



Clean and Green is Our Perfect Dream

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Clean and Green is Our Perfect Dream

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2019- 1- TR01-KA229-074488-1

2- 32 SU s izuchavane na chuzhdi ezici "Sv.Kliment Ohridski" - Partner

2019- 1- TR01-KA229-074488-2

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2019- 1- TR01-KA229-074488-6

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2019- 1- TR01-KA229-074488-5



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No 2019-1-TR01-KA229-074488_1



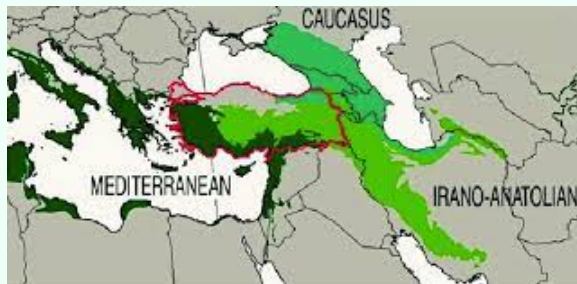
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BIODIVERSITY OF TÜRKİYE



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Türkiye is located on the continents of Asia and Europe, bounded on the north by the Black Sea, on the west by the Aegean Sea, and on the south by the Mediterranean Sea. Türkiye has a total surface area of 1,780,576 km², of which 10,000 km² is formed by rivers and lakes. Türkiye is surrounded on the north by the Northern Anatolia Mountains which run parallel to the Black Sea coast, on the northwest by the Strandzha Mountains, on the south by the Taurus Mountains parallel to the Mediterranean coast, and on the west by the Western Anatolia Mountains perpendicular to Aegean Sea Coast. Turkey has 33 rivers, 200 natural lakes, 159 dam reservoirs and 750 artificial lakes, which constitute its inland waters.



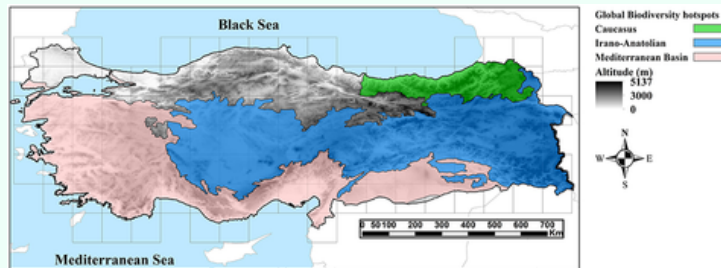


This extraordinary ecosystem and habitat diversity have produced considerable species diversity. The fauna biological diversity is quite high in Türkiye compared with the biological diversity of other countries in the temperate zone. Despite lack of data, the invertebrates constitute the largest number among the identified living species. The total number of invertebrate species in Türkiye is about 19,000, of which about 4,000 species/subspecies are endemic.





The total number of vertebrate species identified to date is near to 1,500; over 100 species are endemic, including 70 species of fish. Anatolia is the home of the fallow deer and the pheasant. The fact that Türkiye is situated on two major bird migration routes in the world makes its location important in terms of the feeding and breeding area provided for birds. Turkey also has a rich plant biodiversity and a high rate of endemism. The country has approximately 11,000 gymnospermous and angiospermous plant species, with one-third of them endemic to Türkiye. Eastern Anatolia and Southern Anatolia, among the geographical regions, and the Irano-Turanian and Mediterranean regions, among the phytogeographical regions, are rich in endemic plant species.





Türkiye's genetic diversity becomes important with regard to plant genetic resources in particular because Turkey is located at the intersection of the Mediterranean and Near Eastern gene centers. These two regions have a key role in the appearance of cereals and horticultural crops. In Turkey, there are 5 micro-gene centers, in which more than 100 species display a wide variation, and which are the origin or centre of a large number of important crop plants and other economically important plant species, such as medicinal plants. These centers offer very important genetic resources for the future sustainability of many plant species cultivated across the world. In terms of animal genetic resources, it is agreed that many domestic animal races were originally bred in Anatolia, as a result of its location, and spread from here to other regions of the world.



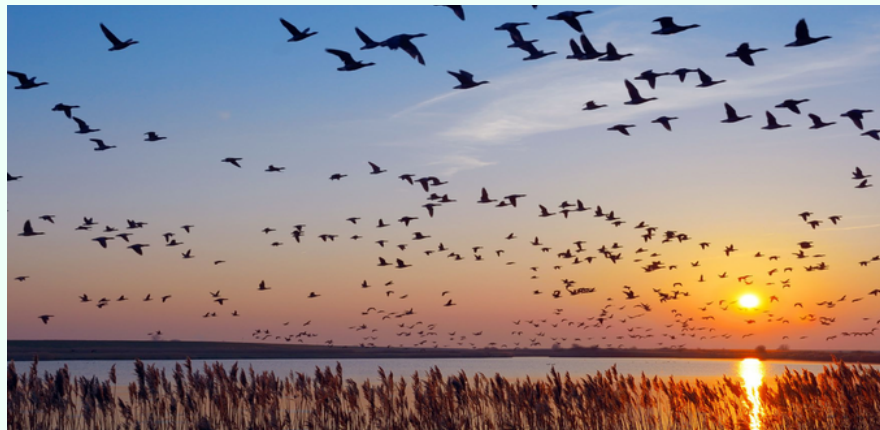


Türkiye's Fauna



Türkiye has a large range of habitat types and a great faunal diversity. Nearly 1,500 vertebrate species were recorded, of which over 100 species, mostly fish, are endemic.

The country is on two major routes used by migratory birds which increase in numbers during spring and autumn. The invertebrate fauna is also very diverse, with about 19,000 species being recorded including 4,000 endemics.

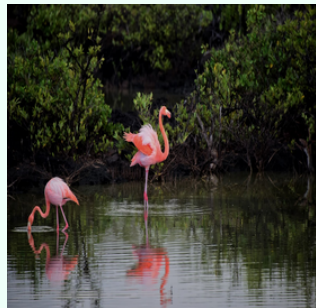


Türkiye is a real bird paradise because of its geographic location.



Manyas Bird Paradise

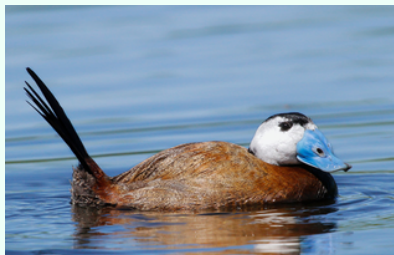
Basic species of tree at the Bird Paradise National Park are willows and tamarisk trees located on the southern and eastern shores of the lake. Alongside all the reeds, rush, and other grasses, hundreds of other species of flowering plants also exist in the marshlands.





Bird Paradise National Park is a marvel for all bird admirers, also an important stop for migratory birds. It is estimated that there are 246 species of birds visiting the Bird Paradise National Park.





Dalmatian pelican and the endangered white-headed duck in the lake is one of the wintering bird species on a regular basis. After the incubation period the number of birds in the Bird Paradise can reach up to 15-20 thousand.





Caracal

The endangered caracal is a medium-sized wild cat that can be found in the Middle East, Africa and Central Asia. It was recently spotted in the Anatolian province of Elazığ.



Gray wolf

Türkiye's national animal is the second-most important carnivore in the country, after the Eurasian brown bear. However, due to excessive hunting, the gray wolf's population has dwindled over the years. In the wild, the animal can live up to eight years while in captivity, they can live up to 15 years.



Dolphins

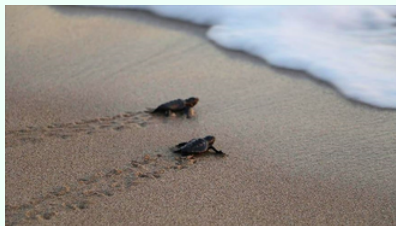
Multiple species of dolphins can be seen in the seas surrounding Türkiye, and there are even opportunities to swim with them in some touristic places. Due to the pandemic, the dolphins even reconquered the waters of Turkey's most populated city, Istanbul





Caretta Caretta

The loggerhead sea turtle is a species of oceanic turtle distributed throughout the World. *Caretta caretta*s spend most of their lives in open ocean. They can be found in the Mediterranean sea and coastline of Türkiye. In 2006, more than 1000 nests were found in Belek, Antalya and they were immediately protected. Female turtles visit shore to construct and deposit eggs. After two months, babies hatch and turn back to the ocean. This is just a piece of their little life circle.





Sadly, caretta caretta are in the list of endangered animals. It is because of the habitat loss. Since city life is so near to their habitat, It sometimes cause problems for babies, such as lightings, people coming to shore to spend time just right above their nests. This can lead to their loss of lives. Day by day, providing them a safe place to live is becoming difficult to do. But fortunately, there are a lot of Turkish nongovernmental organisations to protect the nests and the turtles lives.



Anatolian Lycian Salamander

Not far away from this shore, there is a different habitat for another special animal, Anatolian Lycian salamander. They're only found in Antalya. They can be distinguished by the Brown-black line at their back, and also yellowish stomach. Its natural habitats are temperate forests, Mediterranean-type shrubby vegetation, and rocky areas.

They are endangered because of the habitat loss risk. Their habitat, Mediterranean forests become more and more scattered day by day by virtue of global warming which causes forest fires, drought.





Mediterranean Monk Seal (*Monachus monachus*)

Scientific name: *Monachus monachus*
Class: Mammalia
Order: Pinnipedia
Family: Phocidae (Subfamily: Monachinae)
Genus: *Monachus*
Species: *Monachus monachus*



The Mediterranean monk seal (*Monachus monachus*) is a monk seal belonging to the family Phocidae. The Mediterranean monk seals are the one of the world's most critically endangered marine mammals, with fewer than 600 individuals currently surviving. There is a big populations that are located in Türkiye so that the responsibilities of Türkiye is huge for the protection of the species and its pristine habitats in the Mediterranean.



Threats

- The main threats arrayed against the Mediterranean monk seal include:
 - habitat deterioration and loss by coastal development, including disturbance by tourism and pleasure boating
 - deliberate killing by fishermen and fish farm operators, who consider the animal a pest that damages their nets and 'steals' their fish, particularly in depleted coastal fishing grounds
 - accidental entanglement in fishing gear leading to death by drowning
 - decreased food availability due to over-fishing pressures





Allactaga

Allactaga elater is commonly known as a small, five-toed jerboa. This jumping rodent has short front legs and long hind limbs. The hind limbs are usually four times as long as the front limbs and measure up to 10 cm, in length. Its body averages 15 cm from head to tail.

Allactaga elater is a sandy color on top and a whiter color underneath. The tip of the tail is usually black. Hair is also found under its feet to provide better traction in the sandy environments where it lives.

It is seen in the plains of the Central Anatolia Region and the Western Anatolia Region, as well as in the plateaus and steppes of Eastern Anatolia. Among the species living in Türkiye, it is widely distributed.





Anatolian Panther

Anatolian Panther is a leopard subspecies native to the Iranian Plateau and surrounding areas encompassing Türkiye. Its preferred habitat is thought to be sparse forest areas, followed by rocky areas, agriculture and pasture areas, and riparian zones.

Since 2016, it has been listed as Endangered on the IUCN Red List, as the wild population is estimated at less than 1000 mature individuals.





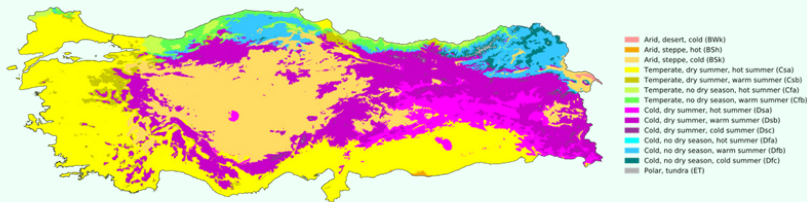
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Köppen-Geiger climate classification map for Turkey (1980-2016)



The climate of Türkiye also varies, with the weather systems found near the coasts contrasting with those prevailing in the interior. The Aegean and Mediterranean coasts have hot, fairly dry summers and cool, rainy winters. The interior of the country has a continental climate with severe weather on the Anatolian plateau in winter, and hot, dry summers. These large differences in climate are reflected in an extremely diverse flora and fauna.

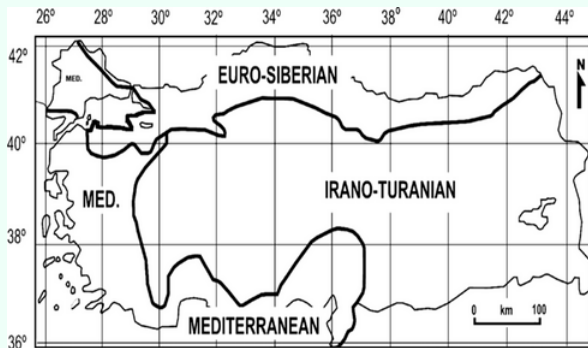


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Flora of Türkiye



In the whole of Türkiye there are about 11,000 species of flowering plant, about a third of which are endemic to the country. This area played a key role in the early cultivation of wheat, other cereals and various horticultural crops.

The country is divided into three main floristic areas;

- The Mediterranean area,
- The Euro-Siberian area and
- The Irano-Turanian area.





Endemic Plants of Türkiye

Turkey is one of the important endemic plant regions in the world. The diversity of these soils has sprouted as unique plant species. Here are some of the endemic plants of Turkey.

Sweetgum Tree (*Liquidambar styraciflua*)

Sweetgum tree is most common in the country around Muğla and Fethiye. Resembling a plane tree, it can grow up to 20 meters in length.





Ispir Oak (*Quercus macranthera*)

Ispir Oak is a species that can be seen throughout Yozgat, Kastamonu, and Eastern Anatolia. This oak species can grow up to approximately 6-7 meters in length with very short petioles.





Kazdağı Fir (*Abies nordmanniana*)

Only be seen in Kazdağı (Mount Ida), this species can grow up to 30 meters in length. The cones on the top of the Kazdağı Fir, whose leaves are flat, can reach approximately 20 cm in length. It is a species that grows in damp soils.





Anatolian Gladiolus (Gladiolus Anatolicus)



Generally found in the Mediterranean and Aegean Regions, Anatolian Gladiolus is seen in the red pine forests and maquis in the spring and summer months. Anatolian Gladiolus is a very delicate endemic plant, and it is at risk of extinction due to rapid decline.



Reverse Tulip (*Fritillaria Imperialis*)



This species, which can be found in almost every region in Anatolia, grows mainly in Hakkari and Van regions. The reverse tulip, which has six leaves on each branch, is approximately 70 cm in length. It is generally seen at altitudes between 1,000-3,000 meters.



Eber Yellow (*Thermopsis Turcica*)

Discovered by Turkish botanists in 1982, Eber Yellow is found in fragmented populations only on the slopes of Akşehir and Eber lakes in the world. It is yellow-flowered and herbaceous. It has a length of 40-80 cm. Its most important feature is that it yields three fruits from one flower.





Antalya Crocus (*Crocus Antalyensis*)

Antalya crocus, as the name suggests, is a species that only grows in Antalya. It is found in scattered Quercus forests. It blooms from October to December and retains its flowers. It is generally seen at altitudes around 1,000 meters. It can give new shoots from the same root for years.





Liliaceae

Lilies, which have 430 different species in the country, are most frequently seen in Manisa. This plant is usually seen at altitudes between 500 and 2,000 meters. They bloom in early May and June. Its leaves are stripy and flat. Sage, aloe vera, and lily of the valley are varieties belonging to the lily family.



Bellflower (*Campanula Ekimiana*)

It is a flower that grows in the volcanic rock cracks between Kızılcahamam and Işıkdag in the Ankara region. There are many species of this plant. Small purple bell-shaped flowers bloom in July.





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№ 2019-I-TR01-KA229-074488_



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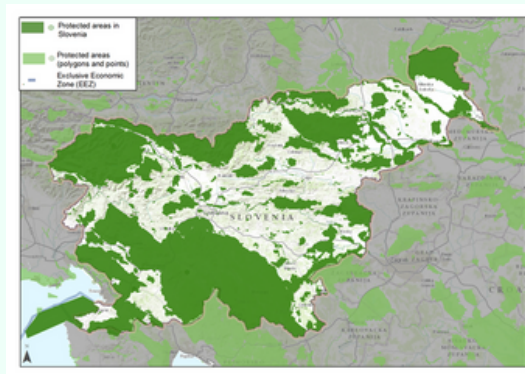
Slovenia is characterized by extremely diverse and relatively well preserved nature. The relatively small territory has great biodiversity which can be attributed mainly to the convergence of various types of climate, geologic features and a considerable elevation range and also to largely traditional agricultural land use.

According to estimates, approximately 60 % of the environment is in a natural or semi-natural state, including landscapes and areas that were managed in a traditional way in the past and where activities were abandoned a long time ago.

Slovenia is among the regions with above-average biodiversity with 26 000 known and an estimated total of 45 000-120 000 species. Of these, 800 animal and 66 plant species are endemic. Especially characteristic are forests, subterranean and water ecosystems, wetlands, the sea, alpine and mountainous areas, and dry grasslands. Slovenia covers less than 0.004 % of the Earth's total surface area and 0.014 % of its total land area. However, more than 1 % of all known species of all living organisms and more than 2 % of all terrestrial species live in Slovenia. Such a large number in such a small area ranks the country among the naturally richest areas of Europe and even of the world.



On a global scale, Slovenia boasts one of the largest subterranean biodiversities in the world. Most of the exclusively subterranean species are endemic. Water fauna with 200 species is the richest in global terms, while terrestrial fauna with 150 species is perhaps only surpassed by southern parts of the Dinaric karst. Five Slovenian cave systems are listed among the 20 richest in the world. The Postojna-Planina cave system with 50 aquatic species and 35 terrestrial species is by far the richest. The Cave Protection Act protects the subterranean environment as a whole. Nevertheless, it is threatened by pollution that mostly originates from the surface.



Protected areas in Slovenia





The populations of many plant and animal species are decreasing and are threatened: some may become extinct. Forty-five percent of species are included in the list of threatened species, including more than 80 % of all known amphibian and reptile species and almost half, 41, of mammal species. In the last 50 years, no species of mammal was exterminated on the territory of Slovenia.



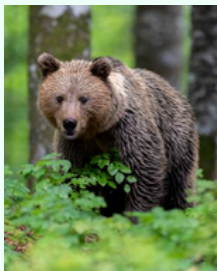
Lynx



Of the species that became extinct before then, the lynx (*Lynx lynx*) and beaver (*Castor fiber*) are again present in Slovenia. Lynx, which disappeared in previous centuries, was reintroduced in Slovenia in 1973, while the beaver was reintroduced in Croatia in the 1990s from where it spread to Slovenia. The brown bear (*Ursus arctos*) population in Slovenia is part of the population occupying the Alps-Dinaric Mountains-Pindus Mountains which is one of the largest populations in Europe.



beaver



brown bear



On the Red List of threatened animal species, six marine mammals from the order of whales and dolphins (Cetacea) are categorised as endangered. Permanent presence in the Slovenian part of the Adriatic is recorded for the common dolphin (*Delphinus delphis*) and the bottlenose dolphin (*Tursiops truncatus*), while other species visit the northern Adriatic sporadically.

The range of bird species has only been studied during the nesting and winter periods and the number of birds within selected species in the areas important for birds has been estimated.

For Slovenia, 3 266 different native taxa of ferns and seed plants have been described. Their basic characteristics derive from Alpine and Central European floristic elements and Pannonian, Dinaric and Mediterranean species. The large number of species is mainly a result of the great diversity of habitat types, which in turn result from physical geographic – elevation range, insulation and geologic features – through floro-genetic, to purely anthropogenic factors – the intensity of human impact on nature, urbanisation, extensiveness of farming, etc. Ferns and seed plants are threatened, particularly by habitat alteration, commercial use and direct destruction, including picking and gathering. Approximately 19 % of species are threatened, of which 29 species of ferns and seed plants are extinct (Ex), 80 are endangered (E), 254 vulnerable (V) and 257 rare (R).



In the area of animal husbandry, ten out of 12 autochthonous breeds of domestic animals are threatened. The pressure of other breeds is being successfully reduced by breeds for which the breeding method recognizes the importance of adaptation to natural conditions – including the Carniolan honey bee and Jezersko-Solčava sheep.



Carniolian bee



Jezersko-solčavska sheep

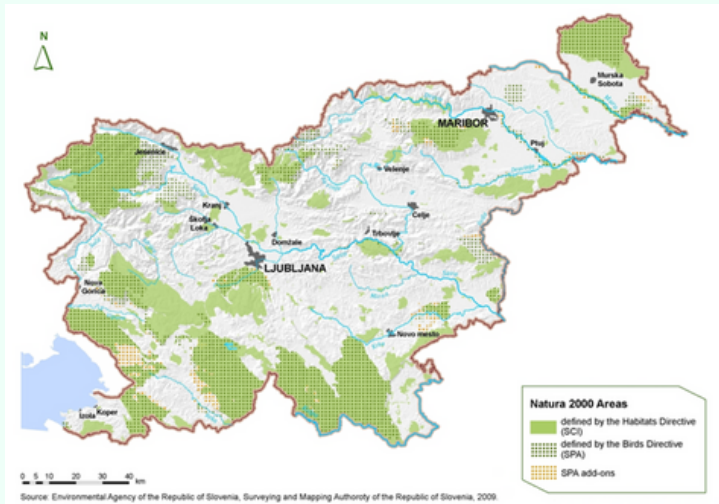


Nine of 16 existing traditional breeds are also threatened. The situation in regard to threatened breeds has generally been improving due to more intensive expert work in the area of preservation of breeds of domestic animals, the establishment of a gene bank, and the establishment of breeders' organisations. On the other hand, the situation regarding widely-spread traditional breeds that are not under special protection has been deteriorating. Some of these are unable to resist the pressure of economically more competitive global breeds; therefore their number has been decreasing.



Lipizzaner horse





Source: Environmental Agency of the Republic of Slovenia, Surveying and Mapping Authority of the Republic of Slovenia, 2009.

In Slovenia, 14 901 natural features have the status of valuable natural feature, of which 8 382 are subterranean caves. The total land area of valuable natural features is 2 523 km², 12.45 % of the total land area of the country. Smaller areas predominate; only 337 are larger than 1 km².

Register of Nature 2000 areas, Environmental Agency of the
Republic of Slovenia, 2009





Of the total Slovenian territory, 12.57 % is within larger protected areas – national, regional, landscape parks – or smaller ones – strict nature reserves, nature reserves and natural monuments – where prescribed protection regimes apply. An important share of these areas is within the Triglav National Park, the only national park in Slovenia. In recent years, protected areas increased particularly due to the establishment of three larger parks.

Of the territory that is protected, 52.2 % lies within ecologically important areas, 35.5 % within Natura 2000 sites. Since 2008, a further 1.7 % of the territory falls within areas that, according to the European Commission, meet conditions for special protection but have not been designated as protected areas by decree.



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No 2019-1-TR01-KA229-074488_2



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Biodiversity of Bulgaria: Characteristics, protection and trends

Bulgaria is a medium-sized country located in the eastern part of the Balkan Peninsula. It hosts a rich mycota, flora and fauna, and quite well preserved natural and semi-natural ecosystems. This is mostly due to the country's geographic position between the temperate and subtropical zones, the complex geological history, and the big topographic variety. The high species diversity and endemism determine the high conservation value of Bulgarian biodiversity.

The Bulgarian flora consist of more than 4,100 species, including more than 45 species of ferns, 250 species of mosses, and 2,800 higher plant species. The animals established in the country belong to 28 phyla and 75 classes. Vertebrates (858 species) comprise 2.7% of the Bulgarian fauna: 242 fishes and fish-like taxa; 24 amphibians; 40 reptiles; 452 birds; and 101 mammal species. Invertebrates account for more than 31,000 species.





Over the past 25 years the number of known animals in the country has increased by over 4,500 species: from 29,000 in 1996 to 33,545 species in 2020. The total number of endemic animals is about 1,400 (4.2%). In some groups, the percentage of endemism is very high (95.5% of snails from the family Hydrobiidae and 71% of Clausiliidae; 53.6% of Diplopoda; 50.0% of terrestrial Isopoda). The richest endemic areas in Bulgaria are mostly in the mountains: Rila Mt.- 268, Pirin Mt. - 220, Western Stara Planina Mt. - 184, Western Rhodopes Mts - 183, and the Central Stara Planina Mt. – 181. Molecular data for Bulgarian animals is still insufficient, although Bulgaria ranks among the top 10 European countries in the proportion of the DNA-barcoded animal taxa; sequence coverage of animal specimens in Barcode of Life data System (BOLD) amounts to approximately 36,000 sequences from more than 7,100 Barcode index numbers (BINs).





Legislation to protect nature in Bulgaria dates back to the end of the 19th century and covers forestry (1890), the protection of certain species (1890's) and hunting (1897). Organized civil movements resulted in the establishment of the Union of Nature Protection (1928), the designation of several nature reserves (1933), and the first National Park (1934). More specific regulation followed with Ordinance for the Protection of Nature (1936). The Red Data Book of Bulgaria was published as early as 1984 (vol. 1, Plants) and 1985 (vol. 2, Animals), with a second updated edition in 2011. Bulgaria is also among the first countries to prepare a National Strategy for Biodiversity Protection (1993, adopted in 1998) following the Convention on Biological Diversity (CBD) process. Since then, several national plans for protection of biodiversity have been adopted including assessments of the threats, objectives, and measures for their achievement.





According to recent references, such as the Red Data Book (Beshkov 2011) and the Article 17 reports of 2014 and 2020, the main threats to biodiversity in Bulgaria at the beginning of the 21st century have been human induced degradation: fragmentation and loss of habitats; industrial, agricultural and household waste pollution; direct exploitation of biological resources; genetic ingression and invasive alien species; and global climate change effects. A set of drivers for the loss of biodiversity is related to agriculture and land management, including the whole spectrum from intensification to the abandonment of traditional land, and wetland management practices.





ENDANGERED ANIMAL SPECIES



Pelecanus crispus

The curly-headed pelican (*Pelecanus crispus*) is a bird of the Pelican family. It is also found in Bulgaria, in the Srebarna Biosphere Reserve.

The birds with the largest beaks are pelicans. They are also one of the largest flying birds on Earth. The bones of the huge beak, as well as the entire skeleton, have numerous cavities filled with air. This makes them light without reducing their strength. Under their lower jaw, pelicans have a huge skin bag in which they store the caught fish.





ENDANGERED ANIMAL SPECIES



Dryocopus martius

The black woodpecker is a bird of the woodpecker family. It is also found in Bulgaria.

Sexual dimorphism is observed in the black woodpecker. The male has black plumage, with red feathers only on the forehead, crown and nape, while the female has a red nape. On the territory of Bulgaria, it can be found in the western and southwestern regions: Pirin, Rhodopes, as well as in the western and middle parts of Stara planina.





ENDANGERED ANIMAL SPECIES

Monachus monachus



The white-bellied seal (*Monachus monachus*) is almost extinct now, and used to be found in the area of Cape Kaliakra and Cape Maslen. It is also called the Mediterranean monk seal - it is considered one of the most endangered mammals in the world. This species of monk seal reaches an average length of 2.40 m and a weight of 320 kg at maturity, with the female being slightly smaller than the male. The female's fur ranges from brown to dark gray, with the belly being lighter.





ENDANGERED ANIMAL SPECIES

Lutra lutra



The Eurasian otter (*Lutra lutra*), also known as the European otter, Eurasian river otter, common otter, and Old World otter, is a semiaquatic mammal native to Eurasia. The otter is a species of predatory mammal from the Mustelidae family.

The otter's main food is fish. It hunts its prey skillfully underwater. Diversifies its diet with frogs, crabs, water rats, insects and other animals. On land it comes out at night, looking for sleeping and brooding birds. An otter is slightly larger than a cat.





ENDANGERED ANIMAL SPECIES



Gypaetus barbatus

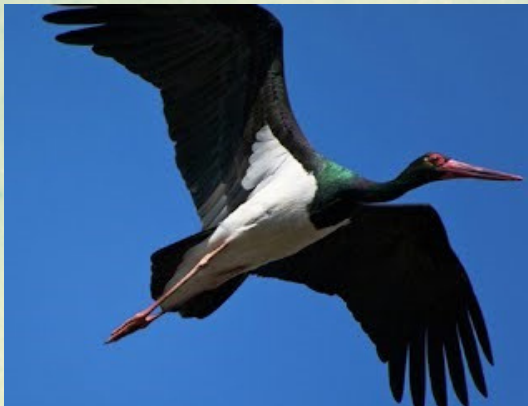
The bearded vulture is the largest diurnal bird of prey found on our lands. It is found in Europe (including Bulgaria), Asia and Africa. It feeds mainly on the carrion and bones of dead animals, which it lifts into the air and drops from a height to crumble them into food, breaking the shell of turtles in a similar way before eating them. Sometimes it catches some slower moving and small animals.





ENDANGERED ANIMAL SPECIES

Ciconia nigra



The black stork is a large migratory wading bird of the stork family. Adults are large wading birds with black upperparts (head, neck, breast, back and wings) with golden-purple and greenish highlights. The rest of the plumage is pure white. Beak and legs are red. When flying, the underwing area is black with a white triangle at the base of the wing. The neck is extended in flight





ENDANGERED ANIMAL SPECIES

Porpoise

Among the endangered species in Bulgaria is the porpoise. It belongs to the Dolphin family and is distributed in the coastal area of the Black Sea, including the Bulgarian coast. The porpoise is widespread in the seas of the Northern Hemisphere. One of the three species of dolphins that are also found in the Black Sea. Inhabits mostly shallow waters.





ENDANGERED ANIMAL SPECIES



Aquila heliaca

The imperial eagle is one of the largest eagles in Bulgaria, slightly smaller than the golden eagle. Body sizes vary from 72 to 84 centimetres and wingspan is between 180 and 215 centimetres. Adult birds are dark brown, almost black, with a very characteristic golden colour on the back of the head and neck. There are usually two white spots on the shoulders of varying size, which may be completely absent in some individuals. The main colour of the tail feathers is yellowish grey with dark thin transverse stripes at the tip, ending in a dark stripe. Juveniles have brown feathers with an ochreous centre, giving them their characteristic light brown appearance.





ENDANGERED ANIMAL SPECIES



Snake lizard

The snake lizard (also called yellow-bellied lizard) is a species of lizard that can grow up to 150 cm in length. It is the largest lizard found in Bulgaria and throughout Europe. Regardless of its resemblance to a snake, the viper has a meek disposition. When threatened, it does not attack or even bite, unlike the behavior of most snakes. It saves itself by sitting still or by running away.





ENDANGERED ANIMAL SPECIES

Lynx



The lynx, also called the Eurasian lynx, is a predatory mammal from the cat family. He is the representative of the family, living among the northernmost latitudes and inhabiting one of the most extensive ranges. The lynx is the third largest predator in Europe and at the same time the largest cat on the continent.





ENDANGERED ANIMAL SPECIES

Alpine Newt

The Alpine Newt is a small-tailed amphibian of the Salamander family. The geographical range is in Central Europe - from Northern France to the eastern slopes of the Carpathians and from Southern Denmark to the Alps. In Southern Europe, it is found in separate isolated localities. In our country the alpine newt is found in Stara Planina (Petrohan), Osogovska Planina, Rila (Seven Rila Lakes, Yakoruda Lakes, Yundola), Rhodopes (Smolyan Lakes and others) and Sredna Gora.





ENDEMIC PLANT SPECIES

Primula frondosa



A perennial herb with thin filamentous roots. Stem 4–27 cm high, erect, glabrous at the base and middle, short-glandular-fibrous at the top. The leaves are spade-shaped to obovate, collected in a basal rosette, glandular-fibrous, covered with a powdery coating, bluish-gray. Inflorescence loose umbel. Flowers 1–20 in number, pink to pale pink, tubular with disc-shaped corolla and narrow-cordate corolla lobes. The fruit bursts into a single-celled box. It is propagated by seeds and vegetatively.





ENDEMIC PLANT SPECIES

Daphne blagayana



Daphne blagayana - olive wild tree - Balkan endemic, rare and protected by the Biodiversity Act species, characteristic only of the Trojan Balkans, *D. pontica* - Strandzha wild tree, rare and protected species - only in Strandzha, *D. laureola* - laurel-like wild tree, rare and protected species - Vrachan Balkan and above the village of Bachkovo in the Rhodopes. The mad tree grows as an understory in coniferous or mixed forests. It inhabits shady places with rich soils. It usually grows in the form of single specimens, located at a great distance from each other.





ENDEMIC PLANT SPECIES

Nuphar lutea



Barduche is an aquatic plant. The flowers are yellow or red and aromatic. They stand about 20 cm above the water level. The calyx is coloured and greatly inflated so that the flower has a globular shape. The petals are much smaller. The seed is yellow or greenish-yellow, wrapped in a white floating tissue. It grows in the Upper Thracian lowland, the Black Sea coast, Northern Bulgaria





ENDEMIC PLANT SPECIES

Haberlea rhodopensis



Silivryak is a representative of the Silivryak family. It is a Balkan endemic, a protected relict species. It is known for its prolonged anabiotic drought resistance, also known as the "resurrection plant" or the flower of Orpheus.

In 1835, when Imre Frivaldski described the plant and reported it as new to science, he noted its locality as "Rumelia, Rhodope Mountains". A year later, the plant was discovered in Stara Planina.

It grows in the Central Stara Planina and in the Western Rhodopes





ENDEMIC PLANT SPECIES

Pulsatilla vernalis



Perennial herbaceous plant. Rhizome vertical, at the apex with several ovate-elliptic membranous leaves from which emerge the stem and basal rosette of leaves. Stem 5–30 cm high, adherent fibrous. Basal leaves hibernating, pinnate; leaf lobes obovate, up to $\frac{1}{2}$ divided into 2–3 short, broadly triangular teeth. Flowers 4–6 cm in diameter, slightly prostrate or erect. Perianth petals obovate, the outer ones pink, violet or blue at the base, silky-fibrous; inner ones whitish.

On stony and grassy places in the subalpine and alpine belt. It participates in the composition of grass communities of sedge, bent sedge, etc. Populations are patchy and fragmented. Grows in Rila.





ENDEMIC PLANT SPECIES

Trollius europaeus

Mountain peony is a perennial herb. The name "Vitoshko tulip", which is often used for this species, is inappropriate and incorrect.

The generic name *Trollius* means oval in Latin. It is given to the plant because of its globular kitschy flowers.

Its slender, up to one-meter tall stems are unbranched and leafy along their entire length. The lowermost leaves are petiolate, and the upper ones are almost sessile. The petals are palmately dissected into 3-7 wedge-shaped narrowed lobes.

The mountain peony can be found in moist meadows, peatlands and by streams below the Black Rock peak, in the area of the Shtastlivetsa tourist complex and in the Bistrishko Branishte reserve.





ENDEMIC PLANT SPECIES

Juniperus excelsa



Juniper is a type of tree or low shrub from the Cypress family. It is a protected species - included in Appendix No. 3 of the Law on Biological Diversity.

Blooms in March-April. It reaches up to 15 m in height. The leaves are scaly, located opposite. The galbulae ("fruits") are spherical with a diameter of 7 to 12 mm, and are covered with a bluish-gray coating.

The woody juniper is common on dry and rocky slopes. In Bulgaria, it grows in the Western Rhodopes (above the town of Krichim - the Burnt Gyune Reserve, the Middle Rhodopes and the Strum Valley, the Tisata Reserve.





ENDEMIC PLANT SPECIES

Paphiopedilum insigne



A critically endangered species. (Global Vulnerable)

A perennial herb with a creeping underground rhizome. The stem is 25-50 cm high with three to four elliptical leaves. The flowers are apical, single or in pairs, large. It is propagated by seeds, rarely and vegetative. An insect-pollinated plant. The first protected plant in Europe, the largest European orchid.

In Bulgaria, it is found only in the Rhodopes, in the area of the Red Wall peak, and the deposit is the southernmost in Europe.

A protected species whose habitats need priority protection under the Biodiversity Act.





ENDEMIC PLANT SPECIES

Ramonda serbica



Ramonda is a perennial herbaceous plant. It was named so because it was first discovered in the gorge of the Erma River in Serbia. Its semi-fleshy toothed petals are 4-7 cm long and 2-3 cm wide and are arranged in a basal rosette, narrowed at the base and rounded at the apex. The stems reach up to 10 cm and develop up to 4 flowers. The calyx of the purple flower is 3-6 mm long, and the corolla reaches 3 cm in diameter. It is propagated by seeds and vegetatively and flowers in April and May.

It grows in northwestern Bulgaria





ENDEMIC PLANT SPECIES

Leontopodium alpinum



Edelweiss is a genus of perennial herbaceous plants of the family Compositae. Over 30 species of protected highland plants. They are found in Europe and Southwest Asia. In Bulgaria, *Leontopodium alpinum* subsp. *alpinum*- Pirin and *Leontopodium alpinum* subsp. *nivalis* are found in Stara planina. The image of the plant is the emblem of the Bulgarian Tourist Union. The stem of the flower is up to 20 cm high, tufted and covered with hairs. The leaves are strongly narrowed, attached to the stem without petioles and covered with white silky hairs.





ENDEMIC PLANT SPECIES

Shrubby carragon



Shrub up to 1.5(3) m tall; bark dark green, smooth. Leaves pinnate, with two pairs of leaflets, 5–25 mm long and 2–15 mm wide, obovate, wedge-shaped at the base, rounded at the apex, darker above, lighter green below. Flowers solitary, rarely 2–3 in racemes, attached in leaf axils. Corolla 15–25 mm long, bright yellow, globous. Pod 2.5–4 cm long and 3–4 mm wide, dark brown, many-seeded.

On dry stony places and terrains with eroded carbonate soils. Small populations, ranging from two to several hundred individuals.





ENDEMIC PLANT SPECIES

Lilium jankae



Perennial bulbous plant, sometimes up to 1m high. The stem is leafy along its entire length. In its upper part, it is often branched and ends with several flowers. The latter are very beautiful - bright yellow petals with red anthers on the stamens.

Mountain cream is found on grassy places in the subalpine zone throughout the territory of the Park, but relatively rarely.

The species is a Balkan endemic. Endangered species included in the Red Book of Bulgaria and the IUCN Red List.

It grows in Western and Central Stara Planina, Vitosha, Rila, Rui, Milevska Planina, Konyavska Planina, Belasitsa.





ENDEMIC PLANT SPECIES

Tulipa rhodopea



Perennial herb. Bulbs ovoid, with reddish brown tunics. Stems 25–45 cm, erect, glabrous, leafy. Leaves 3–4, elliptic-lanceolate, undulate, glaucous. Perianth-segments 3–7 X 1.5–3.5 cm, obovate, acute or subacute at apex, red (somewhat dark), pruinose on the outer face, with a black basal blotch inside, surrounded by a narrow yellow band. Capsule ovoid, about 3 cm long. Flowering April-May, fr. VI–VI. Reproduction by seeds and bulbs.

The Rhodope tulip is a rare plant. It is found in the Eastern and Central Rhodopes and in the Slavyanska mountain. It grows in dry grassy and stony places.





ENDEMIC PLANT SPECIES

Crocus olivieri



Protected species included in Appendix No. 3 of the Biodiversity Act. Balkan endemic. I Threats to the species are habitat destruction and cutting of the plant for bouquets. Blooms February-April. Perennial, herbaceous plant. The height of the plant is from 8 to 15 cm. The stem is six-parted. Leaves covered with hairs. The shell of the tuber is divided into parallel fibers. Distribution In Bulgaria it is distributed along the Black Sea coast, Znepol region, the Strum Valley, Belasitsa, Slavyanka, the Valley of the Mesta River, the Rhodopes, the Thracian Plain and the Tundzhan hilly plain. It grows in Southern Bulgaria



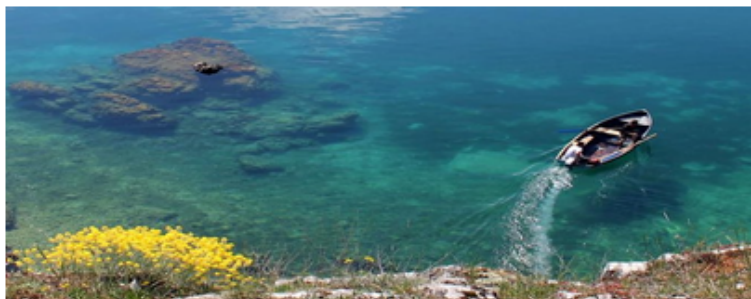


BIODIVERSITY IN MACEDONIA



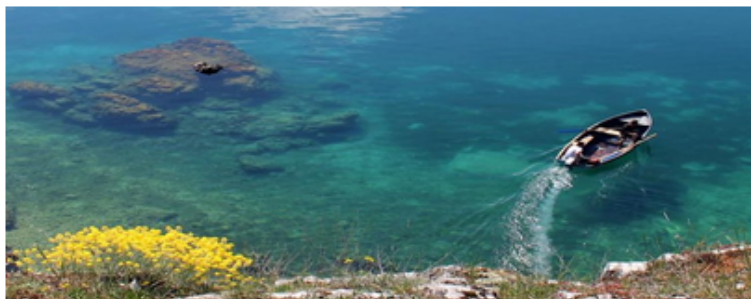


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ENDEMIC SPECIES

- ◉ Unfortunately there are a lot of endemic species too: 120 endemic plants and over 700 invertebrate species.
- ◉ The Ohrid Lake is is the center of the endemism covering the whole food chain (with 212 endemic species). It is considered to be a key site for biodiversity and speciation research.
- ◉ Due it's long history and geographical isolation a relatively high number of lake organisms are still speciating.





OHRID LAKE





OHRID LAKE

- Ohrid Lake is one of Europe's deepest and oldest lakes (between 4 and 10 million years), with a unique aquatic ecosystem of worldwide importance. Its surface is 358.2km².
- Since it represents a refuge for numerous freshwater organisms from the Tertiary Period and fossil remains it is also called "museum of living fossils" and Ohrid Laccus.
- With more than 200 endemic species Lake Ohrid is considered to be one of the most diverse ancient lakes in the world. The most famous is the endemic round sponge.





THE CITY AND THE LAKE ARE BOTH PROTECTED AS A NATURAL AND CULTURAL TREASURE BY UNESCO

- Ohrid trout (Salmo letnica) is an endemic freshwater fish that lives in Ohrid Lake and belongs to the family of trout.
- The maximum length ranges from 25 to 60cm and the weight is up to 15.8kg.
- It's characteristic is that along its body it has red circles and gray freckles.
- As one of the trademarks of Macedonia, it is also found on Macedonian coins.





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No 2019-1-TR01-KA229-074488_5



Co-funded by the
Erasmus+ Programme
of the European Union



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The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



BILJANINI IZVORI/BILJANA'S SPRINGS

- ◉ Lake Ohrid is characterized by underwater spring located along the eastern and southern coasts, so the water is incredibly clear (transparency in some places reaches even 22m).
- ◉ Many of the springs are found near the monastery of St. Naum and near the city Ohrid there are the most famous springs- Studencishta, know as Biljanini Izvori.
- ◉ The largest depth measured on Ohrid Lake is about 5km from the lake shore.





BILJANINI IZVORI BILJANA'S SPRINGS





WHAT ARE THE BIGGEST PROBLEMS IF HUMAN INFLUENCE?

- ◉ Shore habitats are under particular pressure from human activities. The biggest threats are:
- ◉ Building tourist facilities directly at the shore
- ◉ Throwing trash and solid waste.
- ◉ Overfishing (as a reaction to the situation, fishing has been banned for some years)





FAUNA

- The fauna of Macedonian forests is abundant and includes bears, wild boars, wolves, foxes, squirrels, chamois and deer. The lynx is found, although very rarely, in the mountains of western North Macedonia, while deer can be found in the region of Demir Kapija.
- Forest birds include the blackcap, the grouse, the black grouse, the imperial eagle and the forest owl.
- the total number of animal species reported until now is 10,354.





LYNX-ENDEMIC SPECIES FOUND IN MACEDONIA

