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THE AVIFAUNA OF TELAŠĆICA NATURE PARK, DUGI OTOK, CROATIA

Ornitofauna Parka prirode Telašćica, Dugi otok, Hrvatska

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ABSTRACT

An annotated checklist of the birds of Telašćica Nature Park, situated on Dugi otok in the eastern Adriatic, is presented based on field surveys, historical data and subsequent verified records. Fieldwork conducted in 2005–2006 included general avifaunal surveys, with targeted surveys of diurnal raptors, owls and swifts. In total, 125 species were documented, of which 44 were classified as breeding and six as possible breeding species. Breeding populations were estimated at 1–2 pairs of Short-toed Snake-eagle, 7–15 pairs of Common Kestrel, two pairs of Peregrine Falcon, 8–10 pairs of Eurasian Scops-owl and 10 pairs of Eurasian Eagle-owl. Common, Pallid and Alpine Swifts bred on the coastal cliffs. Eight of the nine breeding target species of the Natura 2000 SPA "NP Kornati i PP Telašćica" breed within the Park. The breeding avifauna reflects the diversity of open rocky karst, agricultural and semi-open habitats, scrub, woodland, coastal cliffs and marine habitats. Vegetation succession is reducing the extent of open habitats formerly maintained by agriculture and grazing. Conservation priorities include maintaining open and semi-open Mediterranean habitats and protecting breeding cliffs from disturbance. Further surveys are needed to improve knowledge of autumn migration and wintering birds.

Keywords: annotated checklist, breeding birds, Mediterranean islands, raptors, owls, swifts, habitat succession, eastern Adriatic

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INTRODUCTION

Mediterranean islands provide important habitats for birds throughout their annual cycle, supporting breeding, migratory and wintering populations. Their heterogeneous landscapes, comprising mosaics of Mediterranean vegetation, open and rocky habitats, coastal cliffs and offshore islets, provide breeding opportunities for diverse bird communities (Massa & Lo Valvo 1994). During migration, islands may also provide important resting sites for birds crossing the Mediterranean Sea, particularly after prolonged flights over open water (Maggini *et al*. 2020, Ferretti *et al*. 2021, Barboutis *et al*. 2022). In the eastern Adriatic, bird migration includes both movements along the coast and sea crossings between the Italian and Croatian coasts (Hirschhofer *et al*. 2025). Knowledge of the avifauna of individual islands is therefore important for evaluating their ecological and conservation significance and provides a baseline for detecting changes in bird communities over time.

Telašćica Nature Park is located at the southeastern end of Dugi otok in the Zadar Archipelago, central eastern Adriatic, Croatia (Fig. 1). Protected since 1980, it was initially part of Kornati National Park and was designated as a separate Nature Park in 1988 (Public Institution "Nature Park Telašćica" 2023). The Park comprises a diverse Mediterranean island landscape, including Telašćica Bay, Lake Mir, prominent coastal cliffs, smaller islands and islets, and a mosaic of Mediterranean vegetation and rocky habitats.

Since 2013, Telašćica Nature Park, together with the adjacent Kornati National Park, has formed the Natura 2000 Special Protection Area (SPA) "NP Kornati i PP Telašćica" (HR1000035), classified under the EU Birds Directive. Nine breeding bird species are listed as target species for the SPA: Rock Partridge *Alectoris graeca*, Tawny Pipit *Anthus campestris*, Eurasian Eagle-owl *Bubo bubo*, European Nightjar *Caprimulgus europaeus*, Short-toed Snake-eagle *Circaetus gallicus*, Peregrine Falcon *Falco peregrinus*, Red-backed Shrike *Lanius collurio*, Lesser Grey Shrike *Lanius minor*, and European Shag *Gulosus aristotelis desmarestii*. Three wintering species are also listed as target species: Hen Harrier *Circus cyaneus*, Merlin *Falco columbarius*, and Black-throated Loon *Gavia arctica* (Regulation on the Ecological Network 2013).

Ornithological information on Dugi otok dates back to the early twentieth century, with records provided by Sassi (1929) and Hirtz (1930). Further historical information is provided by Rucner (1998), whose account of the avifauna of the Croatian Adriatic coast is based largely on field observations collected between 1946 and 1975. Together, these sources represent the principal historical references for the avifauna of Dugi otok. However, many records in both sources refer to Dugi otok as a whole and lack sufficiently precise locality information to determine whether they originated from the area now encompassed by Telašćica Nature Park. Consequently, only a subset of these historical records

can be confidently attributed to the present-day Park area. Despite its long-standing protected status, detailed information on the occurrence, distribution and breeding status of birds in Telašćica has remained limited, and no comprehensive survey specifically addressing the avifauna of Telašćica Nature Park has been published.

This study contributes to the knowledge of the avifauna of Telašćica Nature Park and is based primarily on field surveys conducted in 2005 and 2006, with particular emphasis on diurnal raptors (Accipitriformes and Falconiformes), owls (Strigiformes) and swifts (Apodidae). Swifts were selected because historical records from Dugi otok and the Telašćica area (Rucner 1968, 1998) indicated the potential importance of the area for breeding swifts, whereas raptors and owls were selected as groups for which information on occurrence and breeding status in the Park was particularly limited. The primary objective was to determine which species from these groups occur within the Park and, where sufficient data were available, to assess their status, distribution and population size. In parallel, a broader inventory of other bird species was carried out at lower intensity. Field observations were complemented by historical records and verified subsequent records to provide the first comprehensive inventory of the Park's avifauna. These data provide a reference for future research, monitoring and conservation.

MATERIALS AND METHODS

Study area

Telašćica Nature Park (43°53′–43°57′ N, 15°08′–15°13′ E; Fig. 1) encompasses the southeasternmost part of Dugi otok, south of the village of Sali, together with the adjacent islands, islets, rocks, and surrounding marine waters. It covers approximately 70.5 km², comprising 44.5 km² (63%) of marine waters and 26.0 km² (37%) of terrestrial habitats (Public Institution "Nature Park Telašćica" 2023).

The landscape is characterised by the deeply indented Telašćica Bay, numerous small sheltered coves, the hypersaline Lake Mir, the prominent coastal cliffs along the southwestern, open-sea coast, and 13 adjacent islands, islets and rocks (Public Institution "Nature Park Telašćica" 2023).

The relief is predominantly karstic, with elongated limestone ridges and shallow depressions following the pronounced NW–SE orientation of Dugi otok. Towards the southwestern, open-sea coast, the terrain becomes increasingly steep, culminating in the Dugi otok coastal cliffs (Stene), the Park's most prominent geomorphological feature. The cliffs extend for approximately 7 km and reach a maximum height of 161 m a.s.l. at Grpašćak. In contrast, low-lying rocky coasts predominate in the southeastern part of the Park (Public Institution "Nature Park Telašćica" 2023). Karst fields (poljes) are a characteristic element of the landscape, occurring as a series of relatively small, scattered karst depressions

broadly following the NW–SE orientation of the island. They are characterised by deeper and more fertile soils than the surrounding rocky karst and have traditionally represented the most valuable agricultural land in the area (Džaja 2003, Magaš 2019).

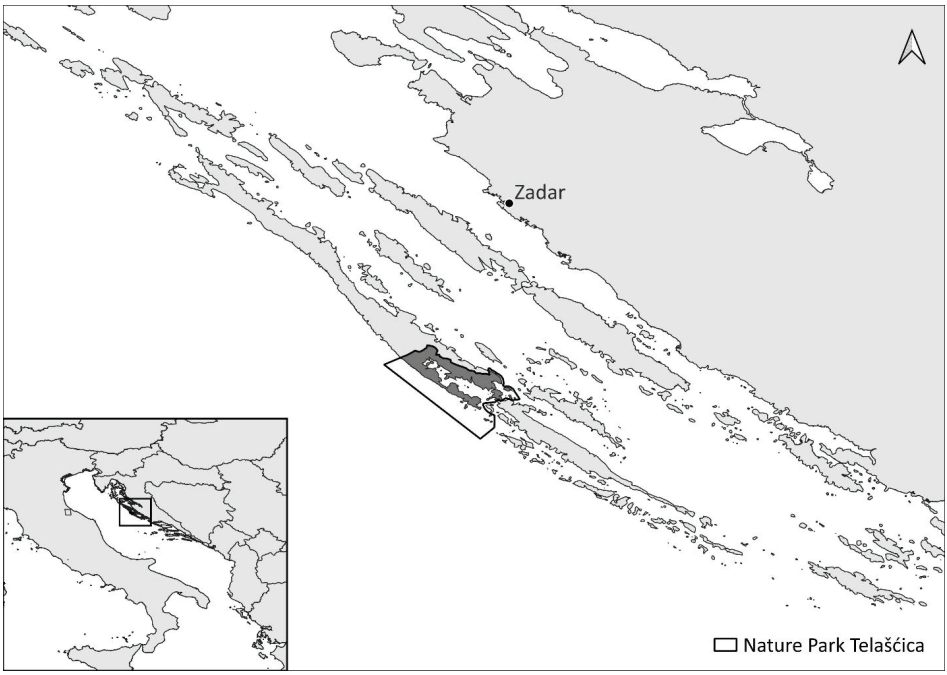


Figure 1. Geographic location of Telašćica Nature Park in the eastern Adriatic, Croatia. Map prepared by the authors using QGIS. Basemap source: State Geodetic Administration of the Republic of Croatia (DGU, https://geoportal.dgu.hr/services/tk/wms).

Slika 1. *Geografski položaj Parka prirode Telašćica na istočnom Jadranu, Hrvatska. Kartu su izradili autori pomoću programa QGIS. Izvor kartografske podloge: Državna geodetska uprava Republike Hrvatske (DGU, https://geoportal.dgu.hr/services/tk/wms).*

The Park has a Mediterranean climate (*Csa* according to the Köppen climate classification), characterised by hot, dry summers and mild, wet winters. Mean annual air temperature is approximately 15.2 °C, and mean annual precipitation is about 915 mm. Most precipitation falls during autumn and winter, whereas summers are characterised by pronounced drought (Zaninović *et al*. 2008, Public Institution "Nature Park Telašćica" 2023).

The study area lies within the Eumediterranean zone. The potential natural vegetation is Mediterranean evergreen holm oak (*Quercus ilex*) forest (*Fraxino*

orni–Quercetum ilicis Horvatić (1956) 1958). However, well-developed holm oak forests are virtually absent, and this association occurs almost exclusively in degraded forms (Public Institution "Nature Park Telašćica" 2023).

Agricultural land is confined to ten karst fields covering approximately 60 ha in total, the six largest being Gmajno (11 ha), Kršovo (10 ha), Stivanje (10 ha), Dugo (10 ha), Krševanje (8 ha) and Čuh (7 ha). Their fertile terra rossa soils have traditionally supported olive groves, vineyards and small cultivated plots. However, following population decline and the abandonment of traditional agriculture, cultivation is now largely restricted to small areas, mainly olive groves, while most of the karst fields have become overgrown with shrubs, which in some places have developed into tall maquis (Public Institution "Nature Park Telašćica" 2023).

Much of the surrounding rocky karst was historically maintained as open grassland and pasture through extensive livestock grazing. Its decline has resulted in progressive succession towards scrub, maquis and woodland. Aleppo pine (*Pinus halepensis*), planted after the Second World War, has subsequently spread from older plantations and is locally an important component of this succession. Aleppo pine and holm oak woodland is particularly developed in the Grpašćak–Stivanjska gora–Mrzlovica area, while pine has also colonised shallower soils elsewhere in the Park (Public Institution "Nature Park Telašćica" 2023).

Of the Park's terrestrial area, maquis and garrigue currently account for the largest proportion (about 40%), followed by dry grasslands (approximately 35%). Forests, consisting predominantly of Aleppo pine stands, cover about 6%, while agricultural land accounts for approximately 9%. The remaining terrestrial area comprises bare or sparsely vegetated karst and other minor land-cover categories (Public Institution "Nature Park Telašćica" 2023).

Permanent freshwater habitats are virtually absent from the Park. Freshwater is confined to a small number of artificial ponds (lokve). These ponds were originally created in natural depressions and maintained to provide water for livestock and agricultural use. Following the decline of traditional land use, many have become overgrown, partly infilled or have ceased to retain water. Most remaining ponds are temporary or strongly seasonal and dry out during summer, with the exception of Njarica Pond in Dugo polje, which retains water throughout the year. Given the scarcity of surface freshwater in the predominantly dry Mediterranean karst landscape, the remaining ponds represent important freshwater habitats for birds and other wildlife (Public Institution "Nature Park Telašćica" 2023).

The combination of diverse geomorphology, a Mediterranean climate, traditional land use, and the long-term abandonment of agriculture has created a heterogeneous mosaic of terrestrial habitats. Together with the Park's extensive coastal and marine habitats, particularly its prominent coastal cliffs, this habitat diversity supports a rich assemblage of breeding, migratory, and wintering birds.

Data collection

Fieldwork was conducted from early February 2005 to mid-May 2006 through a series of multi-day surveys covering different seasons, with two to five observers participating in each survey. Survey effort was greatest during the breeding season and lowest during autumn migration and the wintering period.

The study area encompassed the entire terrestrial area of Telašćica Nature Park, a 1-km buffer zone extending beyond its boundaries, and the nearby karst fields of Velo jezero and Malo jezero. The buffer zone was included to ensure complete coverage of breeding territories near the Park boundary and to include species whose territories at least partially overlapped with the protected area. Velo jezero and Malo jezero were included because parts of these karst fields are periodically flooded, mainly during winter, providing freshwater habitats that are scarce within the Park and may therefore be important for bird species using both the Park and the surrounding area.

General bird surveys were based on a combination of area searches and non-standardised line transects following standard bird census techniques (Bibby *et al*. 2000). Area searches represented the principal method and involved systematic coverage of all major habitat types under different seasonal and daily conditions. During each visit, all bird species detected visually or acoustically were documented. Indirect evidence of bird presence, including nests, feathers, droppings, and feeding signs, was also recorded whenever encountered. Non-standardised line transects were conducted mainly during the morning, when bird activity was highest. Transects followed existing roads and footpaths through representative habitat types, and all birds detected visually or acoustically were documented regardless of their distance from the transect.

Diurnal raptors were surveyed through repeated visits to potential breeding habitats across the study area. Estimates of breeding distribution and population size were based primarily on repeated observations at the same localities and other evidence of breeding recorded according to the European Bird Census Council criteria (Hagemeijer & Blair 1997). Active nests and adults carrying prey or nesting material were used to confirm breeding whenever such observations were available.

Breeding owls were surveyed using playback, one of the most effective methods for assessing nocturnal owl populations over large areas (Johnson *et al*. 1981, Smith 1987, Takats *et al*. 2001). Surveys targeted all owl species considered likely to breed within the Park based on their known distribution in Croatia and the availability of suitable habitat: Eurasian Eagle-owl, Little Owl *Athene noctua*, Eurasian Scops-owl *Otus scops*, Tawny Owl *Strix aluco*, and Long-eared Owl *Asio otus*.

Playback surveys were conducted at 44 stations. Twenty stations were established to cover Eurasian Eagle-owl territories, including 17 terrestrial and three

boat-based stations, and were distributed to provide coverage throughout the Park. The remaining 24 stations were distributed among agricultural land, olive groves, and forests to survey the other owl species.

Playback surveys were conducted during the breeding season and timed to coincide with the period of peak vocal activity of each target species. Fieldwork was undertaken only under suitable weather conditions, with no precipitation and wind speeds below Beaufort force 3. Observations were made at night, from approximately 30 minutes after sunset until one hour before sunrise. Species-specific vocalisations from Roche (1991, All the Bird Songs of Europe) were broadcast using a portable CD player connected to external loudspeakers.

Locations of responding individuals, together with spontaneously vocalising birds, were plotted on 1:25,000 topographic maps. Breeding territories were subsequently identified based on simultaneous vocalisations, sex-specific calls, and individual movements, allowing estimates of breeding distribution and population size.

Swift breeding colonies were surveyed in 2005 and 2006 using complete colony censuses. Potential breeding cliffs and rocky coastlines were systematically surveyed by boat during the breeding season, as swifts breed predominantly in rock crevices on sea cliffs. Surveys covered the coastline of Telašćica Bay, the sea cliffs (*Stene*) along the southwestern coast of Dugi otok as far as the Park boundary, and the surrounding islands. Particular attention was paid to islands containing suitable cliff habitat (e.g. Garmenjak Veli) and those where breeding swifts had previously been recorded (e.g. Korotan and Galijola, D. Radović, pers. comm.).

Boat surveys were carried out during the second half of May in both study years, corresponding to the nestling period when adults make frequent feeding visits to breeding colonies. Colony size was estimated from the number of adults entering nest crevices and from evening flight activity above the colonies. Each colony was visited at least twice during each breeding season using the Nature Park management vessel. During these visits, all cliff-associated bird species, including breeding raptors occupying the sea cliffs, were also documented.

Additional effort during autumn focused on documenting migratory species passing through the Park, irrespective of whether they remained within the study area. Visible migration was monitored throughout the day from three prominent vantage points: Kamenjaci, Veli vrh above Dugonjive, and the Grpašćak helipad. Migrant passerines were surveyed using mist nets operated for two consecutive days at each of two sites (Čuh polje and Dugo polje), following standard ringing procedures (Ralph *et al*. 1993, Bibby *et al*. 2000). Playback was used to increase capture efficiency.

Historical records (Sassi 1929, Hirtz 1930, Rucner 1998) were reviewed to complement the field surveys and improve the completeness of the avifaunal

checklist of Telašćica Nature Park. Previous records were incorporated when a species was not recorded during the present study, was recorded only occasionally, or when historical data indicated a different status from that documented during the surveys.

In addition to published historical sources, earlier field observations by the authors in the Park were examined, together with records from ornithological surveys conducted by Association BIOM and the Biology Students' Association BIUS and documented in reports prepared for the Public Institution "Nature Park Telašćica". These reports are held in the archives of the Public Institution "Nature Park Telašćica" and are publicly available upon request.

To supplement the species checklist and document subsequent occurrences within the Park, opportunistic records collected after completion of the 2005–2006 field surveys were reviewed using the following online databases: BioAtlas – Atlas of Biodiversity of Croatia, Observado.org, iNaturalist.org, and eBird.org. Records were considered for inclusion based on the reliability of their identification, assessed through photographic documentation, observer reliability, or validation status. Only verified records providing additional relevant information on species occurrence or status in the Park were included. The records incorporated into the present study were obtained from BioAtlas and eBird.

Species recorded during periods corresponding to their typical migration or wintering seasons were classified as passage or wintering species, respectively. Breeding status was assessed based on records during the breeding season, taking into account species behaviour, habitat, frequency of occurrence, and other available information. Species whose occurrence during the breeding season, availability of suitable habitat and/or other available information indicated the possibility of breeding within the Park, but for which the available data were insufficient to establish breeding status reliably, were classified as possible breeding species. Species occurring only exceptionally in the area, outside their regular breeding, migration, or wintering occurrence, were classified as vagrants.

The bird taxonomy and nomenclature follow HBW and BirdLife International (2025), Version 10.

RESULTS AND DISCUSSION

A total of 125 bird species were recorded in the Park, of which 100 were recorded during the 2005–2006 surveys. An annotated species list is provided below. Five species are known only from historical records: the Lanner Falcon *Falco biarmicus*, Griffon Vulture *Gyps fulvus*, Western Rock Nuthatch *Sitta neumayer*, Eurasian Siskin *Spinus spinus*, and Sombre Tit *Poecile lugubris* (see the species accounts for details). The remaining 20 species were documented through additional records obtained outside the main study period. A total of 44 species were identified as breeding species and six as possible breeding species.

During the study, three species of diurnal raptors were identified as breeding species in the Park: the Short-toed Snake-eagle, Common Kestrel *Falco tinnunculus*, and Peregrine Falcon. Their breeding populations were estimated at 1–2 pairs, 7–15 pairs, and two pairs, respectively. Subsequent surveys conducted between 2016 and 2025 as part of species-specific breeding population monitoring (Kapelj *et al*. 2016, Kapelj *et al*. 2017, Čulig *et al.* 2023, Kapelj *et al*. 2025, Ribić *et al*. 2026) confirmed the presence of two breeding pairs each of Short-toed Snake-eagle and Peregrine Falcon in the Park.

In addition, the Eurasian Sparrowhawk *Accipiter nisus* and Eurasian Buzzard *Buteo buteo* are considered possible breeding species in the Park, based on occasional records during the breeding season. Further surveys are needed to clarify their breeding status.

Historically, the Lanner Falcon was also reported as a breeding species in the area. Hirtz (1930) reported it breeding on the cliffs of Dugi otok and the Kornati Islands. This historical status is supported by Sassi (1929), who documented a male obtained at Koromačna, Kornat, on 21 May 1928, reportedly originating from Škulj, and personally observed two additional individuals on the cliffs of Veli Rašip. There have been no subsequent records of the species in the area, consistent with the severe decline and fragmentation of the European population during the 20th century (Sarà *et al*. 2019).

Three owl species were recorded during the study: Eurasian Scops-owl, Long-eared Owl, and Eurasian Eagle-owl. Of these, the Eurasian Scops-owl and Eurasian Eagle-owl were identified as breeding species in the Park, with breeding populations estimated at 8–10 pairs and 10 pairs, respectively.

The Little Owl was not recorded during the 2005 and 2006 surveys, despite repeated searches of suitable habitats during the breeding season. Hirtz (1930) recorded the species at Sali in May 1925, while Rucner (1998) listed it as a breeding species on Dugi otok. However, the species was recorded near Uvala Mir in June 2000 (Jurinović *et al*. 2002) and again in the Uvala Mir area above Rudići on 15 March 2016 (Kapelj *et al*. 2016). These scattered records suggest that the Little Owl is a possible breeding species in the area, although further surveys are needed to clarify its breeding status.

Ongoing overgrowth of agricultural mosaics in the Park's karst fields is likely to reduce suitable habitat for the Little Owl, which depends on heterogeneous agricultural habitats with accessible open ground and short or sparse vegetation. Such habitat changes have been associated with the decline and local disappearance of the species along the Croatian coast (Budinski *et al*. 2010), with similar patterns more recently reported on Mljet (Jurinović *et al*. 2024) and in the Lastovo Archipelago (Engelen & Ječmenica 2025). At the same time, expansion of pine groves may favour the Tawny Owl, a known predator of the Little Owl (Mikkola 1983, Juillard 1985, Schönn 1986). Notably, the first Tawny Owl

recorded in Telašćica Nature Park was heard in the pine grove at Uvala Mir on 24 October 2022, in the same area where Little Owls had been recorded in 2000 and 2016. Although the significance of this record is uncertain, ongoing habitat succession may make the long-term persistence of the Little Owl in the Park increasingly uncertain.

Three swift species were reported as breeding on the sea cliffs of Dugi otok by Rucner (1968): Common Swift *Apus apus*, Pallid Swift *Apus pallidus*, and Alpine Swift *Tachymarptis melba*. All three were still found breeding on the seaward-facing cliffs of Telašćica Nature Park during the study. Their breeding populations were estimated at 60–100 pairs, 100–150 pairs, and 30–40 pairs, respectively.

Of the three species, the Pallid Swift was the most numerous. Historically, its breeding in Croatia was known only from sea cliffs on two outer islands, Mljet and Dugi otok, but the species has since considerably expanded its breeding range along the Croatian coast, establishing colonies on both sea cliffs and buildings (Budinski *et al*. 2010). The Telašćica colonies thus represent a long-established cliff-nesting population within the species' historical breeding range in Croatia. Subsequent surveys conducted in 2016 and 2017 as part of species-specific breeding population monitoring showed that the breeding populations of all three swift species in the Park had remained stable since the 2005–2006 surveys (Kapelj *et al*. 2016, Kapelj *et al*. 2017).

Several bird species of conservation concern breed within Telašćica Nature Park. At the European level, the European Turtle-dove *Streptopelia turtur* is classified as Vulnerable (VU), while the Rock Partridge, Common Swift, and Woodchat Shrike *Lanius senator* are classified as Near Threatened (NT) (BirdLife International 2021). At the national level, two breeding raptors in the Park are classified as threatened in Croatia (Tutiš *et al*. 2013): the Short-toed Snake-eagle as Endangered (EN) and the Peregrine Falcon as Vulnerable (VU). Their breeding populations in the Park represent approximately 1.8% and 2.5% of the respective Croatian breeding populations. The wintering population of Merlin is also classified as Vulnerable (VU) in Croatia, with the three individuals recorded wintering in the Park during the study representing approximately 6% of the estimated Croatian wintering population (Tutiš *et al*. 2013).

Eight of the nine breeding bird species listed as target species for the Natura 2000 Special Protection Area (SPA) "NP Kornati i PP Telašćica" (HR1000035) breed within Telašćica Nature Park, while the Lesser Grey Shrike has not been recorded in the Park. The present study provided breeding population estimates for three of these species: Eurasian Eagle-owl, Short-toed Snake-eagle, and Peregrine Falcon. Population monitoring has subsequently been initiated for six of the eight target breeding species (Kapelj *et al*. 2016, Kapelj *et al*. 2017, Čulig *et al*. 2023, Kapelj *et al*. 2025, Ribić *et al*. 2026). Targeted surveys are needed to estimate the breeding population sizes of the remaining species, and regular population

monitoring should be continued and extended to all eight target breeding species in the Park.

Of the three wintering species listed as target species for the SPA, two have been recorded in the Park: Hen Harrier and Merlin. The Black-throated Loon has not been recorded. Targeted winter surveys are needed to clarify the occurrence and population sizes of these species in the Park. Population monitoring, initiated for one of the target wintering species (Kapelj *et al*. 2025), should be continued and, where appropriate, extended to other target species.

The number of bird species recorded in the Park (125 species, including 44 breeding species) is relatively high considering its small terrestrial area. For comparison, 168 species (63 breeding) have been recorded on Hvar (Rucner 1977, Sušić *et al*. 1995), 134 (47 breeding) on Brač (Cvitanić 1984), 103 (34 breeding) on Korčula (Krpan 1977), and 154 (54 breeding) on Mljet (Jurinović *et al*. 2024). The islands used for comparison are several times larger than the terrestrial part of the Park: Brač, Hvar, Korčula, and Mljet are approximately 15, 11, 10, and 4 times larger, respectively.

However, these comparisons should be interpreted with caution, as recorded species richness is influenced by multiple factors, including island size, isolation, and habitat diversity (Ricklefs & Lovette 1999, Donázar *et al*. 2005, Kalmar & Currie 2007), as well as the intensity and seasonal coverage of ornithological surveys. This is well illustrated by recent intensive surveys of the Lastovo Archipelago, which substantially increased the number of bird species known from the area (Engelen & Ječmenica 2025).

Recent ornithological surveys in Telašćica Nature Park have been relatively limited, and some parts of the annual cycle remain insufficiently covered, particularly autumn migration and winter. Further systematic year-round surveys may therefore increase the number of species recorded in the Park and provide a more complete understanding of their seasonal occurrence and status.

The breeding species recorded in Telašćica reflect the diversity of habitats within the Park. Open rocky grasslands and sparsely vegetated karst provide breeding habitat for characteristic open-country species such as Rock Partridge, Tawny Pipit, Black-eared Wheatear *Oenanthe hispanica* and Rufous-tailed Rock-thrush *Monticola saxatilis*. These species depend on open or sparsely vegetated ground, and their occurrence reflects the still extensive open karst habitats within the Park. In southern Italy, for example, breeding Black-eared Wheatears were associated with bare ground and grazed grasslands (Brambilla *et al*. 2013).

The extensive coastal cliffs provide important nesting sites for Alpine Swift, Pallid Swift, Peregrine Falcon, Common Raven *Corvus corax* and Blue Rock-thrush *Monticola solitarius*. For Eurasian Eagle-owl, the combination of rocky nesting sites, both on coastal cliffs and in other rocky areas throughout the Park, and adjacent open habitats suitable for hunting provides particularly favourable

conditions and may contribute to the high breeding density recorded in the Telašćica–Kornati area. Barišić *et al*. (2016) attributed this high density to favourable foraging conditions, particularly the year-round availability and high abundance of Yellow-legged Gull *Larus michahellis* and Black Rat *Rattus rattus*, together with a low risk of human-induced mortality.

Rocky coasts and offshore islets provide breeding sites for European Shag and Yellow-legged Gull, while the extensive surrounding marine waters provide important foraging habitat for both species.

Karst fields, old olive groves and other cultivated or abandoned agricultural areas support species associated with traditional semi-open Mediterranean landscapes. European Turtle-dove, Eurasian Scops-owl, Hoopoe *Upupa epops*, Red-backed Shrike, Woodchat Shrike and Cirl Bunting *Emberiza cirlus* occur in habitats combining open ground with scattered shrubs, trees, olive groves and woodland edges. The occurrence of these species reflects the importance of the remaining heterogeneous agricultural landscape, particularly where open areas and old olive groves are interspersed with scrub and other woody vegetation.

Scrub and maquis provide habitat for several characteristic Mediterranean species, including Sardinian Warbler *Curruca melanocephala*, Subalpine Warbler *Curruca cantillans*, Eastern Orphean Warbler *Curruca crassirostris*, Eastern Olivaceous Warbler *Iduna pallida*, Olive-tree Warbler *Hippolais olivetorum* and Nightingale *Luscinia megarhynchos*. Differences in vegetation structure, from low and relatively open scrub to tall maquis and woodland edges, provide suitable conditions for species with different requirements for woody vegetation.

Woodland and more densely wooded areas provide additional breeding habitat for species such as Great Tit *Parus major*, Eurasian Blackbird *Turdus merula* and Common Chaffinch *Fringilla coelebs*. Some species depend on a combination of wooded and open habitats. Short-toed Snake-eagle, for example, uses trees for nesting but forages mainly over open habitats.

The widespread abandonment of traditional agriculture and decline of livestock grazing have led to extensive vegetation succession on former agricultural land and rocky grasslands, with scrub, maquis and woodland increasingly replacing open habitats. This process has gradually changed the extent of different habitats within the Park, reducing the availability of open and sparsely vegetated areas for species dependent on these habitats, while favouring species associated with scrub and woodland. Similar changes in breeding bird communities associated with the loss of open habitats following land abandonment have been reported elsewhere in the Mediterranean (Sirami *et al*. 2007, 2008, Zakkak *et al*. 2014), as well as on Adriatic islands (Jurinović *et al*. 2024, Engelen & Ječmenica 2025).

Some differences between the breeding species recorded in the present study and those reported by Rucner (1998) may reflect long-term changes in habitat

conditions. The Common Chaffinch, European Serin *Serinus serinus*, and Eurasian Blackcap *Sylvia atricapilla* were recorded as breeding species in the present study but were not listed as breeders on Dugi otok by Rucner (1998). Conversely, the Little Owl and Black-headed Bunting *Emberiza melanocephala*, both reported by Rucner (1998) as common breeding species on Dugi otok, were not confirmed as regular breeders in the present study. These differences are consistent with the long-term shift from open agricultural and pastoral habitats towards scrub and woodland.

Preventing complete vegetation closure in selected areas, particularly through the maintenance or restoration of extensive grazing and traditional agricultural practices, could be important for preserving breeding species associated with open and semi-open Mediterranean habitats. Management should also address disturbance at important breeding cliffs. Rock climbing should be prohibited throughout the year, as the prolonged and partly overlapping breeding periods of cliff-nesting species make it difficult to define a period when climbing would not pose a risk of disturbance. Some species, including the Eurasian Eagle-owl and European Shag, begin breeding activities as early as late autumn or winter, whereas swifts remain at their breeding sites until late summer or early autumn. Close approaches by tourist and recreational boats should be prohibited at least during the breeding season, with year-round restrictions considered at particularly important or sensitive sites.

Overall, Telašćica Nature Park supports a diverse bird fauna within a relatively small terrestrial area, reflecting the diversity of its terrestrial, coastal and marine habitats. Maintaining this habitat diversity and limiting disturbance at sensitive breeding sites will be important for the long-term conservation of the Park's avifauna. Further systematic year-round surveys, particularly during the less well-studied autumn migration and winter periods, are needed to provide a more complete understanding of species occurrence and seasonal patterns in the Park.

Annotated species list

Unless otherwise stated, all records from 2005 and 2006 refer to observations made during the present study. The status assessments presented in the species list are based on currently available data and reflect the present state of knowledge. Further systematic surveys may provide a more complete picture of species occurrence in the Park and lead to the refinement or revision of some of these assessments.

Common Quail – *Coturnix coturnix*

The Common Quail is a passage species. It was observed at Veli dočić in May 2017 (Korša & Taylor 2017).

Rock Partridge – *Alectoris graeca*

The Rock Partridge is a breeding species in the Park. It was recorded near Mali dočić in mid-February 2005 but was not observed during subsequent surveys in 2021 (MEPGT-IEN 2024).

Common Pheasant – *Phasianus colchicus*

The Common Pheasant is an introduced game species that breeds in the Park. During the study, it was recorded on several occasions at Dugo polje. In late May 2005, a female with chicks was recorded at Velo jezero.

Greylag Goose – *Anser anser*

The Greylag Goose is a wintering species. A flock of 28 birds was recorded flying over Dugo polje in early February 2005.

Garganey – *Spatula querquedula*

The Garganey is a passage species. In the second half of March 2005, two birds were recorded at Malo jezero and a flock of 12 along the shore of Garmenjak Veli.

Mallard – *Anas platyrhynchos*

The Mallard is a passage species. It was recorded at Velo jezero in early April 2001 (Jurinović *et al*. 2002).

Black-necked Grebe – *Podiceps nigricollis*

The Black-necked Grebe is a wintering species. Several birds were recorded in Telašćica Bay in early February 2005.

Rock Dove – *Columba livia*

The Rock Dove is a breeding species in the Park. During the study, it was found breeding on coastal cliffs, with the largest colonies at Stene, particularly in the semi-caves of Tetića porat and Golubinka, where the total population was estimated at 20–30 pairs. A smaller colony of 5–10 pairs was recorded on Garmenjak Veli. The species was also observed foraging in small flocks in karst fields.

Common Woodpigeon – *Columba palumbus*

The Common Woodpigeon is a passage species. During the study, it was recorded in small numbers in late March 2005. In mid-November 2025, 80 birds were recorded (Aurora Varda, eBird).

European Turtle-dove – *Streptopelia turtur*

The European Turtle-dove is a breeding species. During the study, several singing males were recorded in the Mali dočić–Čuh polje area in late May 2005. It was also recorded at Gmajno polje in mid-June 2000 (Jurinović *et al*. 2002) and on 12 July 2026 (Harry Ewing, eBird).

Eurasian Collared-dove – *Streptopelia decaocto*

The Eurasian Collared-dove is a breeding species associated with settlements. During the study, it was recorded in Sali. Outside the settlement, it was recorded at Uvala Mir in April 2001 (Jurinović *et al*. 2002).

European Nightjar – *Caprimulgus europaeus*

The European Nightjar is a breeding species. During the study, it was recorded at several localities in late May 2005, including Stivanje polje, Smričevica, Dugonjive, Čuh polje, Komornjak, Gmajno polje, and Uvala Mir. It was also recorded at Stivanje polje and Dugo polje in mid-June 2000 (Jurinović *et al*. 2002).

Alpine Swift – *Tachymarptis melba*

The Alpine Swift is a breeding species. It breeds exclusively on the cliffs at Stene, either solitarily or in small colonies of up to five pairs. Unlike the other two swift species, it does not form mixed colonies. Nest sites are typically located in small, inconspicuous crevices in smooth cliff faces, rather than in caves, recesses formed by rock breakage, or overhanging sections of cliffs used by Common and Pallid Swifts. Based on counts conducted in 2005 and 2006, the breeding population was estimated at 30–40 pairs.

Pallid Swift – *Apus pallidus*

The Pallid Swift is a breeding species and the most numerous swift in the Park. During the study, it was found breeding at Stene and Garmenjak Veli, with no colonies recorded elsewhere in the Park. It nested in crevices in steep cliffs, forming colonies ranging from several to several tens of pairs. Larger colonies were often mixed with Common Swifts. The largest colonies were found in the semi-cave at Tetića porat (approximately 30 pairs), in Golubinka Cave below Grpašćak (approximately 30 pairs), and on the seaward-facing cliffs near Uvala Mir (approximately 20 pairs). Based on counts conducted in 2005 and 2006, the breeding population was estimated at 100–150 pairs.

Common Swift – *Apus apus*

The Common Swift is a breeding species, although somewhat less numerous than the Pallid Swift. During the study, it was found breeding at Stene and Garmenjak Veli, with no colonies recorded elsewhere in the Park. It nested in crevices in steep cliffs, forming small to medium-sized colonies, often mixed with Pallid Swifts. The largest colonies were found in Golubinka Cave (approximately 20 pairs) and on the seaward-facing cliffs near Uvala Mir (approximately 15 pairs). Based on counts conducted in 2005 and 2006, the breeding population was estimated at 60–100 pairs.

Common Cuckoo – *Cuculus canorus*

The Common Cuckoo is a breeding species. Calling males were recorded at several localities throughout the Park in late May 2005 and 2006.

Scopoli's Shearwater – *Calonectris diomedea*

The Scopoli's Shearwater is a wandering species. It has been recorded only once, with three birds observed on 28 August 2023 (Sylvain Eichhorn, eBird).

Common Little Bittern – *Ixobrychus minutus*

The Common Little Bittern is a passage species. In early May 2006, one male was recorded at Kršovo polje and two males at Dugo polje.

Black-crowned Night-heron – *Nycticorax nycticorax*

The Black-crowned Night-heron is a passage species. Three birds were recorded at Uvala Mir in early May 2006.

Grey Heron – *Ardea cinerea*

The Grey Heron is a passage and wintering species. During the study, single birds were recorded in winter and spring in both 2005 and 2006. A wandering bird was also recorded in mid-June 2000 (Jurinović *et al*. 2002).

Purple Heron – *Ardea purpurea*

The Purple Heron is an uncommon species. A single bird was recorded on Garmenjak Veli in late May 2005. Given the timing of the record within the breeding season, it was probably a wandering bird. The nearest breeding colony is at Lake Vrana.

Little Egret – *Egretta garzetta*

The Little Egret is a passage species. It was recorded at Uvala Mir in mid-June 2000 (Jurinović *et al*. 2002) and at Krševo polje in the first half of May 2017 (Korša & Taylor 2017).

Great White Egret – *Ardea alba*

The Great White Egret is a wintering species. In mid-January 2023, three birds were recorded in the Kornati Channel and one in Uvala Mir (Petra Čulig, BioAtlas).

European Shag – *Gulosus aristotelis*

The European Shag is a breeding species. During the study, it was found breeding on the seaward-facing cliffs at Stene, with 8–10 breeding pairs recorded.

Great Cormorant – *Phalacrocorax carbo*

The Great Cormorant is a wintering and passage species. In early February 2005, two birds were recorded in Uvala Čuška dumboka and one in Uvala Mir. In late March 2005, a flock of 19 birds was recorded flying over Dolac.

Black-winged Stilt – *Himantopus himantopus*

The Black-winged Stilt is a passage species. Two birds were recorded on 28 June 2021 (Josip Turkalj, eBird).

Black-tailed Godwit – *Limosa limosa*

The Black-tailed Godwit is a passage species. A single bird was recorded at Velo jezero in early April 2001 (Jurinović *et al*. 2002).

Eurasian Woodcock – *Scolopax rusticola*

The Eurasian Woodcock is a wintering species. In early February 2005, one bird was recorded at Stivanje polje and five along the Kristavica–Sali route.

Common Snipe – *Gallinago gallinago*

The Common Snipe is a wintering species in the area. In early February 2005, one bird was recorded at Kršovo polje.

Common Sandpiper – *Actitis hypoleucos*

The Common Sandpiper is a passage species. One bird was recorded on 2 July 2026 (Harry Ewing, eBird).

Black-headed Gull – *Larus ridibundus*

The Black-headed Gull is a wintering species. In January 2005, two birds were recorded at Kršovo polje, while five were recorded near Sali in February 2005.

Yellow-legged Gull – *Larus michahellis*

The Yellow-legged Gull is a breeding species. During the study, it was found breeding in colonies of varying sizes. The largest colonies were recorded on the islets of Garmenjak Mali (200–250 pairs) and Garmenjak Veli (approximately 100 pairs), on Katina (approximately 70 pairs), and on the seaward slopes of Stivanjska gora, where 30–40 pairs nested along the gently sloping section of the southwestern coast. The total breeding population was estimated at 400–600 pairs. This estimate should be considered approximate, as counts were conducted from a boat without landing on the islands.

Sandwich Tern – *Thalasseus sandvicensis*

The Sandwich Tern is a passage species. A single bird was recorded in Uvala Mala Dajnica in the second half of March 2005.

Little Owl – *Athene noctua*

The Little Owl is considered a possible breeding species. Hirtz (1930) recorded the species at Sali in May 1925, while Rucner (1998) listed it as a breeding species on Dugi otok. More recently, a single bird was recorded near Uvala Mir in June 2000 (Jurinović *et al*. 2002). Targeted surveys conducted during the breeding seasons of 2005 and 2006 failed to detect the species, despite repeated searches of suitable habitats. However, a Little Owl was recorded in the Uvala Mir area above Rudići on 15 March 2016 (Kapelj *et al*. 2016). These scattered historical and more recent records suggest that the Little Owl is a possible breeding species, although further surveys are needed to clarify its breeding status.

Eurasian Scops-owl – *Otus scops*

The Eurasian Scops-owl is a breeding species. During targeted surveys conducted in 2005 and 2006, seven pairs were recorded: one at Dugo polje, two in a pine grove near Uvala Mir, and four in rural mosaic habitats, mainly olive groves, in the immediate vicinity of Sali. The total breeding population was estimated at 8–10 pairs.

Long-eared Owl – *Asio otus*

The Long-eared Owl is a wintering species. Pellets were found at Grbine, above Uvala Rasoča, in early March 2005. Despite targeted surveys during the breeding seasons of 2005 and 2006 in potentially suitable habitats, including pine groves and rural mosaics in karst fields, the species was not recorded.

Tawny Owl – *Strix aluco*

The Tawny Owl has been recorded only once. On 24 October 2022, a bird was heard giving the characteristic "kewick" call in the pine grove at Uvala Mir (Olga Zaytseva, pers. comm.).

Eurasian Eagle-owl – *Bubo bubo*

The Eurasian Eagle-owl is a breeding species. During targeted playback surveys, the territories of 10 pairs were recorded entirely or partly within the Park boundaries.

Osprey – *Pandion haliaetus*

The Osprey is a passage species. In October 1985, a bird ringed in Scotland was recovered dead in the Park (Bird Ringing Archives of the Institute of Ornithology, Croatian Academy of Sciences and Arts).

European Honey-buzzard – *Pernis apivorus*

The European Honey-buzzard is a passage species. During the study, a single bird was recorded flying over Proversa in late May 2005 during spring migration. Another bird was recorded on 28 June 2021 (Josip Turkalj, eBird), possibly representing a late spring migrant.

Short-toed Snake-eagle – *Circaetus gallicus*

The Short-toed Snake-eagle is a breeding species. During surveys conducted in 2005 and 2006, it was regularly recorded during the breeding season, circling over karst fields and rocky grasslands. The breeding population was estimated at 1–2 pairs.

Griffon Vulture – *Gyps fulvus*

Hirtz (1930) recorded the Griffon Vulture on two occasions on Dugi otok: two individuals at Gračina on 27 May 1926 and two over Brbinj on 28 September 1928. As several localities on Dugi otok bear the name Gračina, including one near the entrance to Telašćica Nature Park, the exact location of the first record remains uncertain.

Western Marsh-harrier – *Circus aeruginosus*

The Western Marsh-harrier is a passage species. Three birds were recorded in late March 2005, and another three on 12 April 2016 (Josip Turkalj, eBird).

Hen Harrier – *Circus cyaneus*

The Hen Harrier is a wintering species. During the study, single birds were recorded on several occasions in winter. In February 2005, three birds were recorded simultaneously, one each over Čuh polje, Dugo polje, and Smrčevica.

Montagu's Harrier – *Circus pygargus*

The Montagu's Harrier is a passage species. In late May 2005, a male was recorded near Proversa, in the southeastern part of the Park, mobbing a Short-toed Snake-eagle. Although recorded during the breeding season, the lack of further

observations suggests that it was probably a wandering bird. Two birds were recorded on 23 August 2021 during autumn migration (Henrik Madsen, eBird).

Eurasian Sparrowhawk – *Accipiter nisus*

The Eurasian Sparrowhawk is a wintering and passage species. During the study, it was particularly numerous in winter; in February 2005, it was recorded at more than ten localities throughout the Park, mainly in karst fields, usually with one to three birds per locality, including on the islands of Katina and Sestrica Vela. During spring migration, it was recorded at Stivanje polje in late March 2005, while Jurinović *et al*. (2002) recorded it at Dugo polje in early April 2001. During the breeding season, a bird was recorded at Stivanje polje in late May 2005, and another was recorded on 28 June 2021 (BioAtlas). These breeding-season records indicate that the Eurasian Sparrowhawk is a possible breeding species within or in the vicinity of the Park.

Northern Goshawk – *Accipiter gentilis*

The Northern Goshawk is a passage and wintering species. It was recorded mainly in karst fields, particularly at Kršovo polje and Velo jezero, in January and February 2005 and 2006, as well as in late March 2005.

Eurasian Buzzard – *Buteo buteo*

The Eurasian Buzzard is a wintering and passage species. During the study, it was regularly recorded from January to late March. During the breeding season, it was also recorded at Dugo polje in mid-June 2000 and in the Velo jezero area in mid-June 2002 (Jurinović *et al*. 2002). These breeding-season records suggest that the Eurasian Buzzard is a possible breeding species within or in the vicinity of the Park.

Common Hoopoe – *Upupa epops*

The Common Hoopoe is a breeding species. Four singing males were recorded at Veli dočić and in the surrounding area in late May 2005.

European Bee-eater – *Merops apiaster*

The European Bee-eater is a passage species. During the study, small flocks were recorded around Dugo polje and Proversa during autumn migration in late August and early September 2005. The species was also recorded during spring migration in mid-May 2017 (Korša & Taylor 2017).

Common Kingfisher – *Alcedo atthis*

The Common Kingfisher is a wintering species. During the study, it was regularly recorded in winter in bays and coves throughout the Park, including Uvala Mir, Pasjak, Magrovica, and several small coves near Mala Proversa.

Eurasian Wryneck – *Jynx torquilla*

The Eurasian Wryneck is a passage species. During the study, it was recorded at Dugo polje during autumn migration in late August 2005. Jurinović *et al*. (2002) also recorded the species at Uvala Mir during spring migration in April 2001.

Great Spotted Woodpecker – *Dendrocopos major*

The Great Spotted Woodpecker was recorded only once, at Velo jezero in early April 2001 (Jurinović *et al*. 2002).

Common Kestrel – *Falco tinnunculus*

The Common Kestrel is a breeding species. During the study, it was recorded throughout the Park during the breeding season, hunting over karst fields (Stivanje polje, Čuh polje, Gmajno polje, and Kršovo polje), as well as over rocky grasslands and garrigue near Proversa. It nested mainly on cliffs and rocky outcrops. The breeding population was estimated at 7–15 pairs.

Red-footed Falcon – *Falco vespertinus*

The Red-footed Falcon is a passage species. It has been recorded only once, on 26 April 2016 (Josip Turkalj, eBird).

Merlin – *Falco columbarius*

The Merlin is a wintering species. In January 2006, three birds, one female and two males, were recorded at Gmajno polje. The species was also recorded during the 1990s (Radović *et al*. 2003).

Eurasian Hobby – *Falco subbuteo*

The Eurasian Hobby is a passage species. It has been recorded only once, on 12 April 2016 (Josip Turkalj, eBird).

Lanner Falcon – *Falco biarmicus*

Hirtz (1930) reported the Lanner Falcon breeding on the cliffs of Dugi otok and the Kornati Islands. This historical status is supported by Sassi (1929), who documented a male obtained at Koromačna, Kornat, on 21 May 1928, reportedly originating from Škulj, and observed two additional birds on the cliffs of Veli Rašip. The specimen is preserved in the ornithological collection of the Natural History Museum in Vienna (Kralj & Tutiš 1996). There have been no subsequent records of the species.

Peregrine Falcon – *Falco peregrinus*

The Peregrine Falcon is a breeding species. During the study, two pairs were recorded on the seaward-facing cliffs at Stene. Both pairs were repeatedly observed at the same localities: one on the cliffs below Grpašćak and the other below Mrzlovica, at the northwestern edge of the Park.

Eurasian Golden Oriole – *Oriolus oriolus*

The Eurasian Golden Oriole is a breeding species. During the study, singing males were recorded in pine groves at Uvala Mir, as well as in olive groves and tall maquis near Dugonjive and at Velo jezero. In mid-June 2000, a nest with two young was found in a dead pine near Gmajno polje, and another nest was found in a willow at Velo jezero (Jurinović *et al*. 2002).

Red-backed Shrike – *Lanius collurio*

The Red-backed Shrike is a breeding species. During the study, it was quite numerous in late May, with several males recorded at each of several localities, including Gmajno polje, Stivanje polje, Mala Proversa, and the surroundings of Sali. It was found mainly in agricultural mosaics with shrubs in the karst fields, as well as in open garrigue with scattered shrubs. It was also recorded at Stivanje polje, Velo jezero, and Dugo polje in mid-June 2000 (Jurinović *et al*. 2002), and at Dugo polje in mid-May 2017 (Korša & Taylor 2017).

Woodchat Shrike – *Lanius senator*

The Woodchat Shrike is a breeding species. It is less numerous than the Red-backed Shrike. During the study, it was recorded near Mala Proversa in late May 2005 and at Čuh polje and Dugonjive in early May 2006, in garrigue and overgrown rocky pastures. It was also recorded at Gmajno polje in mid-June 2000 (Jurinović *et al*. 2002) and at Dugo polje in mid-May 2017 (Korša & Taylor 2017).

Eurasian Magpie – *Pica pica*

The Eurasian Magpie has been recorded only once, on 12 July 2026 (Harry Ewing, eBird), probably representing a wandering bird.

Common Raven – *Corvus corax*

The Common Raven is a breeding species. During the study, it was regularly recorded throughout the Park, either singly or in small groups of up to three birds, flying in search of food.

Hooded Crow – *Corvus corone cornix*

The Hooded Crow is a breeding species. During the study, it was recorded throughout the Park, most frequently in agricultural mosaics within karst fields. It was also regularly recorded at the waste disposal site near Veli dočić, where winter gatherings occasionally numbered up to 50 birds.

Coal Tit – *Periparus ater*

The Coal Tit is a wintering and passage species. During the study, it was recorded twice in the pine grove at Uvala Mir: eight birds in early February 2005 and three in the second half of March 2005. There is also a single summer record, from 12 July 2026 (Harry Ewing, eBird).

Sombre Tit – *Poecile lugubris*

Hirtz (1930) reported the Sombre Tit in large numbers in olive groves around Sali in May. The species has not been recorded since. Rucner (1998) did not record the species and considered Hirtz's record erroneous.

Eurasian Blue Tit – *Cyanistes caeruleus*

The Eurasian Blue Tit is a wintering species. Several birds were recorded at three localities in early February 2005: Krstovica, Uvala Mir, and Velo jezero.

Great Tit – *Parus major*

The Great Tit is a common breeding species. During the study, it was recorded in the breeding season mainly in olive groves and other wooded or edge-rich habitats within karst fields, as well as in pine groves around Uvala Mir. Outside the breeding season, it was recorded throughout the Park, often in small flocks, sometimes together with other tit species.

Woodlark – *Lullula arborea*

The Woodlark is a wintering species. Although not particularly numerous, it is more common than the Crested Lark. In early February 2005, it was recorded at several localities throughout the Park, including Dugo polje, Kršovo polje, and Krstovica.

Crested Lark – *Galerida cristata*

The Crested Lark is a wintering species. During the study, it was recorded only once, when two birds were recorded at Veli dočić in early February 2005.

Eastern Olivaceous Warbler – *Iduna pallida*

The Eastern Olivaceous Warbler was reported as a common breeding species in olive groves on Dugi otok by Hirtz (1930). Rucner (1998) also listed it as a breeding species on Dugi otok. The species was not recorded during the study, but it was recorded at Velo jezero in mid-June 2000 (Jurinović *et al*. 2002). It is considered a possible breeding species in the Park.

Olive-tree Warbler – *Hippolais olivetorum*

The Olive-tree Warbler is a breeding species, occurring in small numbers. In late May 2005, one singing male was recorded in an olive grove near Dragoraj and another at Velo jezero.

Icterine Warbler – *Hippolais icterina*

The Icterine Warbler is a passage species. A single bird was recorded at Čuh polje during autumn migration in September 2005.

Northern House Martin – *Delichon urbicum*

The Northern House Martin is a breeding species, nesting in Sali. During the study, it was recorded foraging in the Park but was less common than the Barn Swallow. It was also recorded around Sali and at Velo jezero in mid-June 2000, and at Kršovo polje in the first half of April 2001 (Jurinović *et al*. 2002).

Barn Swallow – *Hirundo rustica*

The Barn Swallow is a breeding species. During the study, it was found breeding in Sali and was recorded foraging throughout the Park, including at Kršovo polje, Uvala Mir, and Dugo polje.

Wood Warbler – *Phylloscopus sibilatrix*

The Wood Warbler is a passage species. During the study, it was recorded in small numbers in mid-May, late August, and early September 2005.

Common Chiffchaff – *Phylloscopus collybita*

The Common Chiffchaff is a wintering and passage species. During the study, it was recorded in January and February, when it was not particularly numerous, but was common during spring migration in March and April.

Eurasian Blackcap – *Sylvia atricapilla*

The Eurasian Blackcap is a breeding, wintering, and passage species. During the study, it was found to be a common breeding and wintering species but was most numerous during migration. It bred mainly in dense scrub within karst fields and in pine groves. Rucner (1998) did not report the species as breeding on Dugi otok.

Eastern Orphean Warbler – *Curruca crassirostris*

The Eastern Orphean Warbler is a breeding species occurring in small numbers. During the study, a singing male was recorded at Velo jezero in late May 2005. Singing males were also recorded near Lake Mir and at Velo jezero in mid-June 2000 (Jurinović *et al*. 2002).

Lesser Whitethroat – *Curruca curruca*

The Lesser Whitethroat is a passage species. During the study, it was recorded only once, at Dugo polje in late August 2005.

Sardinian Warbler – *Curruca melanocephala*

The Sardinian Warbler is a breeding species. During the study, it was found to be very common and widely distributed throughout the Park. It bred in dense scrub, both in overgrown agricultural areas within karst fields and on overgrown rocky pastures with well-developed dense garrigue or maquis.

Subalpine Warbler – *Curruca cantillans*

The Subalpine Warbler is a common breeding species. During the study, it was found to be less numerous than the Sardinian Warbler and Eurasian Blackcap. It occurs in habitats similar to those of the Sardinian Warbler, but generally in somewhat more open vegetation.

Common Whitethroat – *Curruca communis*

The Common Whitethroat is a rare passage species. During the study, it was recorded only once, at Čuh polje in early September 2005.

Western Rock Nuthatch – *Sitta neumayer*

Hirtz (1930) recorded the Western Rock Nuthatch in rocky habitats at three localities on Dugi otok: Grba, Gračina and Grbašćak. Of these, only Grbašćak lies within the present-day boundaries of Telašćica Nature Park. The dates of the observations were not specified, and the species was not recorded during more recent surveys.

Northern Wren – *Troglodytes troglodytes*

The Northern Wren is a common and relatively numerous wintering species.

During the study, it was recorded throughout the Park in a variety of habitats with dense vegetation, ranging from garrigue and maquis to overgrown traditional agricultural mosaics.

Mistle Thrush – *Turdus viscivorus*

The Mistle Thrush is a wintering and passage species. During the study, it was more common in winter and was recorded throughout the Park in early February 2005, mainly in agricultural mosaics within karst fields. Birds usually occurred in small flocks of a few to around ten birds. However, approximately 500 Mistle Thrushes were recorded within a large multispecies thrush aggregation at Velo jezero on 6 February 2005.

Song Thrush – *Turdus philomelos*

The Song Thrush is a passage and wintering species. During the study, it was less numerous than the Mistle Thrush in winter and was recorded mainly in small flocks. Approximately 100 Song Thrushes were recorded within a large multispecies thrush aggregation at Velo jezero on 6 February 2005.

Redwing – *Turdus iliacus*

The Redwing is a wintering and passage species. During the study, it was recorded in winter mainly in small mixed flocks with other thrushes, usually comprising only a few Redwings. Approximately 100 Redwings were recorded within a large multispecies thrush aggregation at Velo jezero on 6 February 2005.

Eurasian Blackbird – *Turdus merula*

The Eurasian Blackbird is a breeding, passage, and wintering species. During the study, it was a numerous breeding species and was recorded throughout the Park. It was also very numerous in winter, when it was recorded mainly in flocks ranging from several to several dozen birds. Approximately 1,000 Eurasian Blackbirds were recorded within a large multispecies thrush aggregation at Velo jezero on 6 February 2005.

Fieldfare – *Turdus pilaris*

The Fieldfare is a passage and wintering species. During the study, it was more common in winter and was recorded throughout the Park in early February 2005, mainly in flocks ranging from several dozen to several hundred birds, either in single-species flocks or mixed with other thrush species. However, several thousand Fieldfares were recorded within a large multispecies thrush aggregation at Velo jezero on 6 February 2005.

Spotted Flycatcher – *Muscicapa striata*

The Spotted Flycatcher is a passage species. During the study, three birds were recorded at Dugo polje during spring migration in early May 2005. The species was also recorded there in mid-May 2017 (Korša & Taylor 2017).

European Robin – *Erithacus rubecula*

The European Robin is a wintering and passage species. During the study, it was numerous and widely distributed throughout the Park, occurring in a variety of habitats except open rocky grasslands and areas of bare or sparsely vegetated karst.

Common Nightingale – *Luscinia megarhynchos*

The Common Nightingale is a breeding species. During the study, it was quite common and was recorded at a number of localities throughout the Park. It occurred mainly along the overgrown edges of karst fields and in abandoned agricultural parcels with dense shrub vegetation.

European Pied Flycatcher – *Ficedula hypoleuca*

The European Pied Flycatcher is a passage species. During the study, it was recorded only once, when two birds were recorded at Dugo polje in late August 2005.

Black Redstart – *Phoenicurus ochruros*

The Black Redstart is a passage and wintering species. During the study, it was quite common and was recorded throughout the Park, mainly in open rocky habitats.

Common Redstart – *Phoenicurus phoenicurus*

The Common Redstart is a passage species. It occurs in small numbers during migration. During the study, it was recorded at Gmajno polje in early May 2006 and at Čuh polje in early September 2005. It was also recorded at Dugo polje in early April 2001 (Jurinović *et al*. 2002).

Rufous-tailed Rock-thrush – *Monticola saxatilis*

The Rufous-tailed Rock-thrush is a rare breeding species in the Park. Rucner (1998) listed it as a breeding species on Dugi otok, and it was also recorded near Uvala Mir in mid-June 2000 (Jurinović *et al*. 2002). The species was not recorded during the 2005–2006 surveys.

Blue Rock-thrush – *Monticola solitarius*

The Blue Rock-thrush is a breeding species. During the study, it was most numerous on the seaward-facing cliffs at Stene, where several pairs were recorded in May 2005. It was also recorded at Uvala Mir, Mala Proversa, and Strihina Grba.

Whinchat – *Saxicola rubetra*

The Whinchat is a passage species. During the study, it was relatively numerous during migration, particularly in early May, and was recorded in a variety of open habitats with some shrubs.

Common Stonechat – *Saxicola torquatus*

The Common Stonechat is a wintering and passage species. During the study, it was not particularly numerous and was recorded mainly in rocky grasslands with low shrubs and in garrigue.

Northern Wheatear – *Oenanthe oenanthe*

The Northern Wheatear is a passage species. It was recorded at Dugo polje in early April 2001 (Jurinović *et al*. 2002).

Black-eared Wheatear – *Oenanthe hispanica*

The Black-eared Wheatear is a breeding species. During the study, it was recorded in relatively small numbers at several localities. It inhabits open rocky grasslands and is most numerous in the northeastern part of the Park, towards Proversa, where this type of habitat is most extensive.

Goldcrest – *Regulus regulus*

The Goldcrest is a wintering and passage species. During the study, it was relatively numerous and was recorded in small flocks of up to 10 birds.

Common Firecrest – *Regulus ignicapilla*

The Common Firecrest is a wintering and passage species. During the study, it was recorded in small numbers, usually in mixed-species flocks with Goldcrests.

Dunnock – *Prunella modularis*

The Dunnock is a wintering species. During the study, it was fairly common and was recorded mainly in areas with low shrubs, including overgrown parts of karst fields and rocky grasslands.

House Sparrow – *Passer domesticus*

The House Sparrow is a breeding species in the settlement of Sali. During the study, small numbers were occasionally recorded within the Park.

Spanish Sparrow – *Passer hispaniolensis*

The Spanish Sparrow is a possible breeding species. During the study, singing males were recorded in the immediate vicinity of Sali in late May 2006. Breeding was confirmed on the nearby island of Kornat in June 2019 (S. Barišić, unpublished data).

Tree Pipit – *Anthus trivialis*

The Tree Pipit is a passage species. During the study, a single bird was recorded at Gmajno polje in the second half of March 2005.

Meadow Pipit – *Anthus pratensis*

The Meadow Pipit is a wintering species. During the study, it was recorded in small flocks of up to 20 birds in open habitats throughout the Park.

Tawny Pipit – *Anthus campestris*

The Tawny Pipit is a breeding species. During the study, it was common in open rocky grasslands throughout the Park.

Grey Wagtail – *Motacilla cinerea*

The Grey Wagtail is a rare passage and wintering species. During the study, one bird was recorded at Veli dočić in early February 2005. During autumn migration, two birds were recorded on 24 October 2022 (Olga Zaytseva, eBird).

White Wagtail – *Motacilla alba*

The White Wagtail is a passage species. During the study, it was recorded in small numbers in late March 2005. There is also a single breeding-season record, from mid-May 2017 (Korša & Taylor 2017).

Common Chaffinch – *Fringilla coelebs*

The Common Chaffinch is a breeding, passage, and wintering species. During the study, it was quite common in the breeding season and was recorded in small pine groves at Uvala Mir and near Sali, as well as along overgrown edges of karst fields with pine trees, including Stivanje polje, Gmajno polje, Veli dočić, and several other localities. In winter, it was more numerous and formed flocks of several dozen birds, with a maximum of approximately 70 birds recorded. Rucner (1998) did not report the species as breeding on Dugi otok.

Brambling – *Fringilla montifringilla*

The Brambling is a wintering species. During the study, it was recorded in both single-species flocks and mixed flocks with other finches. In early February 2005, a flock of 20 birds was recorded at Kršovo polje and a flock of 15 at Matov kanal.

Hawfinch – *Coccothraustes coccothraustes*

The Hawfinch is a wintering species. During the study, it was quite numerous in early February 2005, with flocks of several tens of birds recorded throughout the Park, mainly in olive groves.

European Greenfinch – *Chloris chloris*

The European Greenfinch is a breeding and wintering species. During the study, it was recorded in the breeding season at Kršovo polje, Gmajno polje, Velo jezero, and Uvala Mir. It breeds mainly in pine groves and along the edges of karst fields with pine trees. In winter, it is widely distributed across the karst fields.

Common Linnet – *Linaria cannabina*

The Common Linnet is a breeding and probably wintering species. During the study, it was recorded in small numbers during the breeding season at Stivanje polje and nearby Mala Proversa.

European Goldfinch – *Carduelis carduelis*

The European Goldfinch is a breeding and wintering species. During the study, it was recorded during the breeding season at a number of localities, including Kršovo polje, Gmajno polje, Velo jezero, Dugo polje, the pine groves near Uvala Mir, and Veli dočić.

European Serin – *Serinus serinus*

The European Serin is a breeding species. During the study, it was recorded at a number of localities during the breeding season, including Stivanje polje, Kršovo polje, Gmajno polje, Veli dočić, and Sali. In the Aleppo pine groves near Uvala Mir, six singing males were recorded simultaneously in late May 2005. Rucner (1998) did not report the species as breeding on Dugi otok.

Eurasian Siskin – *Spinus spinus*

The Eurasian Siskin was reported as a wintering species on Dugi otok by Hirtz (1930) and Rucner (1998). It was not recorded during the study, which may reflect the marked interannual variation in its winter occurrence and abundance. Further surveys are needed to clarify its wintering status in the area.

Black-headed Bunting – *Emberiza melanocephala*

The Black-headed Bunting was listed as a breeding species by Hirtz (1930) and Rucner (1998). Hirtz (1930) recorded the species at Gmajno and Arnjevo polje, while Rucner (1998) described it as a common breeding species on Dugi otok and also reported breeding on the island of Katina. The species was not recorded during the 2005 and 2006 surveys, despite the conspicuousness of males during the breeding season. More recently, it was recorded at Dugo polje in mid-May 2017 (Korša & Taylor 2017), although the date of this record does not exclude the possibility that the bird was on passage. Based on the historical breeding records and the limited recent evidence, the Black-headed Bunting is considered a possible irregular breeding species in the area.

Cirl Bunting – *Emberiza cirlus*

The Cirl Bunting is a breeding species. During the study, it was widely distributed in the breeding season and recorded at a number of localities, including Kršovo polje, Veli dočić, Proversa, and Velo jezero. It occurred mainly in Mediterranean mosaic habitats comprising open grassland, scrub, scattered trees and shrubs, and partially overgrown agricultural areas within karst fields.

Yellowhammer – *Emberiza citrinella*

The Yellowhammer is a rare passage species. During the study, two birds were recorded at Kršovo polje in the second half of March 2005. An unusual summer record comes from mid-June 2000 (Jurinović *et al*. 2002), well outside the species' regular breeding range.

Reed Bunting – *Emberiza schoeniclus*

The Reed Bunting is a rare wintering species. During the study, a flock of seven birds was recorded in abandoned fields and vineyards at Kršovo polje in early February 2005.

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SAŽETAK

U radu se daje pregled ornitofaune Parka prirode Telašćica na jugoistočnom dijelu Dugog otoka. Podaci se temelje prvenstveno na terenskim istraživanjima provedenima 2005. i 2006. godine, tijekom kojih je istraživan sastav ornitofaune, uz ciljana istraživanja dnevnih grabljivica, sova i čiopa. Popis vrsta dopunjen je povijesnim podacima te dostupnim rezultatima kasnijih istraživanja i provjerenim nalazima prikupljenima nakon završetka terenskog istraživanja.

Na području Parka zabilježeno je ukupno 125 vrsta ptica. Među njima su 44 vrste utvrđene kao gnjezdarice, dok se šest vrsta smatra potencijalnim gnjezdaricama. Među dnevnim grabljivicama utvrđeno je gniježđenje zmijara (1–2 para), vjetruše (7–15 parova) i sivog sokola (2 para), dok su među sovama kao gnjezdarice zabilježeni ćuk (8–10 parova) i ušara (10 parova). Posebnu vrijednost predstavljaju morske litice na kojima se gnijezde crna, smeđa i bijela čiopa, s procijenjenim populacijama od 60–100, 100–150 i 30–40 parova. Na području Parka gnijezdi se osam od devet ciljnih vrsta gnjezdarica područja ekološke mreže „NP Kornati i PP Telašćica".

Raznolika gnijezdeća ornitofauna povezana je s izraženom raznolikošću staništa Parka. Otvoreni kamenjarski travnjaci, poljoprivredni mozaici, različiti sukcesijski stadiji sredozemne vegetacije, šumske sastojine te morske litice i otočići omogućuju gniježđenje vrsta različitih ekoloških zahtjeva. Međutim, dugotrajno zarastanje nekadašnjih poljoprivrednih površina i kamenjarskih pašnjaka postupno smanjuje površinu otvorenih i mozaičnih staništa važnih za dio gnijezdeće ornitofaune. Njihovo očuvanje, zajedno sa zaštitom kolonijalnih i drugih značajnih gnjezdilišta na morskim liticama, predstavlja

jedan od važnih preduvjeta za dugoročno očuvanje ornitološke vrijednosti Parka. Rezultati također pokazuju da su podaci o jesenskoj selidbi i zimovanju znatno oskudniji od podataka iz razdoblja gniježđenja, zbog čega su za potpunije poznavanje sezonske dinamike ornitofaune potrebna daljnja sustavna istraživanja.