

Figwasp (*Blastophaga psenes*)

Fig trees do not flower in the same way as other fruit trees do such as almonds or cherry trees do. The flowers of the fig tree grow inside a pear-shaped pod, and then, when it ripens, it becomes the fruit that we know, the fig.

The female fig wasp lays its eggs inside this pod, leaving the pollen of the fig in the flowers. The pollen it brings belongs to the fig where it was born. In that process, it may lose its wings and antennae, so it is important to choose the right flower as it will not have the chance to try another flower. Then it dies inside the fig. The larvae (or grubs) will grow inside the fig feeding on it.

When they are fully developed they will come out of the pod, and like their mother, they will lay their eggs in other fig flowers pollinating them. In this way the cycle is completed.

It is considered a keystone species for its pollination function. If this wasp species did not exist, the fig tree would not have the possibility of bearing fruits naturally. This would be a big survival problem for the fig tree.

For this reason it is important to study animal and plant species as a living network where they interact with each other, and not as individuals living isolated.

Both species depend on each other, that is why it is a mutualistic relationship: both benefit from this interaction.

Dung beetle (*nombre misterioso*)

The dung beetle is one of the 360,000 different existing species of beetle that use dung. They are coprophagous coleoptera, that means, they mainly feed on manure from herbivorous animals; other species also eat carrion, fungi, rotten fruit and other decomposed matter. Birds, bears, raccoons, mice, shrews, moles and other invertebrates feed on larvae (grubs) of beetles. Even fish eat grubs that fall into the aquatic environment.

They live in the forests, as there they find shade and shelter among the fallen leaves on the ground. They have also adapted to live in cattle pastures.

With their front legs they make balls with the cattle manure and take them by rolling to the place where they have dug subterranean galleries to bury them. There the female beetle deposits a single egg inside the manure ball. The larva is completely covered by manure and feeds on it until it becomes adult.

It could be considered as an umbrella species as its existence makes the existence of many other species possible, also of species from other food webs. This is due to its functions:

- They are responsible for burying the cattle excrement, they can bury up to 1500 kilos of excrement per hectare per year! Therefore they remove it quickly cleaning the ground. When the manure disappears, there is a drop in number of flies fluttering among the cattle and transmitting diseases. The occurrence of disease-carrying parasites is also reduced. So dung beetles help the cattle health.
- They build subterranean galleries that aerate and decompact the soil, so that when it rains the soil can absorb water and maintain humidity in times of drought.
- They fertilize the soil, allowing the existence of all the organisms that make up the soil ecosystem: decomposers of organic matter (bacteria, fungi), hundreds of invertebrates. In addition a fertile soil allows new plant species to grow.

Humpback whale (*Megaptera novaeangliae*)

It is a migratory species that spends summers in cold waters of the Arctic and Antarctic region when the food is abundant there. It goes to tropical or subtropical climates to give birth. They can travel long distances (up to 25,000km) for three months without stopping or resting.

This species is protected. It is not only a famous species, but it is known as an umbrella species. Due to its need for protection, the seabed and beaches where they pass and stay for a while are also being protected. Consequently, many other fish that live in those areas are protected.

In short, protecting the humpback whale we are protecting many living beings from other food chains. Despite the conservation measures established, it is still threatened because of poaching and increasing pollution of the oceans.

The upper part is totally black, the ventral part white or light gray. It has very long pectoral fins that look like wings when it leaps from the water. The name humpback whale is due to a hump of the dorsal fin. It can be 12 to 16 m long and weigh 36,000kg approximately.

This species feeds exclusively during the summer and lives off its fat reserves during the winter. It is an active predator that captures shrimp-like krill and schools of small fish.

Starfish (*Asteroidea sp.*)

Echinoderm with a flat body that consists of a central disc with five or more arms. They are predators on slow-moving prey such as snails, molluscs, polychaetes (or bristle worms,) snails, goose barnacles and other invertebrates. There are predatory species that are not affected by their spiny surface and feed on them: seagulls, sea lions, crabs, newts and occasionally other starfish. They are exclusively marine animals.

Their exoskeleton contains a non-stick material that repels bacteria and viruses, so they are used for anti-inflammatory drugs. Starfish are considered keystone species because if they disappeared from the habitat, the populations of animals they feed on would raise becoming a plague.

An example is the ochre starfish, *Pisaster ochraceus*, which feeds on mussels (*Mytilus*). Its absence causes the mussel to spread aggressively expelling other species that are less adapted to the habitat conditions. On the contrary, its presence controls the mussel population and creates favourable conditions for the appearance of other species of its food web. Therefore, its presence guarantees a great biodiversity and is crucial to the natural functioning of the ecosystem.

One curiosity of starfish is their ability to regenerate arms and even their entire body. They have eyes on the end of each of their arms, which allow them to detect the light, move well in the dark deep ocean and detect threats. Another remarkable ability is that they can consume prey outside their bodies: they extend their stomach out of their mouths and over the prey secreting an enzyme that destroys the prey tissue and then they suck it.

Imperial Eagle (*Aquila adalberti*)

Large bird of prey that is endemic to the Iberian Peninsula. It is specialised in rabbit hunting and its survival depends mostly on the presence of this prey. But it also captures other mammals such as squirrels, reptiles and birds. And when food becomes scarce it can feed on carrion.

The imperial eagle can be found from Sierra de Cádiz and part of Andalusia up to central and northern areas such as Ávila.

It is considered a flagship species because it is a famous species, worthy of protection, it is one of the most emblematic and important birds of the Iberian Peninsula. People would easily support a conservation plan if the imperial eagle appeared as the main species of the campaign.

Its existence is threatened mainly by electrocution on dangerous power lines (this was the main problem in the eighties and nineties, although at present these electrocutions have decreased considerably), by the illegal use of poison in hunting preserves, due to lack of food (shortage of rabbits), due to the habitat destruction and fragmentation,...

Thanks to conservation programs such as “Alzando el Vuelo” Program (“Lifting off”) of SEO / BirdLife and the LIFE projects implemented in Spain, there has been an increase in the Iberian imperial eagle population in the country. To continue with conservation, the European Commission approved the extension of the LIFE + program for the period 2014-2020. However, unfortunately, it is still included as endangered species in the National Catalogue for Threatened Species.

Iberian Lynx (*Lynx pardinus*)

The population of the Iberian lynx is decreasing drastically. Among other causes, it is due to the drop in the main prey population, the rabbit. There are two viral diseases of rapid spread that can drive a local rabbit population to extinction.

If the lynx does not have a full stomach, it can not reproduce, and if it does not find rabbits in its environment, it needs to move to places with more food, so that it can be killed by road traffic (33% of wild cat deaths is caused by this reason).

The Iberian lynx plays a very important role in the ecosystem: it controls the populations of other predators in its habitat, since it does not tolerate that other animals hunt in its territory and keeps them away. Thanks to the lynx, people are better aware of the protection and conservation of the Mediterranean forest and its biodiversity. In addition, it is part of our natural heritage, so we must contribute to its protection and conservation. Therefore it is considered as an umbrella species. It is also a flagship species that is used to develop conservation programs and awareness campaigns.

Lynx have whiskers that help find their prey and sense much information as sensitive sensory organs, and tufted ears (paintbrush-shaped tuft). There are different theories about the function of these tufted ears: by moving the ears they distract and confuse their prey (helping mimesis), or they used the tufts to remove insects that are bothering the face. A remarkable characteristic of the Lynx is the excellent sense of hearing that help detect the prey even the silent walking of rabbits.

Iberian brown bear (*Ursus arctos Pyrenaicus*)

The brown bear lives in forests of the Cantabrian Mountains and the Pyrenees. They usually live alone in areas that are not very inhabited, quiet and with little human presence.

It has a thick and dense coat, a small tail (7 or 8 cm), huge head and two small rounded ears. It is the largest land animal of all Iberian fauna. They are not aggressive animals and avoid contact with people. The few cases of attack on human beings have happened as a defensive reaction because of feeling threatened.

Its food is based on herbaceous plants and fruits and also animal matter, such as ants but as well carrion of large mammals. Sometimes they can hunt and consume vertebrates. But their favourite food is honey combs.

They hibernate during the winter and stay alive thanks to the energy provided by the large amounts of food and fat reserves stored in autumn. They hibernate in caves or dens dug in the ground in very hidden places. Female bears give birth during this winter rest.

This species is protected as there is just a small population (300 approximately). Its main threat is the human activity (illegal traps for hunting wild boars, bear hunting for fear that they eat sheep, etc).

It is considered an umbrella species because the brown bear conservation plan includes not only the conservation of its habitat and living beings living in it, but also the conservation of other habitats that are of great interest to bears, the fight against threats and environmental education.

It is also a flagship species for its attraction by the media, for being emblematic. There are many conservation programs that include actions and projects whose aim is to reduce the impacts and improve the availability of food of the areas where this species lives. People are interested in these programs as the protagonist is the brown bear.

For its conservation it is necessary to avoid the deaths caused by human beings and to conserve the habitat.