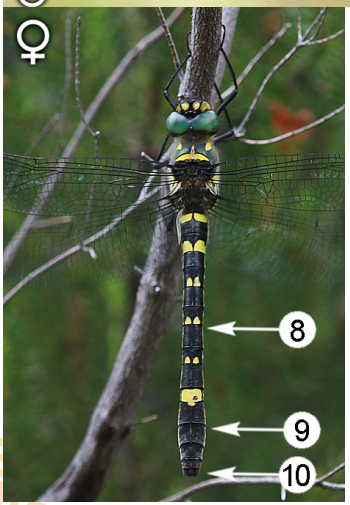
CONSERVATION STATUS

It is considered to be Endangered in Andalusia (the Red List Status of Invertebrates in Andausia / Libro Rojo de los Invertebrados de Andalucía. 2008), and at national level (the Atlas and Red List Status of Invertebrates in Spain / Atlas y Libro Rojo de las Invertebrados de España, 2011).

It is protected by the current legislation as Vulnerable in Andalusia (Decree 23/2012) as in Spain (Real Decreto 139/2011). Moreover, the EU includes it in the 2nd and 4th Annex of Habitats Directive (Directive 92/43/EEC).

Macromia splendens





Length: From 70 to 75 mm. Hindwing spam: From 42 to 49 mm. **Male: 1.** Extremely long legs. **2.** Green eyes. **3.** Metallic green thorax with two yellow stripes on the back and one on each side. **4.** Yellow marking in the shape of a pointed semicircle in front of the base of the wings. **5.** Thin black abdomen with yellow markings, which are rather small or absent on S5, S9 and S10. **6.** S8 and S9 are thicker than other segments. **7.** Front margin of the wing is yellowish (Costa) and pterostigma is small and black. **Female:** It is similar to the male in patterns and colouring. The abdomen is thicker **(7)**, here are no yellow markings on S8, S9 and S10 **(9)**, and anal appendages are very short **(10)**.

HABITAT

This species is the best indicator or good environmental conditions, as its larvae can only survive in pure and well-preserved rivers and streams. It mainly lives in wide pools with vegetation, sandy bottom and the parts of plants where the larva hides.

WAY OF LIFE

It flies non-stop and hardly ever rest. It is rather elusive. When at rest, it hangs vertically, and it sometimes folds its body in such a way that the thorax and the abdomen are not in a line. It can fly dozens of metres away from water when it looks for food.

WHEN TO SEE THIS SPECIES

In the Province of Málaga, it flies from May to July, especially in June.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is rather rare and its range is limited in this province. It was only recorded at certain spots along the main rivers and some of the tributaries in the west. It has only been seen on stage 27, along the River Genal on the Great Málaga Path.

SIMILAR SPECIES

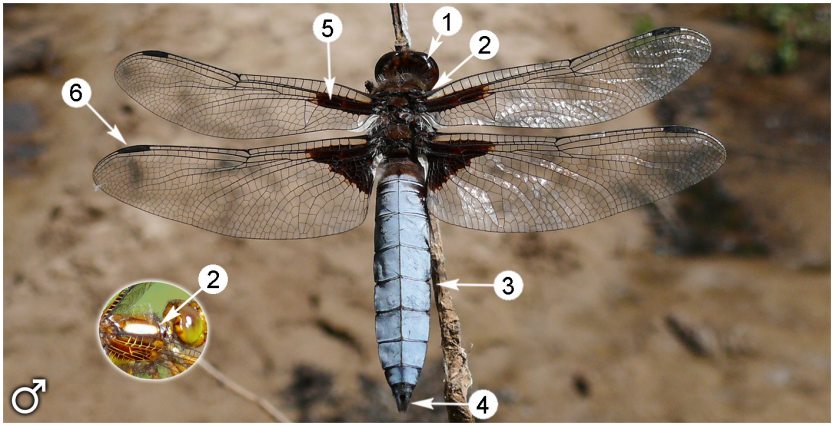
It can be confused with Cordulegaster boltonii.

CONSERVATION STATUS

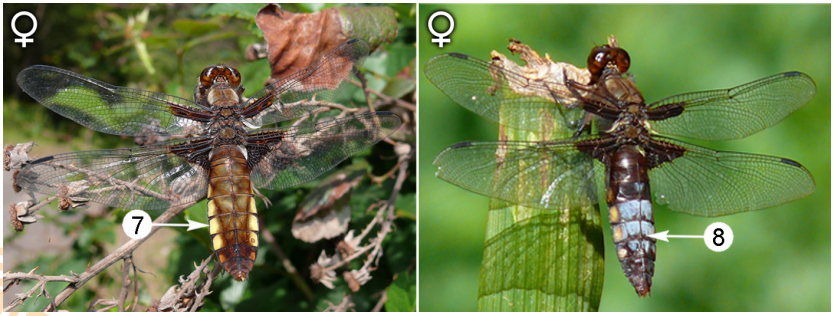
This species is considered to be Critically Endangered (CR) in Spain and in Andalusia (Red List Status of Invertebrates in Andalusia / Libro Rojo de los Invertebrados de Andalucía., 2008, and Atlas and Red List Status of Invertebrates in Spain /Atlas y Libro Rojo de las Invertebrados de España, 2011).

It is protected by the current legislation as Endangered species both in Andalusia (Decree 23/2012) and in Spain (Real Decreto 139/2011). It forms part of the 2nd and 4th Annex of Habitats Directive (Directive 92/43/EEC).

Libellula depressa



Length: From 39 to 48 mm. Hindwing spam: From 32 to 48 mm.
Male: 1. Dark brown head and eyes. **2.** Dark brown thorax with light antehumeral stripes, which get reduced or disappear in adults. **3.** Very wide and flat abdomen. Its lower part is brown and its back covered in waxy sheen. **4.** S10 and dark anal appendages. **5.** Black base of the wings. It is rectangular on forewings and triangular on hindwings. **6.** Prolonged thin black pterostigma. **Female:** With similar head thorax and wings to the male. The abdomen is wider, brown and with yellow markings on the sides **(7)**, though the adult females can have waxy sheen to some extent **(8)**.



HABITAT

It reproduces in small lakes in the mountains, temporary reservoirs used for cattle, springs, drinking troughs and standing water at the dams. Thanks to the fact that it is one of the first colonist that lives in recently created habitats, it can easily adapt to smaller temporary water bodies, which are shallow and have fewer plants. This is because its larva can adapt to dry locations, as it can survive for months without water by spreading in search of new places where it can grow, or by hiding under stones or even under the ground with lower amount of sediment.

WAY OF LIFE

It flies powerfully and always patrols around water. It often rests in shore vegetation or on emergent plants. It usually rests diagonally with open wings in the shape of a cross.

WHEN TO SEE THIS SPECIES

In the Province of Málaga, it was recorded in February, July, and, above all, in July.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is rather rare and its range is limited in this province. It was seen along the Great Málaga path on one occasion on stage 11, at Hondonero Lake. It has not been recorded since then so we cannot be sure whether it still lives here. Considering it is a colonist, it is likely to be found in any part of the province where the necessary living conditions exist.

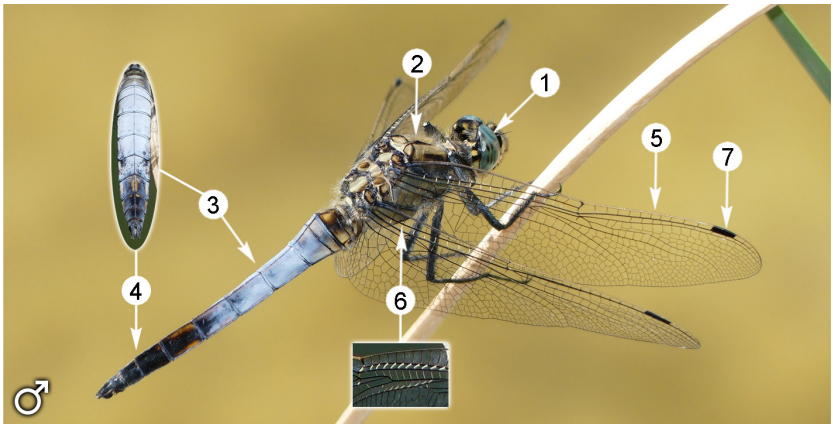
SIMILAR SPECIES

It cannot be confused with other species thanks to its wide flat abdomen and the black colour on the wings base.

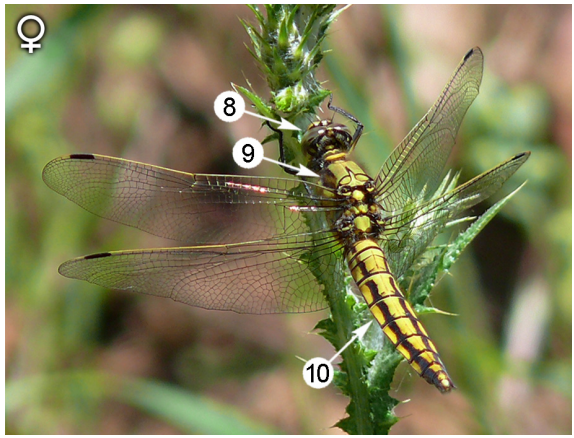
CONSERVATION STATUS

The species is not endangered nor particularly protected by the current environmental law.

Orthetrum cancellatum



Length: From 44 to 50 mm. Hindwing spam: From 35 to 41 mm.
Male: 1. Blue-greenish eyes. **2.** Brown thorax without markings with waxy blue sheen at some extent. **3.** Flat abdomen with waxy sheen on most of it. **4.** Black S7 and S10, though lack colour can extend to S5 as well. **5.** Yellow front margin of the wings (vein Costa). **6.** Long black pterostigma. **7.** Prolonged thin black pterostigma. **Female:** 8.Brown eyes. **9.** Yellow transverse veins between the base and Nodus. **10.** Flat bright yellow abdomen with two black longitudinal stripes that are connected by black lines and create the shape of a ladder. This feature is the key to its identification, although adult females can be dark with a bit of a waxy sheen over the ladder pattern.



HABITAT

It mates in all kinds of standing water bodies, which are sunny and have little vegetation on the shore. A lot of these water bodies can be built by humans, such as reservoirs, ponds for livestock-farming, agriculture and golf, tanks and water canals. It can also live in small lakes, or pools that form part of rivers and streams.

WAY OF LIFE

The male is rather territorial, and it defends its area from other males and other species. It flies low over the water surface and rests close to the shore, on the ground and in the vegetation in a diagonal position. Its wings are leant forwards over the thorax. While it is turning into an adult, it tends to go far away from water.

WHEN TO SEE THIS SPECIES

It flies from March to October in Málaga, more commonly from May to August.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is widespread in the province, but it is confined to the coast and it decreases in range towards inland. It was recorded at Campillos lakes (stage 18 and 19) on the Great Málaga Path, when its water level was high. It was also found at the mouth of the Guadalmansa (30) and Guadalhorce (35).

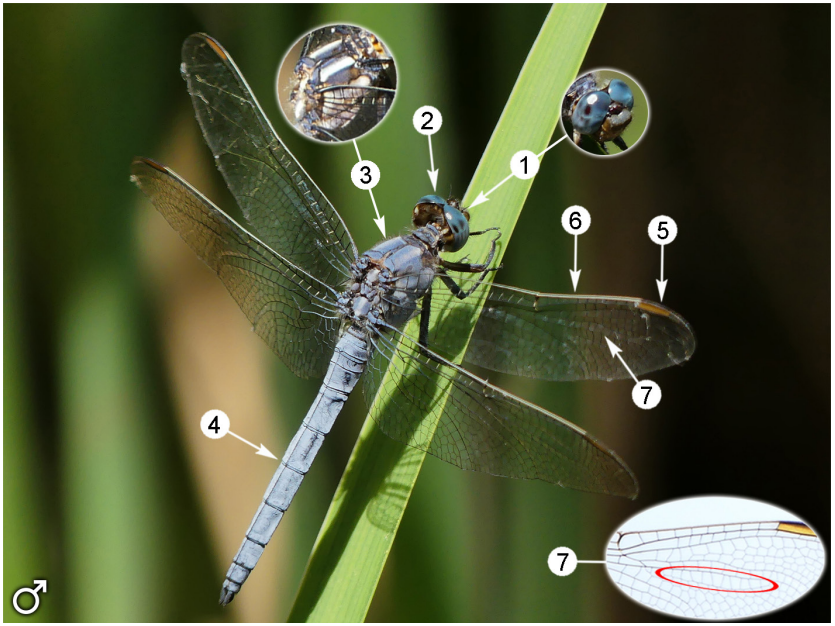
SIMILAR SPECIES

Other Odonata in the genus Orthetrum.

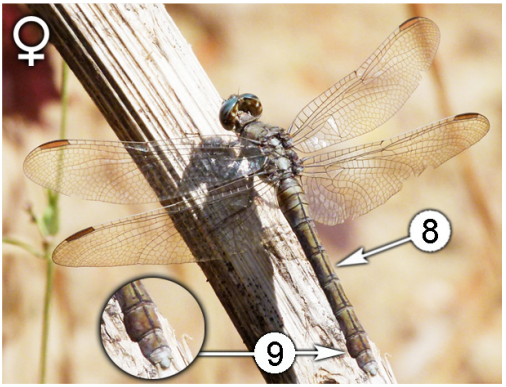
CONSERVATION STATUS

The species is not endangered nor particularly protected by the current environmental law.

Orthetrum coerulescens



Length: From 36 to 45 mm. Hindwing spam: From 28 to 33 mm.
Male: 1. Frons, clypeus and jaws are dark, brown or with blue waxy sheen. **2.** Blue eyes. **3.** Brown thorax with antehumeral white stripes. In adults, blue sheen covers the largest part of the stripes. **4.** Flat abdomen covered in blue sheen. **5.** Large light pterostigma. **6.** Yellow base of the wings (Costa) and yellow transverse or cross-veins between the base and Nodus. **7.** Normally, there is only one row of cells on the radial supplemental vein (Rspl), and some of them can be double. Female: Unlike males, females have no blue sheen on them, but they have yellowish or brown tints. There is a thin black line on the back of abdomen and other lines that go across it **(8)**. There is a widening on the side of S8 **(9)**.



HABITAT

In general, it lives at the middle river and streams courses with low flow. There it can be found in pools, small reservoirs and irrigation channels. It is less common in small lakes and artificial ponds. It is more common in forests than other Ortherdum. It usually lives in riverside groves, such as willows, where it is more likely to be found on clear land.

WAY OF LIFE

It shows territorial behaviour and rests in shore vegetation – in bulrushes, rushes and blackberry bushes, where its position is horizontal or diagonal, while its wings are bent forwards and cover the thorax. It seldom rests on the ground or rocks, and does no fly far away from water.

WHEN TO SEE THIS SPECIES

It can be seen from April to October in Málaga, though it is more present between June and September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is widespread in the province, but its range is limited. On the GMP it can be seen on stages that go along the River Higuerón (5), Turón (23) and Genal (27), and if there is water in it, pass Fuente de Piedra Lagoon (18). It is likely to be found along other stages, especially from stage 6 to 9, from 24 to 26 and on stages 28, 29 and 32.

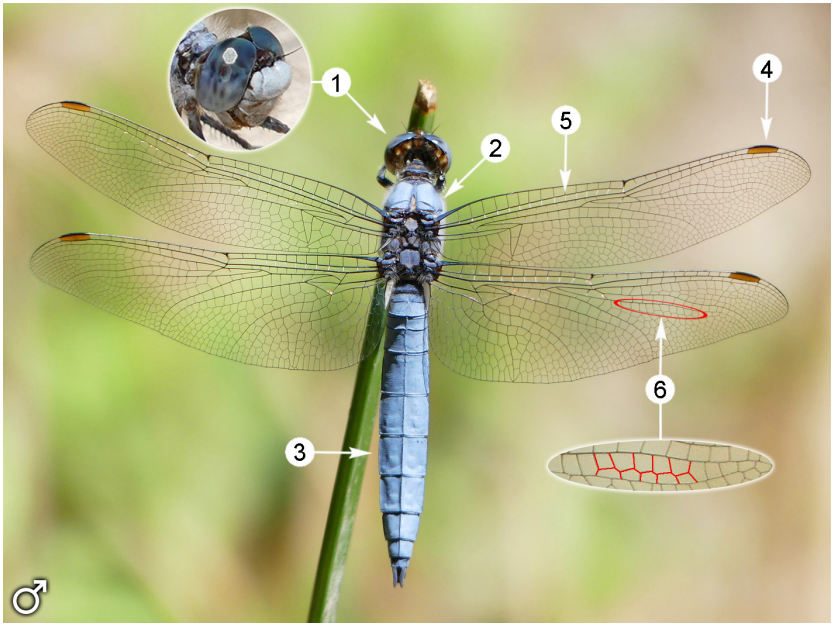
SIMILAR SPECIES

Other Odonata in the genus Orthetrum, especially O. brunneum.

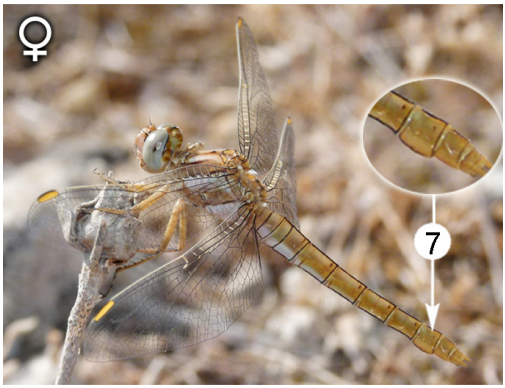
CONSERVATION STATUS

The species is not endangered nor particularly protected by the current environmental law.

Orthetrum brunneum



Length: From 41 to 49 mm. Hindwing spam: From 33 to 37 mm.
Male: 1. Blue eyes and white face. **2.** Thorax is covered in blue sheen. **3.** Fully blue abdomen. It is fatter than in O. coerulescens. **4.** Relatively small brown or yellowish pterostigma. **5.** Yellow base of the wings (Costa) and yellow transverse or cross-veins between the base and Nodus, as in most Orthetrum. **6.** The radial supplemental vein (Rspl) has rows of double ells, usually between S4 and S7 (in this case on S5). **Female:** It is similar to the male but has no blue sheen. It has yellowish or brown tints instead, and the side widening on S8 stands out **(7)**. It is different than other species in the genus Orthetrum for the same reasons as males.



HABITAT

These dragonflies mate in the pools of rivers and streams, which are usually formed in lower and middle courses. It is less common in small lakes or artificial ponds. Normally, it lives on clear areas, such as pools and around small dams with a lot of riverside vegetation, above all reeds, rushes and bulrushes.

WAY OF LIFE

The male is rather territorial, and it defends its area from other males and other species. It often rests on plants in vertical position, like on the ground, sand or stones. Its wigs are often moved forward over the thorax. The female lays eggs alone, hitting the water surface with the tip of the abdomen in order to drop eggs, while the male stays close and keeps watch.

WHEN TO SEE THIS SPECIES

In Málaga, it flies from March to September, although it is more commonly seen starting from June.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is widespread in the province, but is range is limited. Individuals have been occasionally seen along the following stages of the Great Málaga Path: 11, 12, 16, and 23. It can be present on other routes, especially on stages from 5 to 10, 24 to 29, 32 and 35.

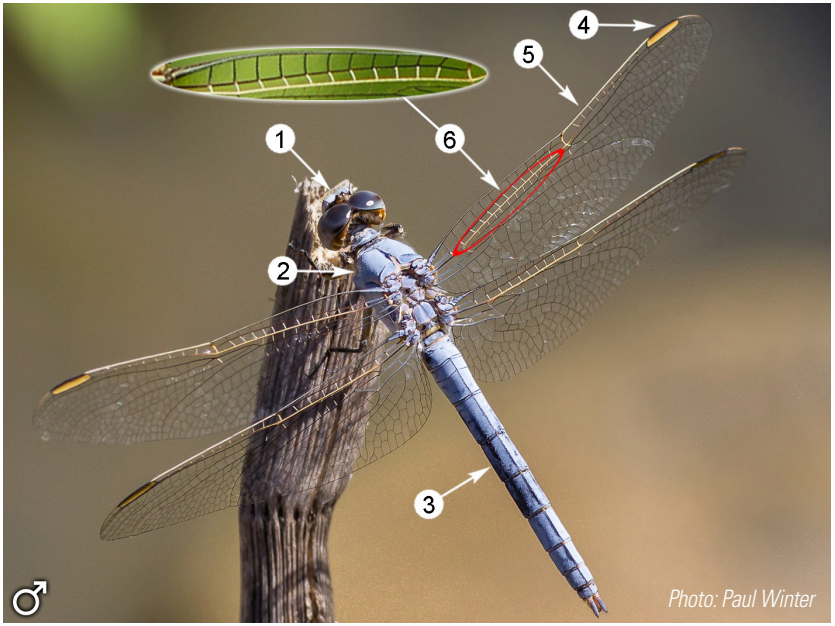
SIMILAR SPECIES

Other Odonata in the genus Orthetrum, especially O. coerulescens or O. nitidinerve.

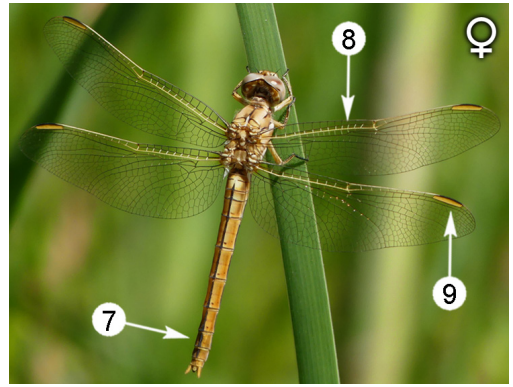
CONSERVATION STATUS

The species is not endangered nor is it particularly protected by the current environmental law.

Orthetrum nitidinerve



Length: From 46 to 50 mm. Hindwing spam: From 31 to 48 mm.
Male: 1. Blue eyes and white face. **2.** Thorax is covered in blue sheen. No markings stand out. **3.** Fully blue abdomen. It is slightly flatten out. **4.** Large golden or yellowish pterostigma. **5.** Yellow front margin of the wings (Costa) that goes from pterostigma to the middle of the wings (Nodus). **6.** Radial vein is yellow from Nodus to the base. **Female:** It is similar to the male, but it is yellow or brownish. It is different than O. coerulescens or O. brunneum females because it has no side widening on the abdominal segment 8 **(7)**, its yellow radial vein **(8)** and the large yellow or golden pterostigma **(9)**.



HABITAT

It mates in the middle and lower river and stream courses that has low flow or get partially dry in summer. It always lives on clear land with shore plants, such as cane reed, reeds, bulrushes and rushes.

WAY OF LIFE

It flies low and rests on the ground or on plants. Its position is horizontal or diagonal, and very often its wings are leant forwards and cover the thorax. It can live with O. brunneum, and it can be easily confused with this species if it is not carefully observed.

WHEN TO SEE THIS SPECIES

In Málaga, it flies from May to September, though it is more commonly seen in August and September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

This Orthetrum is the rarest and its range is rather limited in this province. It has only been seen close to some rivers and streams in the north of the province and the plain Hoya de Málaga. On the GMP, it was only recorded on stage 16, which goes through Cuevas Bajas. It is possible that it exist on some other routes in the north, above all along stage 12, 13 and 15.

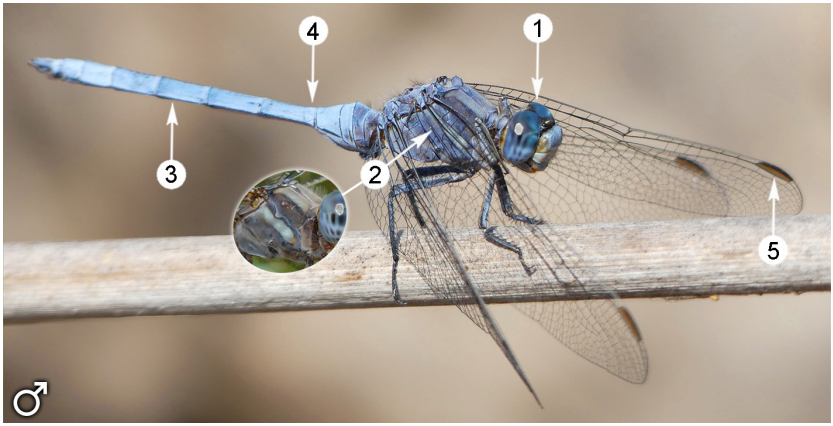
SIMILAR SPECIES

Other Odonata in the genus Orthetrum, especially O. brunneum.

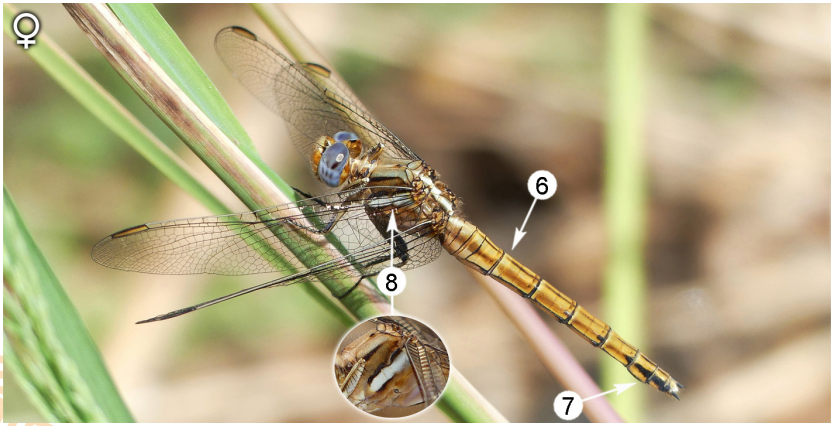
CONSERVATION STATUS

It is considered to be Vulnerable in the Atlas and Red List Status of Invertebrates in Spain (Atlas y Libro Rojo de las Invertebrados de España, 2011), and the Red List Status of Invertebrates in Andausia (Libro Rojo de los Invertebrados de Andalucía. 2008), in spite of not being particularly protected by any current environmental law.

Orthetrum chrysostigma



Length: From 39 to 48 mm. Hindwing spam: From 27 to 32 mm.
Male: 1. Blue eyes and off-whit face, which might be covered in blue sheen. **2.** Thorax is covered in blue sheen, under which a wide light stripe can be seen to some extent on the sides. **3.** Fully blue abdomen. It is slightly flatten out. **4.** S1 and S2 are bulky, while the rest of them, above all S3, are very thin. It looks as if this species had a kind of thin waist. **5.** Yellowish pterostigma. **Female:** It is yellowish or brownish and with no narrowing on S3 **(6)**. There is a widening on S8 **(7)** and a white stripe outlined in black on the side of the thorax (8).



HABITAT

It can mate in any water habitat. This includes well-preserved rivers and streams, where it lives in pools which are sunny and not covered by vegetation, as well as in places made by humans, such as water tanks, fountains, drinking troughs, artificial ponds, ponds for supplying farms and golf courses with water, reservoirs, canals and deserted flooded quarries.

WAY OF LIFE

The male is very territorial and it constantly defends its zone from other males and dragonflies. It flies low and short distance, and it often rests on the plants that are close to water or on the ground. Its position is horizontal or vertical and its wings are almost always leant towards, covering the thorax.

WHEN TO SEE THIS SPECIES

In Málaga, it mainly flies from May to October, but it can occasionally be seen from March to November. It is more common and copious between June and September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

This Orthetrum is the most common and widespread species from this genus in the province. As for the Great Málaga Path, it can be found on stages 2, 3, 5, 10, from 12 to 16, 23, 24, 27, 30, 32 and 35, but it can probable be seen on any of the rest of stages.

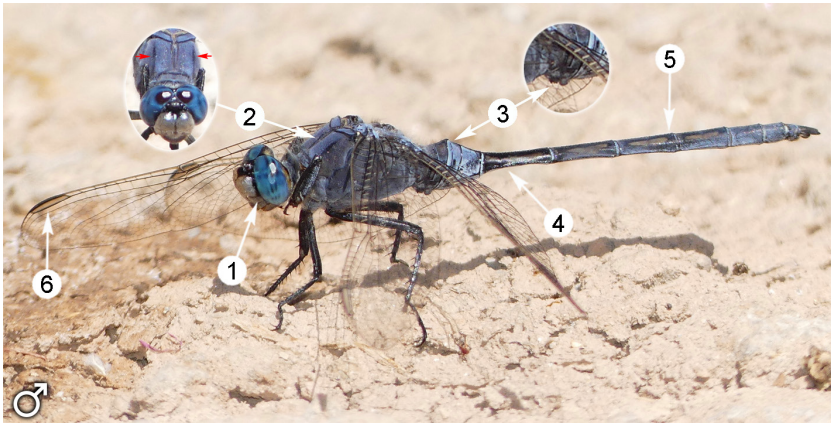
SIMILAR SPECIES

Other Odonata that belong to the genus Orthetrum.

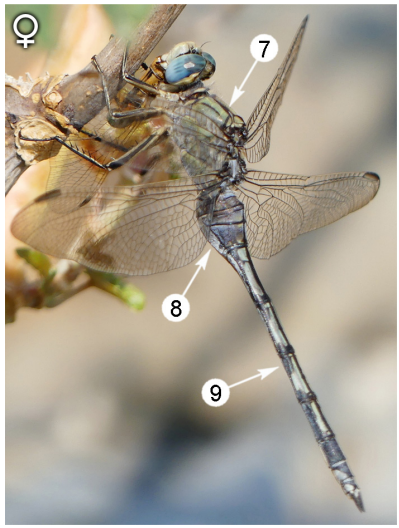
CONSERVATION STATUS

The species is not endangered nor is it particularly protected by the current environmental law.

Orthetrum trinacria



Length: From 51 to 67 mm. Hindwing spam: From 34 to 48 mm. This species is the darkest, largest, longest and the most stylish in its genus.
Male: 1. Blue eyes. **2.** Dark thorax is covered in blue sheen with two thin antehumeral black lines. **3.** S2 and S3 are rather thick and the secondary genitalia stand out. **4.** S4 is very thin, which makes the segments in front of it look thicker. **5.** Thin cylindrical black abdomen, sometimes with a bit of blue sheen, and the rests of the yellow spots. **6.** Large and pale pterostigma. **Female: 7.** Yellow or straw-coloured thorax. **8.** S2 and S3 are thicker than in males and there are no secondary genitalia. **9.** The rest of the abdomen is black with yellow markings. In adult dragonflies the abdomen can have some blue sheen on it.



HABITAT

It reproduces in standing water bodies, such as lakes, reservoirs, man-made ponds and deserted, flooded quarries. It often lives in surroundings which are built or modified by humans, whenever there are some shore plants, such as reeds, bulrushes and rushes.

WAY OF LIFE

It flies powerfully and very often it is territorial and struggles with other male and dragonflies, such as Ischnura graellsii and Crocothemis erythraea, which it can feed on. It rests often, although it flies away whenever it feels it is under threat. These dragonflies rest on the ground or in vegetation, and keep their wings pointed forwards over the thorax. Generally speaking, this species' dragonflies are sedentary, but they can go away from the place where they reproduce and spread.

WHEN TO SEE THIS SPECIES

In Málaga, it flies from June to October. However, it increases in range and it is more copious from June to September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is above all lives around lakes in the north of the province, as well as at several places on the west coast and the plain in Málaga, where it can be rather copious in certain places. Its breeding spots on the Great Málaga Path are unknown, but some individuals can be seen in colonies close to stages 31 and 35.

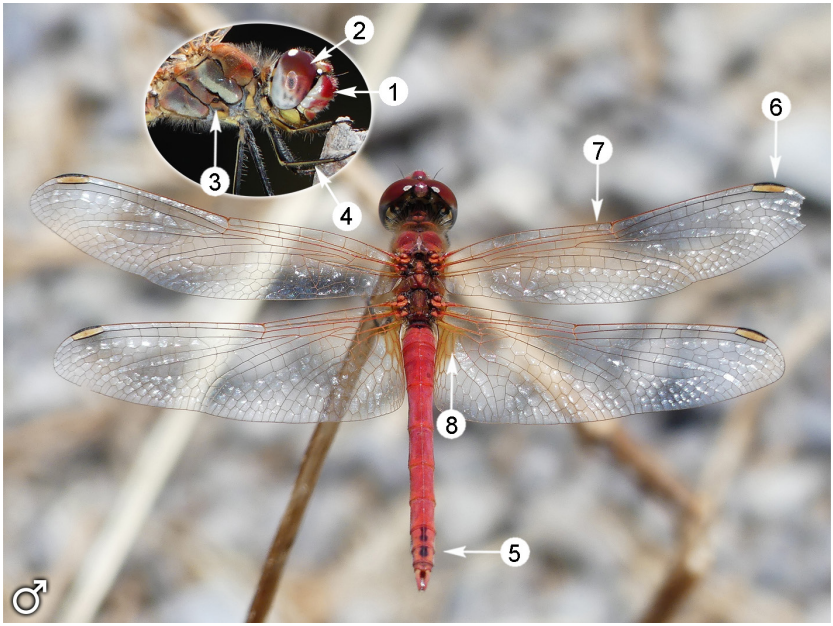
SIMILAR SPECIES

Other dragonflies in the genus Orthetrum, especially O. chrysostigma.

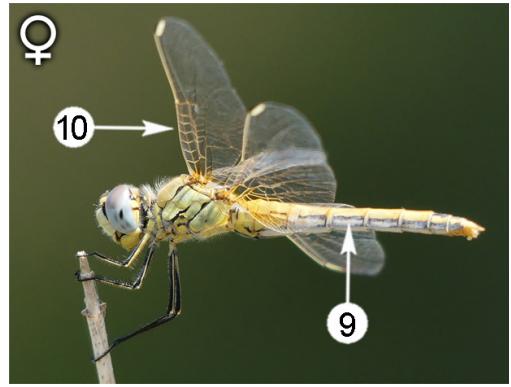
CONSERVATION STATUS

The species is not endangered nor particularly protected by the current environmental law.

Sympetrum fonscolombii



Length: From 33 to 40 mm. Hindwing spam: From 26 to 31 mm.
Male: 1. Red face with two light sides. **2.** The upper part of the eyes is red and the lower is blue-grey. **3.** Red thorax with black sutures and one of-white stripe above the metapleural suture. **4.** Black legs with yellow lines on the upper part of the femurs and tibias. **5.** Red cylindrical abdomen with black markings on the back and on the sides of S8 and S9. **6.** Yellow or golden pterostigma with thick black margins. **7.** Reddish veins on the front part of the wings. **8.** Small saffron-coloured spot on the base of the hindwings. **Female:** In general, it is yellowish and has the same abdominal markings as the male, but they are all over the abdomen, not only on its sides. It is different than other females from the same genus because of the wings, which are similar to the male's but they have yellow veins **(10)**.



HABITAT

Its larval stage is rather short, so it can reproduce in plenty of places, above all, in sunny shallow water bodies on clear areas, such as puddles and pools in middle and lower river and stream courses which can easily get dry, as well as in lakes, reservoirs, man-made ponds and deserted, flooded quarries. They are also present in places which are degraded or modified by humans.

WAY OF LIFE

In the year when the conditions are suitable, this migratory specious can be rather copious. They burst in on thousands of spots, staying for different periods of time. There can be dozens of couples laying eggs in tandem on their mating spots. When it starts turning into an adult, it goes away from water, so it can be seen everywhere, even in urbanized areas.

It rests on the ground or in vegetation, on wire fences, and other places made by people. When at rests, they are positioned horizontally or diagonally, their abdomen is pointed upward, their wings are open and in the shape of a cross or pointed forwards over the thorax.

WHEN TO SEE THIS SPECIES

It is recorded every month in Málaga, although it is usually seen from April to October, and it is more copious from the beginning of June.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is widespread in the large part of the province. Thanks to its migratory nature and because it scatters easily, it can be seen at any place along the Great Málaga Path, especially on the routes close to the coast. The stages where it has been observed are the following ones: 1, 2, 3, 7, 8, 12, 13, 18, 19, 20, 23, 24, 25, 26, 30, 31, 32, 33 and 35.

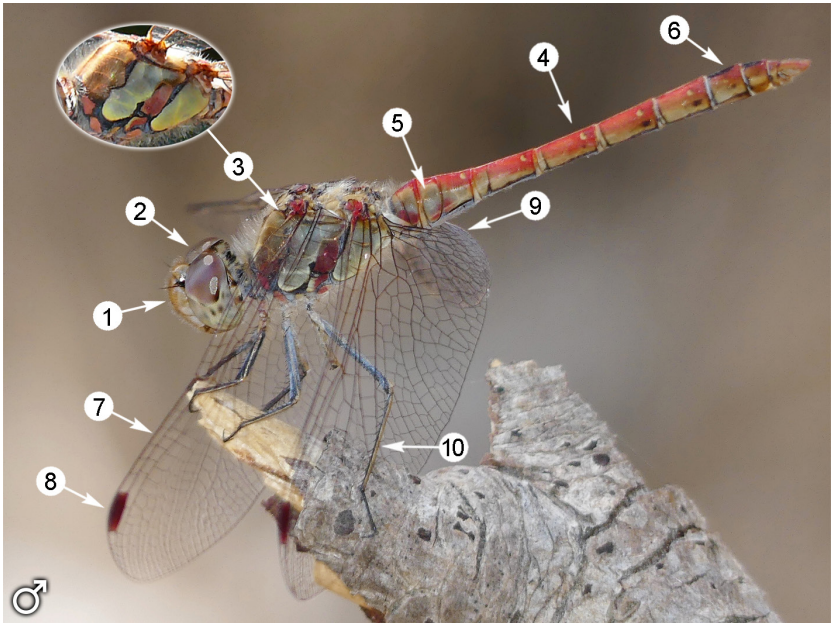
SIMILAR SPECIES

Genera Sympetrum, Crocothemis and Trithemis.

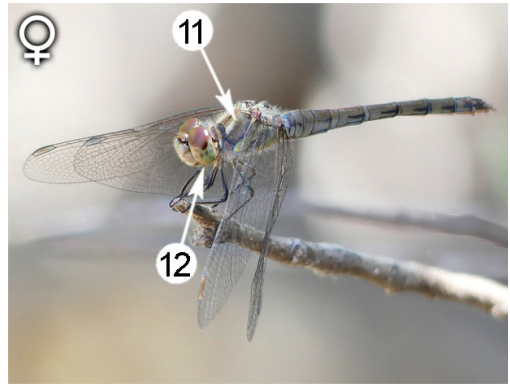
CONSERVATION STATUS

The species is not endangered nor particularly protected by the current environmental law.

Sympetrum striolatum



Length: From 35 to 44 mm. Hindwing spam: From 24 to 30 mm. **Male: 1.** Red face with two light sides. **2.** The upper part of the eyes is reddish and the lower greenish or light. **3.** Back of the thorax is brown, and has two wide stripes on the sides. There is one red or brown stripe between them. **4.** Red abdomen on top and light underneath with thin black lines. **5.** The sides of S1, S2 and S3 are light in contrast with the red colour around them. **6.** Black spots on the upper part of the S8 and S9. **7.** Red veins on the frontwing margin. **8.** Dark red pterostigma. **9.** Transparent base of the hindwing with no spots. **10.** Black legs with a yellow line. **Female:** It is lighter than the male, but it shares most of the features on its head, thorax and abdomen. Yellow stripes on the sides of the thorax **(11)**, and the green colour beneath the eyes help us make a difference between this and other females in the genus Sympetrum.



HABITAT

This species lives in many different kinds of habitats, above all, in standing or shallow water bodies, but also in rivers and streams or more degraded space, where it can survive without aquatic or shore plants. This is because this colonist lives in recently made aquatic surroundings.

WAY OF LIFE

While growing, it goes up to dozens of kilometres away from water. It can be seen in the mountains, forests and thickets, and even in urban areas. It prefers resting on plants on the ground. It usually holds its wings upwards over the thorax in a horizontal position or they keep the abdomen upwards, or they make a shape of an obelisk.

WHEN TO SEE THIS SPECIES

It is recorded throughout the year, but it is usually seen from June to December.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is widespread in the province. It has been seen on the following stages of the Great Málaga Path: 5, 8, 18, 19, 23, 32 and 33. However, it can probably be seen at many other spots due to its ability to scatter.

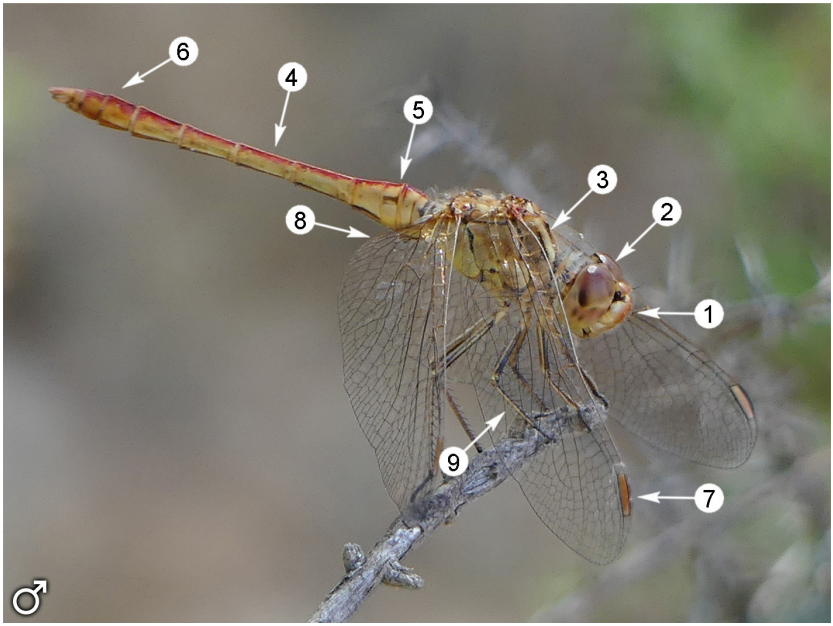
SIMILAR SPECIES

Genera Sympetrum, Crocothemis and Trithemis.

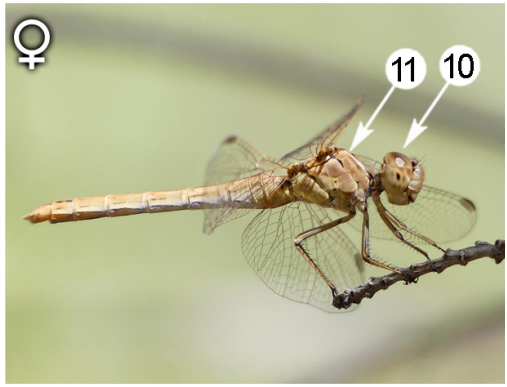
CONSERVATION STATUS

The species is not endangered nor is it particularly protected by the current environmental law.

Sympetrum meridionale



Length: From 35 to 40 mm. Hindwing spam: From 25 to 30 mm.
Male: 1. Red face with two light sides. **2.** Brown eyes, which are darker on the upper part and orangey on the lower one. **3.** Yellow-brown thorax without stripes but with back sutures. **4.** Red abdomen on top and light underneath. It is mostly without black lines. **5.** Sides on S1, S2 and S3 are light in general. Occasionally, hey have one small black marking on S3. **6.** There are no black markings on the upper part of S8 and S9. **7.** Veins on the forewing margins and pterostigmata are reddish, though they can be grey depending on the light. **8.** Transparent hindwing base without spots. **9.** Yellow legs with some black sections. **Female:** It is much lighter than the male, but it has the same eyes features **(10)**, and the thorax **(11)**, which are crucial for making a distinction between this and other females in the genus Sympetrum.



HABITAT

It reproduces in standing shallow water bodies with emergent and shore plants in clear areas of rivers, streams and lakes.

WAY OF LIFE

It is commonly seen several kilometres away from water, especially when it is going through its adult stage. It usually rests on the ground or on plants, holding its wings forward over the thorax. Its body is in a horizontal or slightly diagonal position and the abdomen is pointed upward.

WHEN TO SEE THIS SPECIES

In Málaga, they fly from July to December, though they are more likely to be seen in September and October.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is the least common Sympetrum in the province, as it has been recorded only few times all over Málaga. It has not been seen on any of the stages of the Great Málaga Path, but it was seen at places close to stages 6, 19, 22, and 32. Thanks to their ability to scatter, these dragonflies can be seen everywhere.

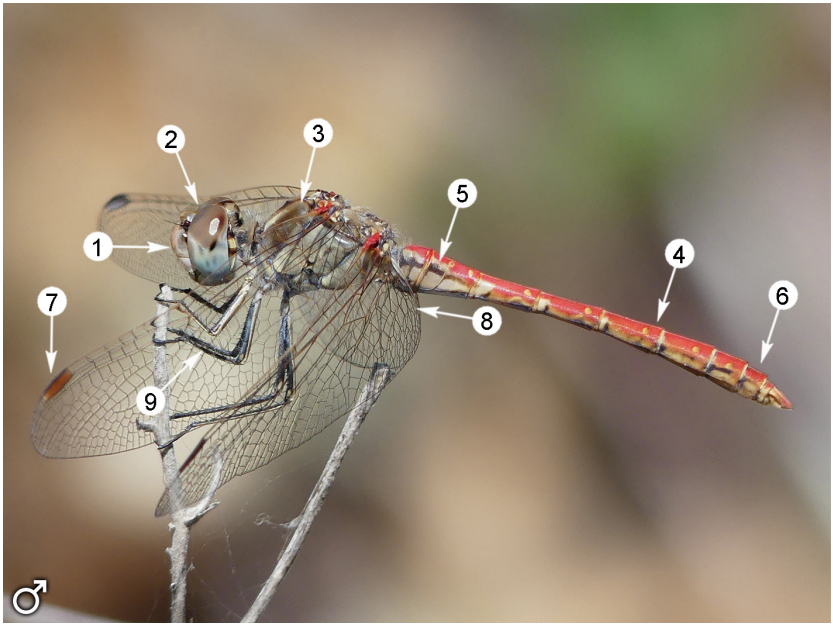
SIMILAR SPECIES

Genera Sympetrum, Crocothemis and Trithemis.

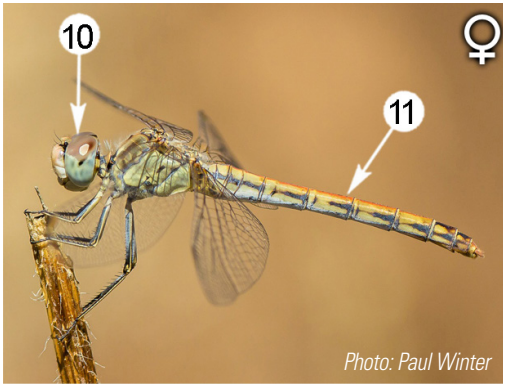
CONSERVATION STATUS

The species is not endangered nor particularly protected by the current environmental law.

Sympetrum sinaiticum



Length: From 34 to 37 mm. Hindwing spam: From 24 to 29 mm.
Male: 1. Reddish face with light sides. **2.** Chestnut or brown eyes on the front part and blue-grey on the lower part. **3.** In general, thorax is brown with lighter sides and thin black lines on the sutures. **4.** Abdomen is red on the front, and dark on the lower part, with straw-coloured sides. **5.** S2 and S3 sides are light and lined by a thin black stripe. **6.** Black markings on the front part and sides of S8 and S9. **7.** Veins on the frontwing margins and red pterostigma. **8.** Hindwing base **9.** Yellow legs are only partly covered in black. **Female:** It is much lighter than the male. They are similar in eye's features **(10)** and the abdomen **(11)**, where black stripes reach S9. These are keys to make a difference between this species and other females that belong to the genus Sympetrum.



HABITAT

This species reproduces in standing water bodies that make pools. These are clear sunny areas of the rivers and streams, reservoirs, dams and man-made ponds.

WAY OF LIFE

The adults emerge at the beginning of spring and go away from water to get mature. Sometimes they fly far away to the mountains, forests or thickets, and even in urban areas. They come back to the places where they were bred at the end of summer or in autumn, and this is the moment when they can easily be spotted. They rest on the ground, and on plants, holding their wings forward over the thorax. They get really attached to these homes, so they come back often after flying short distance, hunting or patrolling.

WHEN TO SEE THIS SPECIES

In Málaga, this species is recorded from June to January, though September and October are the best months for watching them.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

This species is rather unknown in the province, but it spreads all over the area. On the Great Málaga Path, it has been recorded on the following stages: 13, 20, 32, and 33. Due to its tendency to spread, it is likely to be seen along many other stages.

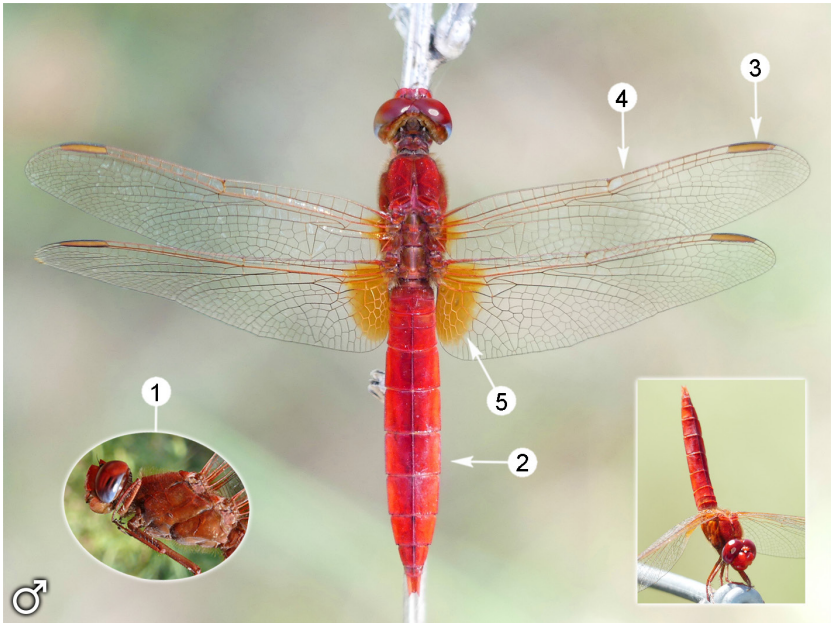
SIMILAR SPECIES

Genera Sympetrum, Crocothemis and Trithemis.

CONSERVATION STATUS

The species is not endangered nor is it particularly protected by the current environmental law.

Crocothemis erythraea



Length: From 36 to 45 mm. Hindwing spam: From 23 to 33 mm.
Male: 1. Red frons, thorax and legs. There are no markings, but blue-grey colour on the hind and lower part of the eyes stands out. **2.** Red abdomen is wide and very flatten. It has no black markings. **3.** Long gold pterostigma. **4.** Reddish veins on the forewing margin. **5.** Saffron-coloured markings on the base of the wings are very small or invisible on the forewings and larger on the hindwings. **Female:** It is similar to the male in the features of the wings and the abdomen, but not in colour, as it is rather light. It can be easily distinguished from other species thanks to the above characteristics and because it has vulvar spine that stands out on the last abdominal segments **(6)**.

HABITAT

This colonist can spread fast in recently created water bodies. It prefers mating in standing kinds of water, as well as in pools in rivers and streams, lakes, reservoirs, ponds used for livestock, farming or golf courses, artificial ponds, canals, water tanks, flooded quarries and gravel pits. They can live in moderately salty or polluted water bodies.

WAY OF LIFE

It rests on the ground or shore emergent plants, such as cane reeds, bulrushes and reeds. It can rest in horizontal and diagonal position, in the shape of an obelisk at midday. Its wings are often held forward over the thorax. The male is very aggressive and territorial towards other males. The female lays eggs alone while flying. It touches the water with the tip of the abdomen and drops eggs.

WHEN TO SEE THIS SPECIES

In Málaga, it is recorded throughout the year. However, it can usually be seen from May to October, especially from June to September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

This is one of the most common and widespread species in the province. It has been seen on stages 2, 3, 5, 13, 16, 18, 19, 21, 22, 24, 25, 30 and 35 of the Great Málaga Path, and it can probably be found on more stages.

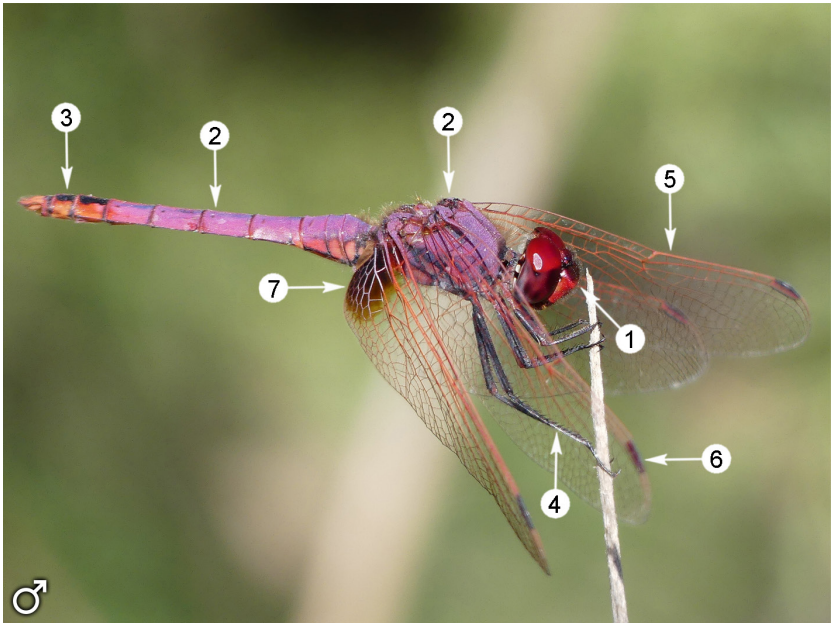
SIMILAR SPECIES

Genera Sympetrum and Trithemis.

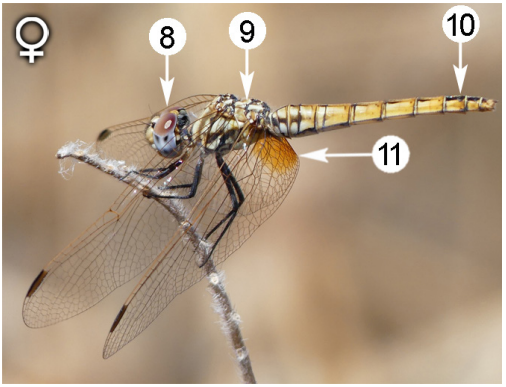
CONSERVATION STATUS

The species is not endangered nor particularly protected by the current environmental law.

Trithemis annulata



Length: From 32 to 38 mm. Hindwing spam: From 20 to 35 mm.
Male: 1. Bright red frons (face) and eyes. **2.** Red thorax and abdomen are covered in purple sheen. There are no prominent markings on the thorax. The abdomen is slightly flattened. **3.** S8 and S9 have black markings on the back. On the whole, there is no purple sheen. **4.** Black legs. **5.** Red veins on the wings. **6.** Black pterostigma. **7.** Small saffron-coloured marking on the base of the hindwing.
Female: 8. Fore part of the eyes are reddish or brownish, and the hind part is blue-grey. **9.** Light thorax with brown stripes. **10.** Light abdomen with brown markings, which can be more or less notable. They are especially seen on the back of S8 and S9. **11.** Saffron-coloured marking on the hindwing can be larger than in males.



HABITAT

This colonist does not take long to settle in recently created water habitats, such as man-made ponds and temporary pools. It can also be found in rivers and streams. It usually lives in sunny areas in slow-flowing or standing water bodies, lakes, reservoirs, ponds for livestock, farms or golf courses, irrigation channels, water tanks, fountains and drinking troughs, canals, gravel pits and flooded quarries. They can live in moderately polluted water.

WAY OF LIFE

The male is rather territorial, and it often fights with other males and other species. The female lays eggs alone while flying. It touches the water with the tip of the abdomen and drops eggs.

It usually rests on the ground, in vegetation or man-made structures, such as wires or posts. It often holds the wings forward over the thorax. Its abdomen is in horizontal position or kept upwards, in the shape of an obelisk.

WHEN TO SEE THIS SPECIES

It is recorded from April to December, above all, from June to September in Málaga.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is very common and widespread in this province. On the Great Málaga Path, it has been found on stages 2, 3, 12, 13, 18, 22, 23, 24, 27, 32 and 35, though it might exist along some other routes too.

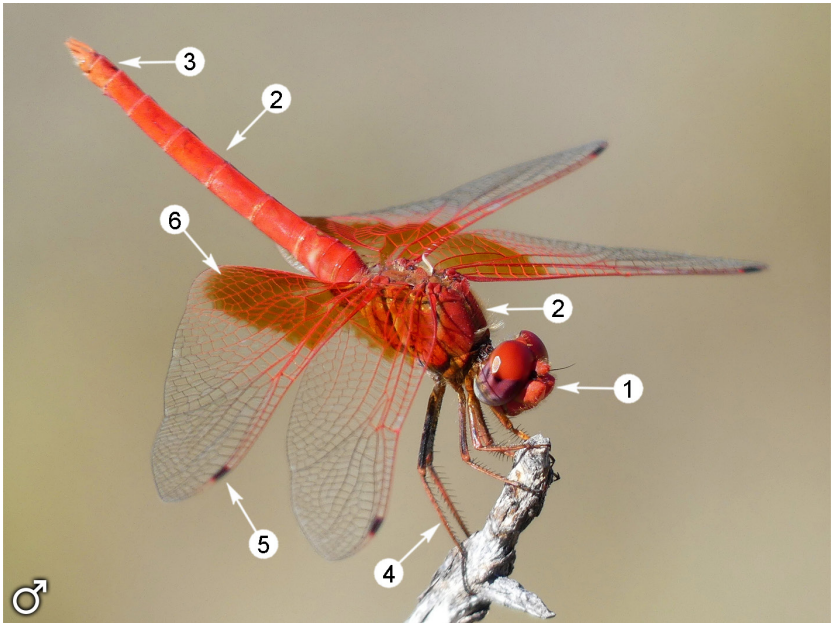
SIMILAR SPECIES

Genera Sympetrum, Crocothemis and Trithemis.

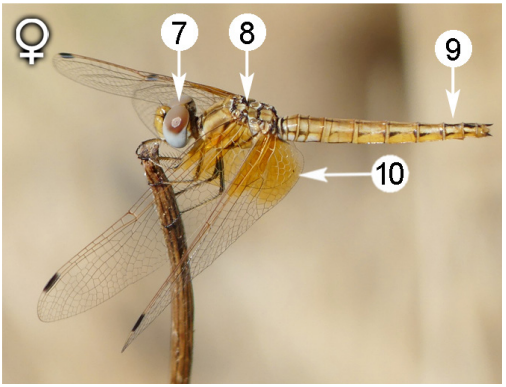
CONSERVATION STATUS

The species is not endangered nor is it particularly protected by the current environmental law.

Trithemis kirbyi



Length: From 30 to 34 mm. Hindwing spam: From 23 to 29 mm.
Male: 1. Red frons. Bright red front part of the eyes, and blue-grey the hind part. **2.** Red thorax and abdomen. None of them have markings. The abdomen is slightly flattened. **3.** S9 can have some black markings on the back. **4.** Red legs, above all, the tibias. **5.** Black pterostigma, and red veins on the wings. **6.** Large saffron-coloured markings on the base of each wing. They are bigger on the hindwings. **Female: 7.** Front part of the eyes are reddish or brownish, and the hind part is blue-grey. Light thorax with blur brown stripes. Light abdomen with brown markings which are more or less prominent. Those on the sides of S8 and S9 are really apparent. **10**. Large saffron-coloured spots on four wings.



HABITAT

This colonist can be found in recently created water surroundings, such as constructed pons and temporary pools. When it spreads it can go to urban areas, where it can be seen around fountains and swimming pools. It mates in rivers and streams in sunny, clear areas. It normally lives in standing water bodies, and lakes, reservoirs, ponds for livestock, farms or golf courses, irrigation channels, water tanks, fountains and drinking troughs, canals, gravel pits and flooded quarries. They can live in moderately polluted water.

WAY OF LIFE

Males are rather territorial and it often fights with other males ad species. The female keep away from the water bodies, and it can hardly be seen. This species usually rests on the ground or on plants round midday. It often holds its wings forwards, over the thorax, and it forms obelisk.

WHEN TO SEE THIS SPECIES

It is recorded in Málaga from April to December, but it can normally be seen from May to October, and above all, from June to September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is very common and widespread in the province. It has been seen on the following stages of the Great Málaga Path: 2, 3, 5, 10, 12, 13, 14, 16, 23, 24, 25, 27, 31, 32, 33 and 35. It is likely to be found on more routes.

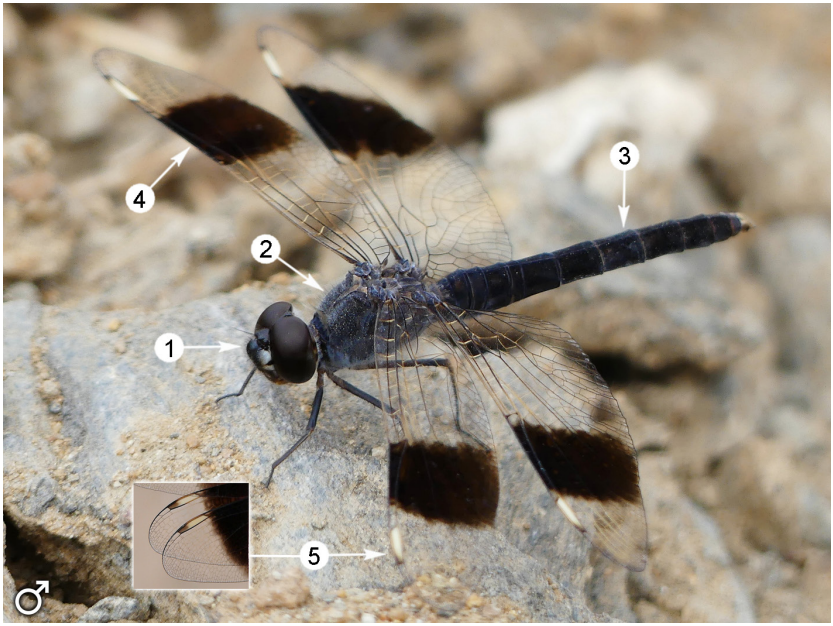
SIMILAR SPECIES

Genera Sympetrum, Crocothemis and Trithemis.

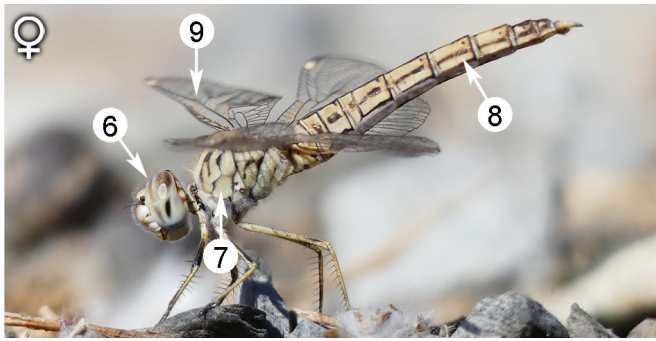
CONSERVATION STATUS

The species is not endangered nor particularly protected by the current environmental law.

Brachythemis impartita



Length: From 25 to 34 mm. Hindwing spam: From 20 to 26 mm.
Male: 1. Black frons and eyes. **2.** Black thorax with a bit of blue sheen. **3.** Thick black abdomen. **4.** Large black stripe on each wing from Nodus to the area close to the pterostigma. **5.** Off-white pterostigma with darker outside end. **Female: 6.** The front part of the eyes is brown with thin bright and dark stripes. They are light on the lower part. **7.** Straw-coloured thorax with narrow dark stripes. **8.** Bright abdomen with dark lines on the back and on the sides. **9.** Wings with blur dark stripes or without them.



HABITAT

It mates in standing water bodies, which are clear and sunny and have little shore vegetation. It can often be found in lakes, reservoirs, artificial ponds, big pools, wide river and stream pools on the lower courses, gravel pits and flooded quarries.

WAY OF LIFE

They fly low, often following mammals, or, even, humans. They can move dozens of metres like this, as it seems to help them catch their prey. This species, above all females, frequently rest on the ground, where they are difficult to be noticed. It is less common to see them resting on plants, but they can be seen on timber and dry branches which are in water or on the shore. Their position is horizontal and they hold their wings spread out in the shape of a cross.

WHEN TO SEE THIS SPECIES

In Málaga, it flies from June to September, but it can occasionally be seen in April, May, October and November.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is confined to specific location but it can be seen all over the province. It has been recorded on stages 18 and 19 of the Great Málaga Path, which go past lakes Fuente de Piedra and Campillos. Both colonies depend on the presence of water in this kind of lakes. It is likely to be found on other stages too, especially on those that go round reservoirs, like stages 19, 20 and 21.

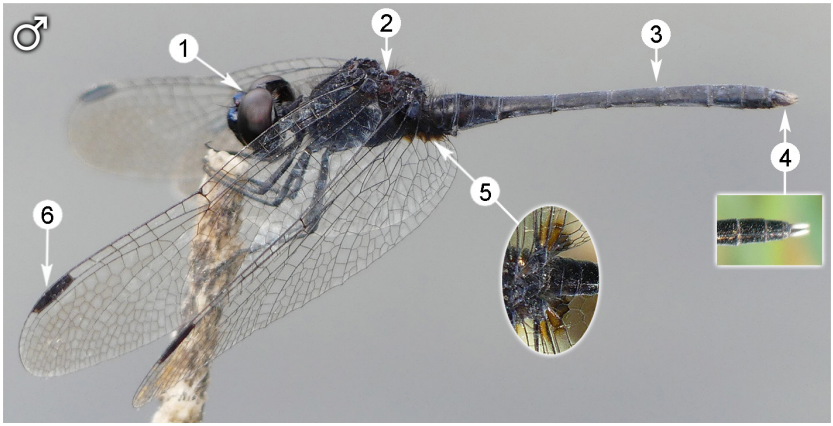
SIMILAR SPECIES

The female can be confused above all with Selysiothemis nigra.

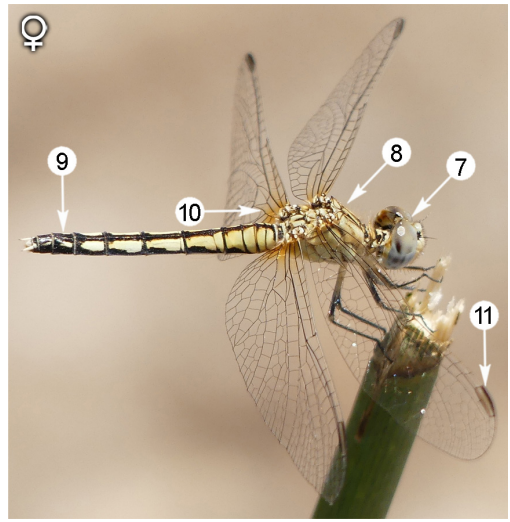
CONSERVATION STATUS

The species is not endangered nor is it particularly protected by the current environmental law.

Diplacodes lefebvrii



Length: From 25 to 34 mm. Hindwing spam: From 19 to 29 mm.
Male: 1. Large head with black frons and eyes. **2.** Black thorax. **3.** Thin black abdomen. **4.** Mostly off-white anal appendages. **5.** Small dark spot on the base of the hindwings. **6.** Large dark pterostigma. **Female: 7.** Lighter eyes than in males. **8.** Straw-coloured thorax with narrow dark stripes. **9.** Light abdomen with dark lines on the back and on the sides. They are more visible on the last segments. **10.** Saffron-coloured dark spot on the base of the hindwings. **11.** Long gold pterostigma.



HABITAT

They live in standing water bodies with shore plants. They are likely to be found in surroundings like lakes or lagoons, reservoirs, artificial ponds, deserted flooded quarries.

WAY OF LIFE

The male is easier to be found as it usually rests on the shore, holding its wings forward over the thorax. Round midday, it can make the shape of an obelisk. From there, it observes its territory and defends it from other males. It can be very aggressive. The female lays eggs alone while flying. It drops eggs in water by touching the water surface with the tip of the abdomen while the male watches her and protects from possible attackers. Sometimes, scattered males can be seen far away from its breeding spot.

WHEN TO SEE THIS SPECIES

This species flies from April to November in Málaga. They are more likely to be seen in July and September.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

Its rage is limited in this province, as it can mainly be seen close to the coast and in Málaga›s plain. As for the Great Málaga Path, it has only been recorded on stages 2 and 3, close to Vélez or Torrox River. However, these colonies are unstable and depend on the presence of water in the river beds.

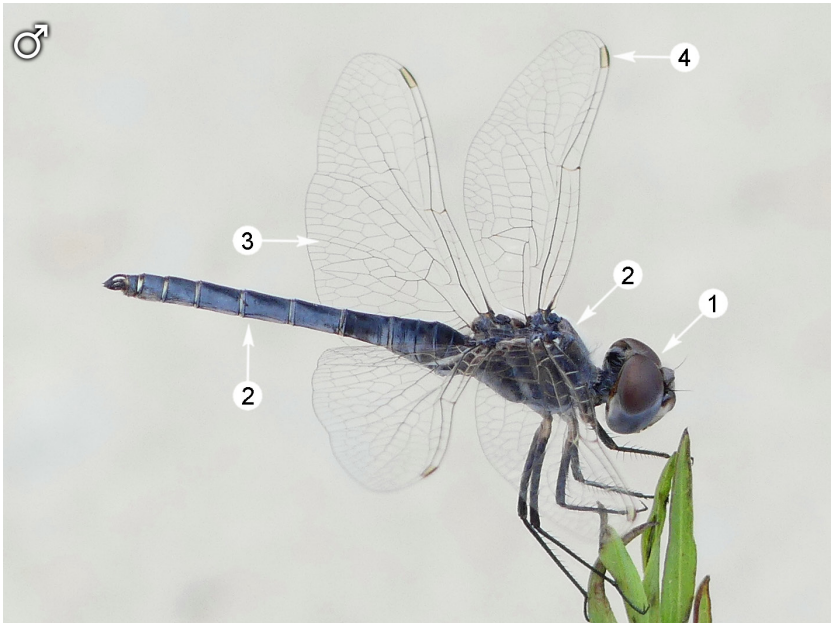
SIMILAR SPECIES

Selysiothemis nigra.

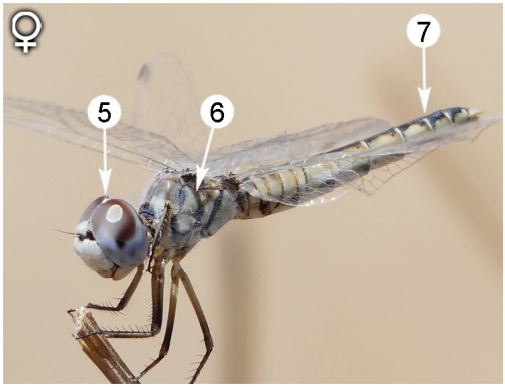
CONSERVATION STATUS

The species is not endangered nor particularly protected by the current environmental law.

Selysiothemis nigra



Length: From 30 to 38 mm. Hindwing spam: From 24 to 27 mm.
Male: 1. Its head is out of proportion to the rest of the body. The front part of the eyes are dark brown eyes, while the lower one is bluish. **2.** Thorax and abdomen are black, and covered in blue sheen. **3.** The veins have rather big cells. The hindwings are wider than the forewings. **4.** Small light pterostigma is outlined in black at the top and at the bottom (it looks like equals sign). **Female:** Similar to the male in its appearance and wing's patterns. **5.** Much lighter eyes than in males. **6.** Light thorax with dark traces. **7.** Thick bright abdomen with dark lines on the back and on the sides.



HABITAT

It mates in standing water bodies, which are often shallow like small lakes and reservoirs, man-made ponds, flooded gravel pits and quarries.

WAY OF LIFE

I flies low and often rests on the shore or close to the water, mostly on short plants, and in horizontal position, holding its wings spread out or slightly lifted. This species is a nomad and erratic, so it can be seen far away from water.

WHEN TO SEE THIS SPECIES

In Málaga, it flies in June, July and August.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

It is rare and confined to specific places in the Province of Málaga, where it lives close to the coast and in Málaga's plain. Its breeding spots have not been seen along the Great Málaga Path, but it has been recorded in the surroundings of stages 3 and 35, close the Rivers Torrox and Guadalhorce. It is likely to be found on the stages in the north of the province, especially, on stages 18 and 19, close to lakes Fuente de la Piedra and Campillos. It could also be found at any place along the Great Málaga Path, due to its tendency to scatter.

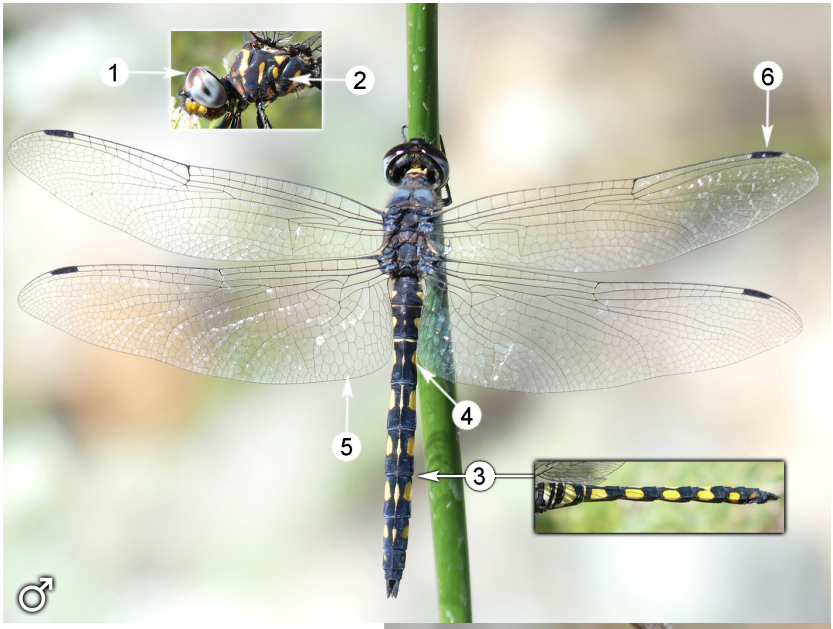
SIMILAR SPECIES

Diplacodes lefebvrii.

CONSERVATION STATUS

The species is not endangered nor is it particularly protected by the current environmental law.

Zygonyx torridus



Length: From 50 to 60 mm. Hindwing spam: From 45 to 50 mm. **Male: 1.** The upper part of the eyes is brown and the lower is bluish. **2.** Dark blue thorax with bronze tints and yellow markings. It can have sheen which covers the markings. **3.** Long dark blue abdomen with large yellow markings on the back and small prolonged markings on the sides. **4.** Small widening on S3 and S4. **5.** Long wings. Hindwing are much wider than forewings. **6.** Small dark pterostigma. **Female:** It is the same as the male, but its abdomen is thicker, above all S2 and S3 **(7)**.

HABITAT

It mates in middle and upper water courses, although it can be seen everywhere, even at river mouths and close to the sea, thanks to its migratory nature. Its favourite places are running, cool and pure water bodies surrounded by groves, above all willows.

WAY OF LIFE

Its flight is powerful and straight while it patrols a territory along rivers, and attack any Odonata it comes across. It can also fly at lower attitudes in search for food. It hardly ever rests, but when it does, it is on shore plants, somewhere high and in vertical position, keeping its wings spread out in the shape of a cross.

WHEN TO SEE THIS SPECIES

In Málaga, it flies from June to September, although it is more common and copious starting from July. It is not likely to be seen in October.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

WHERE TO SEE THIS SPECIES

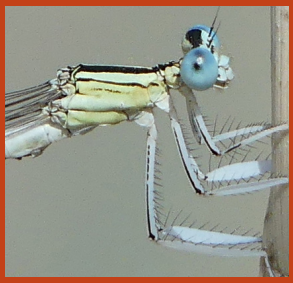
It mainly lives in the western rivers and streams, where it is relatively copious at specific places and in years when the weather is suitable. It has only been recorded on stage 27 of the Great Málaga Path, in the area close to the River Genal, and on stage 30, to the west of the River Guadalmina. It might be found on more routes, above all, on stages 5, 23, 25, 26, 28, 29 and 32.

SIMILAR SPECIES

This species cannot be confused with other species.

CONSERVATION STATUS

This species is Vulnerable in the Atlas and Red List Status of Invertebrates in Spain (Atlas y Libro Rojo de las Invertebrados de España, 2011), and the Red List Status of Invertebrates in Andalusia (Libro Rojo de los Invertebrados de Andalucía. 2008), in spite of not being specially protected by any current environmental law.



Quick Guide

and Identification Key through Images and Illustrations

Pyrrhosomma nymphula

Quick Identification Guide

ZYGOPTERA (Damselflies), Males

Calopteryx xanthostoma

Calopteryx virgo

Calopteryx haemorrhoidalis

Lestes barbarus

Lestes virens

Lestes macrostigma

Chalcolestes viridis

Sympecma fusca

Ischnura graellsii

Ischnura pumilio

Enallagma cyathigerum

Coenagrion mercuriale

Coenagrion scitulum

Coenagrion caerulescens

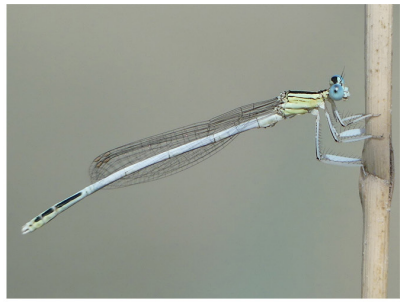
Erythromma viridulum

Erythromma lindenii

Pyrrhosomma nymphula

Ceriagrion tenellum

Platycnemis acutipennis



Platycnemis latipes

ANISOPTERA (dragonflies), Males

Aeshna mixta

Aeshna cyanea

Anax imperator

Anax parthenope

Anax ephippiger

Boyeria irene

Gomphus graslinii

Gomphus simillimus

Gomphus pulchellus

Onychogomphus uncatus

Onychogomphus forcipatus

Onychogomphus costae

Photo: Gonzalo Astete Sánchez

Paragomphus genei

Cordulegaster boltonii

Photo: Francisco Camello Rodríguez

Macromia splendens

Oxygastra curtisii

Libellula depressa

Orthetrum cancellatum

Orthetrum coerulescens

Orthetrum brunneum

Orthetrum nitidinerve

Orthetrum chrysostigma

Orthetrum trinacria

Sympetrum fonscolombii

Sympetrum striolatum

Sympetrum meridianale

Sympetrum sinaiticum

Crocothemis erythraea

Trithemis annulata

Trithemis kirbyi

Brachythemis impartita

Diplacodes lefebvrii

Selysiothemis nigra

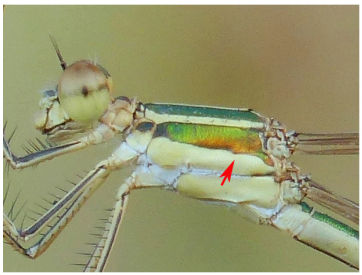
Zygonyx torridus

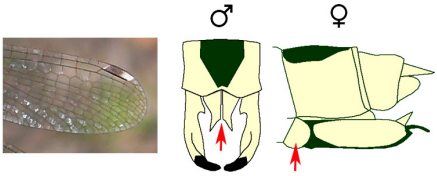
Sympetrum striolatum

Identification Key through Images and Illustrations

Genus *Lestes* and Genus *Chalcolestes* (Family Lestidae).

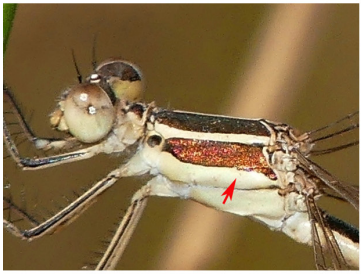
Lestes barbarus

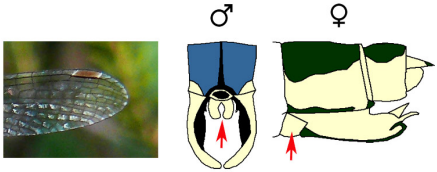




- The side of the thorax has no markings in the shape of a spine. • Two-coloured pterostigma.
- Underside anal appendages are curved outwards.
- Flap around female's genitalia is round.

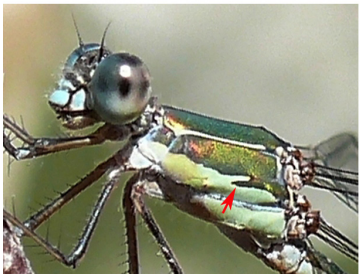
Lestes virens

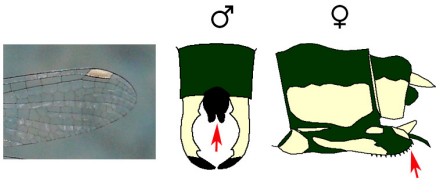




- The side of the thorax has no markings in the shape of a spine. • Two-coloured pterostigma.
- Underside anal appendages are curved intwards.
- Flap around female's genitalia is pointed.

Chalcolestes viridis



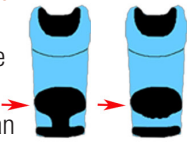


- The side of the thorax has markings in the shape of a spine.
- One-coloured pterostigma.
- Underside anal appendages are black and short in males.
- 12-14 Large teeth on the lower margin of the female genitalia.

Family Coenagrionidae, males, similar species.

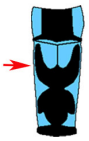
Enallagma cyathigerum

Marking on S2 in the shape of a mushroom, which can be incomplete.



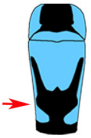
Coenagrion mercuriale

Marking in the shape of a helmet with horns on S2.



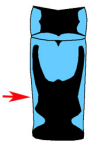
Coenagrion scitulum

Marking on S2 in the shape of a cat's head or a fork.



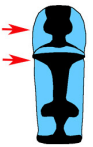
Coenagrion caerulescens

Marking on S2 in the shape of a cat's head with long ears and chubby cheeks.



Erythromma lindenii

Markings on S1 and S2 in the shape of a trophy cup.



Males in the genera Gomphus and Onychogomphus.

G. graslinii

Interpleural suture is black and short and it does not extend behind the metastigma.

S8 and S9 are less widened than in the case of G. simillimus. Short forked anal appendages.

G. simillimus

Black interpleural suture that goes over the metastigma.

S8 and S9 are wider than in G. graslinii.
Short anal appendages are not forked.

G. pulchellus

Wavy black interpleural suture that goes across the thorax.

S8 and S9 have hardly visible widening.
Short forked anal appendages.

O. uncatus

Two black stripes go across the thorax and join together.

Long hooked anal appendages.

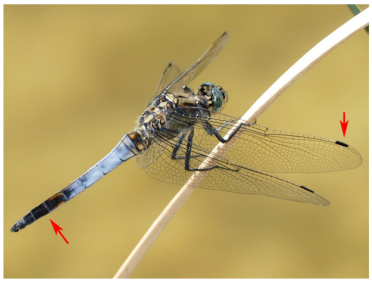
O. forcipatus

Upper stripe is cut in the middle and has the shape of clubs.

Long hooked anal appendages.

Males in genus Orthetrum (family Libellulidae).

O. cancellatum



- Last abdominal segments are black.
- Small black pterostigma.

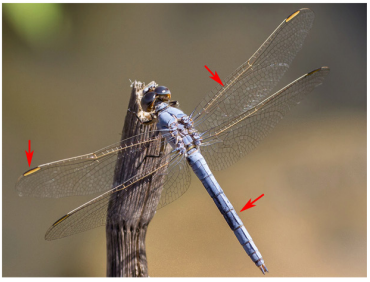
O. coerulescens

- Dark frons.
- Flatten abdomen.
- Large yellow pterostigmata.

O. brunneum

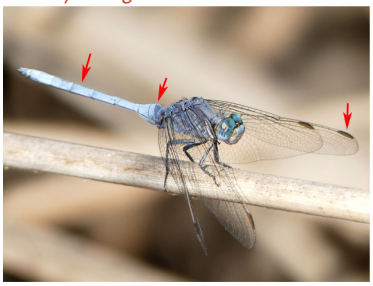
- Off-white frons.
- Flatten abdomen.
- Small brown or yellow pterostigmata.

O. nitidinerve



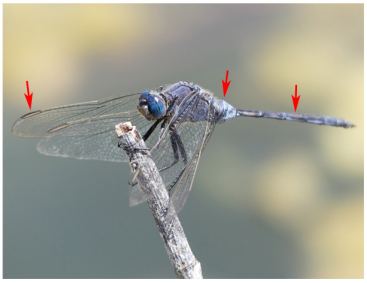
- Yellow radial vein.
- Large golden or yellow pterostigmata.
- Slightly flatten abdomen.

O. chrysostigma



- Slightly flatten abdomen.
- Bulky S1 and S2.
- Yellowish pterostigma.

O. trinacria



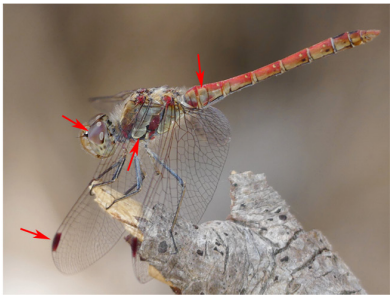
- Thin cylindrical black or bluish abdomen with yellowish stripes.
- Rather thick S2 and S3,
- Large light pterostigmata.

Males in genus Sympetrum (family Libellulidae).

S. fonscolombii

- The upper part of the eyes is red and the lower is blue-grey.
- Red thorax with with sutures and off-white stripe.
- Red abdomen with black stripes on the sides and on the back on S8 and S9.
- Saffron-coloured dark spot on the the base of the hindwings.
- Yellow pterostigma.

S. striolatum



- The upper part of the eyes is reddish and the lower greenish or light.
- Brown thorax on the back with two yellow stripes on the sides, which are separated by one red or brownish stripe.
- Red abdomen with light sides on S1, S2 and S3 and without markings.
- Dark red pterostigma.

S. meridionale

- Brown eyes. They are darker at the front.
- Brown-yellow thorax with black sutures.
- Abdomen is red on top and dark on the underside.
- Sides of S1, S2 and S3 are light. There is sometimes have a small marking on S3.
- Reddish pterostigma.

S. sinaiticum

- Chestnut or brown eyes. Blue on the underside.
- Brown thorax with lighter sides and black sutures.
- Red abdomen with light sides on S2 and S3, which are lined by a black stripe.
- Pterostigma is red.

Chalcolestes viridis

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DRAGONFLIES ALONG THE GREAT MÁLAGA PATH & IN THE PROVINCE

diputación de málaga

málaga viva

Gran Senda de Málaga