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Sicily Channel/Tunisian Plateau: Status and conservation of Seabirds

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INTRODUCTION

One of the main characteristics of the Mediterranean marine avifauna is the high number of endemic taxa, despite the low diversity and small population densities; this is consistent with a low-productivity ecosystem compared to open oceans (Coll et al. 2010). All four Procellariiforms (petrels and shearwaters) present in the Mediterranean constitute endemic taxa: two at species level (*Puffinus mauretanicus* and *Puffinus yelkouan*) and two at subspecies level (*Calonectris diomedea*, *Hydrobates pelagicus melitensis*). Besides, one endemic cormorant (Shag *Phalacrocorax aristotelis desmarestii*), three gulls (Mediterranean *Larus melanocephalus*, Audouin's *Larus audouinii* and Yellow-legged *Larus michahellis michahellis*) and one tern (Lesser-crested *Sterna bengalensis emigrata*) also originate from the Mediterranean region.

Another characteristic of the Mediterranean marine avifauna is its long-term exposure to human influence. Through history, some aspects of human activity have had positive effects on seabirds (e.g. the creation of specific habitats like rice fields and salt pans, the provision of food through fishing discards, etc.) but overall and in the long-term the result of the human-seabird interaction has been detrimental for seabirds. Their current population sizes are nowhere near what they were before the 'humanisation' of the Mediterranean.

Today, despite the legal protection and the positive management of seabird colonies, several threats imperil the future of this unique seabird community, namely the interaction of seabirds with fisheries (causing unnecessary mortality and impacting heavily on their populations), overfishing (which decimates fish populations and heavily alters the habitats where marine organisms live) and climate change (causing disruptions in the ecosystem).

The Protocol Concerning Mediterranean Specially Protected Areas and Biological Diversity in the Mediterranean has two powerful tools to revert the negative trends of most Mediterranean seabird species: the establishment of a Specially Protected Areas of Mediterranean Importance (SPAMIs) list, and the protection and conservation of the species. This report focuses on the seabird species that: (a) are listed among the 25 of Annex II List of Endangered or Threatened Species; and (b) are present in our focus area, the Sicily Channel / Tunisian Plateau (fig. 3).

The Sicily Channel / Tunisian Plateau area enjoys some of the highest productivities in the Mediterranean Sea and, not surprisingly, it also concentrates the largest populations of seabirds, particularly of the more pelagic Procellariiforms (Scopoli's shearwater and European storm-petrel). This results from the mixing of waters between the eastern and western basins of the Mediterranean Sea, plus mineral-rich freshwater outflows in the Gulf of Gabès. While food is abundant and perhaps not limiting, the seabirds in this area have traditionally been subject to human exploitation, so their populations are far from being in a healthy state. Moreover, industrial fishing may develop further in the future in this area, thus representing a further threat to these populations, which in some cases are the majority of the species' globally.

MAIN SPECIES

Puffinus yelkouan – Yelkouan shearwater

General overview and Taxonomy

The Yelkouan shearwater is a medium-sized Procellariiform strictly endemic to the Mediterranean (including the Black sea). It is of similar size and habits to the critically-endangered Balearic shearwater *Puffinus mauretanicus*. Until recently, both were considered to belong to the same species, but they have been separated based on differences in morphology, genetics, behaviour and ecology (Carboneras *et al.* 2014). The Yelkouan shearwater tends to form large flocks and only nests in a few colonies on offshore islets and rocky outcrops. It is exposed to predation on the breeding islands and to human-induced mortality at sea, mainly as a result of interactions with fisheries.

Presence in the Sicily Channel / Tunisian Plateau

Yelkouan shearwater nests in Malta (1190-1680 breeding pairs; Sultana *et al.* 2011), in Tunisia (176-200 breeding pairs; Derhé 2012a; Bourgeois *et al.* 2013) and possibly 2000-4000 breeding pairs on the Italian island of Lampedusa, where the colony may have existed for a long time (Corso *et al.* 2009). The species is currently declining globally, with estimated declines of 10-50 % in Italy and 0-15 % in Malta (Derhé 2012a). This metapopulation probably feeds in the rich foraging grounds to the South of the breeding colonies (see below, Scopoli's shearwater).

Foraging ecology and diet

Yelkouan shearwaters feed by surface-seizing and underwater pursuit, mainly on small pelagic fish such as sardines (family Clupeidae) and anchovies (family Engraulidae). Like for other shearwater species in the Mediterranean, discards from fisheries (mostly trawlers) are probably important, and may represent more than an opportunistic resource. Outside of the breeding season, Yelkouan shearwaters tend to concentrate in areas with large shoals of sardines and other Clupeiforms.

At-sea distribution

The species occupies the coastal area and feeds mainly in the nearshore (Péron *et al.*, 2012) but is also known to forage in frontal areas (Beaubrun *et al.* 2000), where it can feed naturally or attend trawlers in search of discards. In fact, most birds observed in the open sea are travelling, which might suggest that there is little feeding in offshore waters, but the evidence that individuals of this species get caught in pelagic longlines (Bourgeois & Vidal 2008) indicates that they also forage away from the coast.

A tracking study of 13 Yelkouan shearwaters nesting in Malta by Raine *et al.* (2013) showed that most birds spent the non-breeding period in the Black and Aegean Seas, with some moving into the Adriatic Seas as well (fig. 1). All birds returned in November or December to waters closer to the breeding colony, concentrating between the North African coast and the southern Adriatic.

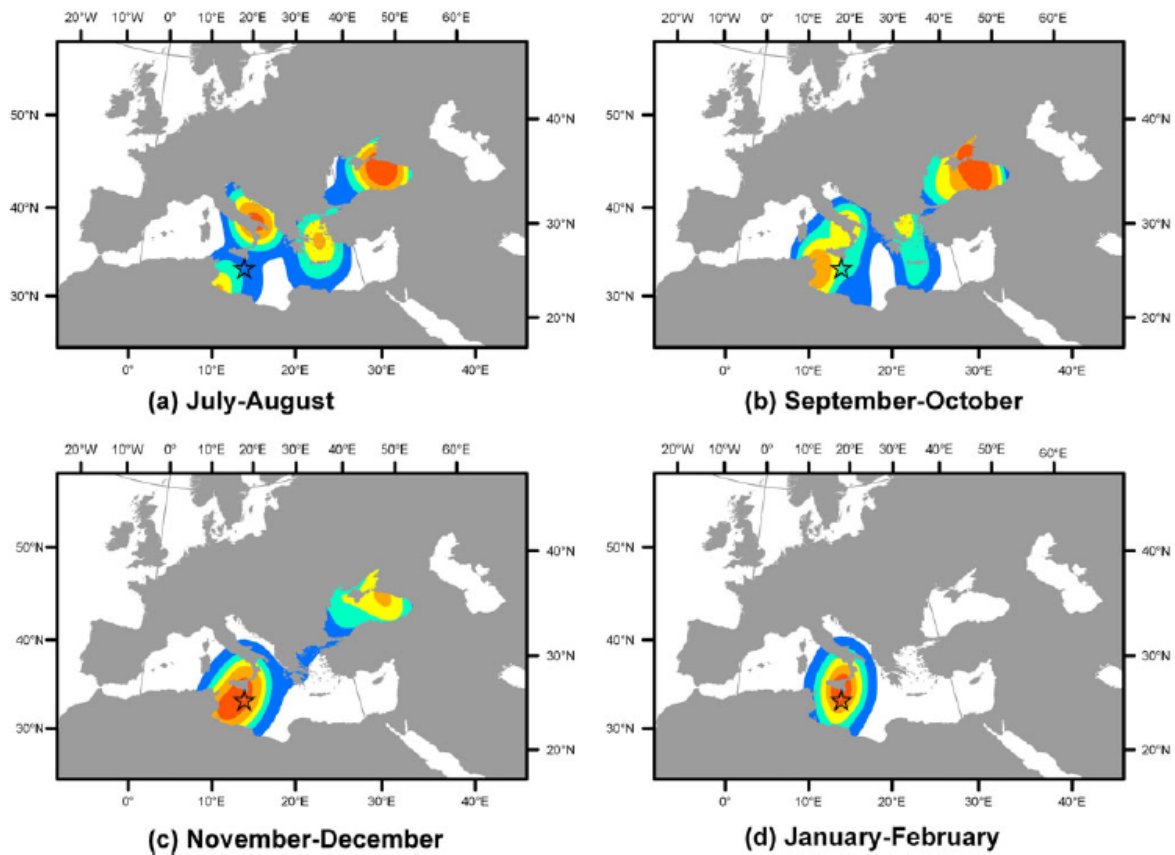


Fig. 1 : Seasonal changes in distribution of Yelkouan Shearwaters (*Puffinus yelkouan*) (n = 15) from Malta tracked during the nonbreeding season (July–February) in 2008 and 2009. Star Location of Malta. Kernels presented are 20, 40, 60, 80 and 95 %, respectively, with land masses (shaded) placed above kernel layers to allow better visualization of the migration patterns (from Raine *et al.* 2013).

Conservation status (IUCN) and threats

Derhé (2012a) has assessed the global population of *Puffinus yelkouan* and estimated it to be 46,000-92,000 individuals. However, very high non-breeding season numbers reported in the Bosphorus suggest that there may be a large percentage of non-breeding birds in the population and estimates of breeding numbers at colonies may be underestimated. It is predicted that the global breeding population is suffering a rapid decline of c.50% over three generations (54 years) – a considerably higher rate of decline than was previously predicted. As such, the species' global Red List status has now been revised to Vulnerable based on the findings of Derhé (2012a).

Yelkouans face specific threats on land and at sea. Breeding colonies are gravely affected by predation from alien invaders, mostly rats and cats. Several projects have been directed at addressing this issue and some are still ongoing targeting a reduction or even the eradication of alien predators. Dead shearwaters are regularly found in drift- and gill-nets and, more recently, in longlines. At-sea mortality is a major cause of the dramatic decline of the closely related *P. mauretanicus* and fisheries bycatch has been suggested as an important cause for the observed low adult survival of *P. yelkouan* in Malta and France (Opperl *et al.* 2011). At-sea threats in the wintering regions include by-catch in long-line and trawl fisheries, impacts of over-fishing, illegal hunting (particularly in Maltese waters), ingestion of plastics, pollution, and the potential impact of off-shore wind farms (Raine *et al.* 2013).

In Malta, annual survival for adults was unsustainably low at an average 0.74 between 1969–1994, possibly as a result of various human disturbances (including illegal shooting), light pollution and fisheries by-catch. In the period 2007–2010, although annual adult survival probability was still low (0.85), colony protection measures appear to have reduced mortality at nesting cliffs (Oppel *et al.* 2011). A rat eradication project was run 2006–2007, and an EU Life+ project was initiated in Malta in 2012, aiming to identify important bird areas at sea.

In Lampedusa, nesting adult birds and their chicks probably fall victim to the abundant Black rats. Their impact is being assessed as one of the actions of LIFE+ project NAT/IT/000093 "Pelagic Birds".

Overall, breeding success may be affected by reduced abundance of anchovies and sprats due to competition from fisheries.

International measures of protection

Puffinus yelkouan is listed in Annex I of the European Directive 2009/147/EC on the conservation of wild birds. It has been proposed as a candidate species for listing in Annex I of the Agreement on the Conservation of Albatrosses and Petrels, ACAP (Cooper & Baker 2008, ACAP 2013). It is listed in Annex II of the SPA/BD Protocol of the Barcelona Convention and in Annex II of the Berne Convention.

National measures of protection

In Malta, *Puffinus yelkouan* is afforded legal protection but illegal hunting at sea for trophies or sport is also a serious conservation issue (Raine *et al.* 2013). 10 Important Bird Areas (IBAs) have been identified in Malta holding internationally-important numbers of breeding Yelkouan shearwaters; most of those have been designated as Special Protected Areas under the Birds Directive (European Environment Agency 2014). In the marine environment, the Malta-Gozo Channel marine IBA covers 123.31 km² of waters around the three main islands of the Maltese archipelago which are used (for foraging, resting, etc.) by an estimated 982 breeding pairs of this species (BirdLife International 2014). This IBA is pending official recognition by the Maltese authorities.

In Italy, where *Puffinus yelkouan* is also a protected species, the Natura 2000 site *Arcipelago delle Pelagie - area marina e terrestre - ITA040013* SPA extends over 12 715 ha and includes the waters around Lampedusa South of Sicily. However, the species is not yet officially listed as nesting on the island, which may hinder the possibility of implementing conservation measures.

***Calonectris diomedea* – Cory's shearwater**

General overview and Taxonomy

Cory's is the largest Procellariiform species in the Mediterranean Sea, where it is still quite numerous (recent estimate for total breeding population: 142 478 – 222 886 breeding pairs, Derhé 2012b). The Mediterranean race *C. d. diomedea* is endemic and is currently declining over the whole range; possibly, at a faster pace than the Atlantic subspecies *C. d. borealis*. Cory's shearwaters make the longest foraging trips of all Mediterranean seabirds, and birds from distant breeding colonies often converge spatially. It regularly attends trawlers and longlining vessels, and is the species suffering the heaviest mortality toll. Globally, it is considered of Least Concern (LC) under IUCN criteria because the world population is very large (possibly 900 000 – 1200 000 individuals, BirdLife International 2013) and recorded declines in the Atlantic still situate the species below the thresholds for threatened status.

Calonectris diomedea (Hazevoet 1995) was split by Sangster *et al.* (1998) into *C. diomedea* and *C. borealis* and this view has been followed by the Taxonomic Sub-Committee of the BOU Records Committee relating to the British List (Sangster *et al.* 2012). However, this treatment is not followed by the BirdLife International Taxonomic Working Group because morphological and genetic

differences between the two taxa are slight, similarly large divisions exist within *diomedea* as between *diomedea* and *borealis* and qualitative differences in voice do not necessarily amount to isolation mechanisms.

Presence in the Sicily Channel / Tunisian Plateau

Calonectris d. diomedea has its largest numbers in this area, totalling ca. 90 % of the whole Mediterranean population. The biggest colony is in Zembra island off Tunisia, where its numbers have been re-assessed at 141 780 breeding pairs (95% CI: 113 720 – 176 750) (Defos du Rau et al. 2012, 2015). The huge difference from previous estimates (15 000 – 25 000 breeding pairs; Zotier et al. 1999) is unfortunately not due to a true population increase but to new census methodologies, based on more reliable distance sampling line-transects. This estimate is more in line with the observed numbers of Cory's shearwaters crossing the Strait of Gibraltar each year (Defos du Rau et al. 2015). Large colonies also exist on the Italian island of Linosa (10 000 breeding pairs; Baccetti et al. 2009) and Malta (4100 breeding pairs; Sultana et al. 2011).

The geographical disposition of those colonies, forming an arc in the middle of the Sicily Channel already indicates that the birds probably share the same feeding grounds, and that the colonies may in fact form a metapopulation. Tracking data from Linosa has revealed that the birds share a large foraging area to the South of the breeding colonies on the Tunisian Plateau and into the coasts of Libya (Cecere et al. 2012). Like in other colonies, extensive pelagic trips for self-provisioning (up to 300 km to the coasts of Libya) are interspersed with shorter trips nearer to the colony for chick provisioning (Magalhaes et al. 2008; Cecere et al. 2012)

Foraging ecology and diet

In the Mediterranean, Cory's shearwater feeds on medium-sized to small fish (regularly, sardine and anchovy), alone or in association with tuna and cetaceans. Squid is also an important component of its diet. It regularly attends trawlers when these are available, shifting to longline vessels when they are not, particularly during the pre-breeding and chick-rearing periods (Laneri et al. 2010). Fishing discards, a predictable source of food, have become a growing foraging option for Cory's shearwaters in the Mediterranean after the population decline of tuna and cetaceans, and the reduced availability of natural prey caused by overfishing. This increases the dependence of shearwaters on human activities, as the birds become attracted to fishing vessels, and modifies their foraging behaviour (Bartumeus et al. 2010).

At-sea distribution

When not in the vicinity of the breeding colony, Cory's shearwater is a true pelagic bird with a preference for offshore waters over the continental shelf and around the shelf break. Where large-scale fishing exists, foraging birds tend to aggregate in areas of high trawler densities along frontal systems (Louzao et al. 2009). Tracking reveals the non-random use of space during foraging trips.

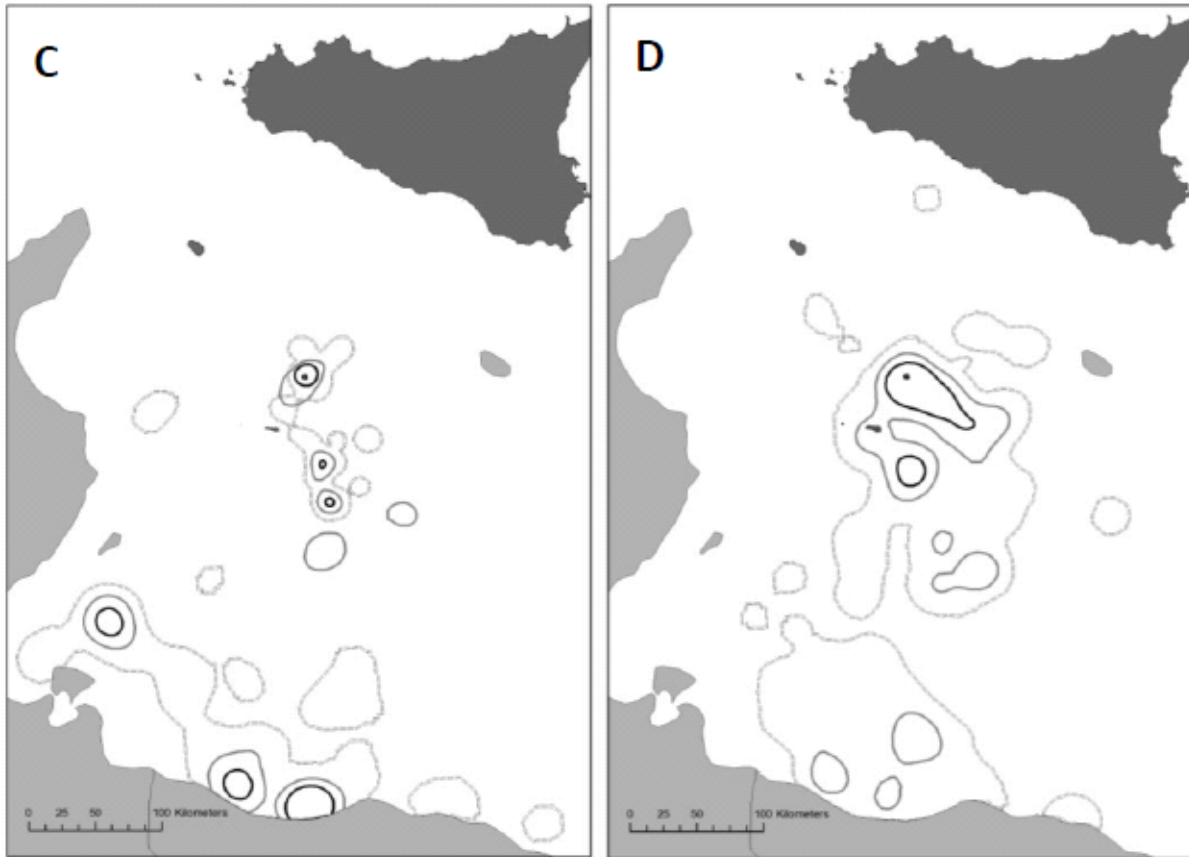


Fig. 2 shows 50% (black), 75% (dark grey) and 95% (light grey) kernels of GPS positions of foraging Cory's shearwaters from the island of Linosa in the Sicily Channel / Tunisian Plateau area during incubation (C; 14 birds in 2008) and during chick-rearing (D; 46 birds in 2008-09) (from Cecere et al. 2012).

Conservation status (IUCN) and threats

Considering the species globally, Cory's shearwater does not approach the thresholds for IUCN threatened status (BirdLife International 2013), even though there is evidence of ongoing declines in several of its populations. The Atlantic population (mostly in Azores, Madeira and Canary Is.) is still very large; however, evidence amounts that the endemic Mediterranean subspecies is declining, probably through its entire range, although data for key sites is still lacking (Derhé 2012b).

As with other Procellariiforms, the threats for Cory's shearwaters in the central Mediterranean come both from land and sea. At the breeding colonies, introduced cats and rats prey on eggs and small chicks, reducing breeding success significantly where they are present. The colony in Linosa, Sicily, has long been raided for human consumption by local inhabitants, a tradition that is maintained today. In Malta, still significant numbers fall victim of vandalism and indiscriminate shooting, including at sea (Sultana et al. 2011). The situation in the W Mediterranean, where several studies indicate that this is the species suffering the heaviest mortality from bycatch in longline fisheries, both demersal and pelagic (Belda & Sánchez 2001, Cooper et al. 2003, Laneri et al. 2010, Igual et al. 2009, García-Barcelona et al. 2010), probably also extends to the central Mediterranean. An assessment of pelagic longline fisheries in Malta found evidence of significant levels of bycatch in this area too (Dimech et al. 2008).

International measures of protection

Annex I of the European Directive 2009/147/EC on the conservation of wild birds lists *Calonectris diomedea* (all subspecies). The species has been recommended for listing under the Agreement on the

Conservation of Albatrosses and Petrels ACAP, together with the other Mediterranean shearwaters (Cooper & Baker 2008). Cory's is also listed in Annex II of the SPA/BD Protocol of the Barcelona Convention and in Annex II of the Berne Convention.

National measures of protection

Seven Important Bird Areas (IBAs) have been identified in Malta holding internationally-important numbers of breeding Scopoli's shearwaters; most of those have been designated as Special Protected Areas under the Birds Directive (European Environment Agency 2014). In the marine environment, the Malta-Gozo Channel marine IBA covers 123.31 km² of waters around the three main islands of the Maltese archipelago which are used (for foraging, resting, etc.) by an estimated 1325 breeding pairs of this species (BirdLife International 2014). This IBA is pending official recognition by the Maltese authorities.

In Italy, the Natura 2000 site *Arcipelago delle Pelagie - area marina e terrestre - ITA040013* SPA extends over 110.66 km² and includes the waters around Linosa South of Sicily, with an estimated 10 000 breeding pairs. In Tunisia, where the National Park of the Zembra and Zembretta islands already has IBA status (land area only), BirdLife International is considering the designation of the marine IBA 'Zembra and Zembretta Islands' with 1408.25 km² and holding an estimated 60 000 breeding pairs of this species.

***Hydrobates pelagicus melitensis* – Mediterranean] Storm petrel**

General overview and Taxonomy

The European Storm petrel is only above the size of a swallow (16 cm, 27 g) and is therefore the smallest of all seabirds in the Mediterranean region. Despite this, the species is extremely long-lived (reaches breeding age at ~4 years, then has an average lifespan of ~11 years) for an animal of its size. These data predict that the population ecology of the species will be based on high adult survival (0.87, Robinson 2005) and a comparatively low reproductive rate. In the Mediterranean, the endemic subspecies *melitensis* has a small population (<16,000 breeding pairs, Sultana & Borg in UNEP-MAP-RAC/SPA 2006) that is in slight decline in most breeding colonies.

Presence in the central Mediterranean

Storm petrels are present in the Mediterranean in all months. Birds are present near the breeding colonies from February onwards; the breeding season is extended, with the late birds not fledging until October. It suffers heavy predation from terrestrial (introduced rats, cats) and aerial (gulls) predators, so rocky islands and islets are selected for breeding, particularly those that are free from rats (e.g., Filfla Rock, Malta). Nests are in natural crevices, fissures in rocks and cliff faces, amongst and under stones and boulders, in burrows, and in caves.

The central Mediterranean population concentrates in two breeding colonies, Filfla Rock, Malta (5000 – 8000 breeding pairs; Sultana & Borg 2012) and Marettimo island, Egadi archipelago, Sicily (ca. 3000 breeding pairs; Albores-Barajas et al 2012). The location of these colonies and the species' ecology suggests a pelagic distribution extending across the Sicily Channel, with perhaps the most important foraging grounds to the South, on the Tunisian Plateau. This should be confirmed, e.g., through dedicated seabird surveys.

Foraging ecology and diet

This is a marine species feeding mainly on small fish, squid and crustaceans, but it also feeds on medusae and offal. It feeds mainly on the wing by pattering and fishing, and occasionally follows ships and attends trawlers.

At-sea distribution

The Storm petrel is found over the external half of the continental shelf and in the high seas, often very far from land. The selection of this type of habitat, which is typical among the storm petrel family, minimises their probability of contact with humans and makes the species less vulnerable to interactions at sea than other Mediterranean seabirds. However, as a predator in the ecosystem, the species depends on the general health (e.g., from pollution) and productivity of the marine environment.

Conservation status (IUCN) and threats

Although little known due to its behaviour and habitat choice, it is generally believed that the Storm petrel population is still very large (over 1 million individuals) but has been undergoing a sustained decline over its entire European range (BirdLife International 2013). Even so, it does not approach the thresholds for threatened status under IUCN criteria. The endemic Mediterranean population is much smaller (<16,000 breeding pairs, or less than 50,000 individuals) and has probably been subject to the introduction of mammalian predators on its breeding islands and to habitat destruction for several centuries.

The main threats for the species on land are related to its small size and nocturnal habits: predation by introduced mammals, habitat occupation and degradation, luring of fledglings to built-up areas by artificial lights and the increase in generalist predators such as gulls favoured by poor management of rubbish dumps. At sea, storm petrels are threatened by pollution (although there is evidence that they are less affected by oil spills due to their aerial habits) and overfishing, particularly as they affect the food chain and reduce the availability of plankton and other small prey on which the species feeds.

On rat-free Filfla, a growing number of Yellow-legged Gulls *Larus michahellis* take a significant toll of European storm-petrels, many of them during the breeding stage (Sultana & Borg 2012). However, this is natural predation so any attempt to control the number of gulls should first assess the possible impact of gull predation on the number of storm-petrels. A management plan has been drafted for Filfla, which includes a number of measures concerning bird populations.

International measures of protection

Hydrobates pelagicus is listed in Annex I of the European Directive 2009/147/EC on the conservation of wild birds, in Annex II of the SPA/BD Protocol of the Barcelona Convention and in Annex II of the Berne Convention.

National measures of protection

The land area of the Egadi islands (Favignana, Levanzo and Marettimo) are an IBA (IT 157) and a Natura 2000 site. On the marine side, Arcipelago delle Egadi - area marina e terrestre SPA (ITA010027) extends over 48 267 ha around the islands and supports a population of 1000 breeding pairs according to BirdLife International (2013); probably an underestimate (cfr. Albores-Barajas 2012). Most of the foraging probably takes place beyond those limits, on waters that are unprotected.

Filfla islet is an IBA (MT 003) and a Natura 2000 SPA hosting an estimated 5000 – 8000 breeding pairs of European storm-petrel (BirdLife International 2013). The islet was being used for target practices by foreign military forces, which were stopped in 1970 (Sultana & Borg 2012). It is currently uninhabited and geologically unstable.

ADDITIONAL SPECIES

***Phalacrocorax aristotelis desmarestii* – Mediterranean shag**

The Mediterranean shag forms an endemic subspecies and is a flagship species for Mediterranean seabird conservation. It is listed in Annex II of the SPA/BD and is legally protected in France and Spain. The Red Data Books of both countries list the Mediterranean shag as Vulnerable (VU) under IUCN criteria, and the Spanish Catalogue of Threatened Species also lists the species as Vulnerable (making a National Conservation Plan compulsory).

The Shag feeds by diving underwater for fish (mostly, non-commercial species); it selects shallow waters (generally <80 m deep) and shows a preference for foraging over *Posidonia* seabeds. The species therefore remains mostly in coastal waters and does not venture far offshore. In the Sicily Channel / Tunisian Plateau area, the only significant colonies are in Tunisia (50 breeding pairs in total; Culioli 2006). 30-40 pairs used to breed on Lampedusa, but Corso et al. (2009) failed to find any recent evidence and the species is probably extinct in Sicily. Being mostly a coastal species, the Mediterranean Shag occurs only in small numbers in this highly pelagic zone.

***Larus audouinii* – Audouin's gull**

Audouin's gull is another flagship species for the conservation of Mediterranean seabirds. It is endemic and considered Near Threatened (NT) globally because its population size has increased substantially since the 1970s but still remains localised and is dependent on current fishing practices that make large quantities of discards available but are unsustainable (BirdLife International 2013). It is anticipated that a collapse in the fisheries would induce a population decline of *Larus audouinii*. For these reasons, it is legally protected in most countries in the area considered. Internationally, it is listed in Annex I of the European Directive 2009/147/EC on the conservation of wild birds, in Annex II of the SPA/BD Protocol of the Barcelona Convention, in Annex I of the UNEP-Bonn Convention on Migratory Species, in the African-Eurasian Waterbird Agreement (AEWA) and in Annex II of the Berne Convention.

The world population of Audouin's gull is estimated at <60,000 individuals; 90% of the breeding population is found in only 4 sites, and 70% concentrate in a single site (Ebro delta). The species scavenges around fishing vessels, and uses discards extensively and very efficiently. The species' association with fisheries is more pronounced in the western than in the central and eastern Mediterranean. The Sicily Channel / Tunisian Plateau area is a minor breeding area for *Larus audouinii*, with a small colony on the Galite archipelago, Tunisia (40 breeding pairs; BirdLife International 2013) and also on Zembra (10 pairs; BirdLife International 2013). Outside the area considered in this report, another colony is present on the Ionian island of Vendicari, Sicily. However, tracking has revealed that, although breeding only in small numbers, the waters off NW Tunisia are important foraging grounds for Audouin's Gulls from colonies in southern Sardinia (Baccetti et al. 2014).

IMPORTANT AREAS FOR THE CONSERVATION OF SEABIRDS IN THE SICILY CHANNEL / TUNISIAN PLATEAU



Fig. 3. Satellite view of the study area (Sicily Channel – Tunisian Plateau), showing the Important Areas for the conservation of seabirds proposed – A: Cap Bon – Strait of Sicily – Malta, B: Gulf of Gabès – Gulf of Tripoli; C: Galite Archipelago.

A) CAP BON – STRAIT OF SICILY – MALTA

This large area comprises the main seabird colonies in Sicily (Egadi, Linosa, Lampedusa), Tunisia (Zembra) and Malta, plus the proximate foraging areas of those birds. Such areas are used by Cory's and Yelkouan shearwaters for their near trips (for chick-provisioning) and in the lead-up to the breeding season, indicating that this is clearly a key region for breeding birds, as discussed in the text of those species. There are important fishing activities in the area as well. This is a good candidate area for joint management between the three riparian States concerned.

B) GULF OF GABÈS – GULF OF TRIPOLI

The waters off the Tunisian and Libyan coasts serve as a major foraging ground for Procellariiforms (shearwaters, storm-petrels) nesting in the Cap Bon – Strait of Sicily – Malta Important Area. Their distant trips (for self-provisioning; see discussion under each species) take them almost invariably to these waters. Management of these waters may require concerted action, possibly with the implication of Italian or EU authorities (to be discussed).

C) GALITE ARCHIPELAGO

A 5-km buffer around this small archipelago is proposed. This is a secondary breeding area for seabirds in the Mediterranean, with only significant numbers of Audouin's gull *Larus audouinii* and Eleonora's falcon *Falco eleonora*. The validity and exact limits of this area should better be discussed during the workshop as the opinion of experts on other taxonomic groups will helpfully contribute to refine this proposal.

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