



# Atlas of the coastal and seabirds of Lebanon

## A study on the distribution and threats



Ghassan Ramadan-Jaradi





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This publication was developed through the project “Market policy and legislative development for mainstreaming sustainable management of marine and coastal ecosystems in Lebanon”, executed by IUCN Regional Office for West Asia in partnership with the Ministry of Environment of Lebanon, and funded by the Global Environment Facility (GEF) and implemented by UN Environment Programme (UNEP).

**Published by:** IUCN, Gland, Switzerland and the Ministry of Environment, Beirut, Lebanon

**Produced by:** IUCN Regional Office for West Asia (ROWA)

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**Recommended citation:** Ramadan-Jaradi, G. (2021). *Atlas of the coastal and seabirds of Lebanon: A study on the distribution and threats*. Gland, Switzerland: IUCN and Beirut, Lebanon: Ministry of Environment.

**Project team:** **From Ministry of Environment**

- Lara Samaha: Head of Department of Ecosystems

**From IUCN Regional Office for West Asia**

- Dr. Hany El Shaer: Regional Director
- Eng. Natalia Boulad: Programme Manager, Protected Areas, Biodiversity and World Heritage Programme
- Ziad Samaha: Programme Manager, Marine and Coastal Zone Management Programme manager
- Eng. Hanna Haddad: Programme Assistant, Protected Areas, Biodiversity and World Heritage Programme
- Eng. Tamara Sbeih: Programme Assistant, Protected Areas, Biodiversity and World Heritage Programme
- Eng. Sara Hijzeen: Volunteer, Protected Areas, Biodiversity and World Heritage Programme
- Mira Hussein: Project Assistant, Marine and Coastal Zone Management Programme

**Maps prepared by:** Joseph Bechara: Mapping Specialist  
Eng. Hanna Haddad  
Mira Hussein

**Front cover:** © Michel Sawan: White-eyed Gull  
(*Ichthyæetus leucophthalmus*)

**Back cover:** © Fouad Itani: Eurasian Oystercatcher  
(*Haematopus ostralegus*)

**Layout by:** Doculand

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## Summary

Several categories of laws and regulations at national level contribute to protect coastal and seabirds of Lebanon from illegal killing and misguided management of their habitats. Still, there are illegal killing, poaching, poisoning and disturbance to the coastal and seabirds along the Lebanese coast. This atlas, with its content contributes to raising people awareness about the threats facing these birds and about the mitigation measures to be taken to conserve them in their appropriate habitats. Similarly, the atlas will inform the conservation experts in the country about the priority areas and keystone species that merit priority attention and protection. For this purpose, our studies targeted 40 bird species of high concern out of 75 recorded species along the Lebanese shore line and for a distance of 7 km offshore. The number of threatened coastal and marine bird species has included 2 globally threatened species (Leach's Storm Petrel *Hydrobates leucorhous* [Vulnerable], and Yelkouan Shearwater *Puffinus yelkouan* [Vulnerable]), and 8 globally Near Threatened avian species. These results were behind our interest to better conserve these birds through raising awareness and improving policies and regulations and mainstreaming their conservation into national plans and coastal zone management plans, with the use of an atlas of the coastal and marine bird species that we have developed to enrich our knowledge for a better conservation strategy because it focuses on the numerical distribution of the recorded species together with their population size, abundance and phenology.

## Acknowledgements

I would like to thank all those who contributed to the completion of this atlas. My gratitude goes to the IUCN-ROWA for supporting this study and its publication. I would specifically like to express my sincere gratitude to Dr. Hany El Shaer (Regional Director at IUCN ROWA) and his team, specifically Eng. Natalia Boulad and Eng. Hanna Haddad for offering their hands to successfully complete the text prior to publishing. In addition, I would like to express my sincere gratitude to the Ministry of Environment for adopting this guidebook, especially Ms. Lara Samaha (Head of Ecosystems Department) for her constant support and encouragement. My sincere appreciation to Mr. Sharif Jbour and Mr. James Hogg for accepting to review the text. Many thanks are extended to my dear friend Fouad Itani for his willingness to provide the photos of the birds recorded.



# 1 Introduction

The marine and coastal birds of Lebanon are in decline due to illegal hunting, indirect poisoning by fishermen, poaching on eggs and destruction of their habitats. A lack of awareness due to lack of knowledge is behind this decline beside mismanagement amongst the sectors responsible for the marine and coastal zone. This atlas is the first of its kind in Lebanon, it has addressed the distribution of the coastal and marine birds of Lebanon and has identified which species of them are more common or scarce, or threatened in their appropriate habitats. This is necessary to plan for the conservation of species in their areas of breeding, roosting, foraging and resting. This way the future monitoring can be well organised which will save time as well as effort. The degradation of the coastline and the sea quality under the impact of chaotic urbanization increased the number of threatened bird species at the national level (Ramadan-Jaradi, pers. obs.). In view of the current situation of the Lebanese coastline and associated marine and coastal ecosystems and biodiversity, there was an intention to create a coastal and seabirds atlas for a better and stronger mainstreaming of marine and coastal avifauna into national plans and coastal zone management plans, with particular focus on the impact of climate change on avian marine species.

Previous studies carried out in 2018 for marine and coastal bird species along the littoral zone of Lebanon confirmed that the targeted species suffered a decline due to a lack of coordination and management amongst the various sectors responsible for the marine and coastal zone. In addition, the review of the avian studies that were implemented during the last 200 years in Lebanon revealed the participation of only 10 birdwatchers in the observation of coastal and marine birds whereas the continental or land birds were observed by more than 50 birdwatchers and ornithologists. The recent study of marine and coastal birds in Lebanon recorded 75 species along the shore line of Lebanon and for a distance of 7 kms offshore. Due to the degradation of the coastline and the sea quality under the impact of chaotic urbanisation, the number of threatened coastal and marine bird species at the national level has increased. In fact, this study highlighted two globally threatened species (Leach's Storm Petrel *Hydrobates leucorhous* [Vulnerable]), and Yelkouan Shearwater *Puffinus yelkouan* [Vulnerable]), and underlined 8 globally Near Threatened avian species, and pointed out to 3 species that may be submitted for reconsideration by the Lebanon Bird Record Committee (LBRC) at the National Council for Scientific Research (LCNRS). The study also updated the data of 9 species of high significance from the past studies, of which, 2 species are upgraded from vagrants to winter visitors/passage migrants, one to passage migrant and one to winter visitor.

These results are behind the interest in further investigating the coastal and marine birds of Lebanon in order to better conserving them. This is accomplished through raising awareness and improving policies and regulations as well as mainstreaming birds' conservation into national plans and coastal zone management plans, with particular focus on the impact of climate change on avian marine species. Hence, the atlas of the coastal and marine bird species is meant to enrich knowledge for better conservation strategy formation as it focuses on the numerical distribution of the recorded species together with their population size, abundance and distribution along the back-shore, shore, front-shore and offshore.

The indifference of most birdwatchers, in the past, to seabirds has led to poverty in baseline studies that are needed to document the ecosystem components, ecosystem services and characteristics as well as the marine species including marine birds. The data collected in 2018 is apparently sufficient to provide the material needed for charting the distribution of coastal and marine birds in form of shapefile and JPEG Atlas-maps.

## 2 Objectives

The objectives of the present project are to develop an atlas on the distribution of the coastal and marine bird species in Lebanon which is meant to contribute in achieving the following:

**1- Capturing the diversity of marine and coastal birds of Lebanon:** The maps visualise the distribution of species and the size of their populations with indication of phenological status as follows:

- **1-10** individuals
- **11-50** individuals
- **51-100** individuals
- **≥ 101** individuals

The color of the circle indicates if the population is wintering, passing, breeding or vagrant.

**2- Illuminating the bird's conservation and phenological status in the country based on literature review and rapid assessment field visits:** Based on the data gathered during previous projects along the Lebanese coastal area and offshore, and on literature review as well as rapid outings for assessment of the encountered species, the phenological status is given according to the latest updates. At the same time, the conservation status is given based on the latest assessment made by IUCN Red List for birds (at present, 2020).

**3- Enhancing and increasing the availability and access to spatial data that could support the decision-making process related to mainstreaming the conservation of marine and coastal biodiversity into the coastal zone planning and management:** This is achieved through the detailed knowledge obtained from the distribution of the species, size of their populations and from their behavior (example: fishing under water, on surface of water, very far off shore, in coastal water near shore, shore and back shore, etc.).

**4- Contributing to feeding the project online data base with data and maps on the distributions of marine bird species with importance for conservation:** With the maps based on GPS points for each individual seen, the data and maps will be of high quality for the online data base of the project, especially that the maps will be uploaded in comprehensive and precise shape files.

**5- Elaborating maps, in an Atlas, illustrating where and why birds are most under threat, and what is being done to protect them:** This will allow matching the distribution of the populations with that of human activities changing the habitats or affecting the birds directly (illegal killing and taking) or indirectly (poisoning fish or bycatch), or through interactions between species.

**6- Preparing individual distribution maps of the coastal and marine bird species along the Lebanese coast with frequencies, numbers and abundance, summary of conservation implications:** Frequency is illustrated by the intensity of the circles along the coast and in the sea; numbers or abundance indicated by the size of the circles, and the summary of conservation implications will be added to the page of the Species Accounts, especially the map page will not have the space for all the data needed (behavior, mitigation of threats) to be inserted.

**7- Enrich the Atlas with bird classification and behavior, relationship between birds and their habitats, and how to protect the threatened species:** The Species Account page shows the classification of the species, their behavior, their interaction with their environment, habitats and inter-relation between the various species.

**8- Examine key factors influencing the spatial distribution of birds along the Lebanese coast:** The spatial distribution is examined in function with areas of pollution with waste water, solid waste, presence of harbors, fresh water (river and river mouse), disturbance, fishing, illegal killing, poaching on eggs, etc.

**9- Conduct a national workshop to raise awareness about the coastal and marine birds of Lebanon and to disseminate the output of this activity (The Atlas of distribution and species accounts):** A power point presentation was prepared to be projected in a workshop where the maps and their variables should be exposed, threats highlighted, mitigation or elimination of threats should be discussed and recommendations will be elaborated.

**10- Provide policy and management recommendations in order to minimize threats on coastal and marine birds, and enhance their integration in the national coastal zone planning, including recommendation on the potential mitigation measures for development projects affecting marine and marine birds:** The policy consists of 1) ensuring that marine and coastal birds and their habitats receive full protection through national and international legislation, 2) minimizing the threats on the coastal and marine species by dealing with illegal killing, bycatch, poisoning, pollution, landfills, wastewater and solid waste; 3) promoting the preparation of relevant national action plans, 4) promoting the integration of the coastal and marine birds considerations in the national coastal zone planning, 5) involving international conventions in the conservation of species and their habitats, 6) and promoting international cooperation and funding from bilateral agencies.

**11- Provide recommendation for the potential designation of new IBA's along the Lebanese coast, and mark important bird areas that are not currently under any designation:** All areas along the shore or off shore are investigated, their birds will be examined against the criteria set by BirdLife International for the designation and declaration of Important Bird Areas (IBAs). Only the areas with birds matching the criteria will be highlighted.

### 3 Methodology

The present study was based on a review of all publications and the grey or published reports that support the implementation of all the activities required to produce the deliverables. This process was enriched with previous data recorded in the field, chiefly during 2017, 2018 and January, February, March, April and May 2019. Also, the present study was based on field visits, consultation with fishermen and local communities. The team surveyed the study area, along the shore line and up to 7 km offshore, between December 2016 and August 2019 with the point counts method (Blondel et al. (1981) during the breeding season (March-May) and linear transects during the remaining months of the year, often between 08:30 AM and 4:00 PM. The surveys with which the information is collected were conducted while looking forward from the boat when the vessel is moving, scanning ahead to a 90° angle from either the port or starboard side, limiting observations to a transect band 300 m wide from the beam of the boat. All data gathered is documented with photos, references and GPS positions that will serve to produce the requested GIS maps of the Atlas.

The complete atlas provides an opportunity for the protection of key priority marine and coastal avian biodiversity to be included in coastal zone management plans as they are essential to the proper management of the marine ecosystem in Lebanon. The methodology mentioned above helped in determining the coastal and seabird species, their phenological and conservation status, behavior and habitats, frequency/abundance, and national distribution on well-detailed shapefile maps. It also assisted us in determining the threats faced by the coastal and marine birds, and the possible mitigation measures.

## 4 Coastal and seabird species in Lebanon

*Calonectris diomedea*  
جلم ماء كوري  
Scopoli's Shearwater

**Order:** Charadriiformes  
**Family:** Procellariidae  
**Conservation status:**  
Least Concern



© Aron Tanti

**Threats:** High rates of bycatch (mainly juveniles) with artisanal longline operations, predation by house rats, habitat degradation, and overexploitation of aquatic resources, and non-native species in island breeding colonies.

**Causes of threats:** Increased harvest of fish and other sea-food to satisfy the market and industry. Degradation of habitats due to expansion of human populations and urbanization, in addition to rats that predate on eggs and chicks.

**Suggested mitigation measures:** Increase awareness of fishermen on the value and role of this species in the sea and the necessity to immediately releasing its individuals that are caught by nets when known. Enforce the Law of Fishing to avoid overharvesting and bycatches, eradicate rats and other predators in their areas of breeding in the Mediterranean, and set an environmentally friendly strategy for urbanization in the area of the species.

**Frequency:** Moderate frequency of passage and wintering, chiefly in Palm Islands (4) and Beirut (8), decreasing southward till Naqoura where its frequency is (1).

**Density:** Number of individuals/Km<sup>2</sup>: Tripoli (3.67), Palm Islands (29), Batroun (2), Beirut (1557.3), Tyre (1.67) and Naqoura (0.34). Number of individuals per record is indicated by the size of the circle.

**Behavior:** Feed mostly on squids, which are obtained mainly by surface-seizing. It is regularly attracted to trawlers to feed on offal. During nesting time, the Scopoli's Shearwater avoids approaching its nest under the moonlight.

**Habitat:** Marine and pelagic bird. Rarely seen on land except when breeding on

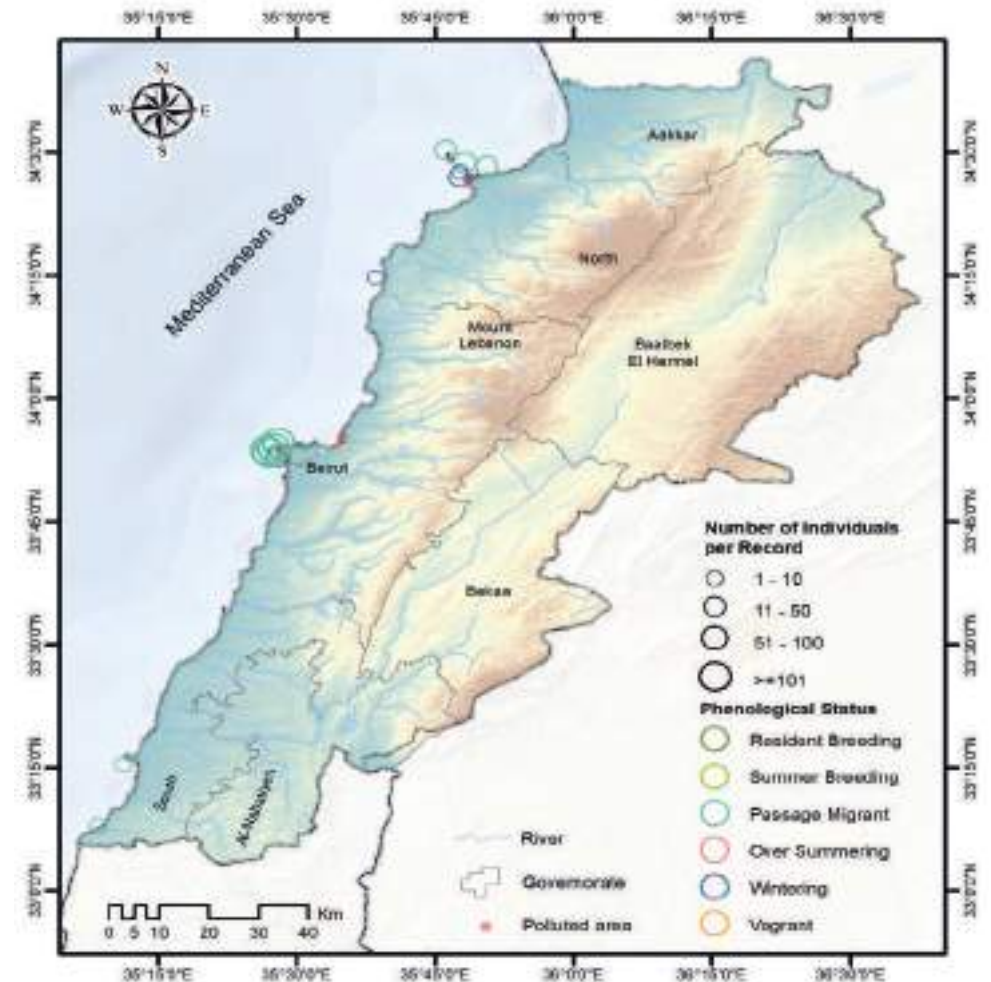


Figure 1: Distribution of Scopoli's Shearwater (Source: IUCN)

islands, chiefly Zembra island off Tunisia where the largest populations of this endemic species to the Mediterranean do breed. It prefers cliffs, caves, boulder field, and rocky slopes with or without sparse vegetation.

**Phenological status:** (indicated by the color of the circles above) This species is a common passage migrant and a scarce to rare winter visitor in Lebanon.

### Further reading:

IUCN Red List of this species:

<https://www.iucnredlist.org/species/45061132/132667885>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Puffinus yelkouan*

جلم ماء البحر المتوسط

Mediterranean Yelkouan Shearwater

Order: Charadriiformes

Family: Procellariidae

Conservation status:

Vulnerable



© Jessica Joachim

**Threats:** Bycatch with artisanal longline operations, overexploitation of aquatic resources, introduction of non-native species to island breeding colonies, pollution, coastal urbanization, and predation, mainly by large gulls, rats and cats, and anthropologic disturbance.

**Causes of threats:** Increased harvest of fish and other sea resources to satisfy the market and industry. Disturbance due to expansion of human populations and increased agglomeration.

**Suggested mitigation measures:** Increase awareness of fishermen on the value and role of this species in the sea and the necessity to immediately releasing its individuals that are caught by nets when known. Enforce the Law of Fishing to avoid overharvesting and bycatches, eradicate rats and cats in their areas of breeding in the Mediterranean but not in Lebanon where it doesn't breed.

**Frequency:** Regular passage migrant in small numbers and scarce winter visitor. Almost entirely recorded in Tripoli with frequency of (4) and Beirut with frequency of (5).

**Density:** Number of individuals/Km<sup>2</sup>: Tripoli (46.3) and Beirut (82.7).

**Behavior:** Gregarious species that can be seen in fair numbers from boats or headlands, especially in autumn. The Yelkouan shearwater feeds on fish and mollusks and follows fishing ships when offal is being thrown.

**Habitat:** Yelkouan shearwaters breed on islands and coastal cliffs in the eastern and central Mediterranean. Most winter in that sea, but small numbers enter the Atlantic in late summer. This species nests in burrows which are only visited at night to avoid predation by large gulls.

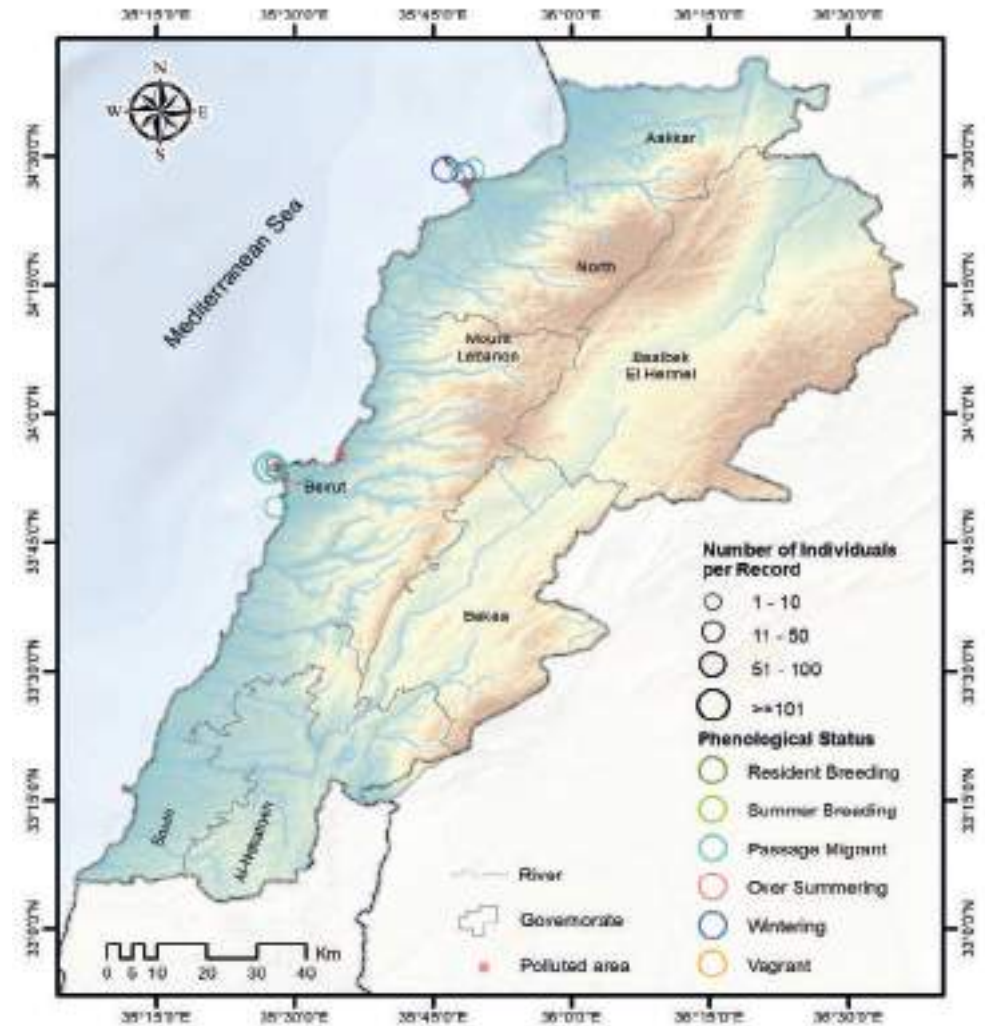


Figure 2: Distribution of Mediterranean Yelkouan Shearwater (Source: IUCN)

**Phenological status:** This species is a regular passage migrant in small numbers, and scarce winter visitor.

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22698230/132637221>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Phoenicopterus roseus*  
النحام (البشروش) الكبير  
Greater Flamingo

**Order:** Phoenicopteriformes  
**Family:** Phoenicopteridae  
**Conservation status:**  
Least Concern



© Fouad Itani

**Threats:** Disturbance, lead poisoning, predation, lowered water level around nests, pollution, diseases, collisions, egg collection, hunting and illegal trade.

**Causes of threats:** Urbanization and usage of most beaches, use of lead cartridges in hunting, illegal hunting of species protected by AEWa Agreement, pollution on beaches, collision with non-protective electric wires, and smugglers of wildlife.

**Suggested mitigation measures:** Establishment of protected areas on remaining beaches, use of metal other than lead in cartridges of hunters, enforcement of the Lebanese hunting Law, reduce the pollution on the beaches and shallow water, applying protective devices from electrocution, and stressing the custom's rigor and firmness.

**Frequency:** Low frequency of regular passage, decreasing southward from Cheikh Zennad and Palm Islands where the frequency is 2 respectively to Khalde where the frequency is 1.

**Density:** Number of individuals/Km<sup>2</sup>: Cheikh Zennad (3), Palm Islands (0.4), Batroun (2), Nahr Ibrahim (1), Nahr el Kalb (1.5), Beirut (0.7) and Khalde (3).

**Behavior:** Flamingos spend most of the day feeding on algae, crustaceans, brine shrimp, diatoms, and aquatic plants; preening (distributing oil from a gland at the base of their tail to their feathers for waterproofing), resting, and bathing. They are social birds gathering in large flocks.

**Habitat:** Flamingo's characteristic habitats are large alkaline or saline lakes or estuarine lagoons that usually lack vegetation. Main habitats used are mangrove swamps, tidal flats, and sandy islands in the intertidal zone.

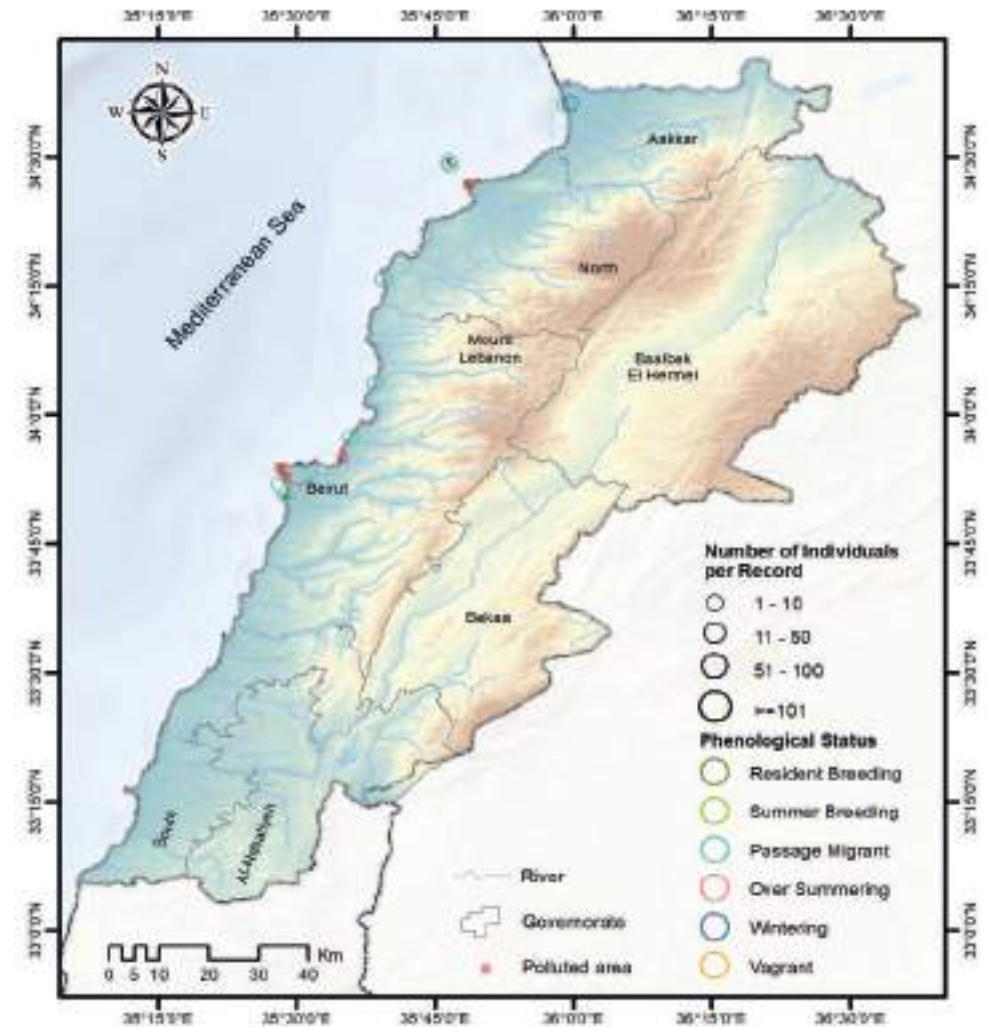


Figure 3: Distribution of Greater Flamingo (Source: IUCN)

**Phenological status:** This species is a rare passage migrant and a rare winter visitor in Lebanon.

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22697360/155527405>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Pelecanus onocrotalus*  
 البجع الأبيض الكبير  
 Great White Pelican

**Order:** Pelecaniformes  
**Family:** Pelecanidae  
**Conservation status:**  
 Least Concern



© Fouad Itani

**Threats:** Wetland drainage, shooting and persecution by fishermen, illegal hunting, disturbance from tourists and wetland alteration, water pollution, collision with overhead power-lines and over-exploitation of fish stocks.

**Causes of threats:** Lack of awareness of local communities about the values of pelicans, deterioration of water and fish in lakes of Lebanon, heavily polluted lakes (case of Qaraoun); shooters (poachers) or persecutors which consider the pelicans as competitors to fishermen and collision of birds to exposed electric wires

**Suggested mitigation measures:** Providing various awareness material to people, keeping lakes clean and rich in fishes, enforcing the Law of hunting and international agreements protecting this species, creating a strategy to ensure coexistence between pelicans and fishermen, and installing protective devices to reduce electrocution.

**Frequency:** Higher frequency in Tripoli (3), Palm Islands (2) and lower frequency of 1 at Amchit, Nahr Ibrahim, Maameltein, Khalde and Tyre.

**Density:** Tripoli (145.7), Palm Islands (27.3), Amchit (200), Nahr Ibrahim (92.5), Maameltein (4), Khalde (2), Tyre (0.5).

**Behavior:** The great white pelican is highly sociable and often forms large flocks. It feeds on fish.

**Habitat:** The fishing technique of this species demands the shallow, warm water of lakes, deltas, marshes and swamps. In Eurasia the great white pelican is found on freshwater wetlands with abundant reed beds and grasses for nesting.

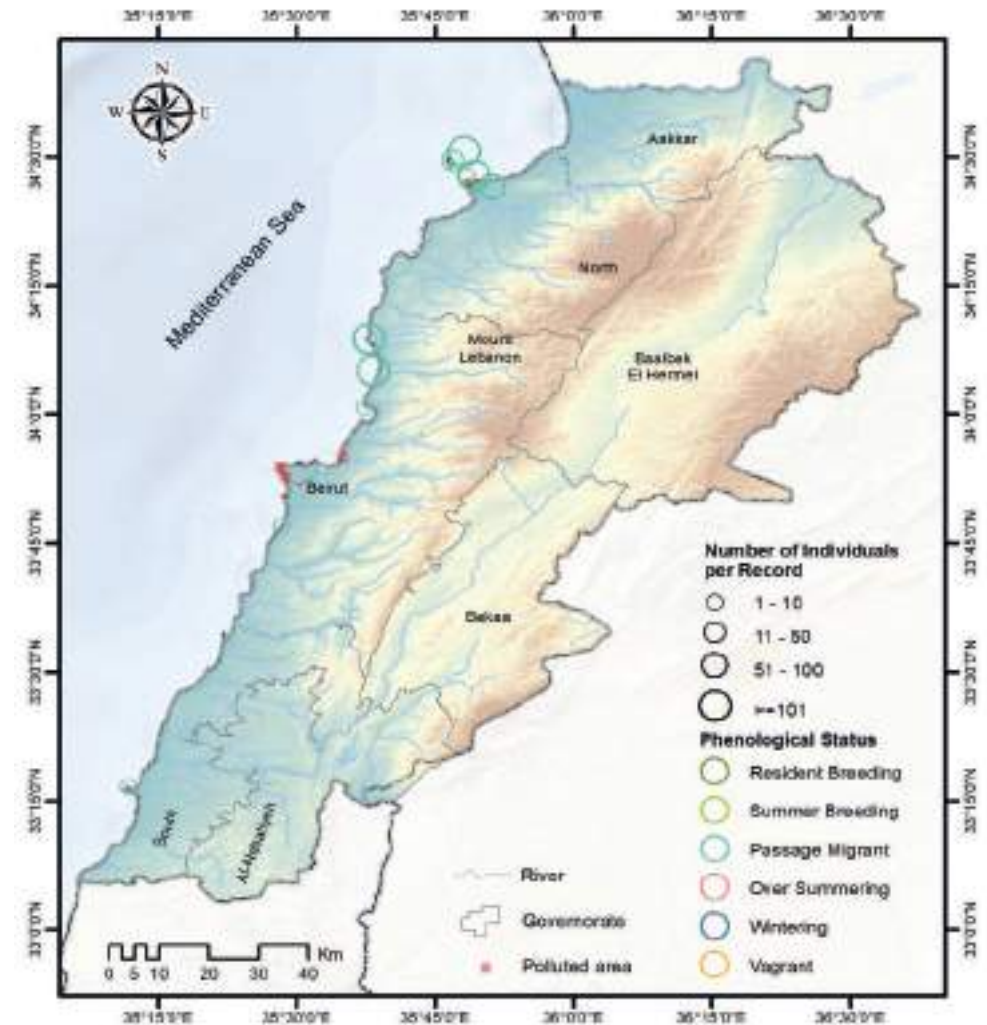


Figure 4: Distribution of Great White Pelican (Source: IUCN)

**Phenological status:** This species is a common passage migrant all over the country. It may rest chiefly at Lake Qaraoun and Aammiq Swamps.

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22697590/132595920>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.



*Pelecanus crispus*

بجع أشعث

Dalmatian Pelican

**Order:** Pelecaniformes

**Family:** Pelecanidae

**Conservation status:**

Near Threatened



**Threats:** Wetland drainage, shooting and persecution by fishermen, illegal hunting, disturbance from tourists and wetland alteration, water pollution, collision with overhead power-lines and over-exploitation of fish stocks.

**Causes of threats:** Lack of awareness of local communities about the values of pelicans, deterioration of water and fish in lakes of Lebanon, heavily polluted lakes (case of Qaraoun); shooters (poachers) or persecutors which, consider the pelicans as competitors to fishermen and exposed electric wires causing bird collision.

**Suggested mitigation measures:** Providing various awareness material to people, keeping lakes clean and rich in fishes, enforcing the Law of hunting and international agreements protecting this species, creating a strategy to ensure coexistence between pelicans and fishermen, and installing protective devices to reduce electrocution.

**Frequency:** Low frequency all over the country whereas, along the coast this frequency is decreased in particular to (2) at Palm Islands and Khalde respectively and to (1) at Ouzai and Tyre.

**Density:** Palm Islands (3), Ouzai (0.5), Khalde (2) and Tyre (0.34).

**Behavior:** Dalmatian pelicans are carnivorous, mainly eating fish, amphibians, small reptiles, and aquatic crustaceans.

**Habitat:** Found amongst the reed beds or in the open on islands, river deltas, and coastal lagoons. The Dalmatian pelican is also found at inland, freshwater wetlands.

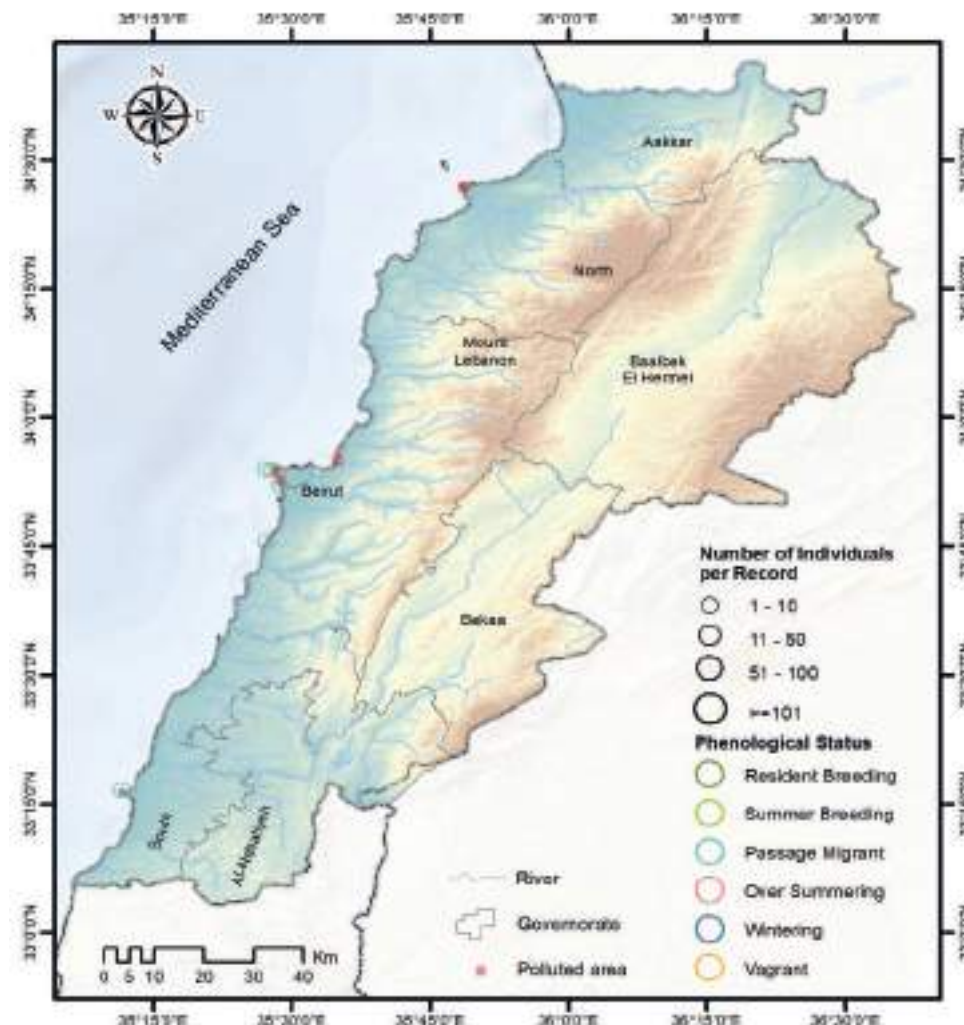


Figure 5: Distributin of Dalmatian Pelican (Source: IUCN)

**Phenological status:** This species is identified as scarce passage migrant and recorded in small flocks at Aammiq, Chtaura, Damour, Ouzai, Palm Islands, Qaraoun, Tripoli and Tyre.

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22697599/122838534>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species. Beirut-Lebanon.*

*Phalacrocorax carbo sinensis*

غراب البحر الكبير

Great Cormorant

Order: Suliformes

Family: Phalacrocoracidae

Conservation status:

Least Concern



© Fouad Itani

**Threats:** Hunting, bycatch, disturbance and fish poisoning.

**Causes:** Bad traditional habits, use of long lines fishing nets, increased human populations and poaching.

**Mitigation:** Conduction of awareness campaigns, monitoring and management of bycatch and combatting fish poisoning.

**Frequency:** High frequency (10) at Palm Islands in north Lebanon, gradually decreasing southward with a frequency (1) at Batroun, Byblos and Nahr el Kalb, and back to (2) in Beirut.

**Density:** Palm Islands (42.3), Batroun (3.5), Byblos (1.5), Nahr el Kalb (3) and Beirut (20.3).

**Behavior:** Their feet have webbing between all four toes. They are fish-eaters, catching the prey by diving from the surface. Some cormorants have been found to dive as deep as 40 meters.

**Habitat:** Great Cormorant prefers open marine and inland waters. It is found on rocky or sandy sheltered coasts and estuaries as well as on the archipelagos of Tripoli.

**Phenological status:** Common passage migrant and common winter visitor. Occasional over-summering.

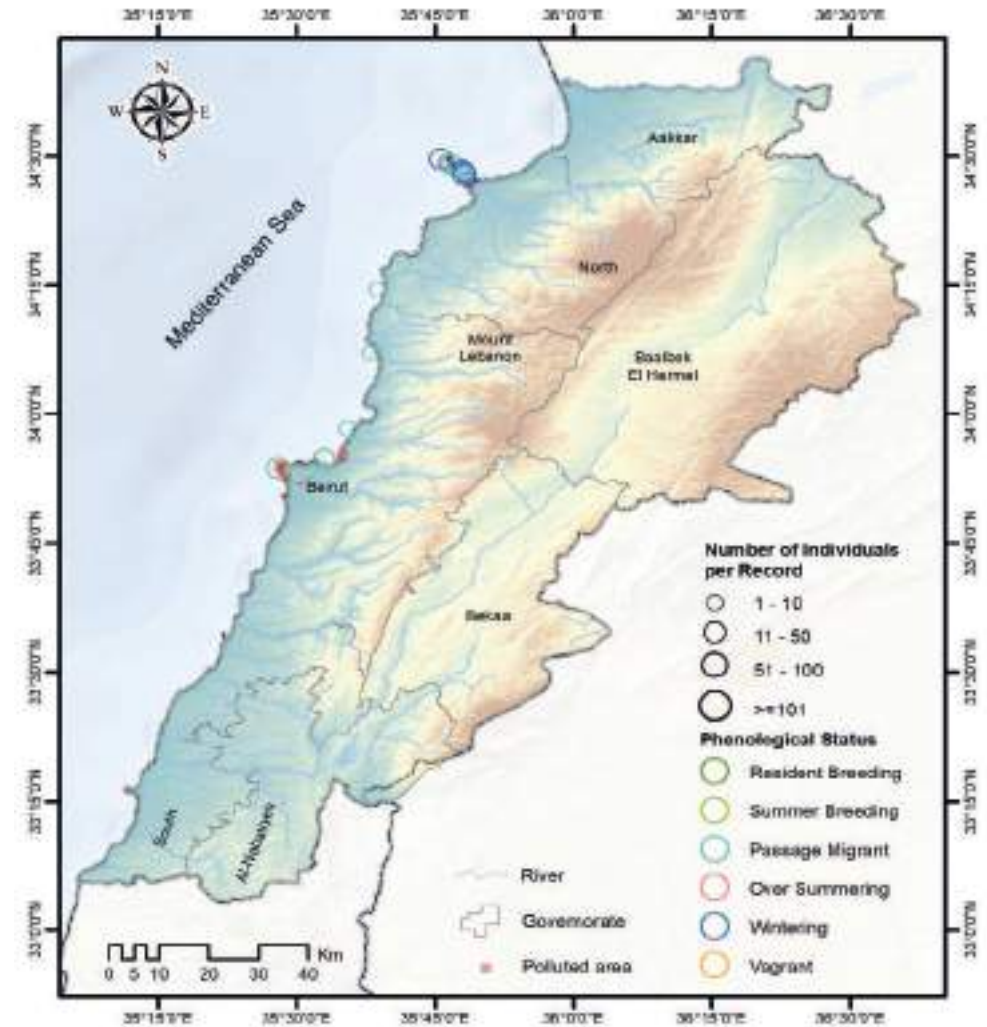


Figure 6: Distribution of Great Cormorant (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22696792/155523636>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Larus genei*  
النورس المستدق المنقار  
Slender-billed Gull

**Order:** Charadriiformes  
**Family:** Laridae  
**Conservation status:**  
Least Concern



© Fouad Itani

**Threats:** Hunting, bycatch, disturbance, avian botulism, avian influenza, oil spill, fish poisoning and persecution.

**Causes of threats:** Misguided hunters, illegal fishing using Lannate insecticide, anthropological disturbance due to urbanization, leakage of oil from land or sea tanks.

**Suggested mitigation measures:** Enforce the Law of hunting and fishing, spare spaces for birds to rest and roost.

**Frequency:** Moderate frequency in north Lebanon, gradually decreasing southward: Cheikh Zennad (1), Palm Islands (5), Enfeh (1), Nahr Ibrahim (1), Nahr el Kalb (1), Beirut (4) and Tyre (1).

**Density:** Cheikh Zennad (2), Palm Islands (20), Enfeh (3.5), Nahr Ibrahim (1.5), Nahr el Kalb (1), Beirut (13.3) and Tyre (1.5).

**Behavior:** Like most gulls, it is gregarious in winter, both when feeding and in evening roosts.

**Habitat:** The slender-billed gull prefers lagoons and lakes around the Mediterranean Sea. It overwinters on the coast in estuaries and bays. It feeds in deltas, marshes and grassland as well as on isles like the archipelagos of Mina-Tripoli. Rarely seen feeding on landfill sites.

**Phenological status:** Scarce passage migrant and uncommon winter visitor.

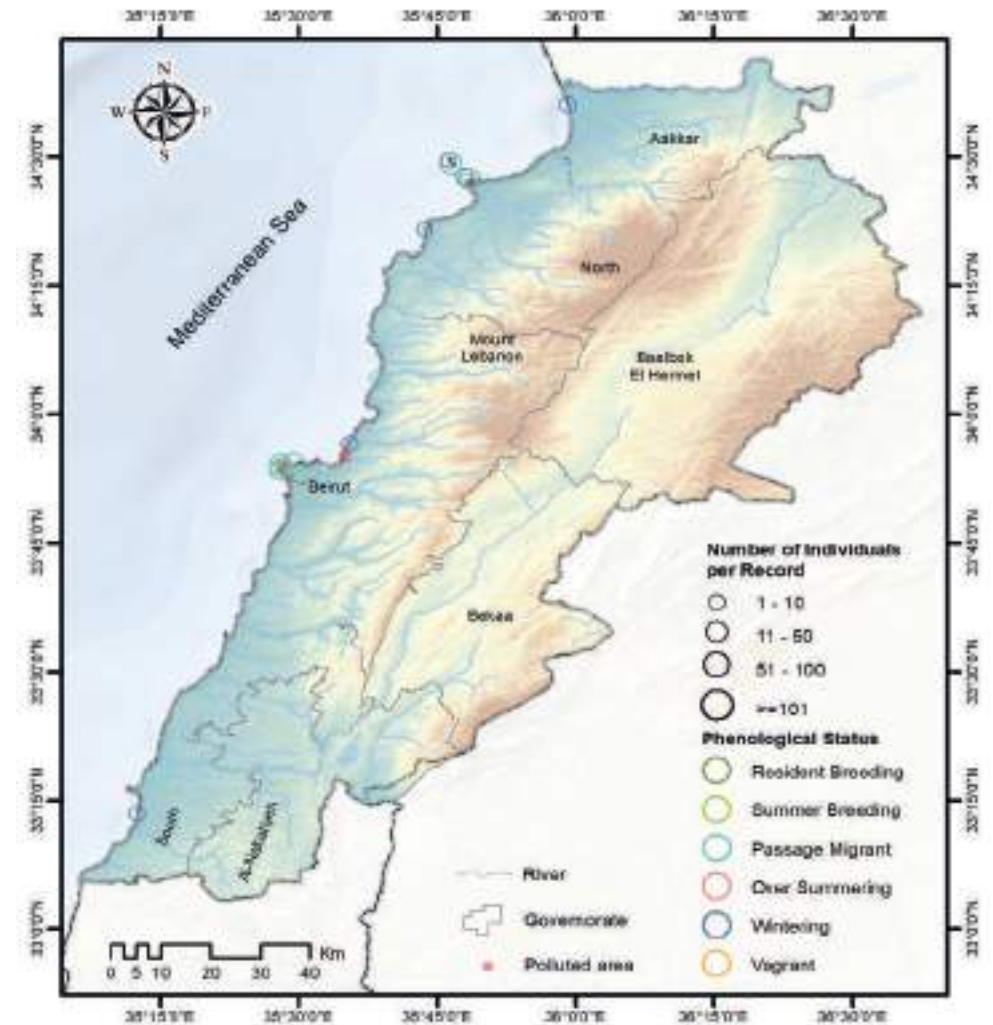


Figure 7: Distribution of Slender-billed Gull (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22694428/154570382>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Chroicocephalus ridibundus*  
نورس أسود الرأس  
Common Black-headed Gull

**Order:** Charadriiformes  
**Family:** Laridae  
**Conservation status:**  
Least Concern



**Threats:** Hunting, bycatch, disturbance, avian botulism, avian influenza, oil spill, fish poisoning, and persecution due to lack of awareness.

**Causes of threats:** Lack of awareness and insufficient Law enforcement or absence of a strategy for application of the Law. Oil leakage, poisoning of fish with Lannate.

**Suggested mitigation measures:** Increase awareness of people, particularly fishermen, set a plan for Law enforcement and implement it, regularly train people on the application of the oil leakage contingency plan, and ban firmly the poisoning of fish.

**Frequency:** High frequency along the coastal area with higher frequencies at outlets of sewage water pouring into the sea. Cheikh Zennad (2), Nahr El Bared (1), Tripoli (5), Palm Islands (8), Enfeh (1), Nahr el Jawz (1), Batroun (1), Byblos (1), Nahr el Kalb (1), Dbayye (1), Beirut (3), Ghadir (2), Khalde (1), Jiyveh (1), Awali (1), Saida (1), Tyre (2) and Naqoura (1).

**Density:** Cheikh Zennad (117), Nahr El Bared (7), Tripoli (622), Palm Islands (199), Enfeh (7), Nahr el Jawz (4.5), Batroun (10.5), Byblos (1), Nahr el Kalb (18), Dbayye (37.5), Beirut (85.3), Ghadir (335), Khalde (15), Jiyveh (3), Awali (9), Saida (55), Tyre (13.67) and Naqoura (6.5).

**Behavior:** Black-headed gulls are highly gregarious or sociable, quarrelsome, noisy birds, usually seen in small groups or flocks, often gathering into larger parties where there is plenty of food, or when they are roosting.

**Habitat:** The species chiefly breeds inland in much of Europe and Asia, and shows a preference for shallow, calm, temporarily flooded wetland habitats with lush vegetation.

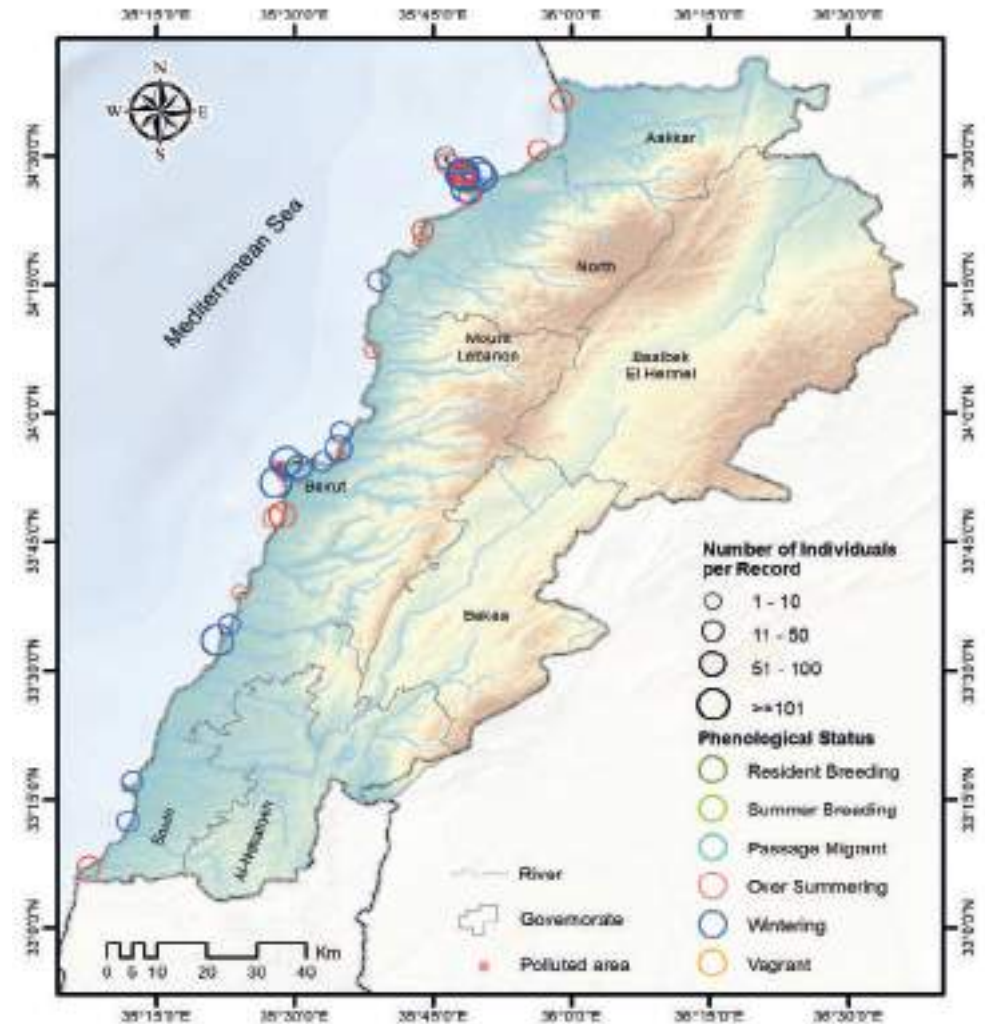


Figure 8: Distribution of Common Black-headed Gull (Source: IUCN)

**Phenological status:** In Lebanon, the Common Black-headed Gull is abundant and common winter visitor and passage migrant.

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22694420/132548687>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Ichthyaetus audouinii*  
نورس أودويني  
Audouin's Gull

**Order:** Charadriiformes  
**Family:** Laridae  
**Conservation status:**  
Least Concern



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**Threats:** Hunting, bycatch, disturbance, avian botulism, avian influenza, oil spill, fish poisoning, and persecution due to lack of awareness.

**Causes of threats:** Lack of awareness and insufficient Law enforcement or absence of a strategy for application of the Law. Oil leakage, poisoning of fish with Lannate.

**Suggested mitigation measures:** Increase awareness of people, particularly fishermen, set a plan for Law enforcement and implement it, regularly train people on the application of the oil leakage contingency plan, and ban firmly the poisoning of fish.

**Frequency:** Low frequency in north Lebanon, and extremely low frequency in Beirut: Palm Islands (9), Cheikh Zennad (3) and Beirut (2).

**Density:** Palm Islands (14), Cheikh Zennad (17.5) and Beirut (2.6).

**Behavior:** A Mediterranean species, the Audouin's Gull is one of the few species in the family that mostly shows nocturnal feeding activity.

**Habitat:** This species prefers rocky cliffs and islands with medium vegetation cover, especially when breeding and inhabits salt marshes and sandy seashore. Audouin's gull is a former breeder on Palm Islands Nature Reserve. It is not pelagic, preferring to feed along the coastline.

**Phenological status:** Formerly bred. Presently, rare to scarce passage migrant. Occasional non-breeding summer visitor.

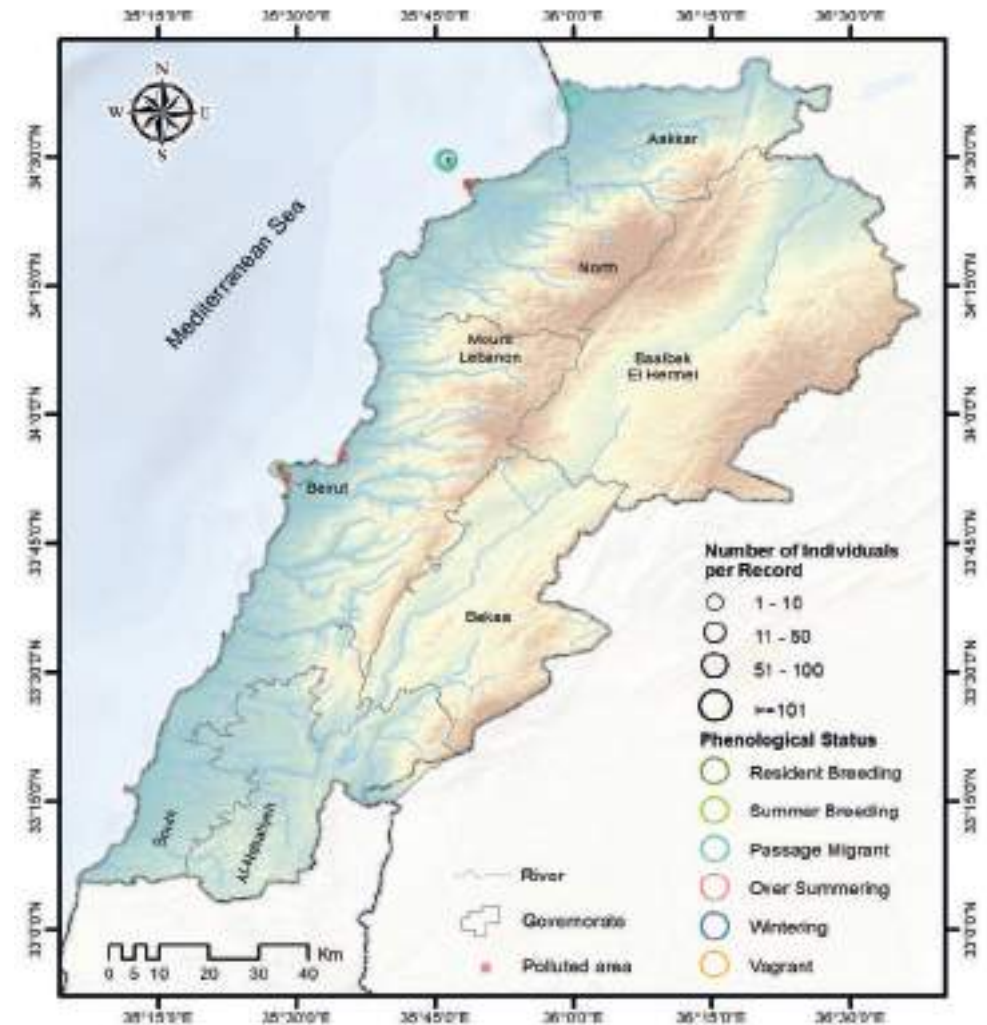


Figure 9: Distribution of Audouin's Gull (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22694313/132541241>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Ichthyaetus ichthyaetus*

نورس بالاس ذو الرأس الأسود الكبير

Pallas's Gull

Order: Charadriiformes

Family: Laridae

Conservation status:

Least Concern



**Threats:** Disturbance, persecution, oil spill, Avian influenza and climate change. Causes of threats: Lack of awareness and insufficient Law enforcement or absence of a strategy for application of the Law. Outbreak of avian diseases and impacts of climate change.

**Suggested mitigation measures:** Increase awareness of people, particularly fishermen about the importance of bird conservation and set a plan for Law enforcement and implement it.

**Frequency:** Low frequency along the coastal line of Lebanon: Palm Islands (2), Cheikh Zennad (1), Ras Chekaa (1), Saida (1) and Tyre (1).

**Density:** Palm Islands (2), Cheikh Zennad (3), Ras Chekaa (2), Saida (1) and Tyre (1,3).

**Behavior:** The Great Black-headed (Pallas) Gull is predatory, taking fish, crustaceans, insects and even small mammals.

**Habitat:** There is no true habitat for this species in Lebanon since it doesn't breed in it and its passage and wintering are scarce to uncommon. Elsewhere, it frequents reeds and shrubby vegetation, as well as bare, rocky areas or vegetated sand dunes.

**Phenological status:** Scarce to uncommon passage migrant and winter visitor.

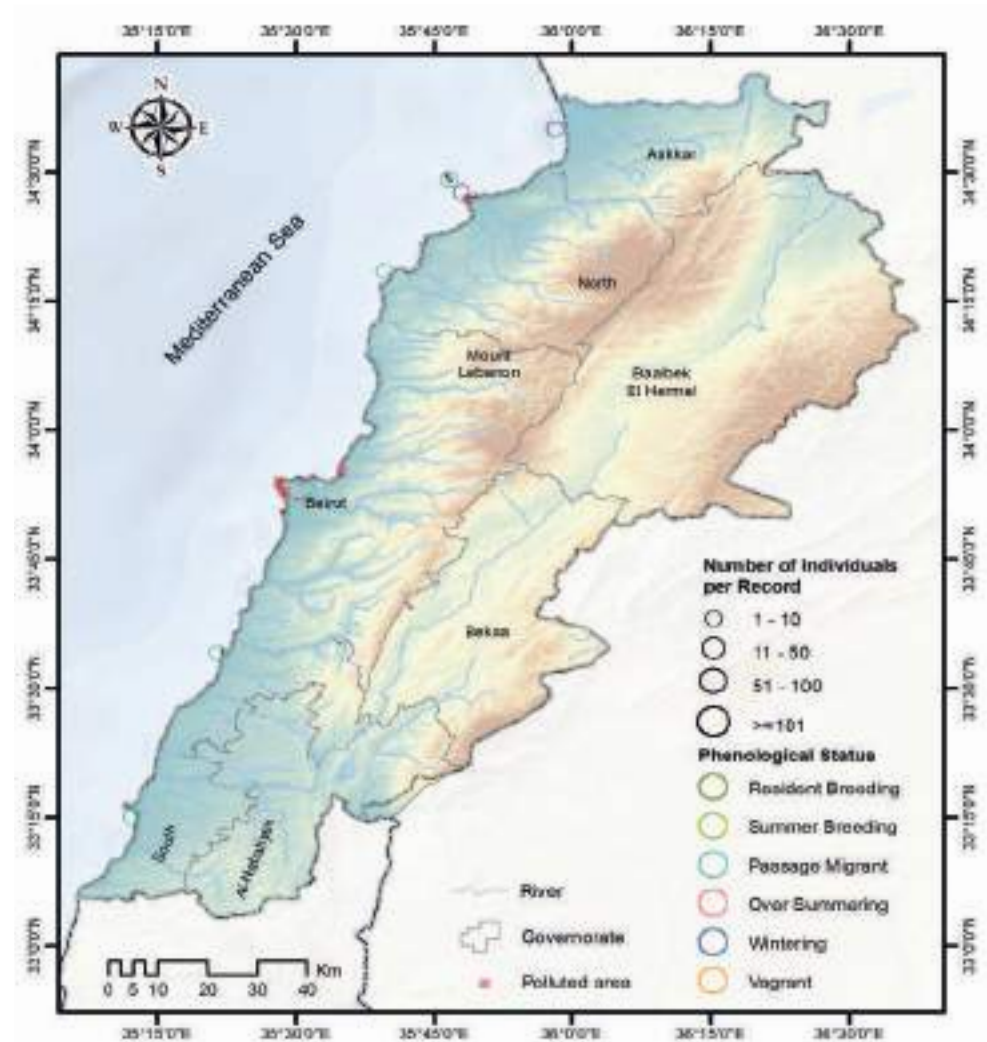


Figure 10: Distribution of Pallas's Gull (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22694379/132546308>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Larus michahellis*  
نورس أصفر الأرجل  
Yellow-legged Gull

**Order:** Charadriiformes  
**Family:** Laridae  
**Conservation status:**  
Least Concern



**Threats:** Pollution, persecution, illegal hunting, poisoned fish, nest destruction, eggs and fledgling taking, plastic fragments and climate change.

**Causes of threats:** Chemicals from landfills on mainland, killing by fishermen, misguided hunters, illegal fishing using Lannate insecticide, anthropological disturbance including use of eggs and fledgling as aphrodisiac food, plastic fragments accidentally ingested by birds, and climate change that affects the nesting period on Palm Islands, a matter that compromises the reproduction process.

**Suggested mitigation measures:** Manage the landfill in an environmentally friendly way, enforce the Law prohibiting the use of fish poisoning, raise awareness of the incorrect beliefs that seagull eggs and fledgling are aphrodisiac, clean the beaches from plastic debris, and respond to climate change appropriately.

**Frequency:** High frequency in north of Lebanon, gradually decreasing southward: Cheikh Zennad (2), Nahr el Bared (1), Tripoli (7), Palm Islands (29), Enfe (3), Nahr el Jawz (2), Batroun (2), Madfoun (1), Byblos (1), Safra (1), Nahr el Kab (1), Dbayeh (1), Beirut (3), Ouzai (1), Nahr el Ghadir (3), Damour (2), Jiyeh (1), Awali (1), Saida (3), Sarafand (1), Qassimieh (1), Tyre (3), Bayada (1), Naqoura (2).

**Density:** Cheikh Zennad (24.7), Nahr el Bared (1), Tripoli (791), Palm Islands (266), Enfe (8), Nahr el Jawz (6.5), Batroun (16.5), Madfoun (2), Byblos (3.5), Safra (2.5), Nahr el Kab (9), Dbayeh (8.5), Beirut (12.3), Ouzai (1.5), Nahr el Ghadir (32), Damour (8.5), Jiyeh (6.5), Awali (6.5), Saida (8), Sarafand (7), Qassimieh (4.5), Tyre (5), Bayada (1), Naqoura (6).

**Behavior:** Omnivorous, aggressive towards Audouin's Gull, more urban than other seagull species, and may attack intruders in nesting areas.

**Habitat:** Found in all islands of Lebanon and along the coasts. It prefers a great variety of habitats, preferring quieter locations such as islands to roost or breed. It also occurs in or near fish markets, harbors, landfills and outlets of sewage water into the sea.

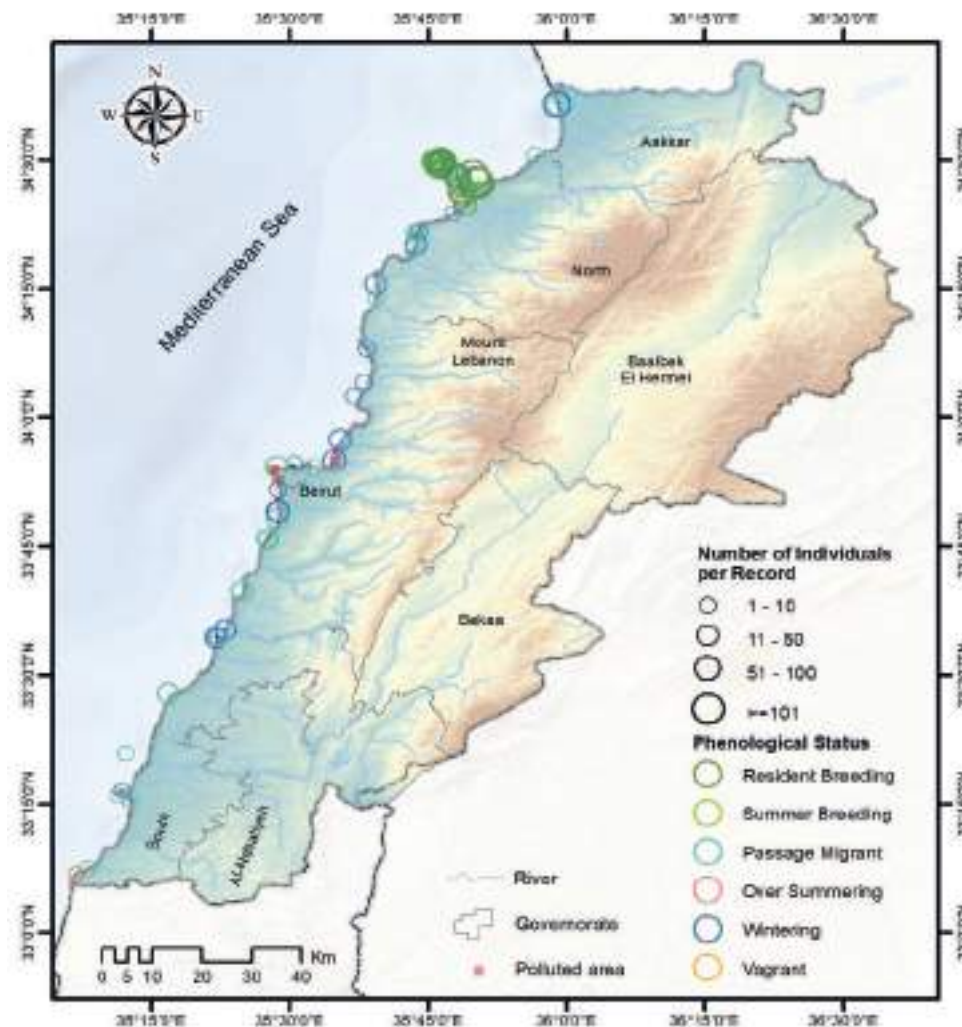


Figure 11: Distribution of Yellow-legged Gull (Source: IUCN)

**Phenological status:** This species is a localized breeder on Palm Islands Nature Reserve. It is a resident (observed in the country during the whole year round). During migration seasons and in winter, the increased number of individuals indicates that there are passage migrants and winterers in Lebanon.

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/62030970/154522526>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon

## *Larus armenicus*

نورس أرمينيا

Armenian Gull

**Order:** Charadriiformes

**Family:** Laridae

**Conservation status:**

Near Threatened



© Bassel Abi Jummaa

**Threats:** Persecution, modernization of sewage and waste treatment facilities, disturbance, oil spill and fish poisoning.

**Causes of threats:** Lack of awareness and insufficient willingness of Law enforcement or absence of a strategy for application of the Law. Outbreak of avian diseases and unexpected impacts of climate change.

**Suggested mitigation measures:** Increase awareness of people, particularly fishermen about the importance of bird conservation and set a plan for Law enforcement and implement it. Regularly train people on the application of the oil leakage contingency plan, and ban firmly the poisoning of fish.

**Frequency:** Very low frequency along the coastal line of Lebanon: Cheikh Zennad (2), Tripoli (1), Palm Islands (1), Beirut (1), and Tyre (1).

**Density:** Cheikh Zennad (3), Tripoli (1.7), Palm Islands (1), Beirut (1.33), and Tyre (1.33).

**Behavior:** The Armenian Gull is predatory, taking fish, crustaceans, insects and even organic materials from organic waste in garbage dump.

**Habitat:** Coast, wetlands, farm lands, fish ponds, and garbage dump.

**Phenological status:** Not uncommon winterer and rare passage migrant.

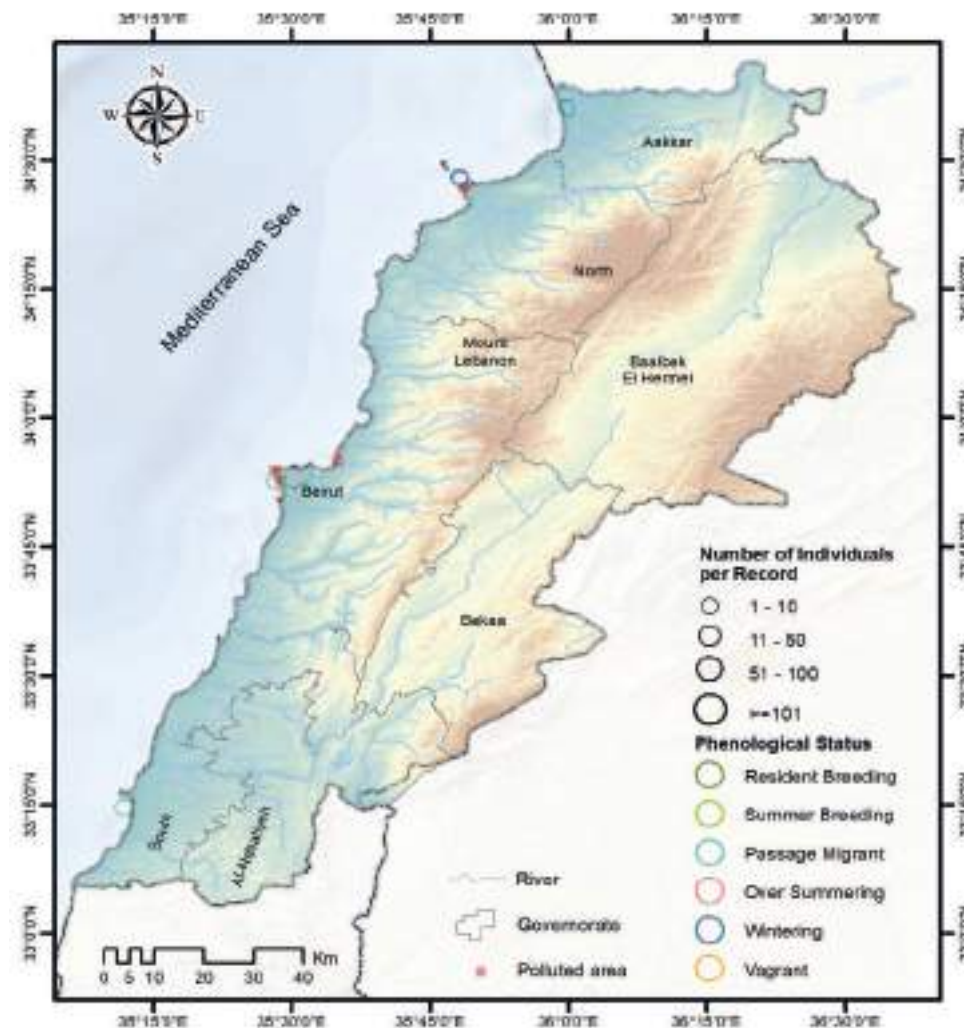


Figure 12: Distribution of Armenian Gull (Source: IUCN)

### Further reading:

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22694357/155575591>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.



*Larus fuscus*

نورس أسود الظهر

Lesser Black-backed Gull

Order: Charadriiformes

Family: Laridae

Conservation status:

Least Concern



© Ghassan Ramadan-Jaradi

**Threats:** Pollution, persecution, illegal hunting, poisoned fish, plastic fragments, avian diseases and oil spill.

**Causes of threats:** Chemicals from landfills on mainland, killing by fishermen, misguided hunters, illegal fishing using Lannate insecticide, plastic fragments accidentally ingested by birds and leakage of oil into the sea.

**Suggested mitigation measures:** Manage the landfill in an environmentally friendly way, enforce the Law prohibiting the use of fish poisoning, raise awareness of people, clean the beaches from plastic debris, and respond to the oil spills contingency plan appropriately.

**Frequency:** High frequency in north Lebanon, gradually but slightly decreasing southward: Cheikh Zennad (3), Qleiaat (1), Tripoli (6), Palm Islands (2), Hraiche (1), Nahr el Jawz (1), Ras Chekaa (1), Batroun (1), Kfarabida (1), Madfoun (1), Byblos (1), Maameltain (1), Nahr el Kalb (1), Beirut (3), Nahr el Ghadir (4), Haret Chbib (1), Nahme (1), Jiyye (1), Saida (3), Sarafand (1), Qassmieh (1), Tyre (2), Mansouri (1), Naqoura (2).

**Density:** Cheikh Zennad (2), Qleiaat (1), Tripoli (4,3), Palm Islands (1.7), Hraiche (1), Nahr el Jawz (2.5), Ras Chekaa (0.5), Batroun (1.5), Kfarabida (0.5), Madfoun (1), Byblos (2.5), Maameltain (1), Nahr el Kalb (3.5), Beirut (4), Nahr el Ghadir (16), Haret Chbib (2), Nahme (1), Jiyye (0.5), Saida (4), Sarafand (2), Qassmieh (1.5), Tyre (2.3), Mansouri (4), Naqoura (2).

**Behavior:** The lesser black-backed gull is a typical surface-feeding seabird and benefits from food in urbanized areas. It is also a natural pest control for farmers and gardeners.

**Habitat:** The lesser black-backed gull occupies a variety of coastal habitats, including estuaries, harbors and lagoons, rubbish dumps, and agricultural fields.

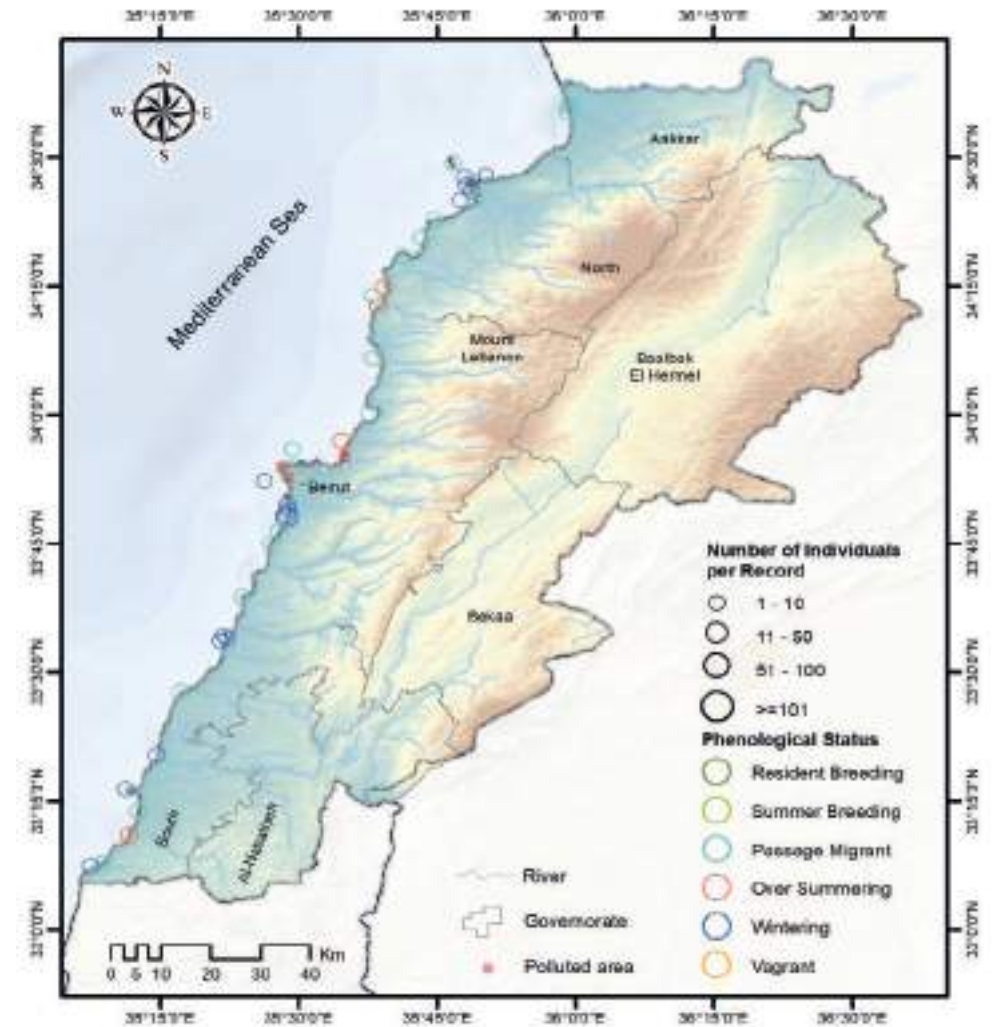


Figure 13: Distribution of Lesser Black-backed Gull (Source: IUCN)

**Phenological status:** Abundant on passage, common winterer and singles over summer.

#### Further reading:

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22694373/155594163>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

## *Thalasseus sandvicensis*

خرشنة ساندويتش

### Sandwich Tern

**Order:** Charadriiformes

**Family:** Laridae

**Conservation status:**

Least Concern



© Fouad Itani

**Threats:** Anthropogenic disturbance, illegal hunting, oil spill, fish poisoning, pesticides, and persecution.

**Causes of threats:** Growth of human population, poaching, oil leakage from land or boats, use of Lannate in fishing, chemicals with waste waters pouring into the sea and lack of awareness.

**Suggested mitigation measures:** Respect coastal zoning management principles, enforce the Law prohibiting illegal killing of birds and the use of fish poisoning, respond to the oil spills contingency plan appropriately, and raise awareness of people, particularly fishermen.

**Frequency:** Moderate frequency gradually increasing northward: Cheikh Zennad (1), Tripoli (3), Palm Islands (1), Byblos (1), Beirut (2), Khaldeh (3) and Tyre (1).

**Density:** Cheikh Zennad (1.5), Tripoli (1.3), Palm Islands (1), Byblos (1), Beirut (1), Khaldeh (5.5) and Tyre (1).

**Behavior:** The Sandwich tern feeds by diving for small fish, mainly in marine environments. During courtship, the male offers to the female fish as part of the courtship display.

**Habitat:** The Sandwich tern is primarily found in coastal areas, including beaches, bays, estuaries, mudflats, inlets and lagoons. During winter, it prefers sandy coastal bays, rocky beach fronts, estuaries and harbors.

**Phenological status:** Not uncommon passage migrant and winter visitor.

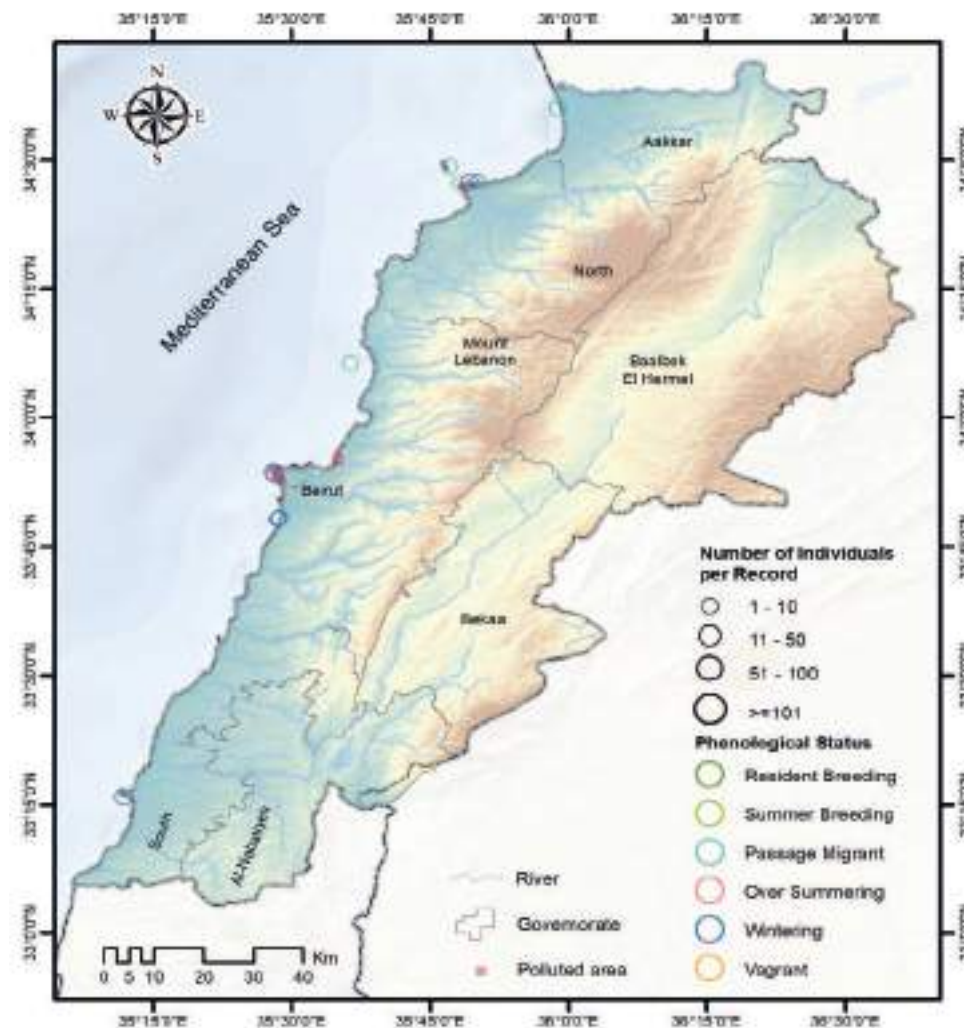


Figure 14: Distribution of Sandwich Tern (Source: IUCN)

### Further reading:

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22694591/154517364>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

## *Sterna hirundo*

خرشنة إعتيادية

Common Tern

**Order:** Charadriiformes

**Family:** Laridae

**Conservation status:**

Least Concern



© Fouad Itani

**Threats:** Human disturbance and predation, hunting, oil spill, fish poisoning, pesticides, persecution and avian influenza.

**Causes of threats:** Growth of human population, poaching, oil leakage from land or boats, use of Lannate in fishing, chemicals with waste waters pouring into the sea and lack of awareness.

**Suggested mitigation measures:** Respect coastal zoning management principles, enforce the Law prohibiting illegal killing of birds and the use of fish poisoning, respond to the oil spills contingency plan appropriately, and raise awareness of people, particularly fishermen.

**Frequency:** Low frequency along the coast with: Cheikh Zennad (1), Abdeh (1), Tripoli (1), Palm Islands (1), Jounieh (2), Beirut (2), Khalde (1) and Naqoura (1).  
**Density:** Cheikh Zennad (2), Abdeh (1), Tripoli (0.34), Palm Islands (1), Jounieh (1), Beirut (1), Khalde (1.5) and Naqoura (1).

**Behavior:** Common Terns mainly eat small marine fish, but will also eat aquatic insects and crustaceans. When fishing, the Common Tern flies above the water with its bill pointing downwards. On sighting fish, it drops with partly closed wings and enters the water with little splash, often submerging completely, and emerges a moment later, shaking off the water as it flies. It sometimes picks up food from the surface of the water, from mud, or even cultivated fields.

**Habitat:** The common tern is found in a variety of coastal and inland habitats. It may also use marshes and ponds. It may roost in harbors, on jetties, piers and beaches, and in coastal wetlands, such as lagoons, rivers, lakes, swamps, mangroves and salt marshes.

**Phenological status:** Common passage migrant.

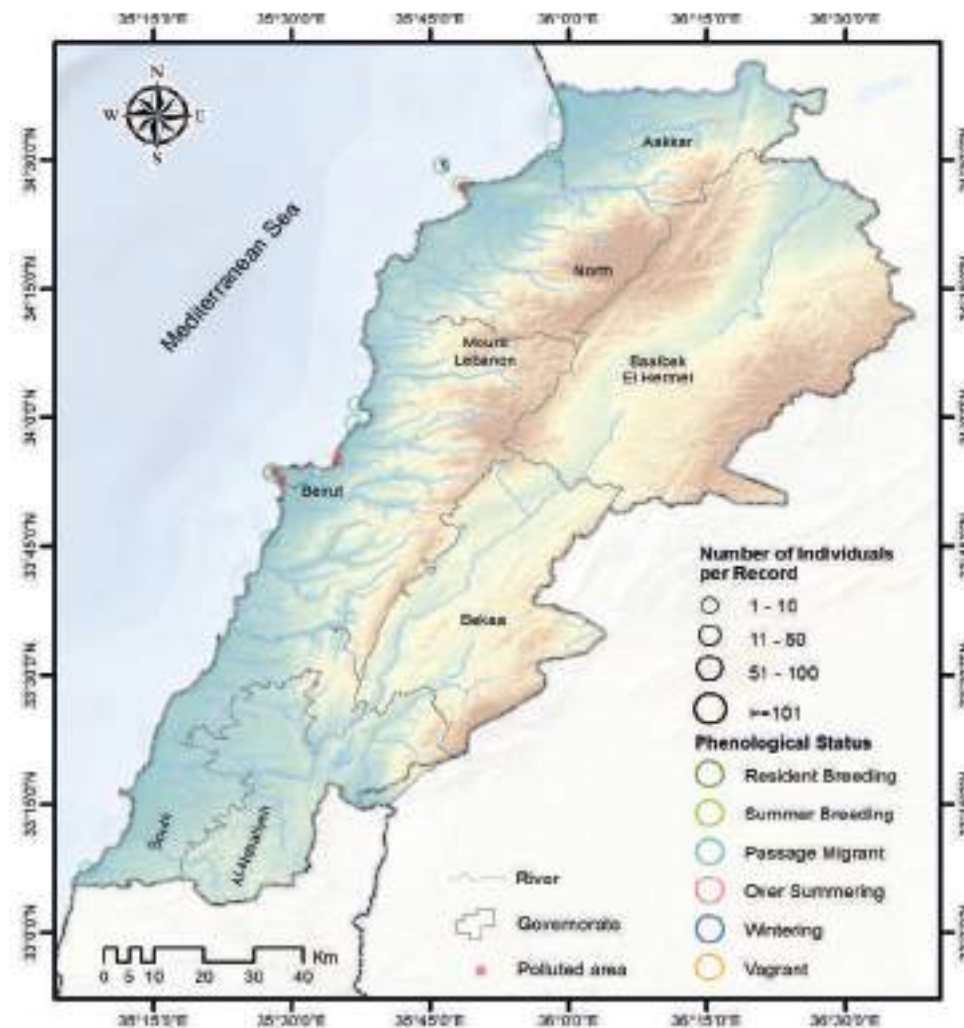


Figure 15: Distribution of Common Tern (Source: IUCN)

### Further reading:

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22694623/155537726>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Ardea cinerea*  
مالك الحزين الرمادي  
Grey Heron

**Order:** Pelecaniformes  
**Family:** Ardeidae  
**Conservation status:**  
Least Concern



© Fouad Itani

**Threats:** Illegal hunting, disturbance, avian influenza and botulism, habitat alteration and deterioration, and pesticides.

**Causes of threats:** Poaching, Growth of human population, widespread of diseases, chemicals and pesticides in wetlands, and wetlands drainage.

**Suggested mitigation measures:** Enforce the Law prohibiting the illegal killing of birds, declare all wetlands as protected areas, respond to the oil spills contingency plan appropriately, and raise awareness of people about the damage that can be caused by pesticides.

**Frequency:** Low frequency gradually decreasing from Cheikh Zennad to Damour: Cheikh Zennad (2), Tripoli (2), Palm Islands (4), Nahr Ibrahim (1), Beirut (1), Ouzai (2) and Damour (1).

**Density:** Cheikh Zennad (3.5), Tripoli (6.5), Palm Islands (18), Nahr Ibrahim (2), Beirut (1), Ouzai (5.2) and Damour (2.5).

**Behavior:** As many Ardeidae, the Grey Heron may stay without moving during long time at water edge, waiting for prey, usually standing on one leg, with neck sunk between shoulders. When alarmed, it stretches its neck, motionless and watchful, and may take off immediately.

**Habitat:** The grey heron occurs in most freshwater habitats, including rivers, lakes, ponds and reservoirs. In winter, sea islands and islets are part of this species' habitat.

**Phenological status:** Common passage migrant and localized common winter visitor (chiefly on Palm Islands). Singles over-summered.

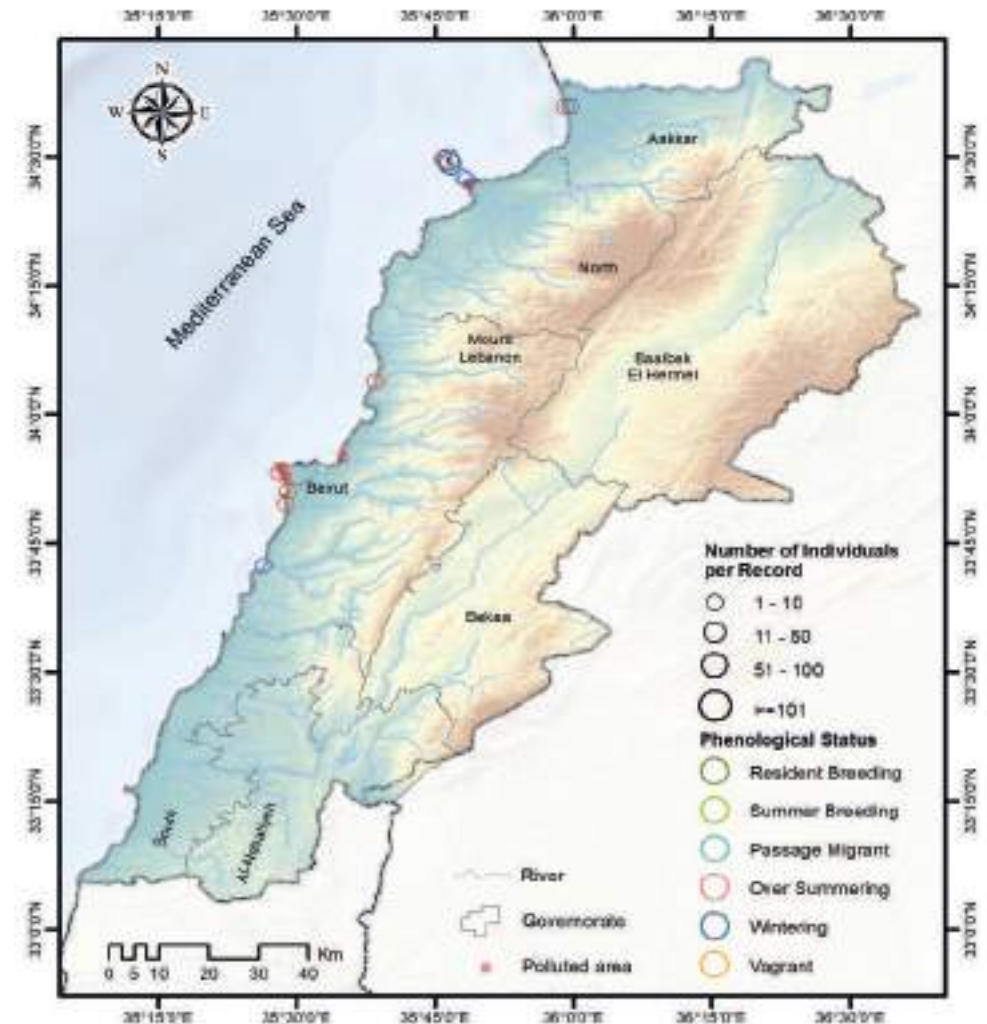


Figure 16: Distribution of Grey Heron (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22696993/154525233>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Egretta garzetta*  
البليشون الأبيض الصغير  
Little Egret

**Order:** Pelecaniformes  
**Family:** Ardeidae  
**Conservation status:**  
Least Concern



© Fouad Itani

**Threats:** Wetland degradation and loss through drainage for agriculture, changes in current management practices, contamination from agricultural and industrial operations, avian influenza and illegal killing.

**Causes of threats:** Poor environmental practices due to lack of awareness. Poaching, spread of avian diseases, chemicals and pesticides in wetlands, and wetlands drainage.

**Suggested mitigation measures:** Enforce the Law prohibiting the illegal killing of birds, declare all wetlands protected areas, and raise awareness of people about the damage that can be caused by pesticides.

**Frequency:** Moderate frequency along the coast and Palm Islands Nature Reserve: Cheikh Zennad (2), Nahr el Bared (1), Tripoli (10), Batroun (1), Enfe (1), Berbara (1), Madfoun (1), Halat (1), Bwar (1), Nar el Kalb (3), Beirut (2), Ouzai (1), Saida (2) and Tyre (2).

**Density:** Cheikh Zennad (1.5), Nahr el Bared (0.5), Tripoli (4), Batroun (1), Enfe (0.5), Berbara (0.5), Madfoun (0.5), Halat (0.5), Bwar (0.5), Nar el Kalb (2), Beirut (0.7), Ouzai (0.5), Saida (1.5) and Tyre (1.7).

**Behavior:** The little Egret feeds alone and sometimes in small groups with other bird, but individuals are fairly apart from each other and defend strongly their feeding territory. This species feeds on aquatic insects, crustaceans, small fish, amphibians, mollusks, worms, small reptiles and small birds.

**Habitat:** The Little Egret is never far from water and is usually found along the shore and in large wetland areas, typically on mudflats and marshland, but it can also be found hunting in estuaries or streams.

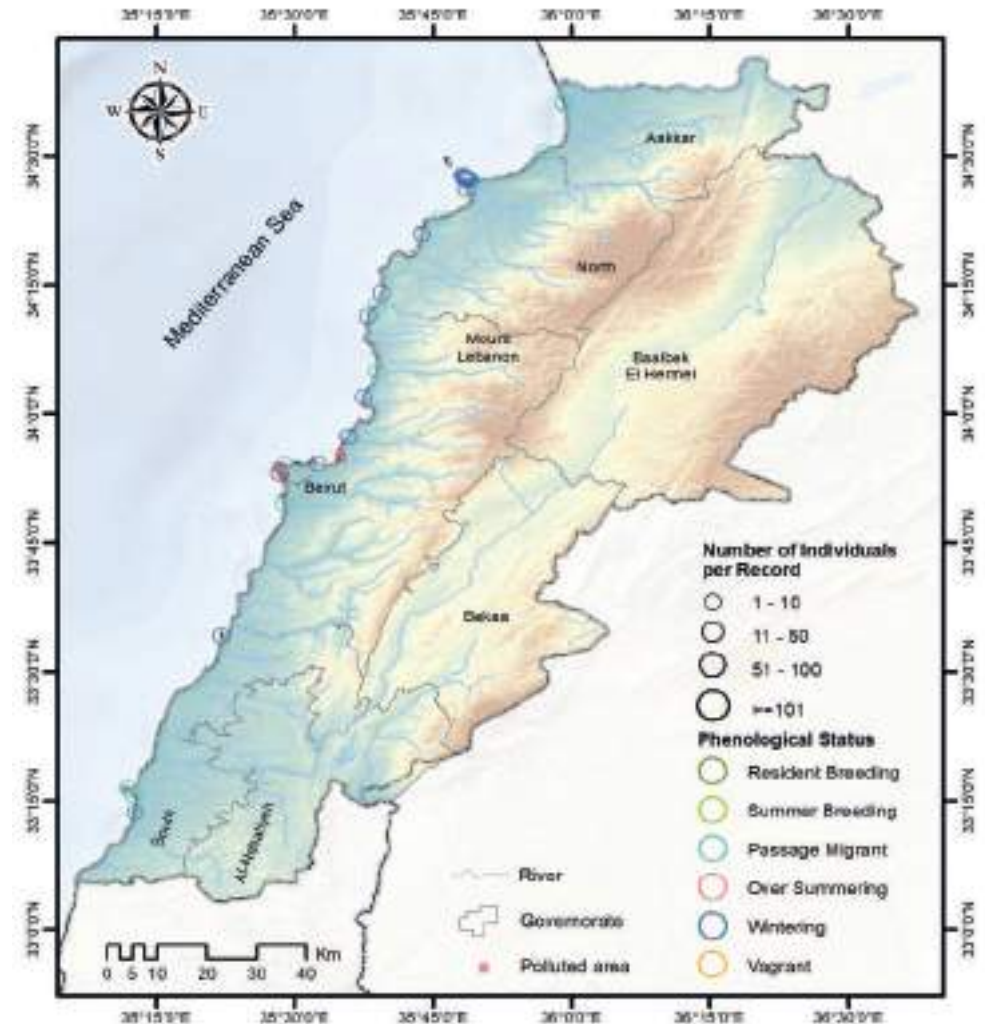


Figure 17: Distribution of Little Egret (Source: IUCN)

**Phenological status:** Common passage migrant and winter visitor. Few breeds in the Beqaa Valley, particularly at Mansoura.

**Further reading:**

IUCN Red List of this species.

<https://www.iucnredlist.org/species/22729692/95020328>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, The Complet Guidebook*. Beirut-Lebanon.

*Haematopus ostralegus*  
آكل المحار  
Eurasian Oystercatcher

**Order:** Charadriiformes  
**Family:** Haematopodidae  
**Conservation status:**  
Near Threatened



© Fouad Itani

**Threats:** Disappearance of intertidal mussel and cockle beds due to the over fishing of benthic shellfish, habitat loss and degradation, global warming, disturbance, fishing practices, and hunting.

**Causes of threats:** Mal fishing practices due to lack of awareness and quick profit. Poaching, destruction of the species habitats by human development and climate change.

**Suggested mitigation measures:** Enforce the Law prohibiting the illegal killing of birds, develop new regulations to avoid over-exploitation of mussel, cockle beds and benthic shellfish, and raise awareness of people about the value of the Eurasian Oystercatcher.

**Frequency:** Scarce frequency along the coast: Cheikh Zennad (2), Tripoli (1), Palm Islands (4) and Beirut (2).

**Density:** Cheikh Zennad (3), Tripoli (1), Palm Islands (2.7) and Beirut (0.67).

**Behavior:** To open mussels exposed by the tide, the bird hammers a hole along the ventral margin of the shell, whereas to open mussels under water, the bird drives its bill into the gape of the valves to cut through the posterior adductor muscle.

**Habitat:** Salt marshes, sand and shingle beaches, less often rocky coasts. During the non-breeding season, it is found in mudflats in estuaries, salt marshes, sandy and rocky shores.

**Phenological status:** Scarce passage migrant and uncommon summer visitor.

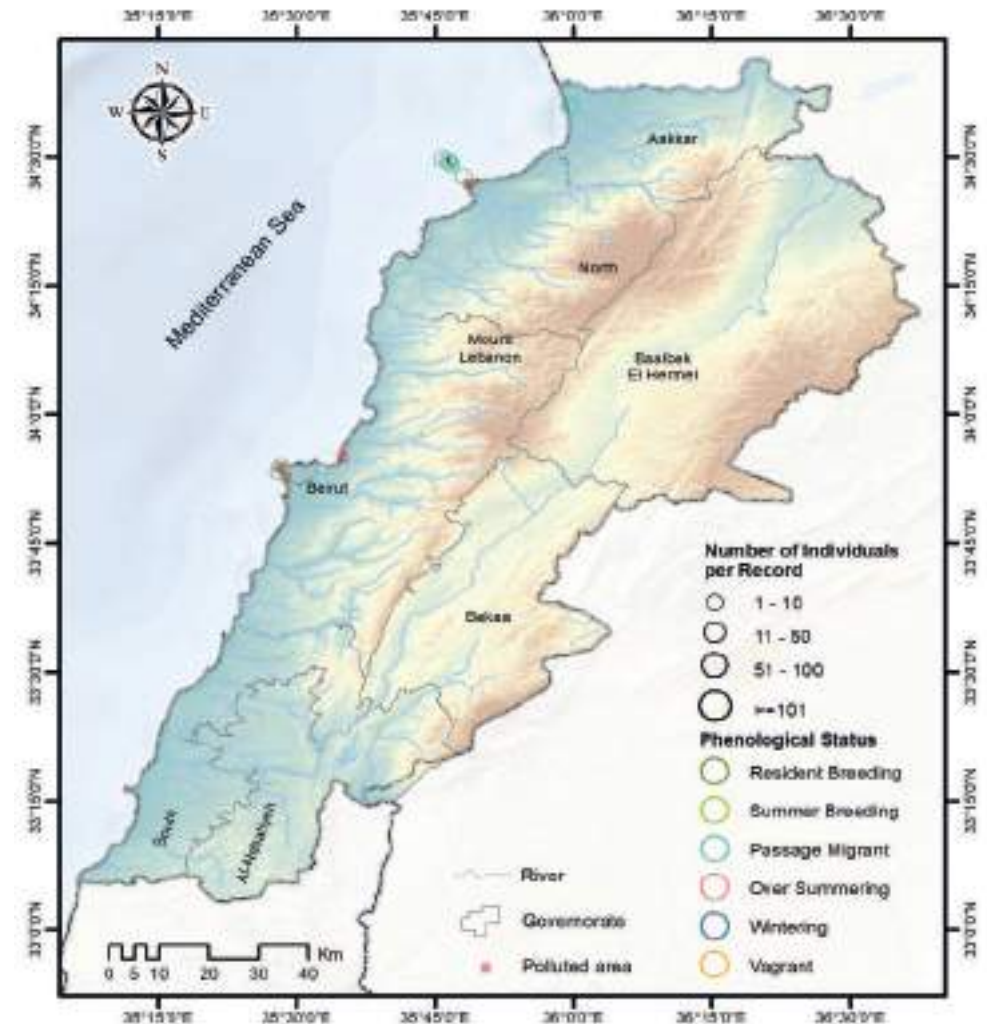


Figure 18: Distribution of Eurasian Oystercatcher (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693613/154998347>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Himantopus himantopus*

كرسوع / أبو المغازل

**Black-winged Stilt**

**Order:** Charadriiformes

**Family:** Recurvirostridae

**Conservation status:**

Least Concern



© Fouad Itani

**Threats:** Habitat loss and degradation, disturbance, avian diseases, and hunting.

**Causes of threats:** Destruction of the species habitats by human development and climate change, and poaching.

**Suggested mitigation measures:** Enforce the Law prohibiting the illegal killing of birds, and raise awareness of people about the value of the Black-winged Stilt. Train People on environmentally friendly development management.

**Frequency:** Moderate frequency with a decrease southward: Cheikh Zennad (5), Nahr el Bared (1), Palm Islands (3), Tripoli (1), Nahr el Kalb (1), Beirut (1), Nahr Awali (1) and Tyre (1).

**Density:** Cheikh Zennad (21), Nahr el Bared (3.5), Palm Islands (10.34), Tripoli (3), Nahr el Kalb (5.5), Beirut (1), Nahr Awali (1) and Tyre (1.67).

**Behavior:** The Black-winged Stilt is a social species, and is usually found in small groups. It feeds in shallow water or mud and roost in shallow water or on banks or sandbanks.

**Habitat:** This species is found in a variety of wetlands from brackish estuaries to salt water and freshwater marshes. It prefers shallow wetlands (lagoon, ponds and marshes) of tropical and temperate regions.

**Phenological status:** Common passage migrant.

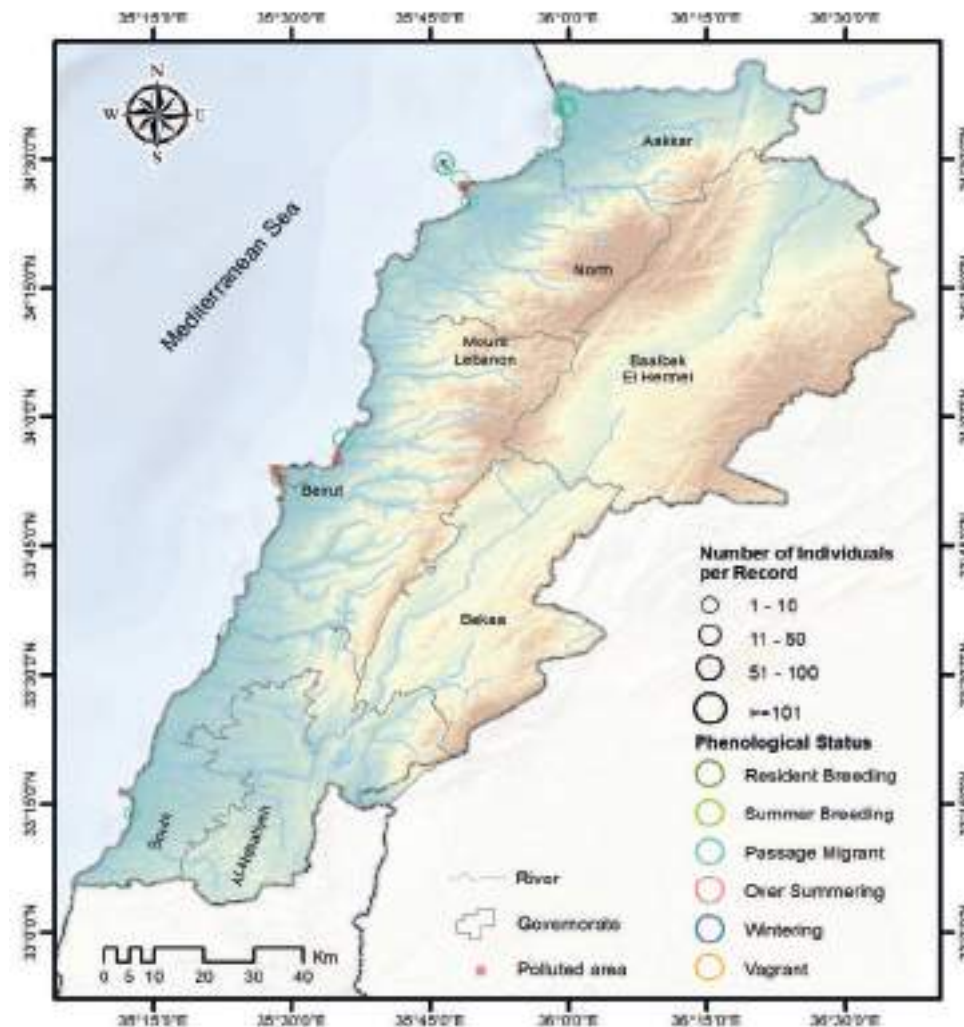


Figure 19: Distribution of Black-winged Stilt (Source: IUCN)

#### Further reading:

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22727969/155440465>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Charadrius hiaticula*  
 الزقزاق المطوق الإعتيادي  
 Common Ringed Plover

**Order:** Charadriiformes  
**Family:** Charadriidae  
**Conservation status:**  
 Least Concern



© Fouad Itani

**Threats:** Oil pollution, habitat degradation, hunting, predation and avian botulism.

**Causes of threats:** Leakage of oil from marine or land tanks, destruction of the species habitats by human unsustainable development, poaching, and transmitted diseases.

**Suggested mitigation measures:** Enforce the Law prohibiting the illegal killing of birds, and raise awareness of people about the value of the Common Ringed Plover. Train people on management of environmentally friendly development and follow the oil spill contingency plan. Create rehabilitation centers for sick or oiled birds

**Frequency:** Low frequency along the coast: Cheikh Zennad (2), Nahr el Bared (1), Tripoli (2), Palm Islands (2), Beirut (1) and Khalde (1). May be overlooked further south.

**Density:** Cheikh Zennad (2), Nahr el Bared (1), Tripoli (1), Palm Islands (0.67), Beirut (1) and Khalde (0.5).

**Behavior:** The Common Ringed Plover feeds on crustaceans, mollusks, aquatic worms, isopods, amphipods and various insects such as ants, beetles, flies and their larvae. It forages on beaches, mudflats and shorelines.

**Habitat:** Coasts, islands, fishponds, open ground on sand or shingle beaches or flats, sandbanks and mudflats, estuaries, inland waters and occasionally rivers.

**Phenological status:** Common passage migrant, scarce winter visitor, and rare summer visitor.

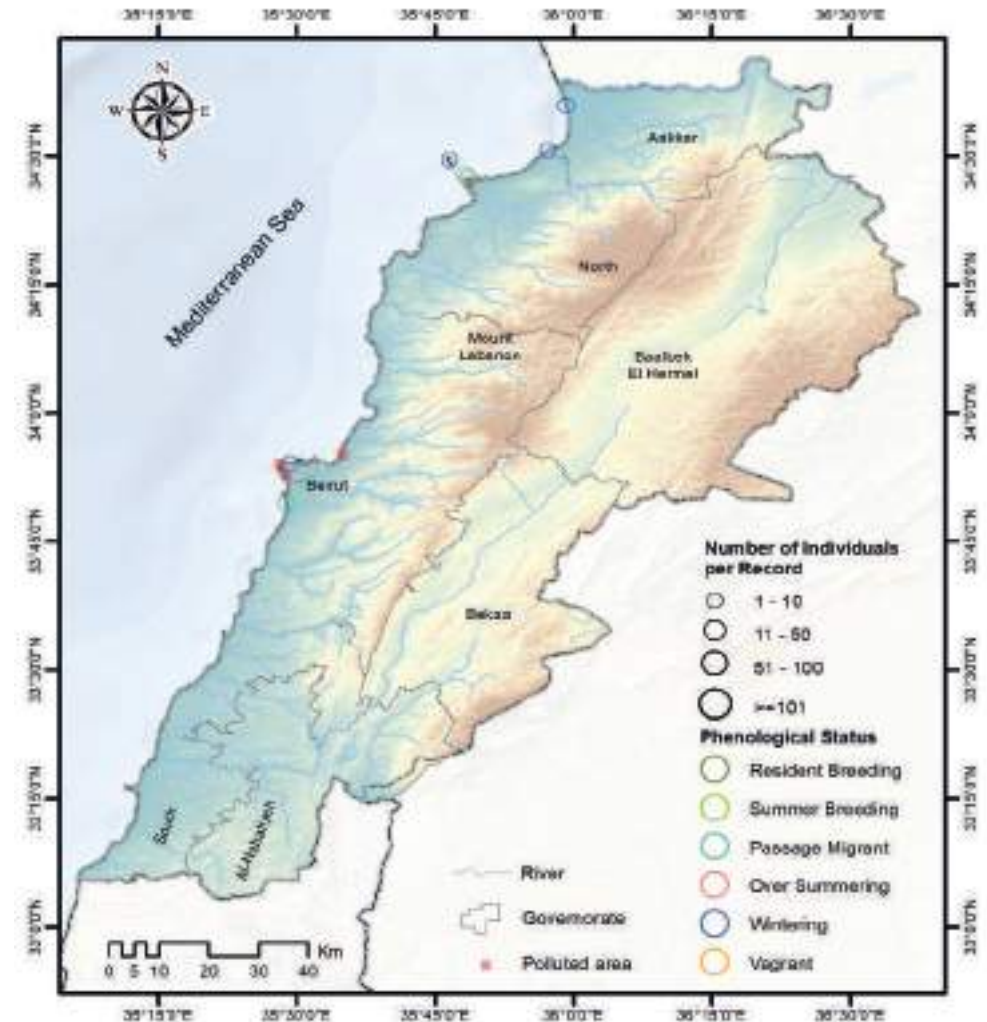


Figure 20: Distribution of Common Ringed Plover (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693759/155487854>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.



*Charadrius dubius*  
الزقزاق المطوق الصغير  
Little Ringed Plover

**Order:** Charadriiformes  
**Family:** Charadriidae  
**Conservation status:**  
Least Concern



**Threats:** Oil pollution, habitat degradation, hunting, predation and avian botulism.

**Causes of threats:** Leakage of oil from marine or land tanks, destruction of the species habitats by human unsustainable development, poaching, and transmitted diseases.

**Suggested mitigation measures:** Enforce the Law prohibiting the illegal killing of birds, and raise awareness of people about the value of the Little Ringed Plover. Train people on management of environmentally friendly development and follow the oil spill contingency plan. Create rehabilitation centers for sick or oiled birds

**Frequency:** Moderate frequency decreasing southward: Cheikh Zennad (4), Qleiaat (1), Nahr el Bared (1), Tripoli (2), Enfe (1), Beirut (1), Saida (1) and Tyre (1).

**Density:** Cheikh Zennad (18), Qleiaat (0.5), Nahr el Bared (0.5), Tripoli (2), Enfe (1.5), Beirut (1), Saida (0.5) and Tyre (0.67).

**Behavior:** Like other plovers, it forages on invertebrates and crustaceans in a particular way: standing and watching, running forward, pecking, then standing still again.

**Habitat:** Open gravel areas near freshwater, including gravel pits, islands and river edges. At other times, prefers wetlands and shores.

**Phenological status:** Scarce and scattered summer breeder and not uncommon passage migrant.

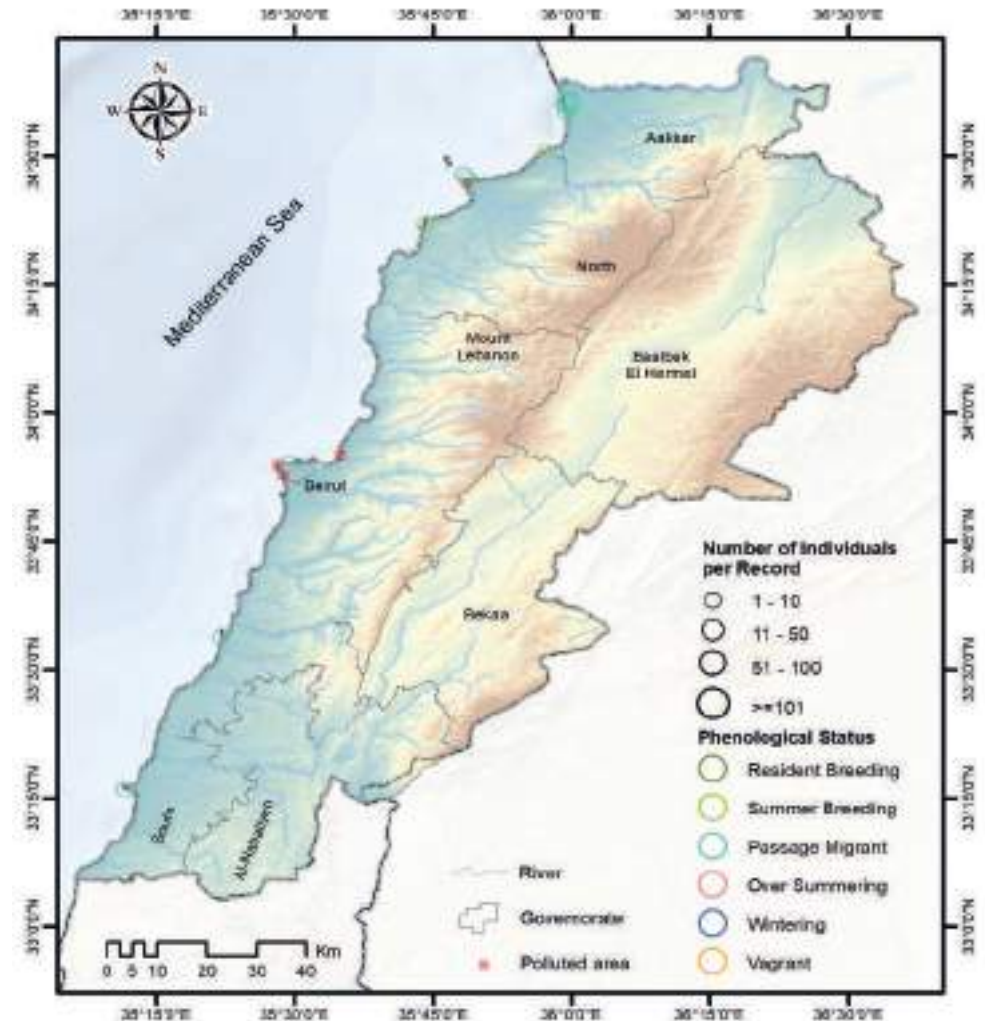


Figure 21: Distribution of Little Ringed Plover (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693770/155486463>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

## *Anarhynchus alexandrinus*

الزقزاق الإسكندراني  
Kentish Plover

**Order:** Charadriiformes

**Family:** Charadriidae

**Conservation status:**  
Least Concern



© Fouad Itani

**Threats:** Oil pollution, habitat degradation, hunting, predation, urbanization, disturbance of coastal habitat, and avian botulism.

**Causes of threats:** Leakage of oil from marine or land tanks, destruction of the species habitats by human unsustainable development, poaching, encroachment of beaches by humans, and transmitted diseases.

**Suggested mitigation measures:** Activate and implement the oil spill contingency plan. Train people on management of environmentally friendly shore development. Enforce the Law prohibiting the illegal killing of birds, and raise awareness of people about the value of the Kentish Plover. Create rehabilitation centers for sick or oiled birds

**Frequency:** Not frequently recorded. Scarce to rare in Cheikh Zennad (1), Tripoli (1), Palm Islands (1), Nahr el Kalb (1), Damour (1) and Tyre (1).

**Density:** Cheikh Zennad (1), Tripoli (0.34), Palm Islands (0.34), Nahr el Kalb (0.5), Damour (1) and Tyre (0.34).

**Behavior:** Like most plovers, the Kentish plovers are predominantly insectivores, feeding on a large range of arthropods and invertebrates depending on the environment, by using a run and stop method.

**Habitat:** Wetlands, salt marshes, coastland, islands, rocky and sandy shores. It prefers areas of low elevation, low vegetation, high moisture and places far away from human activity and settlements.

**Phenological status:** Rare to scarce passage migrant and rare summer visitor.

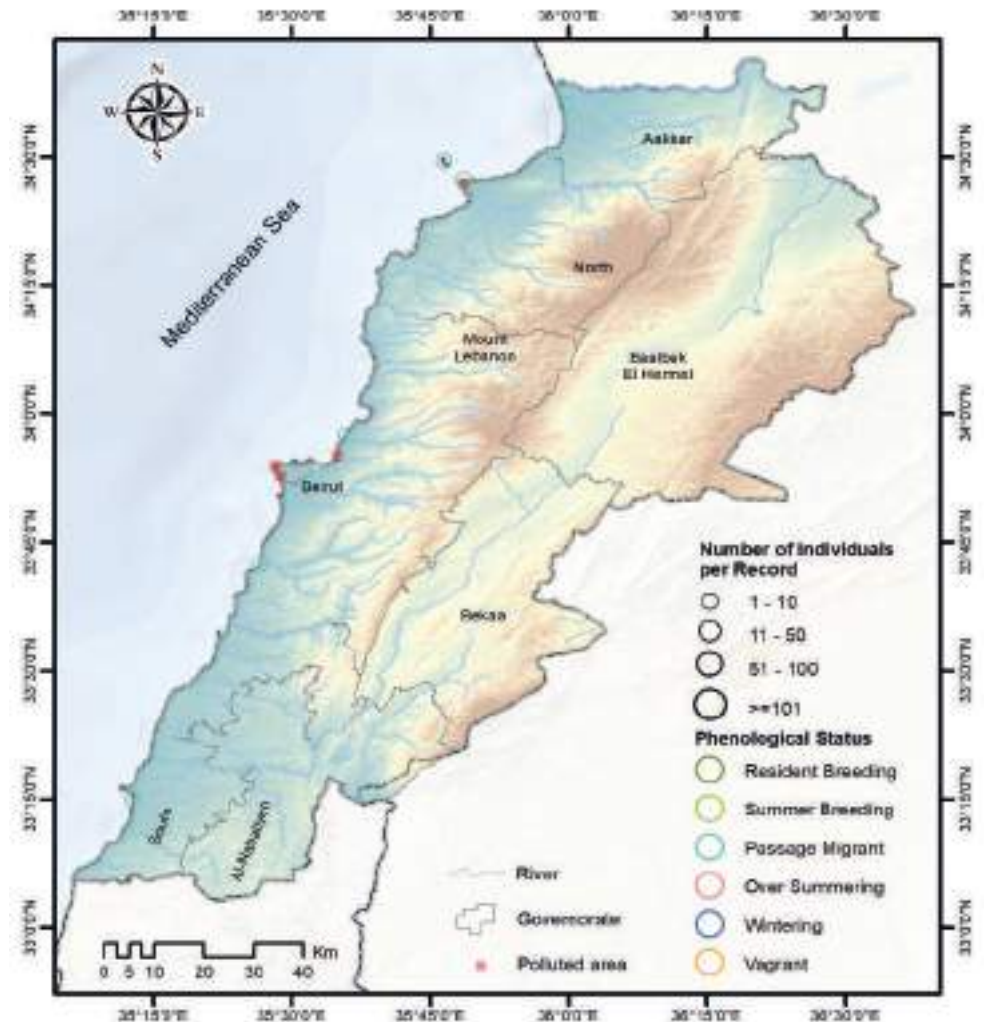


Figure 22: Distribution of Kentish Plover (Source: IUCN)

### Further reading:

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22727487/155485165>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

## *Numenius arquata*

كروان الماء

Eurasian Curlew

**Order:** Charadriiformes

**Family:** Scolopacidae

**Conservation status:**

Near Threatened



© Fouad Itani

**Threats:** Habitat loss and degradation, disturbance, agricultural practices, pollution, hunting and avian botulism.

**Causes of threats:** Destruction of the species habitats by human unsustainable development, poaching, encroachment of beaches by humans, and transmitted diseases.

**Suggested mitigation measures:** The mitigation measures should be taken collectively at the regional and global levels, especially that the species is simply vagrant in Lebanon. Train people on management of environmentally friendly shore development. Enforce the Law prohibiting the illegal killing of birds, and raise awareness of people about the value of the Eurasian Curlew. Create rehabilitation centers for sick or oiled birds

**Frequency:** Nine individuals were recorded in three localities with the following frequencies: Cheikh Zennad (3), Damour (1) and Naqoura (1).

**Density:** Cheikh Zennad (2.5), Damour (1.5) and Naqoura (0.5).

**Behavior:** The Eurasian Curlews use 2 methods to capture ragworms *Nereis* sp.: they search for worms at the surface, which are taken with a single peck, and/or they search for visual cues, such as burrow entrances, probe deep to extract the worm from the burrow.

**Habitat:** During the non-breeding period, the species occurs mainly on sheltered intertidal mudflats, rocky shores and other coastal wetlands, especially saltpans and lakes, and sometimes at freshwater swamps.

**Phenological status:** Vagrant (Occasional).

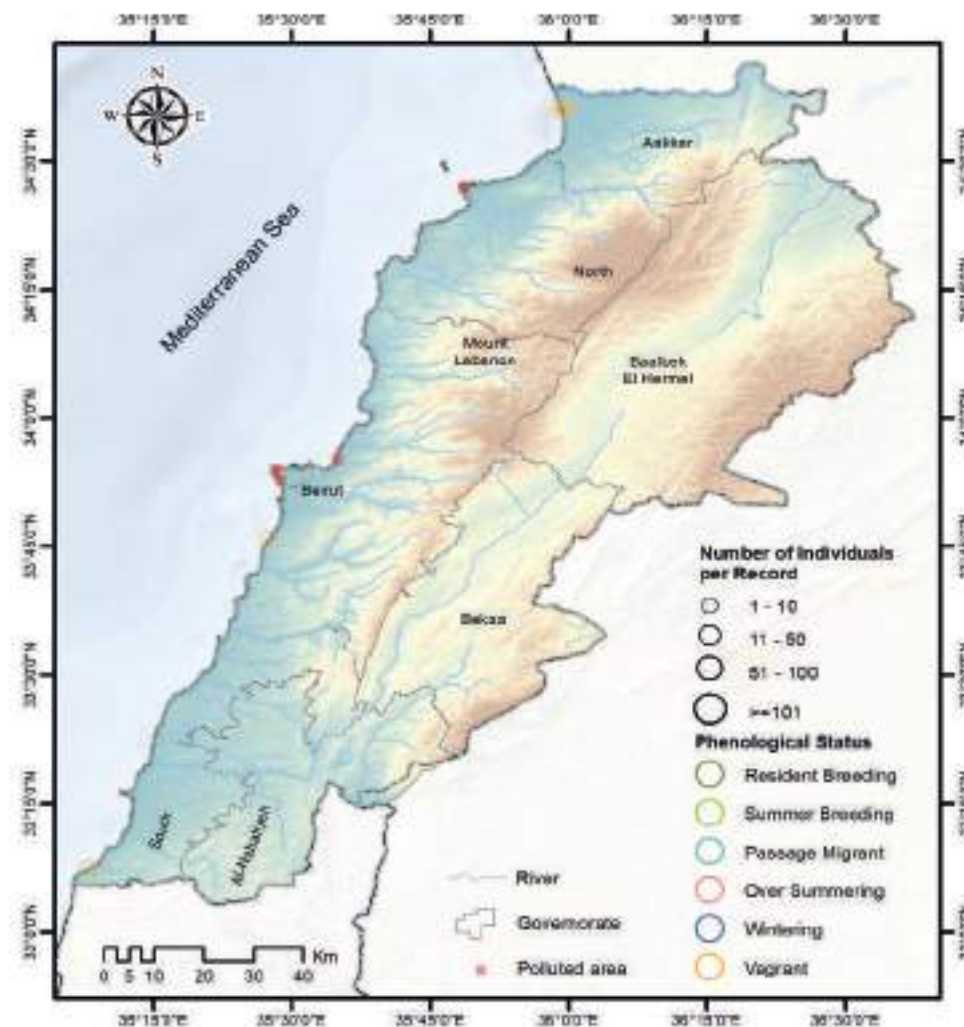


Figure 23: Distribution of Eurasian Curlew (Source: IUCN)

### Further reading:

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693190/117917038>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Limosa lapponica*  
بقويقة مخططة الذيل  
Bar-tailed Godwit

**Order:** Charadriiformes  
**Family:** Scolopacidae  
**Conservation status:**  
Near Threatened



© Fouad Itani

**Threats:** Change in agricultural practices, habitat loss and degradation, pollution, disturbance, illegal hunting, and avian influenza.

**Causes of threats:** Destruction of the species habitats by human unsustainable development, poaching, garbage and chemicals, encroachment of beaches by humans, and transmitted diseases.

**Suggested mitigation measures:** The mitigation measures should be taken collectively at the regional and global level, especially that the species is simply vagrant in Lebanon. Train people on management of environmentally friendly shore development. Enforce the Law prohibiting the illegal killing of birds, and raise awareness of people about the value of the Bar-tailed Godwit. Create rehabilitation centers for sick or oiled birds

**Frequency:** Three individuals were recorded in two localities with the following frequencies: Cheikh Zennad (1) and Tyre (1).

**Density:** Cheikh Zennad (1) and Tyre (0.5).

**Behavior:** This Bar-tailed Godwit feeds on insects, seeds and berries. In the winter and during migration, it wades in the water, probing in the mud with its long, thin bill for mollusks, crustaceans, snails, worms, and other aquatic invertebrates.

**Habitat:** Outside breeding ground, this Godwit prefers intertidal areas along muddy coastlines, estuaries and lagoons.

**Phenological status:** Vagrant (Occasional).

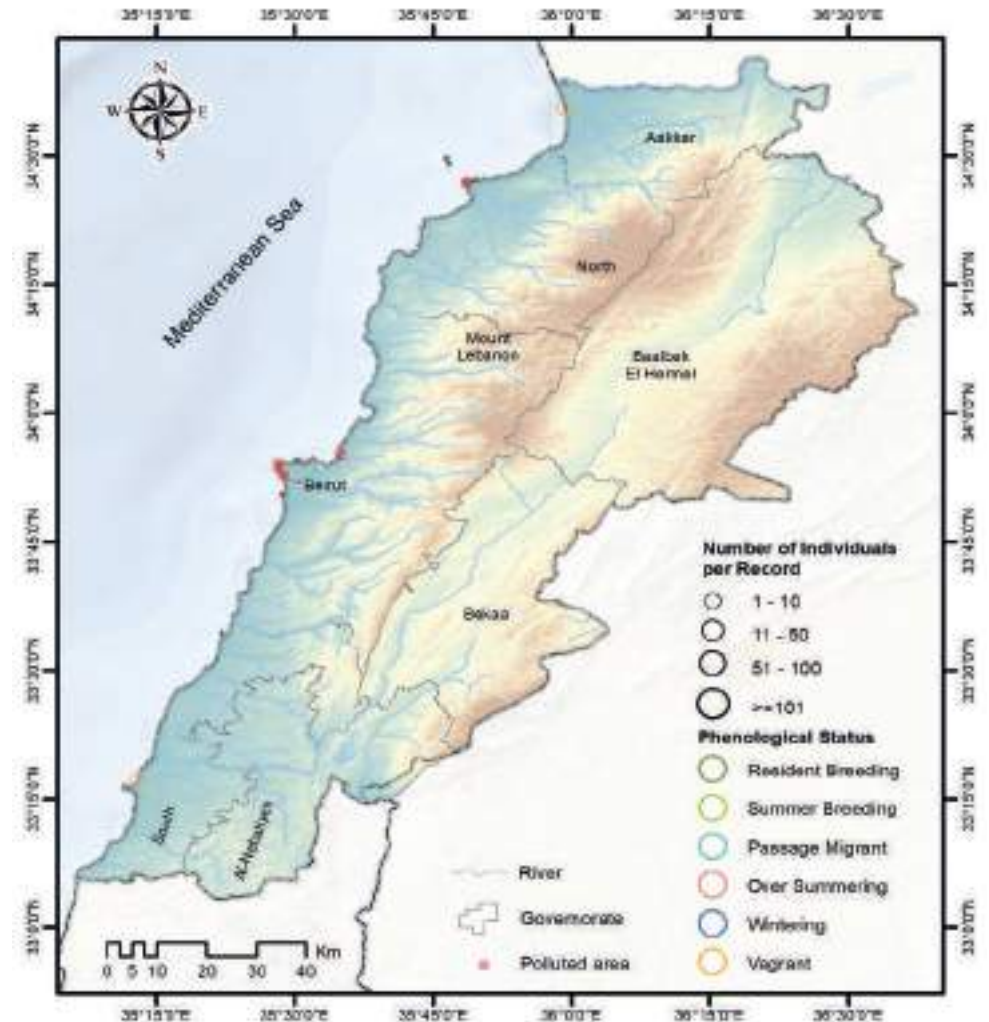


Figure 24: Distribution of Bar-tailed Godwit (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693158/111221714>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

### *Limosa limosa*

بقويقة سوداء الذيل  
Black-tailed Godwit

**Order:** Charadriiformes

**Family:** Scolopacidae

**Conservation status:**  
Near Threatened



© Fouad Itani

**Threats:** Change in agricultural practices, habitat loss and degradation, pollution, disturbance, illegal hunting, and avian influenza.

**Causes of threats:** Destruction of the species habitats by human unsustainable development, poaching, garbage and chemicals, encroachment of beaches by humans, and transmitted diseases.

**Suggested mitigation measures:** Train people on management of environmentally friendly shore development. Enforce the Law prohibiting the illegal killing of birds, and raise awareness of people about the value of the Bar-tailed Godwit. Create rehabilitation centers for sick or oiled birds

**Frequency:** Recorded repetitively in small numbers with the following locality & frequency: Cheikh Zennad (7).

**Density:** Cheikh Zennad (7,5).

**Behavior:** The Black-tailed Godwit is relatively silent outside breeding season.

**Habitat:** Lowland wet meadows or grassy marshes, damp pastures, estuaries, lagoons with intertidal mudflats, sandy beaches, and inland wetlands.

**Phenological status:** Scarce passage migrant.

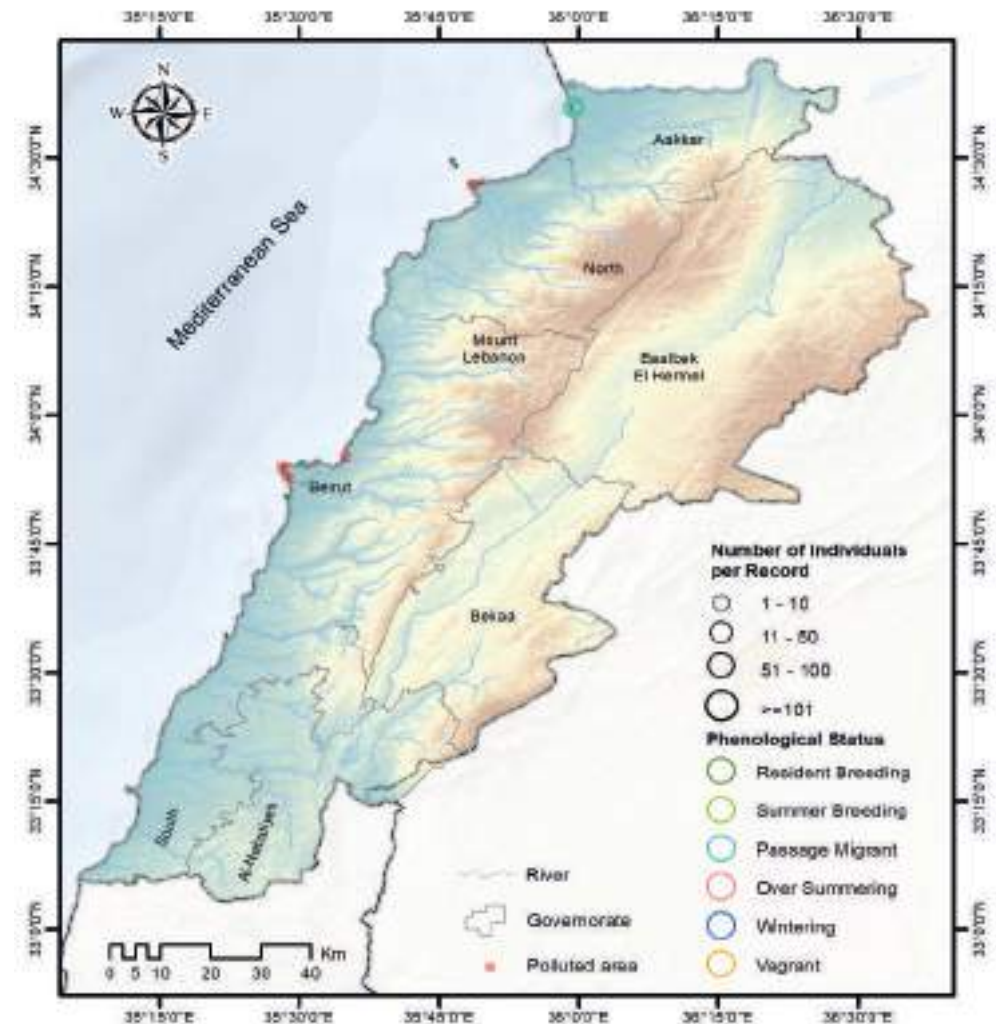


Figure 25: Distribution of Black-tailed Godwit (Source: IUCN)

#### Further reading:

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693150/111611637>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Arenaria interpres*

قنبرة الماء

Ruddy Turnstone

Order: Charadriiformes

Family: Scolopacidae

Conservation status:

Least Concern



© Fouad Itani

**Threats:** Climate change, severe weather, and avian influenza.

**Causes of threats:** Impacts of climate change, low resistance to severe weather and transmitted diseases.

**Suggested mitigation measures:** Reduce other pressures on the Ruddy Turnstone so that it can resist climate change impacts and severe weather as well as diseases. Create rehabilitation centers for sick or oiled birds

**Frequency:** Recorded in low frequencies as follows: Cheikh Zennad (4), Tripoli (2), Palm Islands (3) and Tyre (1).

**Density:** Cheikh Zennad (9.5), Tripoli (1), Palm Islands (5.33) and Tyre (2).

**Behavior:** It feeds on insects, crustaceans, mollusks and worms. It usually flips over stones and other objects to get at prey items hiding underneath; this behavior is the origin of the name "turnstone".

**Habitat:** Stony coastal plains and marshy areas. Mainly coastal outside breeding season, and inland during migration, in areas with short-grass and salt-marshes. Favors stony shores, rocks, breakwaters, sandy beaches with seaweed, estuaries and mud.

**Phenological status:** Scarce passage migrant and commoner in winter.

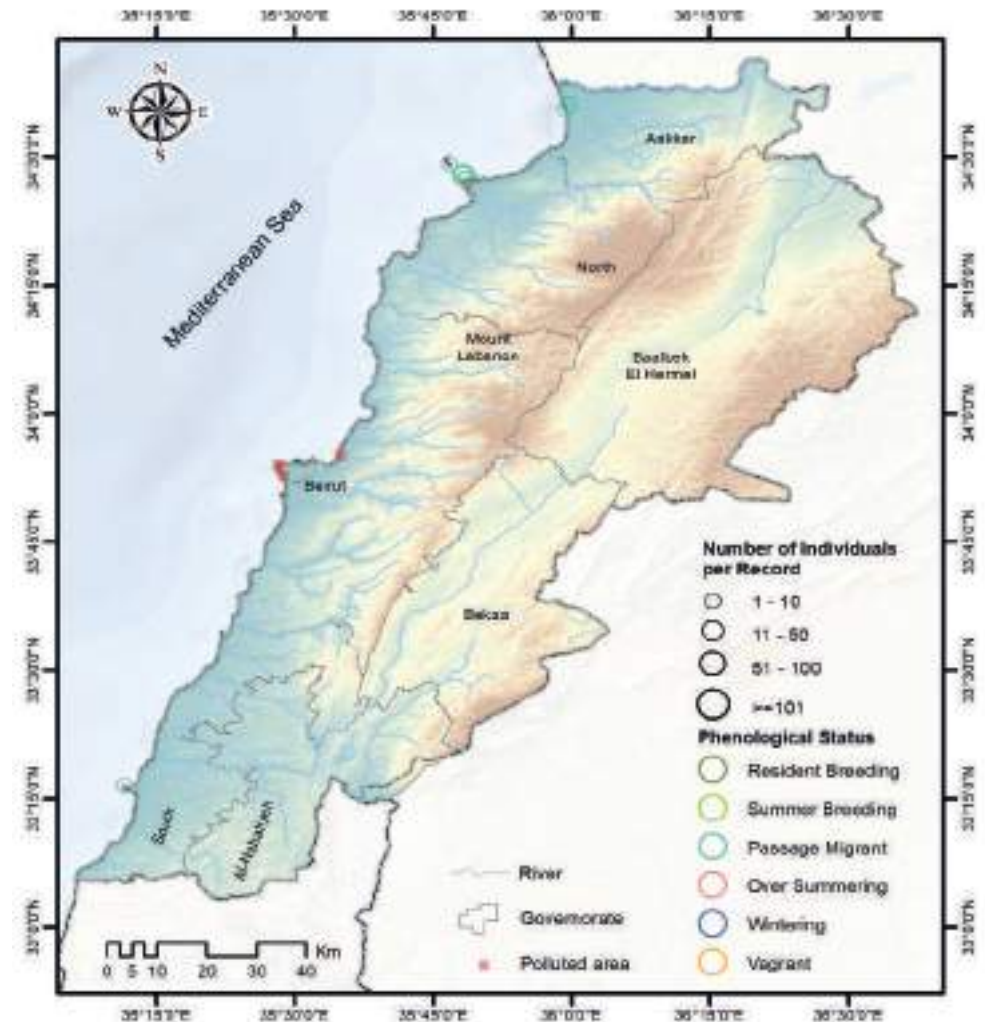


Figure 26: Distribution of Ruddy Turnstone (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693336/154669637>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Calidris alba*  
الدريجة البيضاء  
Sanderling

**Order:** Charadriiformes  
**Family:** Scolopacidae  
**Conservation status:**  
Least Concern



© Fouad Itani

**Threats:** Habitat loss and degradation, avian diseases, and disturbance.

**Causes of threats:** Extension of agricultural practices over the areas of this species. Urban encroachment and transmitted diseases.

**Suggested mitigation measures:** Land use in an environmentally friendly way, adoption of a sustainable development strategy and creation of rehabilitation centers for sick or oiled birds.

**Frequency:** Low frequency of appearance at Cheikh Zennad (3), Beirut (1) and Tyre (1).

**Density:** Cheikh Zennad (7.5), Beirut (0.34) and Tyre (2).

**Behavior:** Sanderlings are found in tightly packed flocks during most of the year. Flocks can be just a handful of individuals to about 90. They roost together on the ground and in the open, individuals are also packed relatively tightly together when roosting.

**Habitat:** Grasslands and Wetlands: permanent freshwater lakes, permanent saline, brackish or alkaline lakes; Marine Intertidal: rocky shoreline, sandy shoreline and/or beaches, sand bars, shingle and/or pebble shoreline, mud flats and salt flats.

**Phenological status:** Rare passage migrant.

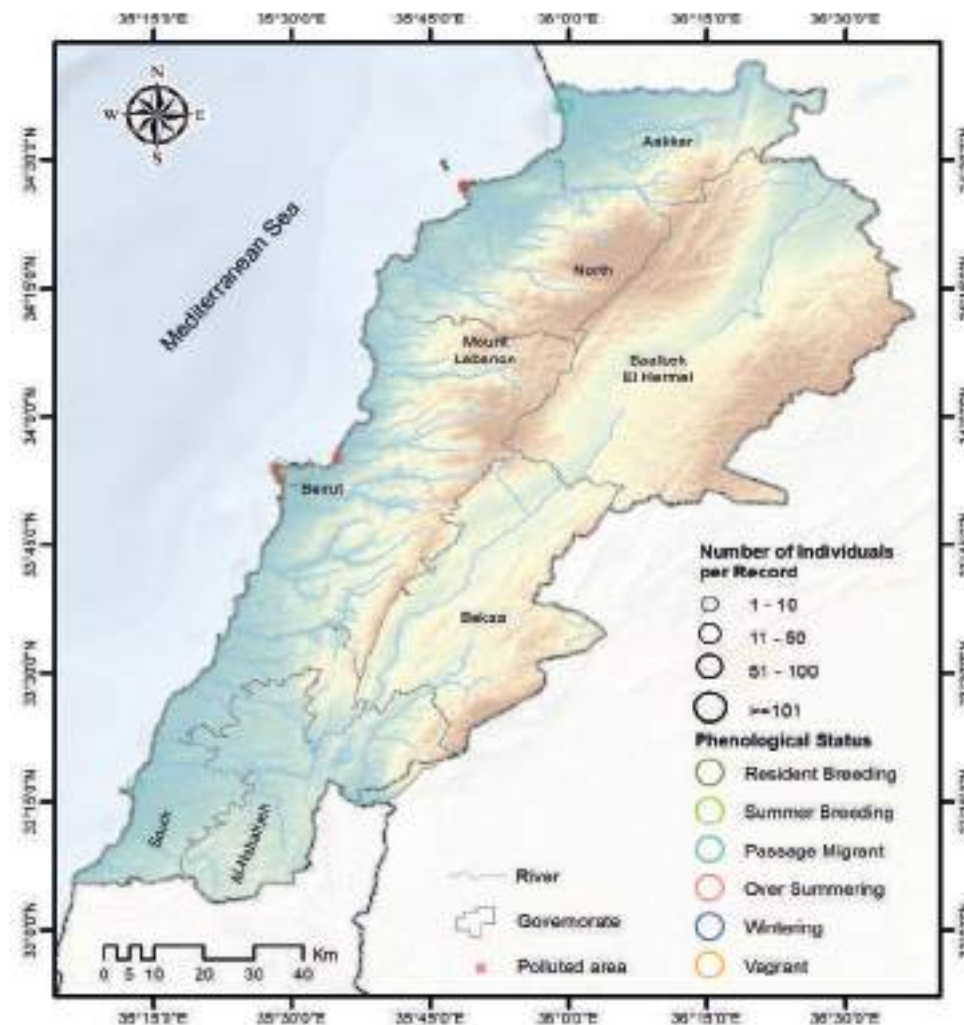


Figure 27: Distribution of Sanderling (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693369/86614145>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

## *Calidris minuta*

دریجة صغيرة

Little Stint

**Order:** Charadriiformes

**Family:** Scolopacidae

**Conservation status:**

Least Concern



© Fouad Itani

**Threats:** Habitat loss, degradation, and alteration by salt-industries, avian diseases, illegal hunting, pollution and disturbance.

**Causes of threats:** Extension of salt pans over the habitat of this species in addition to urban encroachment, poaching, pollution with litter, garbage and oil, and transmitted diseases.

**Suggested mitigation measures:** Land use in an environmentally friendly way, adoption of sustainable development strategy, raise awareness about keeping the shore clean, and creation of rehabilitation centers for sick or oiled birds.

**Frequency:** Relatively high frequency in north Lebanon and moderate to low frequency from Dbayye to Naqoura as follows: Cheikh Zennad (5), Tripoli (5), Palm Islands (2), Nahr el Kalb (1), Dbayeh (2), Beirut (3), Jnah (1), Khalde (1), Awali (1), Tyre (3), Mansouri (1) and Naqoura (1).

**Density:** Cheikh Zennad (11), Tripoli (16.7), Palm Islands (20), Nahr el Kalb (4.5), Dbayeh (4), Beirut (4.33), Jnah (7.5), Khalde (1), Awali (1.5), Tyre (5.7), Mansouri (2.5) and Naqoura (4).

**Behavior:** The Little Stint eats invertebrates such as larvae and adults Diptera, small beetles, ants, Hymenoptera, water-bugs, annelids, mollusks, crustaceans and some plant matter.

**Habitat:** Rocky shoreline, sandy shoreline, beaches, sand bars, shingle and/or pebble shoreline, mud flats and salt flats, tidepools. Marine coastal/supratidal, coastal brackish lagoons/ coastal freshwater, salt exploitation sites, wastewater treatment areas, and irrigated land.

**Phenological status:** Common passage migrant.

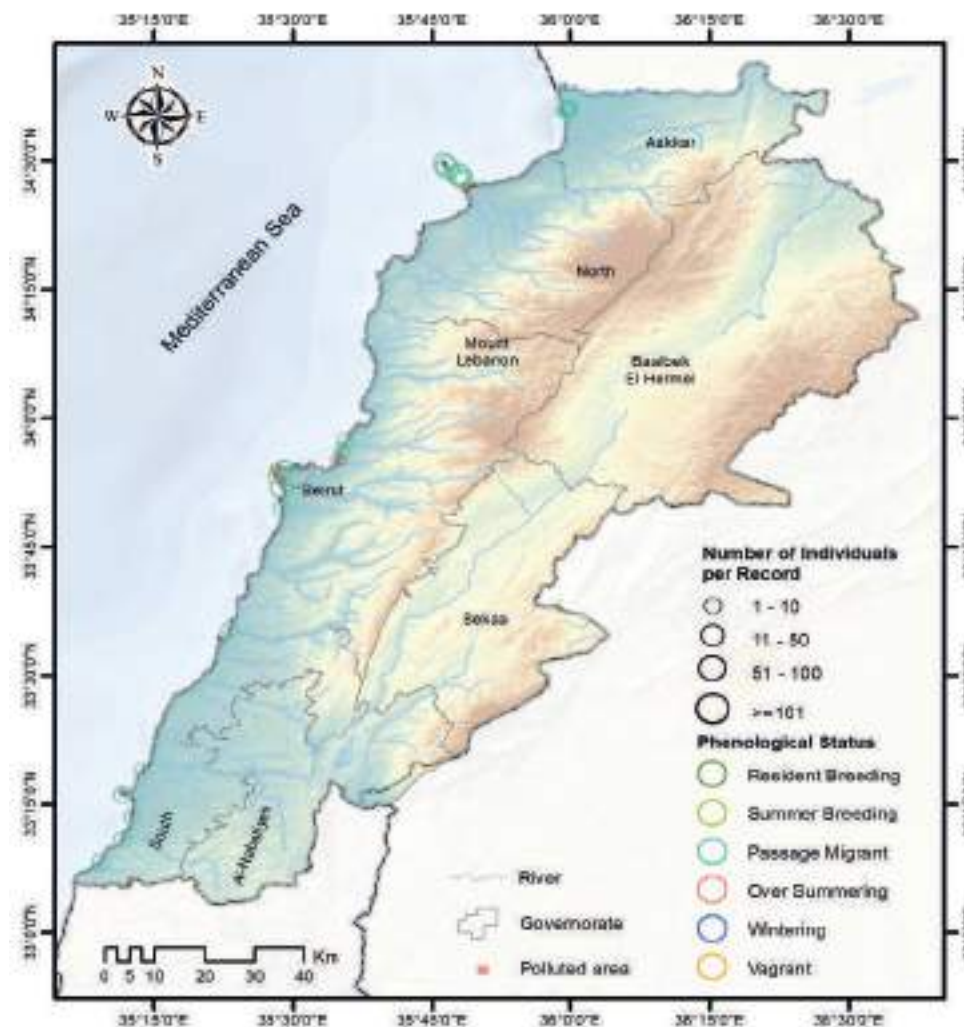


Figure 28: Distribution of Little Stint (Source: IUCN)

### Further reading:

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693379/138406063>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.



## *Calidris alpina*

دریجة  
Dunlin

**Order:** Charadriiformes

**Family:** Scolopacidae

**Conservation status:**  
Least Concern



**Threats:** Habitat loss and degradation, poor land management, illegal hunting, and pollution.

**Causes of threats:** Urban encroachment and unsustainable development practices on beaches, poaching, and pollution with garbage and oil.

**Suggested mitigation measures:** Land use in an environmentally friendly way, adoption of sustainable development strategy, enforcing the hunting Law, raising awareness about keeping the shore clean.

**Frequency:** Relatively high frequency in north Lebanon and low frequency from Nahr el Ghadir to Naqoura: Cheikh Zennad (3), Tripoli (3), Palm Islands (3), Enfe (1), Beirut (4), Nahr el Ghadir (1), Khalde (1), Damour (1), Jiyeh (1), Jadra (1), Saida (1), Tyre (2) and Naqoura (1).

**Density:** Cheikh Zennad (45), Tripoli (11), Palm Islands (20.7), Enfe (8.5), Beirut (16), Nahr el Ghadir (1.5), Khalde (2), Damour (2.5), Jiyeh (4.5), Jadra (1), Saida (1), Tyre (7) and Naqoura (2).

**Behavior:** Gregarious in winter, sometimes forming large flocks on sandy beaches. Large numbers can often be seen during migration and in their winter habitat.

**Habitat:** Mud flats, salt marshes, marine coastal supratidal, coastal brackish or saline lagoons, coastal freshwater lakes, pastureland, salt exploitation sites, wastewater treatment areas.

**Phenological status:** Common passage migrant.

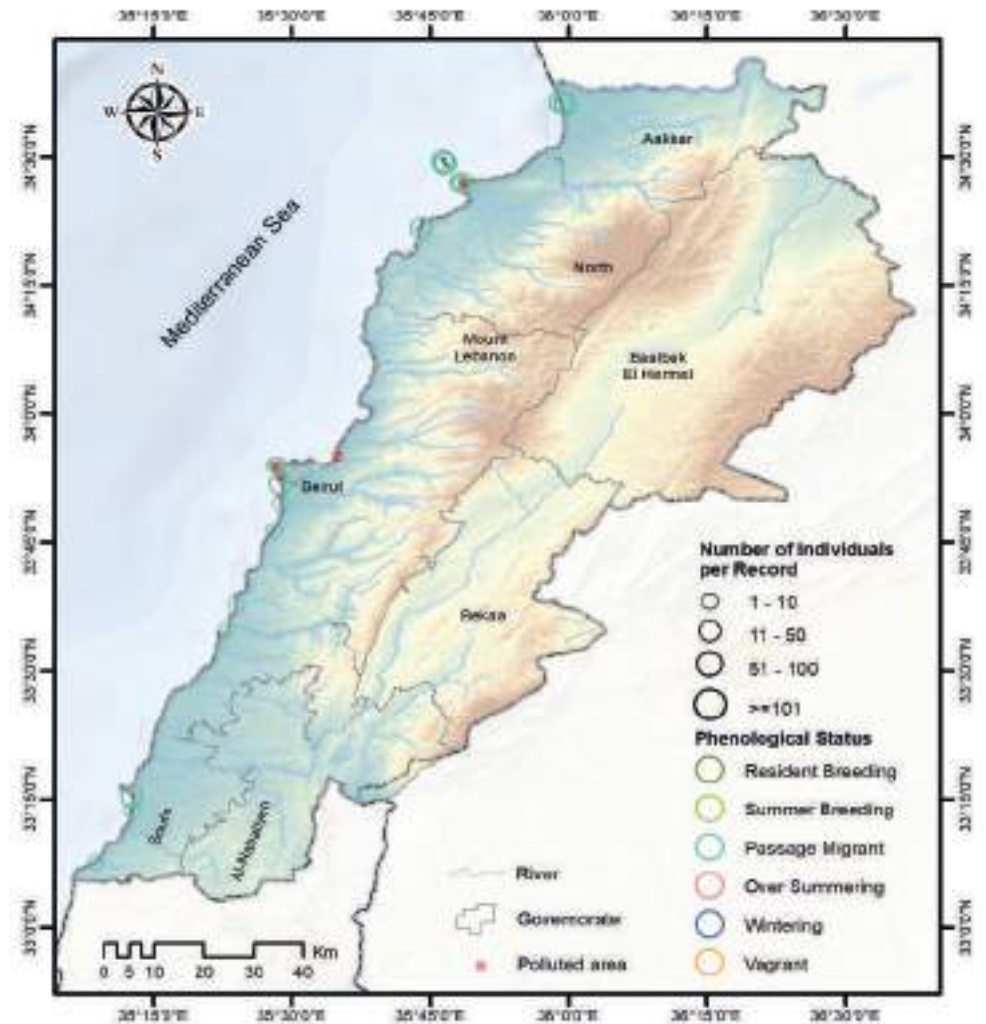


Figure 29: Distribution of Dunlin (Source: IUCN)

### Further reading:

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693427/155480296>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Calidris ferruginea*  
طيטوي مقوس المنقار  
Curlew Sandpiper

**Order:** Charadriiformes  
**Family:** Scolopacidae  
**Conservation status:**  
Near Threatened



© Fouad Itani

**Threats:** Habitat loss and degradation, avian diseases, hunting and disturbance.

**Causes of threats:** Urban encroachment and unsustainable development practices on beaches, poaching, pollution with garbage and oil, and avian botulism.

**Suggested mitigation measures:** Land use in an environmentally friendly way, adoption of sustainable development strategy, enforcing the hunting Law, raising awareness about keeping the shore clean and create centers for rehabilitation and treatment of sick and oiled birds.

**Frequency:** Low frequency in the northern half of Lebanon and probably overlooked in the southern half: Cheikh Zennad (3), Palm Islands (3) and Beirut (2).

**Density:** Cheikh Zennad (3), Palm Islands (3.34) and Beirut (1.67).

**Behavior:** The Curlew Sandpiper is a highly gregarious wader, it forms flocks with other waders, particularly Dunlin. The male is known to perform an aerial display during courtship elsewhere (not in Lebanon).

**Habitat:** During migration, it can be found in a wide range of habitats including mudflats, sandflats, salt marshes, and around estuaries and coastal lagoons.

**Phenological status:** Scarce passage migrant.

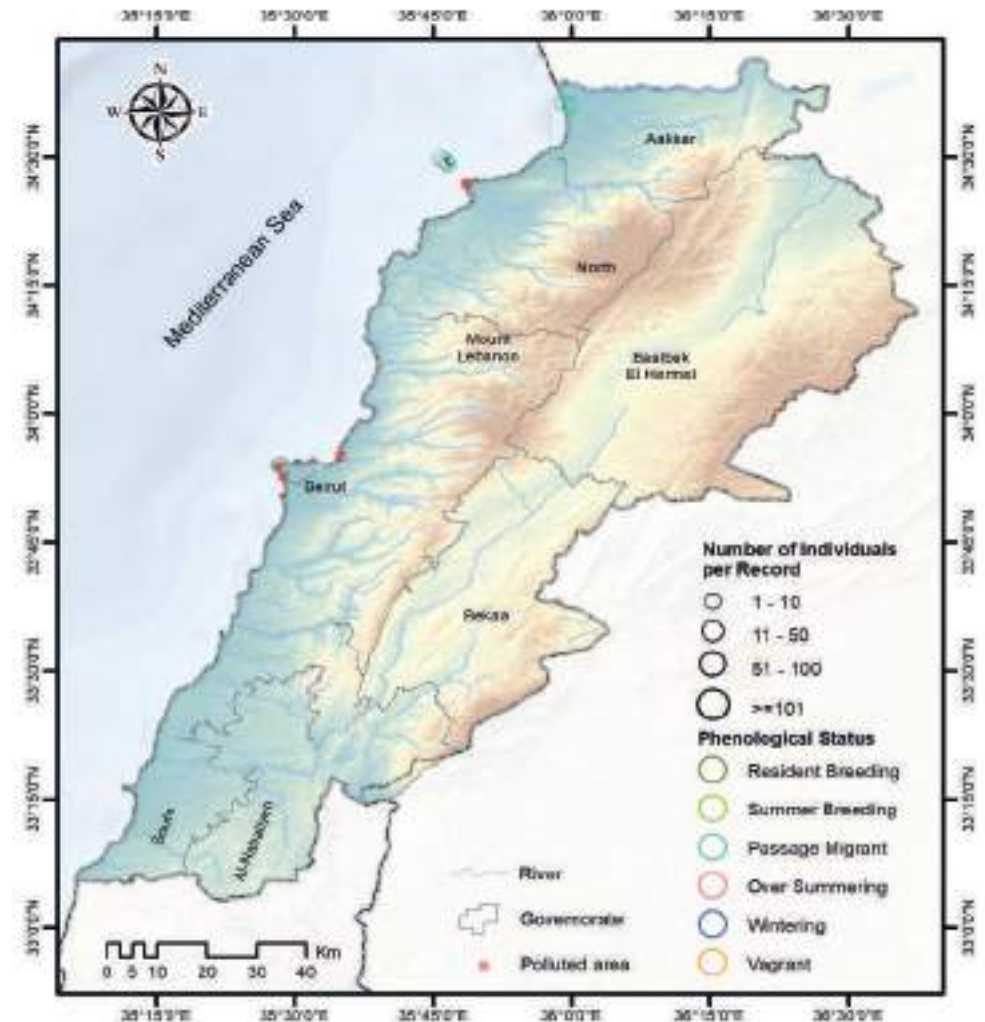


Figure 30: Distribution of Curlew Sandpiper (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693431/110631069>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

## *Calidris pugnax*

حجالة

Ruff

**Order:** Charadriiformes

**Family:** Scolopacidae

**Conservation status:**

Least Concern



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**Threats:** Habitat loss and degradation, wetland and flood-plain drainage, climate change, land management, pollution, avian diseases, and hunting.

**Causes of threats:** Urban encroachment and unsustainable development practices in wetlands, wetland draining, poaching, pollution with garbage and oil, and avian botulism.

**Suggested mitigation measures:** Land use in an environmentally friendly way, adoption of sustainable development strategy, enforcing the hunting Law, raising awareness about keeping the shore and the frequented plains clean, and create centers for rehabilitation and treatment of sick and oiled birds.

**Frequency:** Higher frequency in north Lebanon than in its south: Cheikh Zennad (4), Tripoli (3), Palm Islands (2), Nahr el Kalb (1), Beirut (1), Damour (1), Tyre (1) and Naqoura (1).

**Density:** Cheikh Zennad (24), Tripoli (6.67), Palm Islands (12), Nahr el Kalb (3), Beirut (1.33), Damour (1.2), Tyre (3) and Naqoura (1.5).

**Behavior:** Males display in their breeding countries at a lek in a traditional open grassy arena. The ruff is one of the few lekking species in which the display is primarily directed at other males rather than to the females and secondarily at watching females.

**Habitat:** The ruff prefers lowland freshwater marshes and damp grasslands. It avoids areas badly affected by severe weather, preferring hummocky marshes and deltas with shallow water.

**Phenological status:** Common and abundant passage migrant, scarce winter visitor, and rare summer visitor.

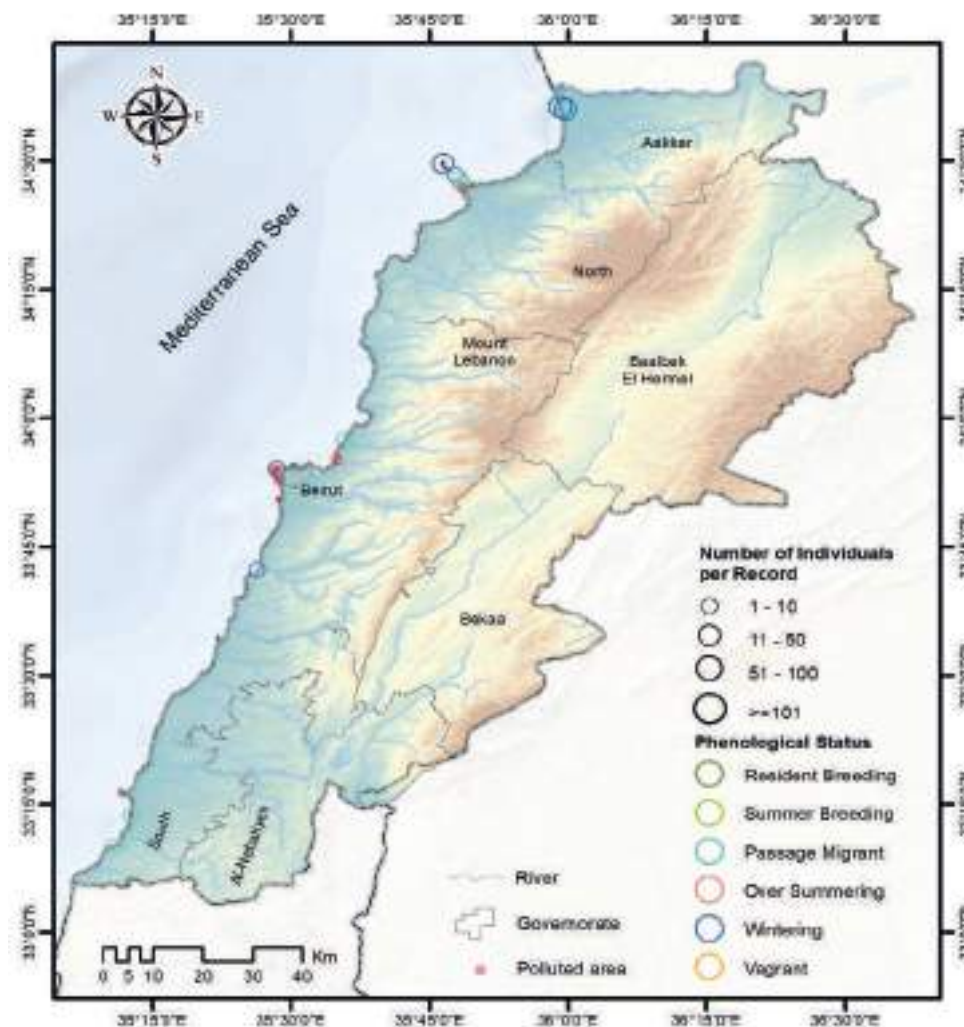


Figure 31: Distribution of Ruff (Source: IUCN)

### Further reading:

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693468/86591264>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Gallinago media*  
الشنقب الكبير (الشنقب)  
Great Snipe

**Order:** Charadriiformes  
**Family:** Scolopacidae  
**Conservation status:**  
Near Threatened



**Threats:** Habitat loss and degradation, wetland and flood-plain drainage, climate change, land management, pollution, avian diseases, and hunting.

**Causes of threats:** Urban encroachment and unsustainable development practices in wetlands, wetland draining, poaching, pollution with garbage and oil, and avian botulism.

**Suggested mitigation measures:** Land use in an environmentally friendly way, adoption of sustainable development strategy, enforcing the hunting Law, raising awareness about keeping the shore and the frequented plains clean, and create centers for rehabilitation and treatment of sick and oiled birds.

**Frequency:** Very low frequency where recorded: Palm Islands (3), Beirut (1) and Tyre (1).

**Density:** Palm Islands (1.3), Beirut (0.34) and Tyre (0.34).

**Behavior:** Males of Great Snipes display in their breeding countries at a lek in a traditional open grassy arena. The Great Snipes is one of the few lekking species in which the display is directed at other males rather than females.

**Habitat:** The great snipe requires a habitat rich in invertebrates with some scrub cover. It usually occurs in river valleys, and meadows with scattered bushes. It also inhabits marshland, grass or sedges on lake edges.

**Phenological status:** Rare passage migrant.

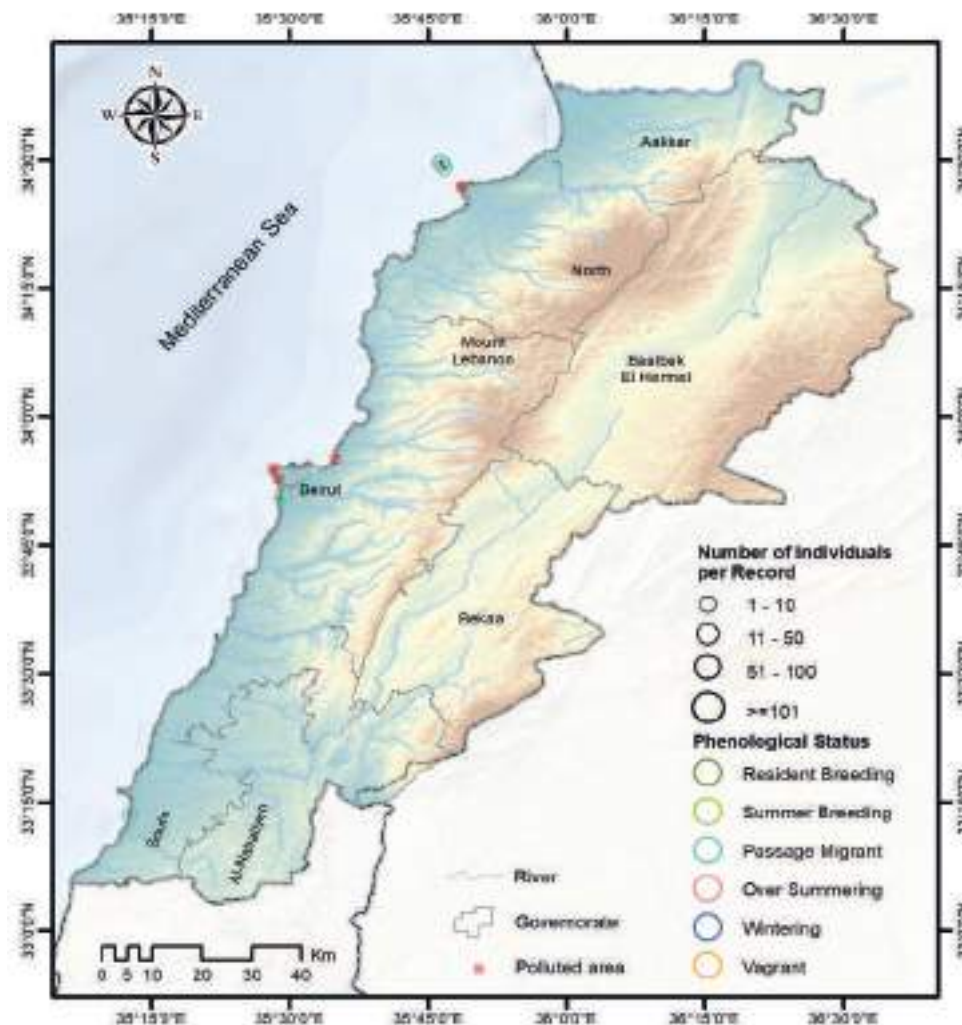


Figure 32: Distribution of Great Snipe (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693093/111105264>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Gallinago gallinago*  
الشنقب (الشكب) الإعتيادي  
Common Snipe

**Order:** Charadriiformes  
**Family:** Scolopacidae  
**Conservation status:**  
Least Concern



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**Threats:** Habitat loss and degradation, hunting, and land and water management.

**Causes of threats:** Urban encroachment and unsustainable development practices in wetlands, wetland draining, poaching and pollution.

**Suggested mitigation measures:** Land use in an environmentally friendly way, adoption of sustainable development strategy, enforcing the hunting Law, raising awareness about keeping the value of this species.

**Frequency:** Low frequency along the coastal strip of Lebanon: Cheikh Zennad (2), Palm Islands (1), Jounieh (1), Dbayye (1), Khalde (1), Damour (1), Tyre (1).  
**Density:** Cheikh Zennad (1.5), Palm Islands (1.7), Jounieh (2), Dbayye (1), Khalde (1.5), Damour (0.5), Tyre (1).

**Behavior:** This species feeds in small groups, often at dawn and dusk, in shallow water or close to water. Common Snipe performs flight displays on the breeding grounds where the male performs drumming display and circles high in the air with rapid wing-beats.

**Habitat:** Found in freshwater wetlands and seen feeding in marshes, streams, banks and wet meadows.

**Phenological status:** Uncommon but regular passage migrant and winter visitor.

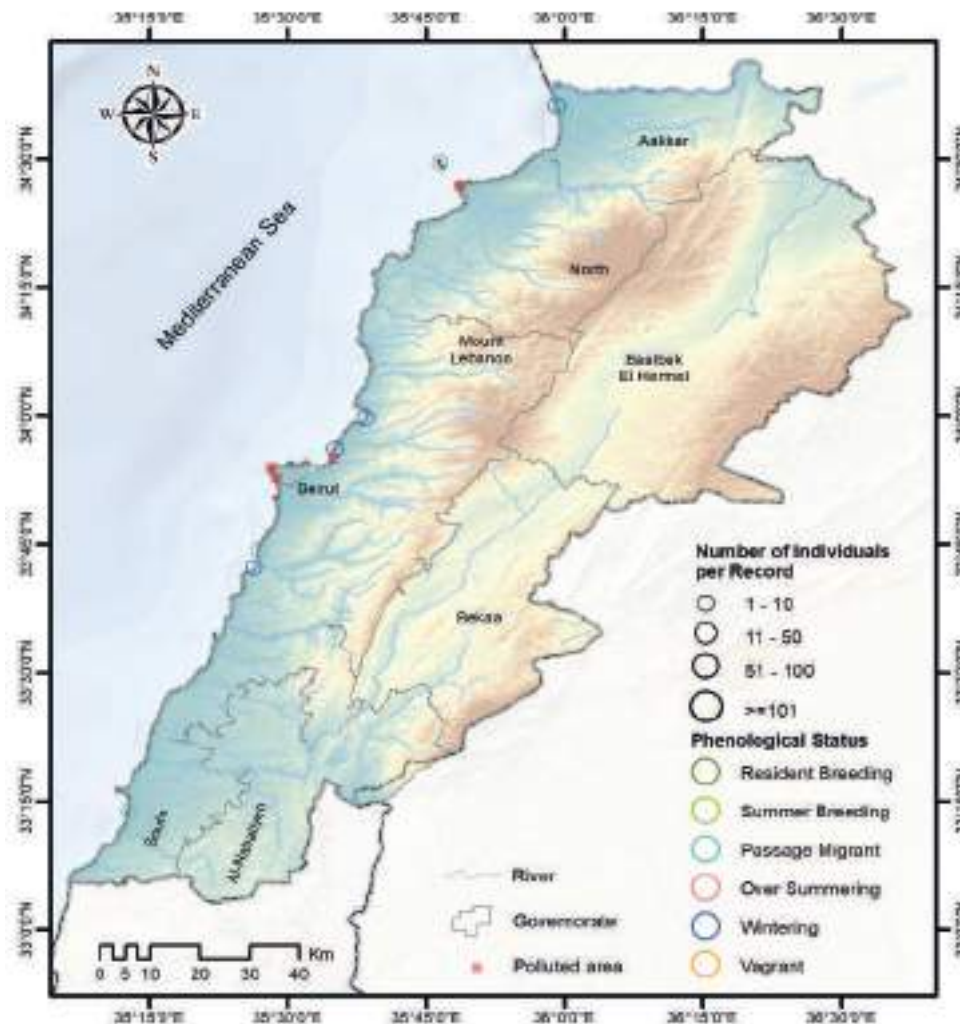


Figure 33: Distribution of Common Snipe (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693097/155504420>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Tringa ochropus*  
الطيئوي الأءض  
Green Sandpiper

**Order:** Charadriiformes  
**Family:** Scolopacidae  
**Conservation status:**  
Least Concern



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**Threats:** Habitat loss and degradation, avian influenza and botulism, and pollution.

**Causes of threats:** Urban encroachment and unsustainable development practices in wetlands, wetland draining, poaching, pollution and transmitted diseases.

**Suggested mitigation measures:** Land use in an environmentally friendly way, adoption of sustainable development strategy, enforcing the hunting Law, raising awareness about keeping the value of this species and the necessity of maintaining the habitats clean from garbage and chemicals. Establishment of a rehabilitation center to care for sick birds.

**Frequency:** Very low frequency in the northern half of the coastal strip in Lebanon: Cheikh Zennad (2), Palm Islands (2) and Beirut (1).

**Density:** Cheikh Zennad (4.5), Palm Islands (2.34) and Beirut (1.33).

**Behavior:** The Green Sandpiper forages by pecking small insects and invertebrates from water and vegetation, while walking quietly along small pools or puddles. The species walks with teetering gait, nodding nervously the head, and moving the tail up and down. It may wade, swim or drive occasionally.

**Habitat:** Seasonally wet or flooded Wetlands; permanent rivers, streams, creeks; marshes, swamps, freshwater Lakes; permanent or seasonal freshwater marshes or pools. Marine shores, ponds and wastewater treatment areas.

**Phenological status:** Common passage migrant and rare winter visitor.

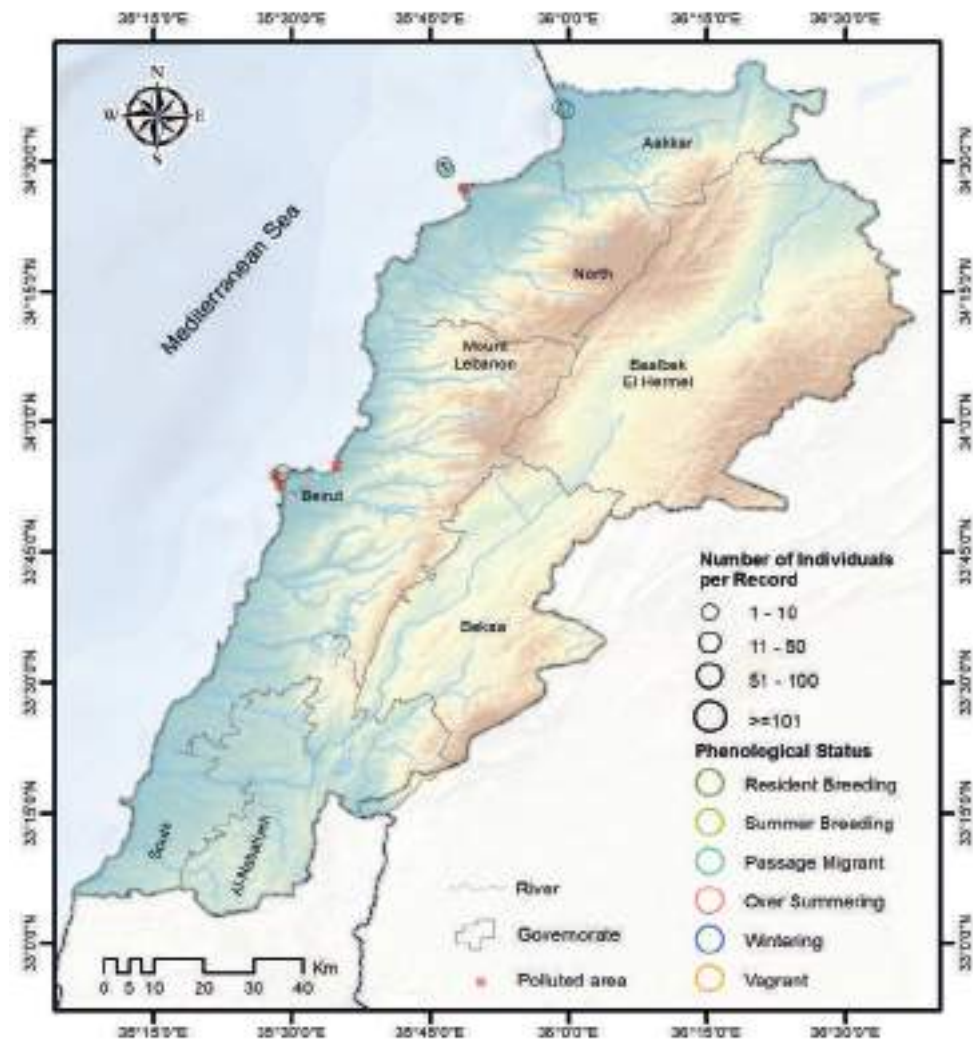


Figure 34: Distribution of Green Sandpiper (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22694379/132546308>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

## *Tringa totanus*

طيטوي أحمر الساق

Common Redshank

**Order:** Charadriiformes

**Family:** Scolopacidae

**Conservation status:**

Least Concern



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**Threats:** Habitat loss and degradation, change in agricultural practices, disturbance, global warming, heavy grazing, hunting and pollution.

**Causes of threats:** Urban encroachment and unsustainable development practices in this species habitat, wetland draining, poaching, unsustainable grazing, pollution, Climate change and transmitted diseases.

**Suggested mitigation measures:** Land use in an environmentally friendly way, adoption of sustainable development and agricultural strategy, enforcing the hunting Law, raising awareness about keeping the value of this species and the necessity of maintaining the habitats clean from pollution. Establishment of a rehabilitation center to care for sick birds and reduce the stress on the species to enable it to adapt to climate change.

**Frequency:** Very low frequency along the coastal strip: Cheikh Zennad (3), Ballan islet (1), Palm Islands (1), Beirut (1) and Tyre (1).

**Density:** Cheikh Zennad (6.5), Ballan islet (0.5), Palm Islands (1.7), Beirut (0.33) and Tyre (1).

**Behavior:** The Common Redshank walks along rocky, sandy and muddy shores, while pecking regularly, occasionally probing but rarely and also jabbing and sweeping through the water with the bill. This species is often seen wading, but it may swim occasionally.

**Habitat:** Wide diversity of coastal and inland wetlands, including coastal saltmarshes and inland wet grasslands. It is found at bays, river estuaries, lagoons, inlets and saltmarshes (with bare open flats and banks of mud or sand), saltworks and sewage farms.

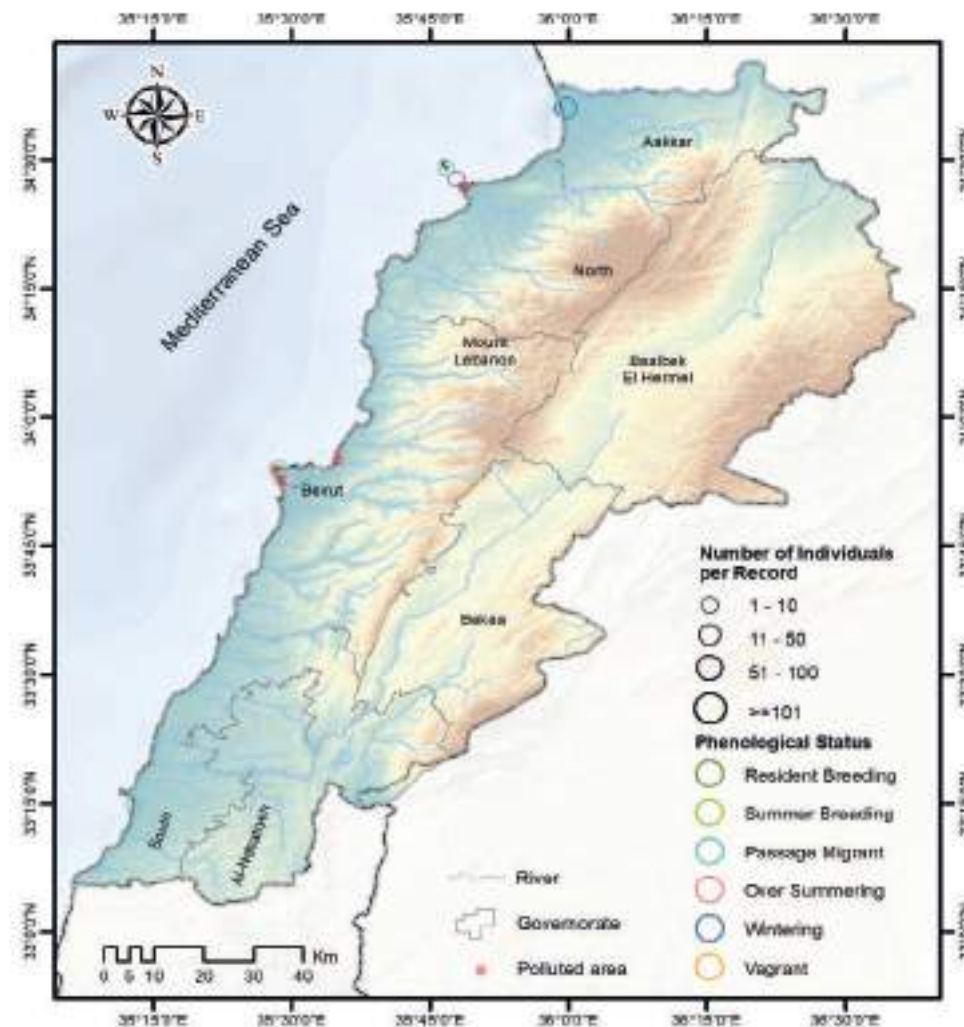


Figure 35: Distribution of Common Redshank (Source: IUCN)

**Phenological status:** Regular scarce passage migrant and rare winter visitor.

### Further reading:

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693211/86687799>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Tringa stagnatilis*  
طيטوي البطائح  
Marsh Sandpiper

**Order:** Charadriiformes  
**Family:** Scolopacidae  
**Conservation status:**  
Least Concern



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**Threats:** Habitat loss and degradation, intensification of agricultural practices, avian botulism, poaching and pollution.

**Causes of threats:** Urban encroachment and unsustainable development practices in agriculture, wetland draining, poaching, pollution, and transmitted diseases.

**Suggested mitigation measures:** Land use in an environmentally friendly way, adoption of sustainable development and agricultural strategy, enforcing the hunting Law, raising awareness about keeping the value of this species and the necessity of maintaining the habitats clean from pollution. Establishment of a rehabilitation center to care for sick birds.

**Frequency:** Fairly high frequency in the north and low frequency in the south: Cheikh Zennad (5), Palm Islands (3) and Tyre (1).

**Density:** Cheikh Zennad (21.5), Palm Islands (8.33) and Tyre (0.34).

**Behavior:** The Marsh Sandpiper feeds by wading briskly in shallow water, pecking from the surface or sometimes sweeping the bill from side to side.

**Habitat:** Wide diversity of coastal and inland wetlands, including coastal saltmarshes and inland wet grasslands. It is found at bays, river estuaries, lagoons, inlets and saltmarshes (with bare open flats and banks of mud or sand), saltworks and sewage farms.

**Phenological status:** Scarce passage migrant and very rare winter visitor.

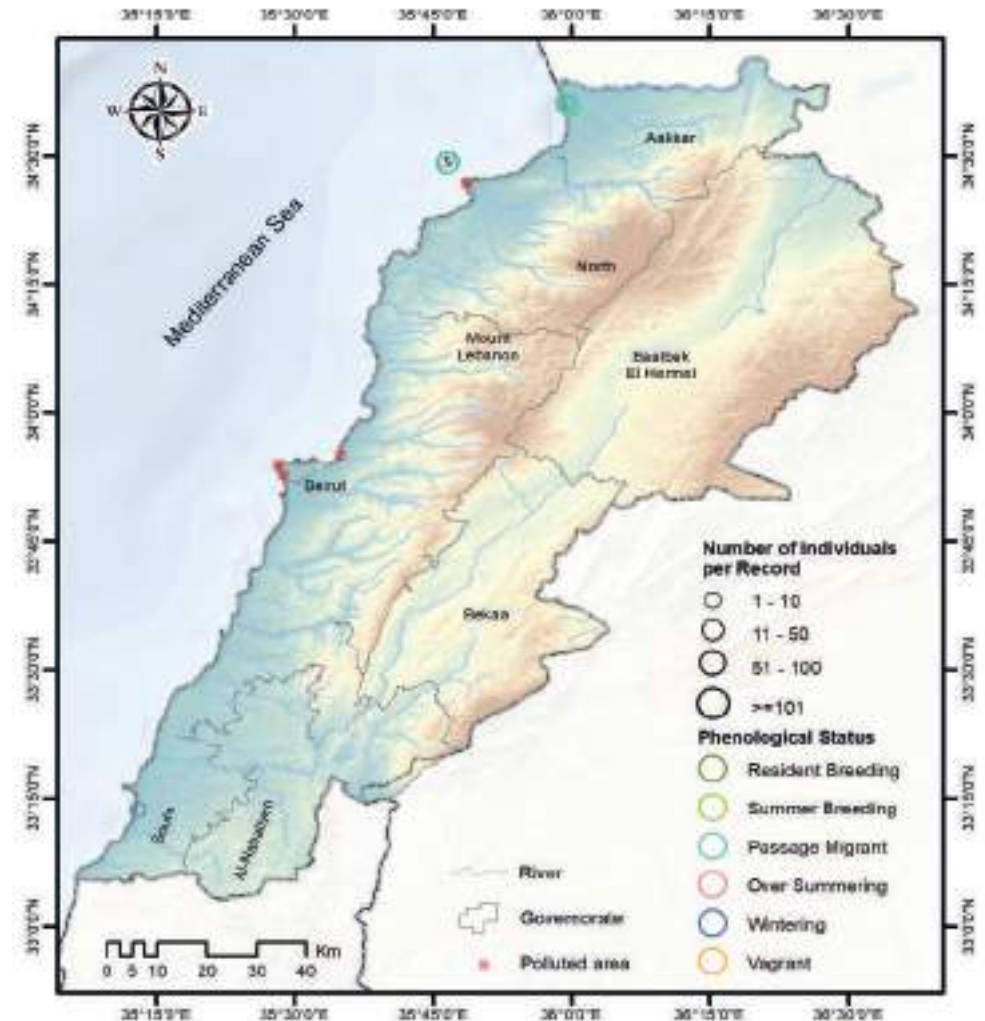


Figure 36: Distribution of Marsh Sandpiper (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693216/86691256>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.



*Tringa glareola*  
طيטوي الغياض  
Wood Sandpiper

**Order:** Charadriiformes  
**Family:** Scolopacidae  
**Conservation status:**  
Least Concern



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**Threats:** Habitat loss and degradation, avian botulism, malaria and influenza, poaching and pollution.

**Causes of threats:** Urban encroachment and unsustainable development practices in agriculture, illegal killing and taking of birds, pollution with garbage and chemicals, and transmitted diseases.

**Suggested mitigation measures:** Land use in an environmentally friendly way, adoption of sustainable development and agricultural strategy, enforcing the hunting Law, raising awareness about keeping the value of this species and the necessity of maintaining the habitats clean from pollution. Establishment of a rehabilitation center to care for sick birds.

**Frequency:** Low frequency along the coastal strip: Cheikh Zennad (2), Palm Islands (3), Khalde (1), Damour (1), and Tyre (1).

**Density:** Cheikh Zennad (3), Palm Islands (5.33), Khalde (0.5), Damour (0.5), and Tyre (1).

**Behavior:** It forages in open marshes. It walks slowly in shallow water or mud, gleaning, probing or sweeping with the bill through the water. It may occasionally swim.

**Habitat:** Wood Sandpipers are one of the best migrants of their genus. They may be found in multiple habitats as they prefer inland freshwater lakes, muddy marshlands, sewage farms, flooded grasslands, salt marshes, mangrove areas. Islands and sea shores in winter.

**Phenological status:** Common passage migrant.

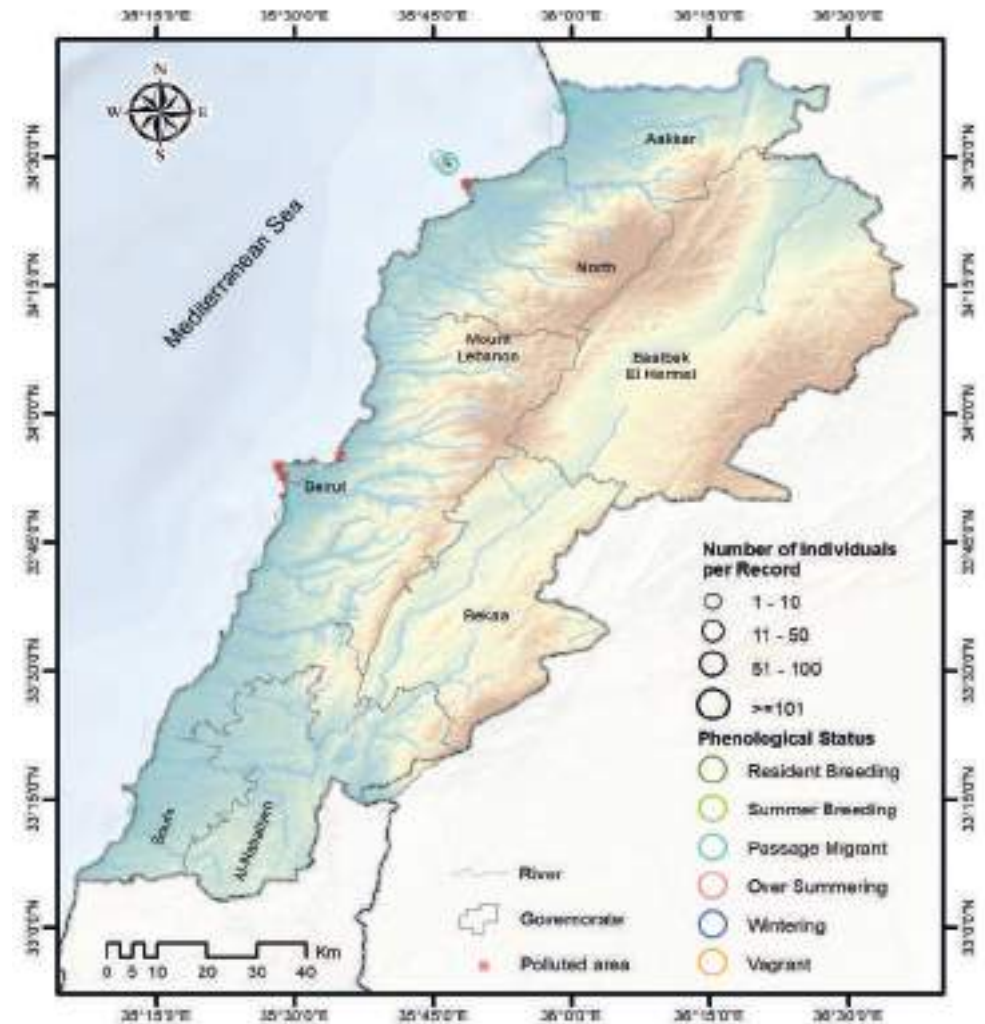


Figure 37: Distribution of Wood Sandpiper (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693247/86689640>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Tringa nebularia*  
 طيطوي أخضر الساق  
 Common Greenshank

**Order:** Charadriiformes  
**Family:** Scolopacidae  
**Conservation status:**  
 Least Concern



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**Threats:** Habitat loss and degradation, avian botulism, hunting, poaching, disturbance, and pollution.

**Causes of threats:** Urban encroachment and unsustainable development practices in agriculture, illegal killing and taking of birds, pollution with garbage and chemicals, and transmitted diseases.

**Suggested mitigation measures:** Land use in an environmentally friendly way, enforcing the hunting Law, raising awareness about keeping the value of this species and the necessity of maintaining the habitats clean from pollution. Establishment of a rehabilitation center to care for sick birds.

**Frequency:** Moderate frequency in the northern coastal strip only: Cheikh Zennad (2) and Palm Islands (6).

**Density:** Cheikh Zennad (9.5) and Palm Islands (9.67).

**Behavior:** Feeds mainly by striding in water, picking and sweeping with its bill.

**Habitat:** Greenshank inhabits marshes and wet clearings. Elements of its habitats are woody moorland, open bogs and marshes, and eutrophic lakes. It avoids dense closed forest and bare barren expanses.

**Phenological status:** Common passage migrant.

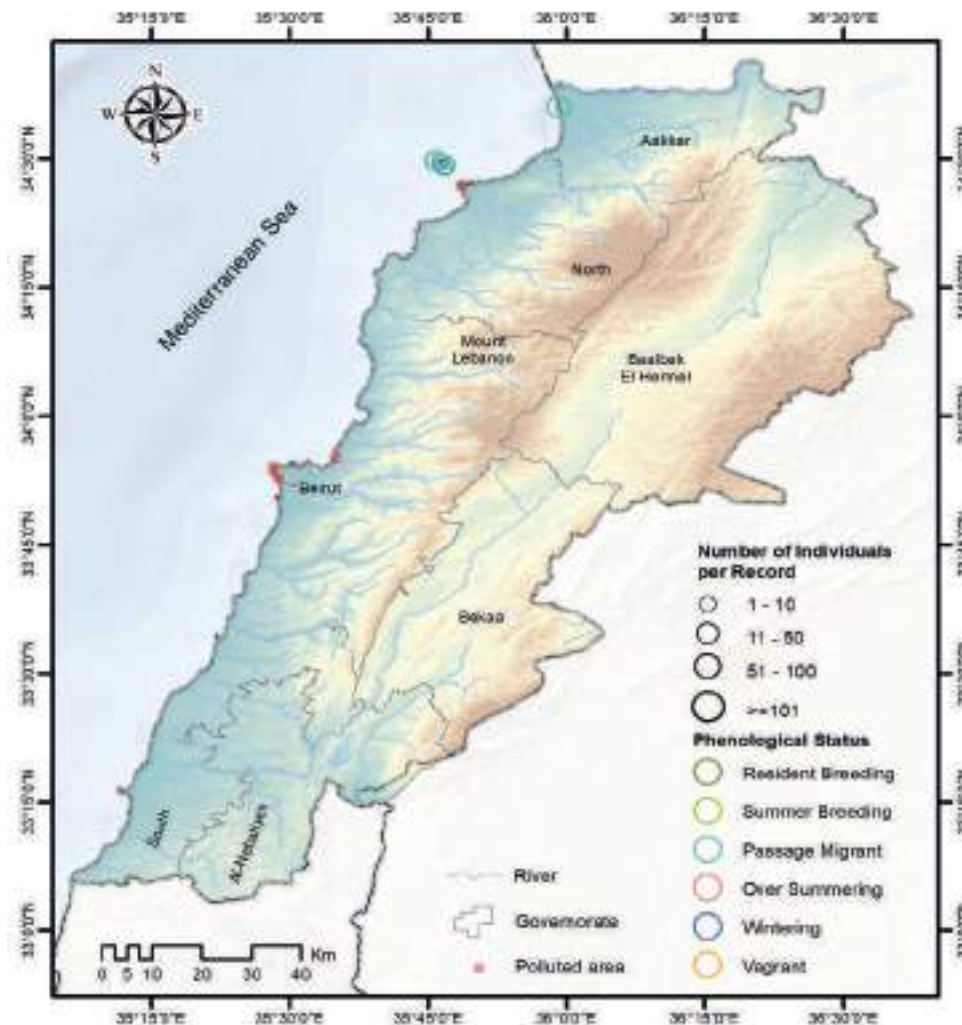


Figure 38: Distribution of Common Greenshank (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693220/86684205>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Tringa erythropus*  
طيטوي أحمر الساق أرقط  
Spotted Redshank

**Order:** Charadriiformes  
**Family:** Scolopacidae  
**Conservation status:**  
Least Concern



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**Threats:** Habitat loss and degradation, avian botulism, hunting, poaching, disturbance, and pollution.

**Causes of threats:** Urban encroachment and unsustainable development practices in agriculture, illegal killing and taking of birds, pollution with garbage and chemicals, and transmitted diseases.

**Suggested mitigation measures:** Land use in an environmentally friendly way, enforcing the hunting Law, raising awareness about keeping the value of this species and the necessity of maintaining the habitats clean from pollution. Establishment of a rehabilitation center to care for sick birds.

**Frequency:** Relatively high frequency along the northern coastal strip and rare southward up to Ghadir polluted river mouth: Cheikh Zennad (9), Nahr Ibrahim (1), Nahr Beirut (1), Nahr Ghadir (1).

**Density:** Cheikh Zennad (9.5), Nahr Ibrahim (2), Nahr Beirut (0.5), Nahr Ghadir (0.5).

**Behavior:** The Spotted Redshank eats both aquatic and terrestrial insects and their larvae, crustaceans, mollusks, worms, small fish and amphibians.

**Habitat:** The spotted redshank prefers open forest, marine intertidal and coastal supralittoral zones.

**Phenological status:** Scarce passage migrant.

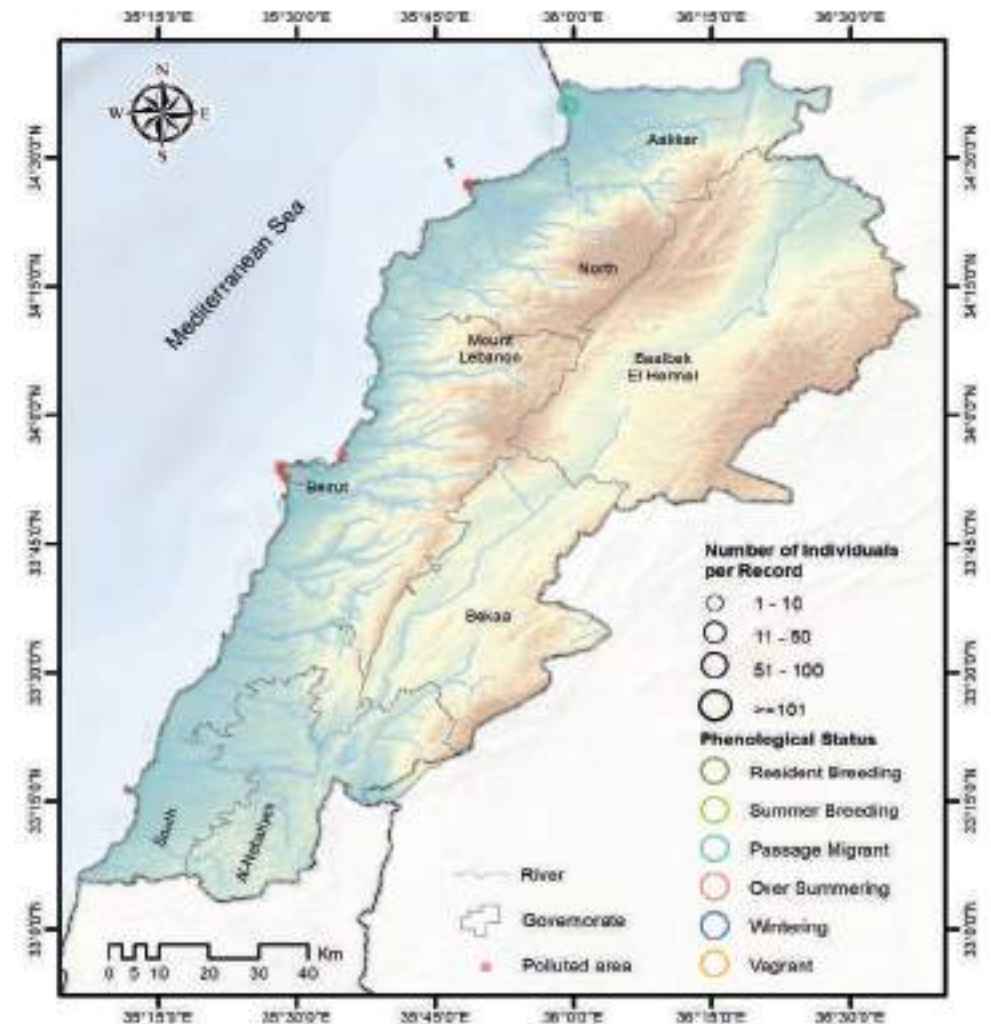


Figure 39: Distribution of Spotted Redshank (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22693207/86682083>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

*Glareola nordmanni*  
 أبو اليسر أسود الجناح  
 Black-winged Pratincole

**Order:** Charadriiformes  
**Family:** Glareolidae  
**Conservation status:**  
 Near Threatened



© Mike Barth

**Threats:** Use of herbicides and insecticides, habitat loss and degradation, land use practices, hunting, and climate change.

**Causes of threats:** Urban encroachment and unsustainable development practices, illegal killing and taking of birds, and global warming.

**Suggested mitigation measures:** Land use in an environmentally friendly way, enforcing the hunting Law, raising awareness about appreciating the value of this species and the necessity of maintaining its habitats preserved. Reducing the stress on the species so that it may better adapt to impacts of climate change.

**Frequency:** Very low frequency in Cheikh Zennad (2), Palm Islands (4) and Saida (1). Could be overlooked due to its crepuscular activities.

**Density:** Cheikh Zennad (1), Palm Islands (2.34) and Saida (1.34).

**Behavior:** They typically hunt their insect prey on the wing like swallows, although they can also feed on the ground.

**Habitat:** It inhabits saline and alkaline steppes, grassland, ploughed arable lands, dry salted soils, with sparse vegetation and batches of bare ground and overgrazed pastures. The black-winged pratincole is a bird of open country and is often seen near water in the evening, hawking for insects.

**Phenological status:** Uncommon to rare passage migrant.

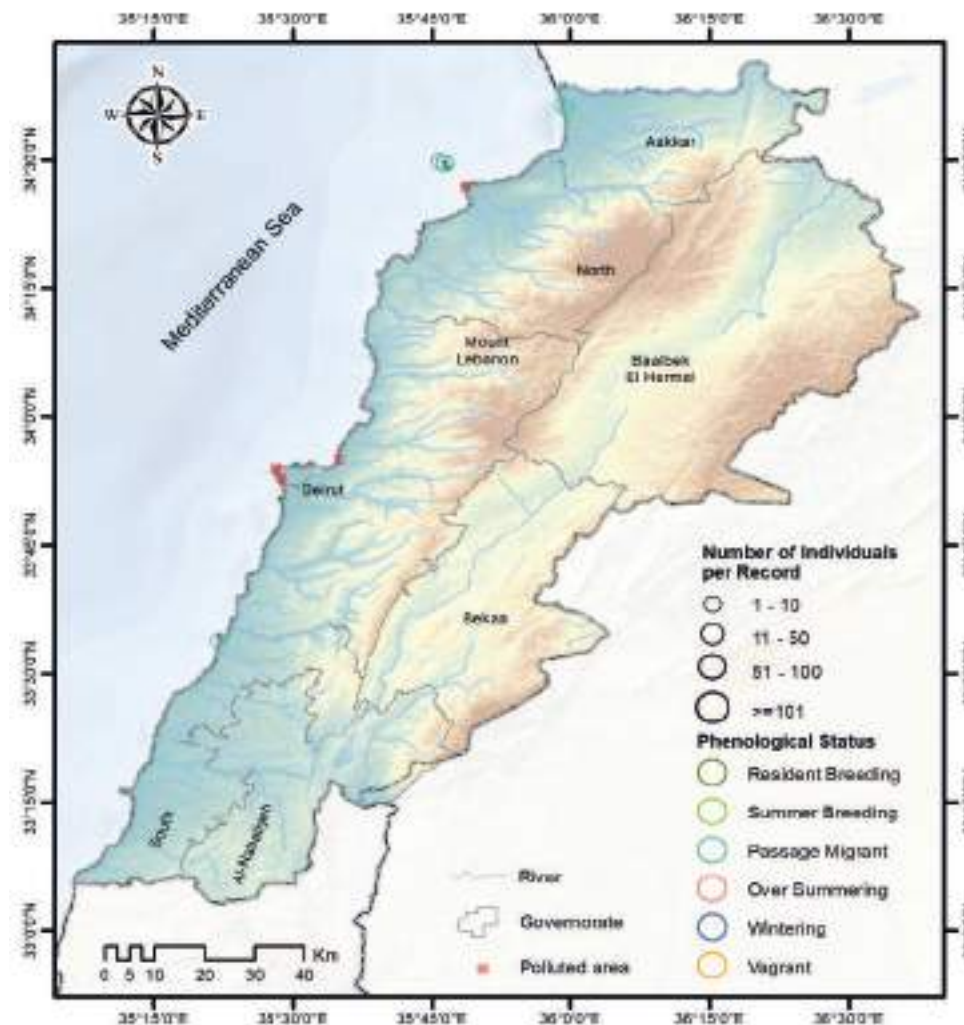


Figure 40: Distribution of Black-winged Pratincole (Source: IUCN)

**Further reading:**

IUCN Red List of this species:

<https://www.iucnredlist.org/species/22694136/90086476>

Ramadan-Jaradi, G. and Itani, F. 2019. *Birds of Lebanon, a photographic guide to 404 species*. Beirut-Lebanon.

## 5 Findings

The marine and coastal avifauna of Lebanon are severely degraded predominantly due to poaching (mainly by hunters, fishermen and farmers), lack of coordination and management amongst the various sectors responsible for the marine and coastal zone, combined with lack of consolidated data and information on the marine and coastal avifauna and limited awareness of the value and need for appropriate management amongst stakeholders. As such the present recommendations to conserve the coastal and marine birds in Lebanon, and to prevent and minimize the threats impacting them were based on field research and desktop work that considered the phenological and conservation status of the sea and coastal birds. The study primarily focused on birds description, habitats, frequency, density, abundance, distribution, reproduction, ecological benefits, economic benefits and the threats impacting them. In brief, it appears that many threats take toll on sea and coastal birds. They are hereinafter listed from the highest to the least priority threats in the eastern Mediterranean Sea:

- Habitat alteration
- Competition with other seagull species
- Untreated sewage effluent and heat
- Feeding on fish killed with "Lannate" by fishermen
- Rubbish dumping
- Eggs collection
- Disturbance
- Irresponsible hunting
- Bycatch
- Diseases (avian botulism, avian influenza)
- Breeding sites alteration
- Chemical pollution
- Hot water outflows from power stations
- Contamination from agricultural and industrial operations
- Persecution by fishers
- Oil contamination
- Predation by rats
- Illegal killing
- Climate change
- Lead poisoning, and poor management of coastal areas and coastal birds that appeared to be of significant ecological and economic benefits

Hence, there is a need to take appropriate measures in order to conserve marine and coastal birds in Lebanon and to prevent and minimize the threats on these species. Mitigation measures are given in this study beside several types of conservation indicators.

The recorded marine and coastal birds play an important role in the ecosystems and the economy of humans, if the latter choose to conserve these birds. Seabirds are also very important for cycling nutrients onto land. Phosphates are very soluble and most pass to the sea. Birds eating fish and then defecating on land help to cycle nutrients that would otherwise be lost. Healthy seabird populations utilizing natural behaviors are good indicators that the marine environment is also healthy. A healthy seabird population would suggest that the marine environment is also safe and productive for other marine life and humans. Very few seabirds would indicate an area is overfished, seabirds relying on human wastes for food would indicate that society is changing the behavior of wildlife to its detriment and also managing waste in a way that is hazardous to society. Some seabirds are opportunists and generalists – they can adapt to exploit these resources, but may detriment themselves through ingesting plastic and persistent organic pollutants. They would however have a more natural diet without the human generated waste.

These birds are indicators of pollution, water contamination, climate change, ocean health and weather, fish schools' localities, environmental monitoring in fresh and marine waters. Certain gull species are generalists and scavengers, some species exploit human waste as a source of food. The food resources represented by human waste generally attract coastal and seabirds, mainly when there is a depletion of natural resources such as fish, due to over-fishing.

The high concentration of gulls at landfill sites, river mouths and sewage outfalls are indicative of the poor level of solid and liquid waste management in Lebanon. Furthermore, this source of food is often detrimental to the health of the birds. Certain number of gull species are urban scavengers that offer services as they efficiently dispose of discarded food waste that would otherwise attract rodents and other vermin. Many coastal and marine birds may paddle the grass of the playing grounds or the ploughed agricultural fields to coax worms and other invertebrates. Despite this, the waders feed mainly on invertebrates in the mud and on beaches, they play a significant role in long-distance dispersal of seeds and algae that are transported internally (in the guts) or externally (on the feet). It is worth noting that the weak or sick fish that are usually swimming at the surface of water constitute an easy prey for the seabirds. This makes the gulls contribute to the natural selection process that helps maintaining a quality of fish for sustainable fishing. Finally, species habitats and behavior patterns are given for the studied birds as it helps in the management of these species.

The marine and coastal birds are receiving little attention in Lebanon. The proof is that their suitable habitats are altered or destroyed by urbanization and misguided management activities. This is despite the fact that the coastal and seabirds in Lebanon are supposed to be protected, among other creatures, under the Lebanon Hunting Law 580/2004, and the Ministerial Decision No. 396/1 issued by the Ministry of Agriculture in 2014; banning the hunting of all seabirds to protect them. Also, many of these birds are covered by the international Convention on Migratory Species (CMS), the international African-Eurasian Migratory Waterbird Agreement (AEWA) and by the Barcelona Convention and its six protocols. In addition, the laws establishing the existing marine protected areas (MPAs) in Lebanon's Palm Island Nature Reserve (PINR) and Tyre Coast Nature Reserve (TCNR) and there have been management plans developed for each site. These laws and management plans as well as conservation actions are all contributing to the implementation of the articles of the protocol, which are related to the special protected areas and biodiversity. This also includes the following action plans: the Action Plan for the Conservation of Marine Turtles, the Action Plan for the Conservation of Bird Species, and the Action Plan on Marine Vegetation in the Mediterranean Sea.

## 6 Recommendations

Lebanon's Marine Protected Area Strategy (MoE/IUCN, 2012) has the potential to guide the protection of marine and coastal bird species through the establishment and efficient management of new MPAs in Lebanon provided that appropriate legal and financial instruments will accompany the strategy to ensure its effective implementation. The strategy set must ensure benefits for seabirds and their habitats, especially that it is in line with the Barcelona Convention, and aims to create a network of marine protected areas in Lebanon which ensures, among others, the sustainable management of natural marine and coastal resources, the protection of the marine environment and coastal zones, and the protection of natural and cultural heritage.

That being said, a national policy is needed that: 1) ensures that marine and coastal birds and their habitats receive full protection through national and international legislation, 2) Prevents chemical pollution of the sea and oil spills, by promoting the preparation of relevant national action plans, 3) involves international conventions in the conservation of species and their habitats, 4) encourages the implementation of the specific mitigation measures in the significant areas of distribution of seabirds and for priority species first, and 5) promotes international cooperation and funding from bilateral agencies.

The present report contributes to the implementation of Lebanon's Marine Protected Area Strategy and the Barcelona Convention as well as to the implementation of the Convention on Biological Diversity, AEWA and CMS by setting the following recommendations that are addressed to decision-makers, fishermen and the public, researchers, other stakeholders:

Category	Recommendation	Target audience		
		Decision-makers	Fishermen	Public, researchers, other stakeholders
Breeding sites	Protect all sites that appeared to be suitable for breeding of seabirds and coastal birds, namely the Little ringed Plover, Yellow-legged Gull and the former breeding species.	✓		
	Protect all sites that appeared to be suitable for breeding of seabirds and coastal birds, namely those used for resting, foraging and roosting.	✓		
	Prevent the sewage and waste water, solid waste materials, and garbage from reaching the sea or the coastal areas in order to reduce the dominance of the Yellow Legged Gull and Lesser Black-backed Gull (waste and trash eaters) which, multiplies enormously on the expense of other seabirds that seek in vain sites for reproduction, roosting, foraging and resting.	✓	✓	✓
	Maintain the cultural salt pans that host the breeding Little ringed Plover.	✓		✓
	The existence of breeding sites of marine and coastal birds should be taken into account when preparing and planning regulations.	✓		✓

	All proposed development and land-use changes threatening occupied and traditional breeding sites should be subjected to environmental impact assessment.	✓		✓
	Prevent and reduce human access to breeding sites (disturbance) in order to prevent breeding failure and site desertion, especially that the timing of breeding activities is unexpected due to climate change. In 2019, the chicks hatched in mid-June instead of April and May due to extension of raining season. To fledge they need about one month, a matter that threaten the chicks by the visitors at the time of opening the season for visitation on the Palm Islands in the beginning of July. For the safety of the chicks, the season was opened on 20th of July.	✓		✓
	Prevent egg-collecting through surveillance during the breeding period and enforce existing sanctions	✓	✓	
	Enforce the law of the MPAs in order to avoid fishing activities in the proximity of breeding sites.	✓	✓	
	Establish new MPAs in areas that are candidates or designated IBAs.	✓		
<b>Wintering sites</b>	All sites which regularly hold more than 200 sea or shore birds should receive legal protection.	✓		
	Housing and industrial developments or any other kind of habitat alteration should be avoided in areas of wintering birds.	✓		
	Foraging, resting and roosting sites should also be protected, surveyed and monitored.	✓		✓



<b>All birds site</b>	All kinds of fishing with poisonous baits should not be allowed as seabirds may eat from poisoned fish and die.			
	It is not allowed to hook up seabirds. If it happens that a fisherman accidentally hooks a seabird, he should behave appropriately as described on the following site: <a href="http://www.eregulations.com/california/fishing/saltwater/hooked-a-bird/">http://www.eregulations.com/california/fishing/saltwater/hooked-a-bird/</a> or inform the MoA as per the Decision 396/2014.		✓	
	Fishermen should be aware of the rules to be followed in case of a bycatch as it is supposed that the bird is not an enemy to humans.		✓	
	Fishermen should be aware of the benefits of sea and coastal birds to humans and their economy.		✓	
	Evaluate the effects of fishing policies and regulations, in particular, data about fishing methods, fishing effort, fishing periods and captures should be collected and compared with the seabird species' population status and health.	✓		✓
	Create non-fishing zones next to breeding bird colonies and keep fishermen away from these zones.	✓		✓

**Monitoring and research**

Roosting, wintering, resting and foraging sites of threatened and near-threatened species should receive conservation management and be monitored.



The current breeding and the future breeding populations of seabirds should be subjected to monitoring through planned surveys every 3-years in order to be able to compare out data with those of the north western birding communities. An effort should be made to identify all breeding sites.



Identify the most important passage sites and wintering areas. Intensive ringing (including color-ringing) campaigns should be promoted in order to permit a better understanding of movements and migration routes; these campaigns should be carefully planned to minimize disturbance. Planners should benefit from the Atlas to be able to defend the winter quarters and protect the winterers, especially that they are defined geographically and data on numbers and dispersal of the wintering population are also provided.








Monitor the winterers in order to determine the survival rates of young and adult birds in winter.



Feeding ecology and habitat use in winter matter the ornithology of seabirds. Very few data exist on the winter ecology of marine and coastal birds, as on the species' habits outside the breeding season. A better knowledge of habitat selection and habitat use can provide useful information for conservation management. Importantly, the present project provides the needed baseline information about possible threats in the winter quarters.



	<p>Promote research which is of direct application to the conservation and management of marine and coastal birds.</p>			
	<p>The effects of fishing policies and regulations should be evaluated. In particular, data about fishing methods, fishing effort, fishing periods and captures should be collected from different parts of the Mediterranean and compared with the species' population status, health and breeding success.</p>			
	<p>Studies of population dynamics, feeding and habitat selection of the Yellow-legged Gull are necessary in order to evaluate that species' impact on Audouin's Gull of Palm Islands Nature Reserve. Attempts of control of Yellow-legged Gulls should be based on sound scientific evidence that the species is a limiting factor for Audouin's Gull.</p>			
	<p>The impact of predation on the Little Ringed Plover by foxes, dogs, cats (especially domestic cats), reptiles, rodents, etc., should be assessed and monitored. Control programmes should be undertaken in the event of predation becoming a threat for the survival of this breeding species in Lebanon. The possibility of providing artificial refuges to the Little Ringed Plover chicks should be explored.</p>			

Monitor fishing activities for possible impact on breeding and wintering Audouin's Gulls. Beside the dominance of the Yellow-legged Gull, it seems that, in the long term, depletion of fish stocks could have a strong negative impact on Audouin's Gull, which relies mainly on clupeids (Sardine bizri, in east Mediterranean) and other seafood. The impact of the fishing industry and the methods used must be monitored and restricted for the sustainability of the industry itself and of seabird populations. Policies must be developed and implemented which prevent a direct impact of overfishing on Audouin's Gull. In fact, most of the fishing gears use small mesh sizes and hooks with the consequence that small sized fishes and juveniles are present in the landings. Thus, the present practices of fishermen could be behind the departure of the former gulls and terns that once have bred in Lebanon: Audouin's Gull *Ichthyaetus audouinii*, Lesser Crested Tern *Thalasseus bengalensis*, Little Tern *Sternula albifrons*, and Common Tern *Sterna hirundo*.

Identify the values of the sea and coastal birds in order to incorporate them in the cultural and eco-tourism activities of the local communities and fishermen



<b>Public awareness</b>	Increase awareness about seabirds and coastal birds among politicians and decision-makers.	✓		✓
	Inform the general public about the plight of the globally threatened species and the formerly bred species.	✓		✓
	Involve tourists and fishermen in preventing disturbance.	✓	✓	✓
	Prepare and distribute educational and awareness material (leaflets, brochures, roll-up banners, booklets).	✓		✓
	Conduct seminars, workshops and visits to fishermen in order to raise their awareness, mainly about the impact of their lost or discarded fishing equipment that poses a threat to living birds.	✓	✓	✓
	Adopt events to create opportunities to improve the knowledge of people and the value of birds.	✓		✓
	Use the media to increase awareness.	✓		✓
	Promote information exchange.	✓	✓	✓

## References

- Bara, T. (1998). Selected records for Cheikh Zennad, a coastal wetland in north-west Lebanon. *Sandgrouse* 20:40-45.
- Birdlife International. (2018). What are seabirds. <https://www.birdlife.org/europe-and-central-asia/seabirds-and-marine-what-are-seabirds>
- Blondel, J., Ferry, C. and Frochet, B. (1981). Point counts with unlimited distance. *Studies in Avian Biol.*, 6: 414-420.
- Busuttill, S., Fulumm, D. (1998). Sea watching at Ras Beirut, Lebanon in spring 1997. *Sandgrouse* 20: 142-143.
- Cawkell, EM. (1944). Notes on some birds in the Beirut area littoral. *Bull. Zool. Soc. Egypt, Syria-Palest. Suppl.* 6: 23-25.
- Decision of Ministry of Agriculture, 2014. Decision number 396/14-5-2014, MoA. Banning the hunting of Sea birds in Lebanon, Gazette 21, 15-5-2014.
- Hollom, PAD. (1959). Notes from Jordan, Lebanon, Syria and Antioch. *Ibis* 101: 183-200.
- Kumerloeve, H. (1962). Notes on the birds of the Lebanese Republic. *Iraq Nat. Hist. Mus. Publ.* 20-21: 1-81.
- Law of hunting no. 580, 2004: Official gazette, and Ministry of Environment, Lebanon.
- Macfarlane, AM. (1978). Field notes on the birds of Lebanon and Syria, 1974-1977. Army Bird-watching Soc. Per. Publ. 3.
- MOE, IUCN, UN Environment & GEF, 2018. Assessment of the management effectiveness of marine protected areas in Lebanon. Terms of Reference. "Policy and Legislative Development for Mainstreaming the Sustainable Management of Marine and Coastal Ecosystems in Lebanon" Project.
- Ramadan-Jaradi, G and Ramadan-Jaradi, M. (1997). Notes on some breeding birds of Lebanon. *Sandgrouse* 19: 122-125.
- Ramadan-Jaradi, G and Ramadan-Jaradi, M. (1999). An updated checklist of the birds of Lebanon. *Sandgrouse* 21: 132-170.
- Ramadan-Jaradi, G and Ramadan-Jaradi, M. (2001). The avifauna of Palm Islands Nature Reserve in Lebanon 1893-2000. *Lebanese Science Journal*, Vol. 2, No.1: 17-35
- Ramadan-Jaradi, G and Ramadan-Jaradi, M. (2002). Population size of the Syrian Serin *Serinus syriacus* and other ornithological records from Lebanon. *Lebanese Science Journal*. Vol. 3, No.1: 27- 35. From Lebanon during 2002-03. *Sandgrouse* 26 (1): 29-34.
- Ramadan-Jaradi, G. Waterbury, SP, and Ramadan-Jaradi, M. (2005). Ornithological observations from Lebanon during 2003-2004. *Sandgrouse* 27 (1): 69-73.
- Ramadan-Jaradi, G. (2006). Status of Marine and Coastal bird species in Lebanon. Proceeding of the first symposium on the Mediterranean Action Plan for the conservation of marine and coastal birds. UNEP; MAP; RAC/SPA. Oct. 2006.
- Ramadan-Jaradi, G. Bara, T. and Ramadan-Jaradi, M. (2008). Revised checklist of the birds of Lebanon 1999-2007. *Sandgrouse* 30 (1): 22-69.
- Ramadan-Jaradi, G. (2010). Rehabilitation of Economic Functions of War-damaged Palm Islands Nature Reserve (PINR) Lebanon. Obtained on 20/12/2010 the Prize of KSA for the best environmental management in Arab countries that was organized by the Arab League States.
- Ramadan-Jaradi, G. (2017a). Status and Distribution of Migrating and breeding sea birds in north Lebanon. *Lebanese Science Journal*, Vol. 18, No. 2, 2017
- Ramadan-Jaradi, G. (2017b). National Monitoring Programme for Biodiversity in Lebanon – EO1 – Seabirds. Developed for Ecap and MedMPA net II Lebanon.
- Ramadan-Jaradi, G. (2017c). Training on the identification of the marine birds with focusing on threatened and endangered species. Supported by RAC-SPA, 2017.
- Ramadan-Jaradi, G. & Itani, F. (2018). Two new species for Lebanon, White-headed Duck *Oxyura leucocephala* and Eyebrowed Thrush *Turdus obscurus*, and two other interesting records for Lebanon
- Steele, J. (2008). Encyclopedia of Ocean Sciences, Second Edition. *Academic Press*. ISBN: 978-0-12-374473-9.
- Stenhouse, JH. (1904). The birds of Nakhl island on the coast of Syria. *Ibis* (VIII) 4: 29-32.
- Tohme, G. Neuschwander, J. (1974). Nouvelles données sur l'avifaune de la République Libanaise. *Alauda* 13: 243-258.





**INTERNATIONAL UNION  
FOR CONSERVATION OF NATURE**

IUCN Regional Office for West Asia  
Sweifiyeh, Abdel Latif Salah Street, #29  
P.O. Box 942230 Amman 11194, Jordan  
Tel +962 (6) 554 6912/3/4  
Fax +962 (6) 554 6915  
Email: [westasia@iucn.org](mailto:westasia@iucn.org)  
[www.iucn.org/westasia](http://www.iucn.org/westasia)  
[www.iucn.org/resources/publications](http://www.iucn.org/resources/publications)

