Protecting Malta's wind chaser

The EU LIFE Yelkouan Shearwater Project Report

The Yelkouan Shearwater Project is a part EU LIFE funded partner initiative with

Co-funded by

The LIFE Nature Programme provides funding to European Union countries to promote sustainable development and assist in developing positive management for key habitats and birds.

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The EU LIFE Yelkouan Shearwater Project Report
LIFE06/NAT/MT/000097 **Layman's Report**

The Yelkouan Shearwater – il-Garnija – *Puffinus yelkouan* (Acerbi, 1892)
yelkouan, from Turkish *yelkovan* meaning "wind-chaser", a local term for shearwaters.
shearwater, referring to the bird's typical gliding flight above sea surface with tips shearing or cutting through water.

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Project summary

Protecting Malta's wind chaser...

The EU LIFE Yelkouan Shearwater Project is one of Malta's largest ever conservation projects and is aimed at reversing the population decline of the Yelkouan Shearwater (*Puffinus yelkouan*), a protected seabird of which Malta hosts as much as 10% of the world's population.

The project focused on the Yelkouan Shearwater's largest colony at Rdum tal-Madonna in Mellieha, where conservation efforts have improved the nesting conditions and fledging rates for over a third of Malta's population of Yelkouans. Utilising cutting-edge tracking technology never before used on this species, the project also helped identify important sites at sea for the seabird.

The Rdum tal-Madonna cliffs provide the ideal nesting habitat for between 398 and 602 pairs of Yelkouan Shearwaters. Breeding success was being reduced due to a number of factors: Rats were eating large numbers of shearwater chicks and eggs, noise and light pollution was disturbing nesting birds, and the dumping of materials over the cliffs was blocking nesting sites. Other human activities such as illegal hunting and fishing by-catch, combined with no designated marine sites for their protection were affecting the survival of adults away from the colony.

Throughout its four years of implementation (2006 – 2010), the EU LIFE Yelkouan Shearwater Project has focused on conservation work to eliminate these threats, scientific research to discover unknown aspects about the life cycle of the Yelkouan Shearwater, and an information campaign to increase awareness about the sea bird.

...on land...

By early 2007, the threat from rats was eliminated through a professional eradication programme, which also addressed the problem of littering that was sustaining the rat population. Cleanups have helped control this problem, along with a camping education campaign aimed at promoting a good code of conduct for visitors to the site.

During the breeding season, along with plans to control vehicle access to the cliffs away from sensitive areas, the project has helped minimize light and noise disturbance to the colony. Consultations were held with various government authorities and stakeholders who were given a report recommending ways and means of decreasing light pollution from coastal developments.

A management plan was also prepared for the EU protected site, guiding future efforts aimed at continuing monitoring and conservation of the Yelkouan Shearwater colony, along with the other species and habitats that make Rdum tal-Madonna a site of international importance.

...at sea...

The project also tackled threats faced by Yelkouan Shearwaters at sea. Patrols by the Armed Forces of Malta reduced the illegal hunting, while a Notice to Mariners has regulated noise and light disturbances from boats near the colony. The project also studied the impact of long-line fishing on shearwaters with the help of fishermen in order to implement further methods to avoid the accidental catch of shearwaters.

The use of technology has led to revelations on the bird's migration patterns, as well as rafting, breeding and feeding habits. For the very first time, Yelkouan Shearwaters were tracked along their migratory routes into the Eastern Mediterranean, highlighting the importance of the Aegean and Black Sea as wintering sites for this species.

Offshore feeding sites around Malta were also discovered when breeding birds were tracked from their nest sites to locations they reached to find food for their chicks. The collection of data from boat-based surveys also helped identify these offshore sites and map important rafting sites where the birds would spend hours waiting for nightfall before moving in to their colonies.

...and into the future.

The continuation of research and conservation actions will be crucial to securing the future of Rdum tal-Madonna as a safe haven for Yelkouan Shearwaters. The project is a showcase of how a partnership between governmental and conservation organisations can succeed in protecting one of Malta's most threatened seabirds.

The project was backed by funding from the EU LIFE Unit with additional financial support from MEPA and HSBC. The project led by BirdLife Malta, is indebted to the participation and commitment shown by its partners: the Armed Forces of Malta, Heritage Malta, the Capture Fisheries Branch within the Ministry for Resources and Rural Affairs (formerly Malta Centre for Fisheries Sciences), Transport Malta (formerly Malta Maritime Authority), the Royal Society for the Protection of Birds (BirdLife UK) and the Sociedade Portuguesa para o Estudo das Aves (BirdLife Portugal).

Section 1

The bird

The Yelkouan Shearwater (*Puffinus yelkouan*)

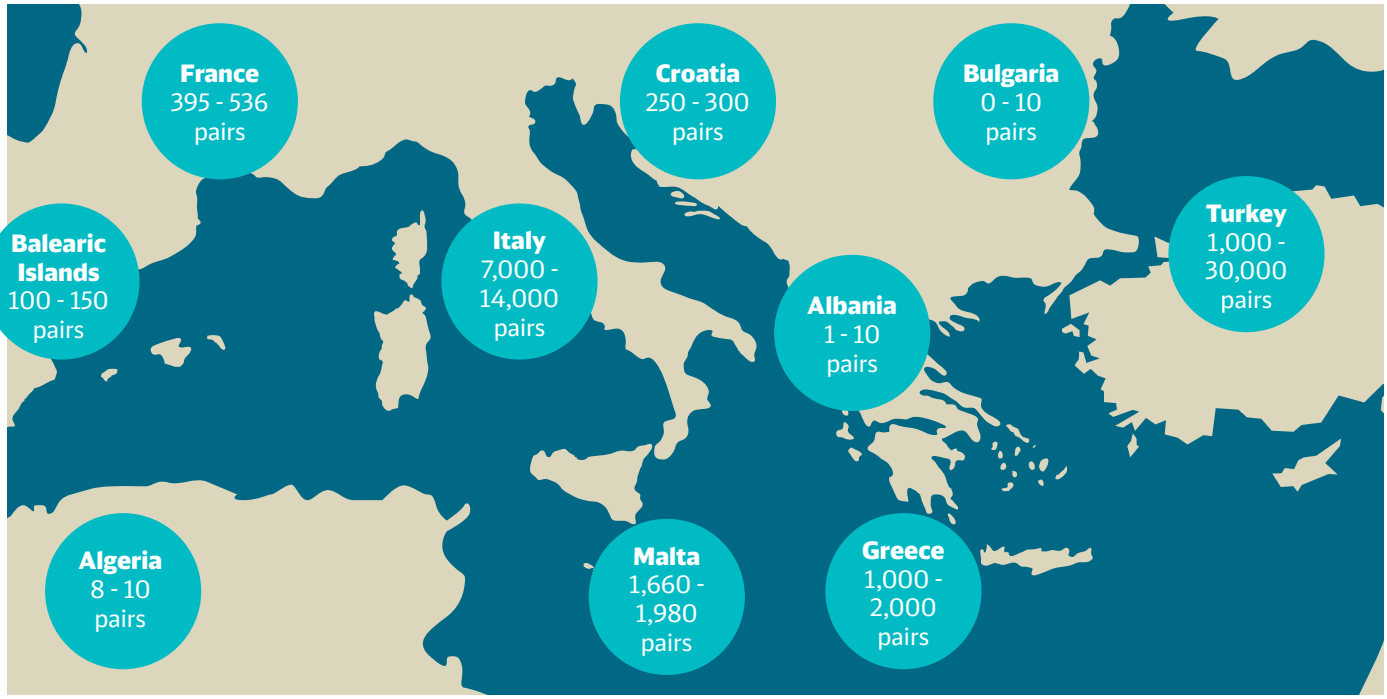
10%

With an estimated 1,660 to 1,980 breeding pairs, Malta hosts approximately 10% of the global population of this seabird

The Yelkouan Shearwater

The Yelkouan Shearwater is a member of the Procellariidae or tube noses, a group of seabirds so diverse that they encompass a wide variety of species ranging from the large albatrosses to the tiny storm-petrels. Yet all these seabirds share one common feature, a pair of tube-like nostrils on the top of their beak which allows them to filter salt. This enables these seabirds to stay out at sea for long periods without access to fresh water. The Yelkouan is a relatively small shearwater and can dive up to depths of 30m to catch fish. The main breeding colonies are concentrated in the central and eastern basin of the Mediterranean, from Corsica and Sardinia through the Central Mediterranean, the Adriatic and the Aegean.

The distribution of Yelkouan Shearwater colonies in the Mediterranean Sea



About the Yelkouan

Distribution

Endemic to the Mediterranean basin, with breeding populations in Malta, Spain, France, Italy, Greece, Bulgaria, Albania, Croatia, Turkey and Algeria.

Global Population

10,815 - 53,574 breeding pairs

Maltese Population

1,660 to 1,980 breeding pairs

Length

30 - 35cm

Wing span

70 - 84cm

Call

Single (sometimes up to three) in-drawn breath-like calls *Aaah-ha Aaah-ha.* Calls can be used to differentiate between male and female, with the female having a deeper pitch than the male.

Reproduction

Incubates single egg in deep crevices along generally inaccessible cliffs.
Pair raises one chick per year.

Lifespan

Up to 25 years
Reaches maturity at 2-3 years

Food

Small fish and squid up to 30m depth

Status in Mediterranean

Declining

IUCN Classification

Near Threatened

Afforded Protection in Malta

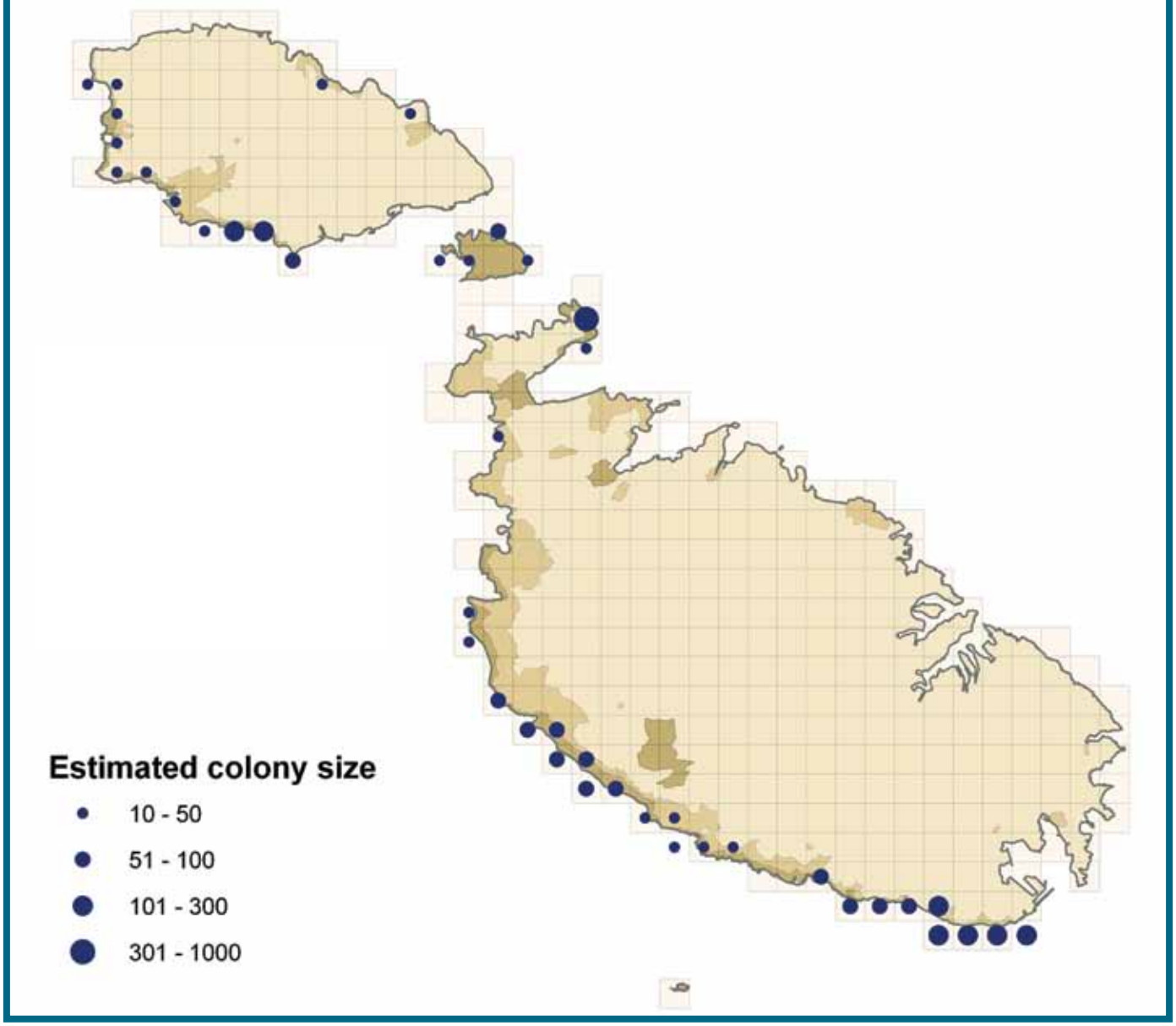
Annex 1 of the Birds Directive (2009/147/EC)
Legal Notice 311 of 2006.

Adapted from BirdLife International Species Factsheet

The Yelkouan Shearwater is one of Malta's four breeding seabirds, the others being the Cory's Shearwater *Calonectris diomedea*, the European Storm-petrel *Hydrobates pelagicus melitensis* and the Yellow-legged Gull *Larus michahellis*. With an estimated 1,660 to 1,980 breeding pairs, Malta hosts approximately 10% of the global population of this seabird. The largest colony (with an estimated 398 - 602 breeding pairs) is located at Rdum tal-Madonna, which is the focus of the Yelkouan Shearwater Project.

The Yelkouan Shearwater nests in burrows deep within crevices in cliffs along the west, south-west and north east of Malta, as well as Comino, Cominotto and Gozo. Yelkouan Shearwaters only come inland during the night so as not to reveal the location of their nests to predators, and regularly spend days out at sea searching for food.

Map of the Maltese Islands showing the estimated numbers of breeding pairs of Yelkouan Shearwaters on Malta, Gozo and Comino



Adapted from Malta Breeding Bird Atlas 2008 (Raine, Sultana and Gillings, 2009)

Life cycle

October – mid January
The return

Yelkouans start returning to the colony at this time and the project has established that adults begin preparing their nest sites as early as 16 October, usually returning to the same area where they hatched. During this time, birds can be found inside the nest during the day. The first courting flights occur at this time and birds also strengthen pair bonds or establish new partners.

January – February
Courting and mating

The Rdum tal-Madonna cliffs come alive at night with the calls of males attracting females and vice versa. Using nest cameras, the project recorded the first known footage of Yelkouans copulating during this period (see http://www.lifeshearwaterproject.org.mt/en/video). At this time new arrivals compete with the old birds for nesting sites and the nest site may be visited almost daily by the adult birds so as to maintain ownership. The Project has revealed that some young birds return to their natal colony in the year following fledging, which is unusual, as most shearwater species do not return to their colonies until they are at least two years old.

March – April
Laying and incubation

A single egg is usually laid in a deep narrow crevice, with both parents taking turns to incubate. The rat eradication programme carried out by the project vastly increased the success of this phase of the life cycle at Rdum tal-Madonna. Research showed that burrows are often interlinked, with many birds sharing a common entrance.

August – October
Migration

By August, the colonies are deserted as adults and juveniles have migrated away from Maltese waters. See page 24 to find out where they go.

June – July
Rearing and fledging

Unique footage of the chick rearing phase has been recorded by the project (see www.lifeshearwaterproject.org.mt/en/video). A Yelkouan chick takes an average of 10 weeks to grow its full plumage and start venturing out of its burrow at night to exercise its wings. Within a few weeks after this, the parents stop returning to feed the chicks, which ultimately forces them to take to the air and leave the colony.

May – June
Hatching and rearing

The single chick hatches and is fed by the parents. Using cutting-edge technology, the Project has shown that adult Yelkouans can travel up to 285km away to get enough food to feed their chick. An average meal normally consists of around 60g of small fish which the birds catch by plunging and diving under the sea.

Section 2

The site

Rdum tal-Madonna, Mellieha

The protected area at Rdum tal-Madonna shown in yellow, is a Natura 2000 site

Rdum tal-Madonna, Mellieha

Rdum tal-Madonna is located on the north-east coast of Malta and is characterised by crumbling cliff faces, stretches of rocky habitat (garrigue) and patches of woodland. The project has estimated that there are between 398 and 602 pairs of Yelkouan Shearwaters breeding within a stretch of the Rdum tal-Madonna coastline less than a kilometre in length.

The project site's importance is recognised at a European level and it is protected as a Special Protection Area (SPA) for its importance for birds including the Yelkouan Shearwater. It is also a candidate Special Area of Conservation (SAC) of international importance due to habitats of European importance which host very rare or endemic plants.

NATURA 2000

Natura 2000 sites constitute a network of protected areas (SPAs and SACs) within the territory of the EU, designed to protect threatened species and habitats.

Habitats and plants

The sand dunes of White Tower Bay

Housed within a tiny pocket of sandy beach between the shoreline and the boathouses of White Tower Bay, one can find the remnants of sand dunes, which were once a more common habitat in Malta. The very rare parasitic Dense-flowered Broomrape *Orobanche densiflora f. melitensis* grows here and is only known from a handful of other locations in Malta. A few other plant species, beetles and wasps are only known from this area.

The woodland

Stretching over part of the SPA and most of the l-Ahrax peninsula, a woodland consisting mostly of Acacia *Acacia* spp. and Aleppo Pine *Pinus halepensis* occurs on what were once larger stretches of rocky garrigue. If well managed, the woodland has the potential to attract nesting bird species such as turtle dove and finches.

The cliffs and boulder screes

Crumbling away to form a vast array of underlying boulders, caves and crevices, the cliffs provide various suitable burrows within which shearwaters can rear their young. The Maltese Salt-tree *Darniella melitensis* and African Tamarisk *Tamarix africana* grow here, withstanding the sea spray that batters the area, whilst Sea Daffodils *Pancratium maritimum* grow interspersed among sandy pockets.

The rocky garrigue

This rocky habitat stretches over most of the Natura 2000 site and despite its barren appearance, garrigue supports a variety of plants that make this a fascinating habitat. A population of Black Sedge *Schoenus nigricans* grows here and nowhere else in Malta. The Maltese Pyramidal Orchid *Anacamptis urvilleana*, which blooms between February and April, is another endemic plant which grows in this area.

Other birds and animals at Rdum tal-Madonna

Blue Rock Thrush

The Blue Rock Thrush *Monticola solitarius*, Malta's National Bird, is another species which nests in crevices along the Rdum tal-Madonna cliffs.

Snakes

The Cat Snake *Telescopus fallax* and Leopard Snake *Elaphe situla* often come out at night at Rdum tal-Madonna searching for small prey on which to feed. The Cat Snake is rare in Malta.

Short-toed Lark

The Short-toed Lark *Calandrella brachydactyla*, which is a Species of Conservation Concern in Europe, migrates to Malta to nest on rocky ground within proximity of the cliffs.

Cory's Shearwater

The Cory's Shearwater *Calonectris diomedea* also nests at Rdum tal-Madonna, although in smaller numbers than the Yelkouan. These shearwaters nest in burrows in the cliffs between May and October, slightly later in the year than the Yelkouan.

European Storm-Petrel

The European Storm-petrel *Hydrobates pelagicus melitensis* has been found by the Project to visit the cliffs at night during the breeding season. The Storm-petrel currently breeds only on the island of Filfla and in a single location in Gozo. It is hoped that future site management will allow the bird to extend its range to mainland Malta at Rdum tal-Madonna.

Burrowing Sand Cricket

The Burrowing Sand Cricket *Brachytrupes megacephalus* is found in at least three different locations within the Natura 2000 site. This cricket is considered as being an endangered species in Malta. During the day, it typically hides in the refuge of its burrow which it excavates deep in sand and soil.

At least six species of bats have been recorded at Rdum tal-Madonna, finding refuge in caves and crevices. The Maghreb Bat *Myotis punicus* is one such species which is in decline in Malta and is considered as "Near Threatened" at an international level.

Spectacled Warbler

The Spectacled Warbler *Sylvia conspicillata* builds its nests in low bushes along the cliffs and open garrigue. In Malta, this species has suffered a decrease in suitable nesting habitat in the last decades and Rdum tal-Madonna is thus an important stronghold for the warbler.

Section 3

The threats

Addressing the problems

“Action was needed quickly at Rdum tal-Madonna to protect Malta’s most important colony of this globally threatened bird”

Addressing the problems

The Yelkouan Shearwater has been steadily declining in the Mediterranean, resulting in its upgrading to 'Near Threatened' in the IUCN Red List in 2008 and listing under Annex I of the Birds Directive. Malta reflects this global population trend, with several colonies decreasing in numbers or becoming abandoned in the last 25 years. The colony at Rdum tal-Madonna, discovered in 1969 and monitored ever since by BirdLife Malta, was also found to be declining at an alarming rate. Fewer adults were nesting and rearing young at their colonies, suitable nesting sites were being disturbed or destroyed and fewer young were fledging. It was clear that action was needed quickly at Rdum tal-Madonna to protect Malta's most important colony of this globally threatened bird, by addressing the main threats:

Boats, yachts and ships

The beautiful coastline along the Rdum tal-Madonna cliffs attracts various boats and yachts, particularly boat parties on their way to Gozo and Comino. Loud noise and bright lights at night close to the cliffs were disturbing Yelkouan Shearwaters as they tried to return under the cover of darkness to their nesting sites.

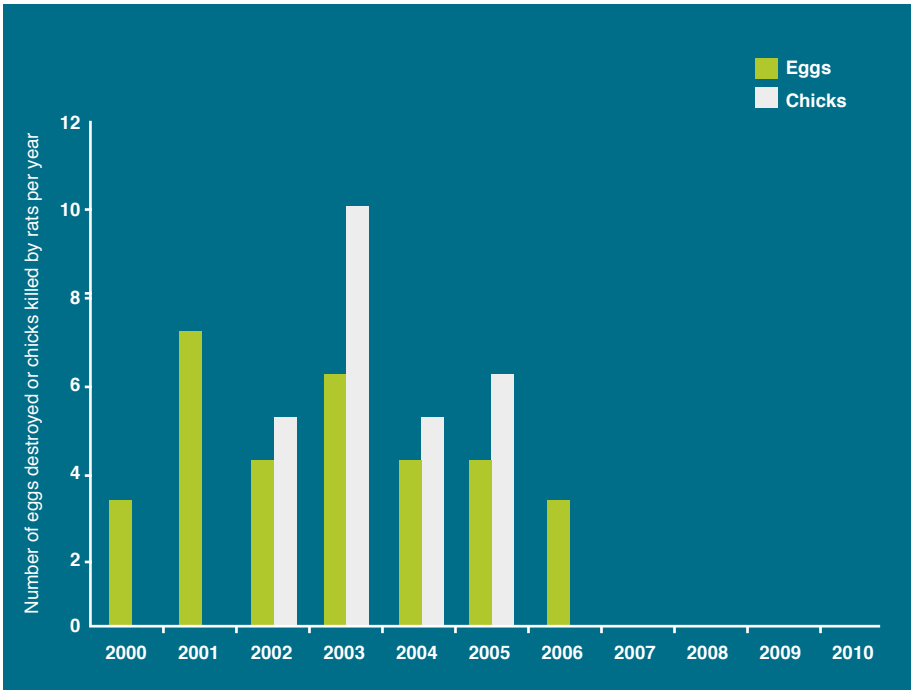
Transport Malta created a Notice to Mariners which prevents boats from stopping or using loud noises and lights in a buffer area opposite the cliffs during the breeding season. The Notice to Mariners has considerably reduced light and noise pollution for nesting birds and will continue to be enforced beyond the end of the project.

Rat Predation

Rats are one of the most feared predators of breeding seabirds, and have been one of the main contributors to the extinction of breeding seabird colonies around the world. The rat population, sustained by litter left on site, had reached a critical point. Rats were voraciously preying on Yelkouan eggs and chicks until the start of the project. Fewer chicks were surviving to fledging and Yelkouans could only nest in areas which were least accessible to rats.

A professional rat eradication programme was initiated in 2006, with rat bait stations strategically positioned near the colonies. This was one of the most significant achievements at the project site with no further records of chicks or eggs being eaten by rats from the first year (2007) of the rat eradication programme to the present day.

Number of eggs destroyed and chicks confirmed killed by rats at Rdum tal-Madonna



Camping and other recreational activities

The site is a popular area for campers, picnics and BBQs. As no regulation or control was in place, camping was widespread and was causing direct disturbance through light and noise pollution. Camping was also resulting in an ever-increasing accumulation of left-over food and litter, leading to a population explosion of rats.

A managed camping site has been proposed at l-Ahrax along with a code of conduct, in order to limit disturbance to Yelkouans and provide adequate facilities for visitors and we continue to urge the government to finalise this. The project has also developed a Management Plan for the site outlining the management work required to protect the important habitats, flora and fauna of this Natura 2000 site. The Management Plan should ensure that conservation work and recreational activities can continue at Rdum tal-Madonna in a sustainable manner.

Development

Other sources of light and noise originating from rampant urban development such as hotel complexes and expanding urban centres close to the colony site were also disturbing the Yelkouans. Young shearwaters are easily attracted to bright lights, causing them to become stranded inland. BirdLife Malta receives a number of young shearwaters from inland sites throughout Malta and Gozo every year. If they are not found and released from the coast, these birds invariably die.

The project produced a report on light pollution and its impact on seabirds, suggesting clear and simple cost-effective ways in which light pollution can be controlled and reduced along the coast. Meetings were held with various stakeholders in order to minimise coastal light pollution from existing and proposed developments in the vicinity of the colony.

By-catch

By-catch (the catch of non-target species) has been identified as one of the main sources of seabird mortality at a global level. In Malta, shearwaters are often seen following fishing boats in search of an easy meal. This can result in birds being accidentally caught on hooks, and ultimately drowning. There was insufficient information on how much this was affecting the Yelkouan Shearwater population.

The Capture Fisheries Branch within the Ministry for Resources and Rural Affairs (MRRA) has worked closely with local fishermen to ascertain whether accidental by-catch is a serious issue for Yelkouans. Data collected from local fishermen has shown that Yelkouan Shearwaters are not frequently caught by long-lines, although Cory's Shearwaters are more susceptible to being accidentally caught. These results have helped clarify what further mitigation measures need to be taken to prevent further birds from falling victim to accidental by-catch in the future.

Lack of awareness

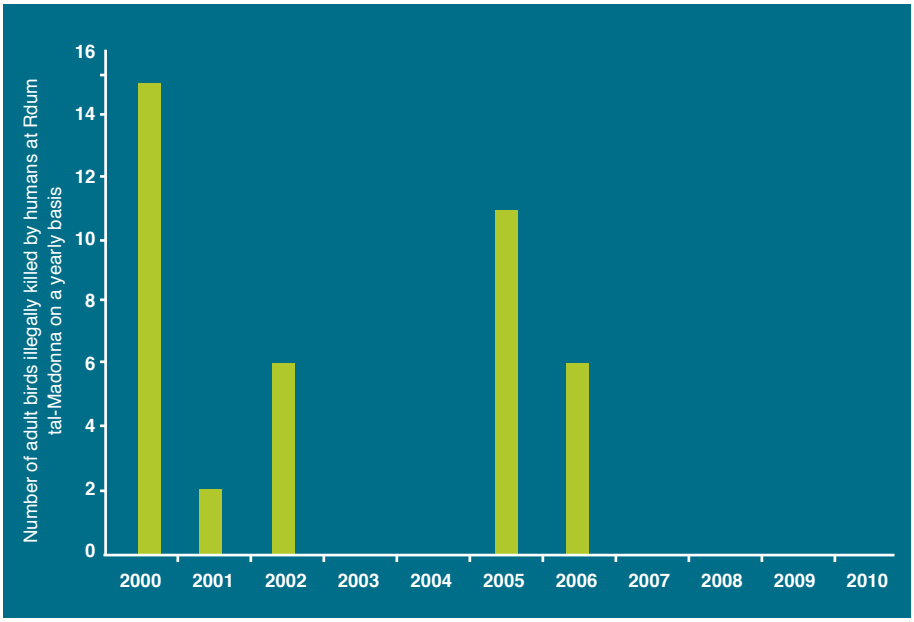
Few people knew about the importance of the project site prior to the start of the project, let alone that the site housed the largest colony of Yelkouan Shearwaters in Malta. The project has mounted an intensive information campaign which included press articles, videos, TV interviews, a website (www.lifeshearwaterproject.org.mt), posters, information boards and face to face meetings. Site users were given a newsletter to keep them up to date with events and changes on site and a site warden provided guided tours to visitors to the site.

The project has doubled the awareness about the Yelkouan Sheawater from 27% in 2007 to 50% in 2010.

Dumping

Dumping of materials over the Rdum tal-Madonna cliffs decreased the amount of suitable nesting areas by blocking off access to nest sites and polluting the area. Illegal dumping and littering has been controlled on the site by limiting access to vehicles near the cliff face and organizing various clean up activities with local volunteers.

Number of adult birds illegally killed by humans at Rdum tal-Madonna on a yearly basis

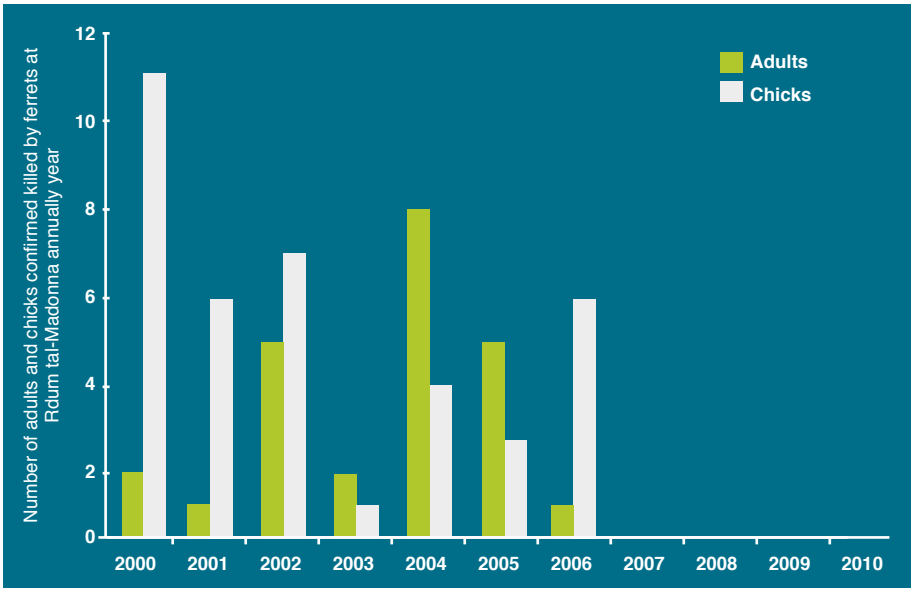


Illegal hunting

Illegal hunting is a serious and widespread problem in Malta, with poachers targeting protected species from land and at sea. Poachers in speedboats often target rafting groups of shearwaters for 'fun' and have even been recorded spotlighting the birds at night from the cliffs. Nesting birds are also taken during the breeding season and killed to be stuffed for private collections.

The Armed Forces of Malta have been undertaking regular patrols close to the colony and out at sea to deter the illegal hunting of shearwaters and other protected species. Since 2007, no Yelkouan Shearwaters were illegally hunted on land at the Rdum tal-Madonna colony. The presence of a Site Warden and the project research team has also reduced the number of nesting birds taken or killed by humans to zero since the project began. However hunting of protected species out at sea is still considered to be a serious problem.

Number of adult birds killed by ferrets at Rdum tal-Madonna on a yearly basis



Ferreting

Rabbit hunters sometimes used ferrets to catch wild rabbits from the Rdum tal-Madonna area. Unfortunately, the ferrets were also entering Yelkouan nests and killing both adults and young.

A Site Warden was employed to patrol the site and discourage illegal activities, and the project team increased nest site visits which helped to end illegal ferreting at Rdum tal-Madonna. This has resulted in a complete cessation of the illegal killing of nesting birds by rabbit hunters since 2007.

Section 4

The research

Tracking technology and monitoring

“Information was required on where nesting Yelkouans feed and raft, and where young and adult birds go after the end of the breeding season to their wintering quarters”

Tracking technology and monitoring

Although Yelkouan Shearwaters had been studied for several decades, very little was known about their behaviour at sea, where these birds spend the majority of their time. In order to protect them effectively, information was required on where nesting Yelkouans feed and raft (rest at sea before coming in to the colonies), and where young and adult birds go after the end of the breeding season to their wintering quarters.

To address these unknowns, we employed three main methodologies: boat and land based observations and modern tracking technology. The project also expanded on the monitoring work carried out in previous years.

Boat-based Observations

Using the ESAS (European Seabirds at Sea) methodology, two years of boat-based observations were carried out, mapping the distribution of Yelkouan Shearwaters as well as Cory's Shearwaters, Storm-petrels and other bird species, whales, dolphins and sea turtles. Transects were undertaken each month around the islands up to six nautical miles offshore.

Land-based observations

Observations took place from fixed watch points and data was also collected from BirdLife Malta volunteers on near-shore movement patterns of this species. These records were particularly important to allow a better understanding of rafting behaviour.

Telemetry

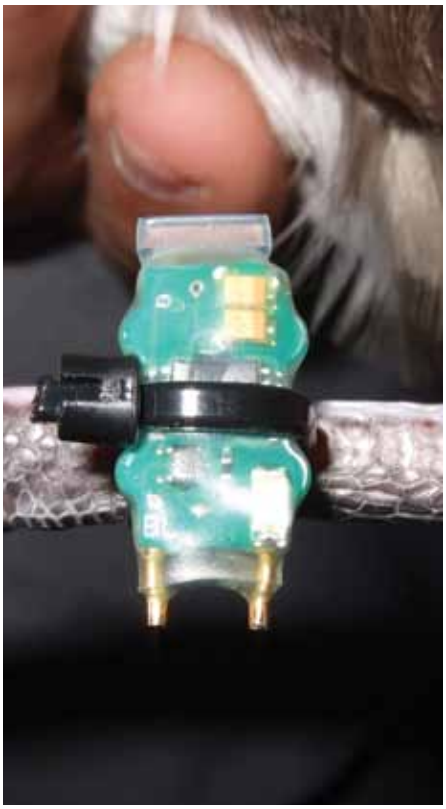
Several different tracking devices were trialled on Yelkouans during the breeding season and migration periods, namely:

1. Data loggers

For the first time in the world, adult Yelkouan Shearwaters were tracked using data loggers to ascertain important feeding grounds and rafting sites. Over the course of the project, we attached 45 of these devices.

2. Satellite tags

These high-tech devices were attached to juvenile birds leaving the nest for the very first time, to see what routes they took on their first migration. We attached satellite tags to a total of 10 birds throughout the project.



3. Geolocators

Another first, these tiny 2.5g tags were attached to the legs of adults at the end of the breeding season, and recovered the following year. They identified the birds' migration patterns away from Malta after the breeding season. 27 of these devices were deployed during the project.

Monitoring

Aided with more equipment and staff, new sites along the Rdum tal-Madonna cliffs could be accessed and studied enabling the project research team to monitor the population size and extent of the breeding colony, the success rate of nesting attempts by Yelkouan Shearwaters and whether enough chicks were surviving to fledging at the end of each breeding season. Monitoring work also expanded the ringing programme initiated years earlier, allowing researchers to trace the return of fledged birds to the same colony, along with carrying out scientific measurements such as beak size, wing length and weight.

Section 5

The results

Unravelling the life of the Yelkouan Shearwater

“The project has succeeded in collecting sufficient data to identify some of the Marine Important Bird Areas for the Yelkouan Shearwaters breeding at Rdum tal-Madonna. Once defined, these would be used to designate Malta’s first Marine Special Protection Areas”

The results from our research work have helped us discover a number of unknown facts about the lives of the Yelkouan Shearwaters at Rdum tal-Madonna:

Where were the Yelkouan Shearwaters going to feed during the day?

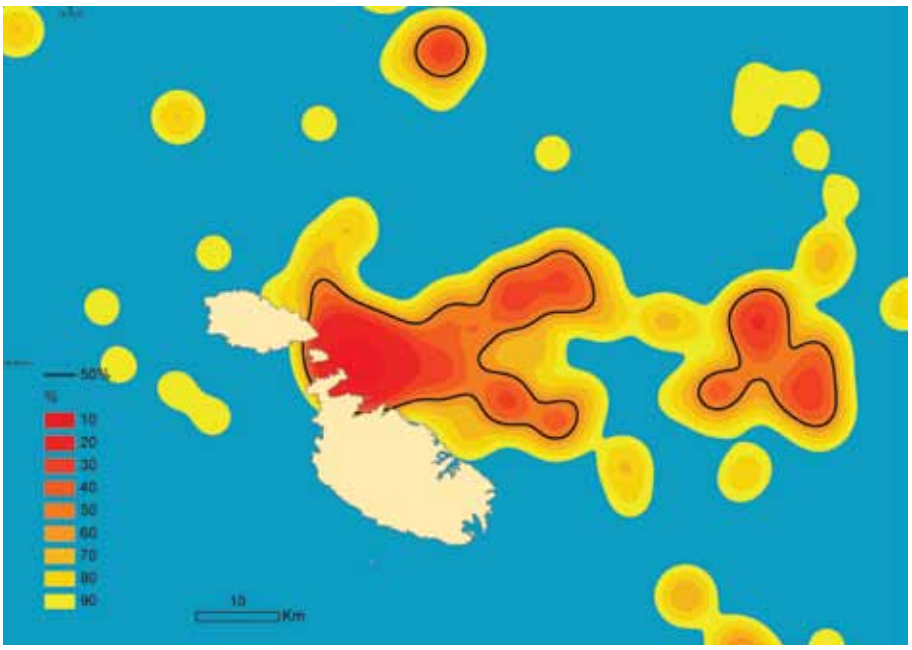
From our tracking work with data loggers, we were able to pinpoint key feeding areas for the Yelkouan Shearwaters breeding at the Rdum tal-Madonna colony. We found that birds were feeding over a wide area, with some key hot spots, including an area of sea extending up to 285km offshore to the south-east, several areas closer to shore and feeding grounds northwards to the coast of Sicily.

Where did breeding birds gather to raft at night before returning to their colonies?

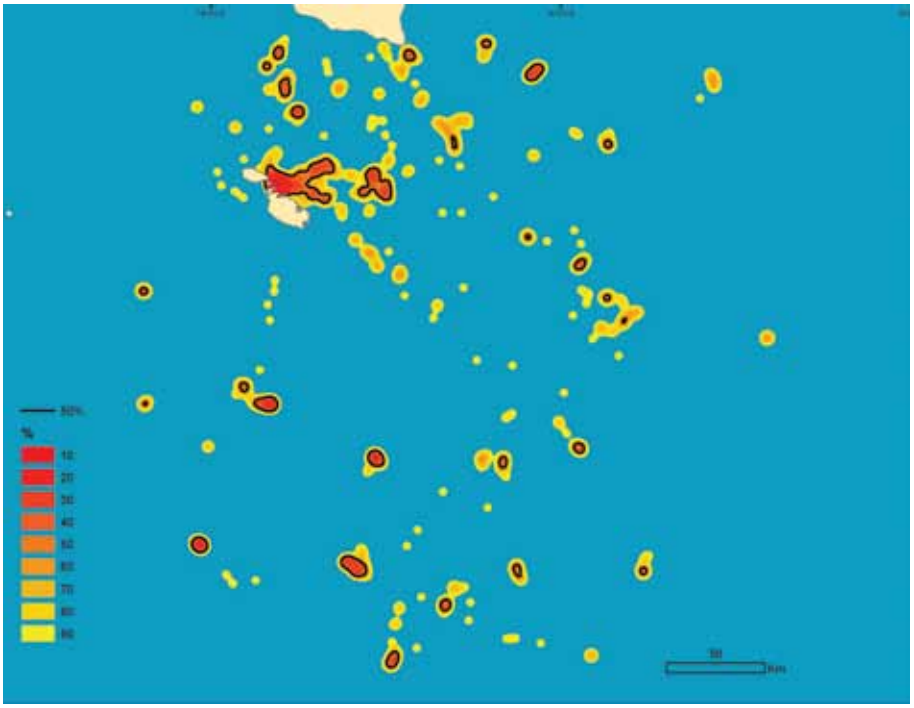
Tracks from adults with data loggers showed that an area within 7km of the cliffs of Rdum tal-Madonna was critically important for rafting birds. Adults would often spend several hours rafting in this area before returning to their nest sites. There are important conservation implications for this discovery.

Distribution of Yelkouan Shearwaters off Maltese Islands during periods Feb to May 2008 & 2009 as recorded from boat based observations

Distribution of Yelkouan Shearwaters feeding or rafting in near shore waters as recorded from 31 GPS Data loggers



Distribution of all Yelkouan Shearwater feeding or rafting sites as recorded from 31 GPS Data loggers



Where did the adults go outside of the breeding season, between July and October?

Ground breaking data from the retrieval of the geolocators confirmed for the first time that adult birds spend a portion of their time away from Malta in the Black Sea, Aegean Sea and Adriatic, as well as frequenting the coast of northern Africa. This data highlights the importance of international conservation initiatives for these seabirds, rather than country-specific action.

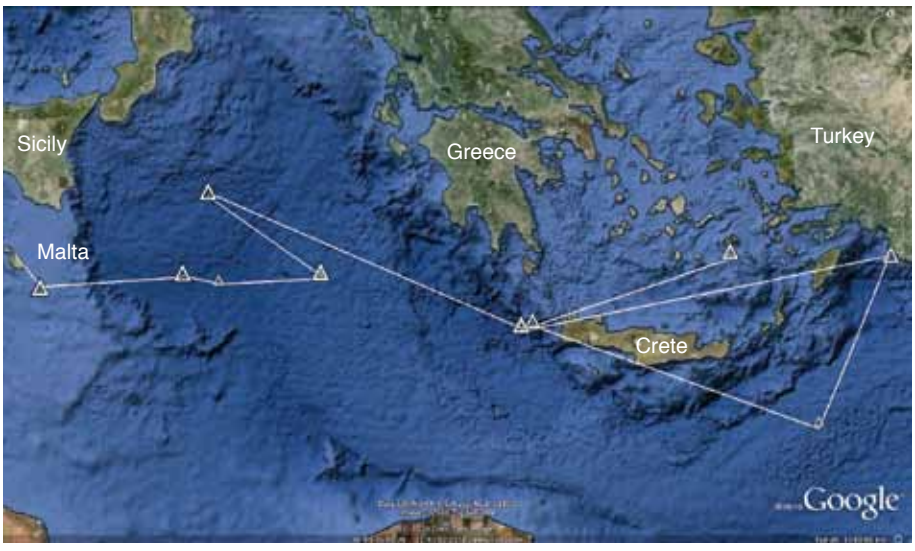
Geolocator tracking data of an adult Yelkouan Shearwater during migration

Where did juvenile birds go on their first voyages away from their nests at Rdum tal-Madonna?

Soon after fledging, young shearwaters left Maltese waters, heading eastwards into the Mediterranean. A small number then carried out a circuit of the eastern Mediterranean, travelling south of Cyprus and within the eastern Mediterranean basin. The majority of birds however headed to the Aegean, where they spent up to several months feeding in the rich seas off the coasts of Greece and Turkey.

The project also started preliminary research work on Malta's second breeding shearwater – the Cory's Shearwater. A female breeding at the colony near Ghar Lapsi was fitted with a data logger and tracked over the course of a five day feeding trip. Three young birds were satellite tagged on their first journey away from the nest. One of these birds was tracked on a momentous journey, leaving the Mediterranean and heading down the coast of West Africa as far as Senegal, a remarkable distance of over 4,500km.

A satellite track of a juvenile Yelkouan Shearwater that left the Rdum tal-Madonna colony in June 2009



Marine Special Protection Areas

Understanding where Yelkouan Shearwaters spend the majority of their time feeding and rafting is critical as a platform for the creation of Marine Special Protection Areas, which each Member State is required to designate as part of its obligations within the European Union. Like Special Protection Areas on land which protect the key nesting sites of shearwaters, Marine Special Protection Areas ensure that important areas of the marine environment, used for feeding or rafting, are protected and managed. The methods for tracking seabirds at sea trialled by the Project have created a template for future Marine Special Protection Area research in Malta.In addition, the project has succeeded in collecting data to identify some of the Marine Important Bird Areas for the Yelkoan Shearwaters breeding at Rdum tal-Madonna. Once defined, these would be used to designate Malta's first Marine Special Protection Areas, an important first step in fulfilling Malta's EU obligations. However more work remains both for Yelkouan Shearwaters and other internationally important seabird species in Malta. A final report on Marine SPAs will be released by the Project team in the coming months.

Section 6

The achievements

Securing a safer future

> The project has carried out ground-breaking scientific research on the Yelkouan Shearwaters of Malta, using several tracking devices for the first time worldwide on this seabird

Securing a safer future for the Yelkouan Shearwater in Malta

The project has succeeded in reducing a number of threats that were causing the decline in Yelkouan Shearwaters in recent years, making Rdum tal-Madonna a safer breeding colony. As a result of this, more Yelkouans are fledging from the colony. This work will however only be sustained with the financial and political support of the government at the end of the project, especially for continued rat eradication and prevention of damaging human activities.

Putting Malta at the forefront of seabird conservation

The project has carried out ground-breaking scientific research on the Yelkouan Shearwaters of Malta, using several tracking devices for the first time worldwide on this seabird. This work has established Malta's position at the forefront of seabird research. Further research is needed to safeguard the internationally important populations of Yelkouan Shearwaters, but also to protect populations of Cory's Shearwater and European Storm-petrel.

Laying the foundations for the creation of Malta's first Marine Special Protection Areas

Malta currently has ten coastal Special Protection Areas safeguarding seabird colonies in Malta. The next step, as part of Malta's obligations within the European Union, is to create Marine Special Protection Areas to ensure that the marine areas that these birds rely on are also protected. The project has collected sufficient data to designate Malta's first Marine Special Protection Areas, but considerably more work requires funding from the government to research and identify important areas at sea for other colonies and species. The project has outlined this work in a report describing mechanisms for identifying Marine Special Protection Areas in Malta (see page 30 for list of publications).

Highlighting the need for international efforts aimed at seabird conservation

Having tracked the remarkable migratory journeys of Yelkouan Shearwaters, it is clear that the conservation of seabirds goes beyond national boundaries. Cooperation with other Mediterranean countries such as Greece and Turkey is critical if we are to protect important areas at sea for Yelkouan Shearwaters during migration. Future international research efforts need to be expanded to ensure that threatened birds such as the Yelkouan Shearwater enjoy protection throughout their lifecycle.

Setting out the way forward for achieving a Favourable Conservation Status of a Natura 2000 site

Focusing on the largest stronghold of Yelkouan Shearwaters at the Rdum tal-Madonna SPA, the project has shown how such nesting sites can be monitored and protected for the benefit of Yelkouan Shearwaters and has designed a management plan for the future protection of the site. Although this has improved the future prospects of Yelkouan Shearwaters at Rdum tal-Madonna (provided the recommendations are followed), this is not the only important bird colony in Malta. Drawing on this project as a best practice model, similar efforts need therefore be undertaken for the Maltese Islands' other SPA bird colonies which face similar threats: rat predation, disturbance, persecution, light and noise pollution.

Encouraging good fishing practice

Throughout the course of the project it has become evident that some artisanal Maltese long line fishermen make use of a number of mitigation methods which help to avoid catching shearwaters as by-catch. Techniques such as setting lines at night, setting from the side of boats, use of extra sinking weights and careful disposal of offal during fishing can be promoted across Europe for other countries to adopt and safeguard their seabird populations.

A landmark seabird conservation project… but with still more to be done

With the completion of this LIFE-Nature project, Malta has initiated conservation work for one of its protected seabirds afforded priority under the EU Birds Directive. However, other seabird species as well as a host of other flora and fauna in protected areas urgently need attention. The LIFE instrument within the EU provides further opportunities for similar projects to be carried out at other sites or on other species, helping Malta fulfill its obligations with respect to the European Commission's Birds and Habitats Directives.

A partnership of conservation and governmental organisations

The project has been a fine example of a successful and professional partnership between three conservation organisations and four government partners. International experts have coupled their experience from abroad with local skills to promote the conservation of the Yelkouan Shearwater. The enthusiasm and commitment of our partners has driven the successes of the project in the fields of maritime activity, fisheries, enforcement and research, building up the necessary expertise for further future opportunities.

Section 7

The future

The continuation plan

How will the work of the project be continued?

A continuation plan (also known as the After-LIFE plan) has been developed to ensure that the Yelkouan Shearwaters of Rdum tal-Madonna continue to be protected beyond the end of the project in June 2010. To build on the successes of the project, it is essential that:

– The Management Plan is approved so that the Rdum tal-Madonna site can continue to be a stronghold for Yelkouan Shearwaters in Malta, as well as providing a refuge for other imporant flora and fauna. Through continued research work, future conservation actions required for other species will be identified and implemented. The setting up and enforcement of management zones by the Malta Environment and Planning Authority will ensure that the area continues to be enjoyed by everyone in a sustainable and controlled manner.

– The rat eradication programme continues in order to ensure that the Yelkouans successfully fledge future generations without the threat of rat predation.

– The project site is maintained clean and free of litter so as not to attract rats to the area.

– Transport Malta continues to enforce Notice to Mariners 2 of 2010 to ensure that disturbance to Yelkouans from boats is reduced opposite the cliffs of Rdum tal-Madonna during the breeding season.

- The Armed Forces of Malta continue to patrol the Rdum tal-Madonna area and the seas around the Maltese Islands in order to prevent illegal hunting of Yelkouan Shearwaters and other protected species at sea.

– Camping, picnics and other recreational activities are continued in a sustainable manner such that these are controlled and located away from the colony site, minimizing disturbance to Yelkouans.

– BirdLife Malta continues to monitor the Yelkouan Shearwater colony at Rdum tal-Madonna on an annual basis in order to assess the well-being of the colony and ensure that any threats to the colony are identified and immediately dealt with.

– The Malta Environment and Planning Authority declares as Marine Special Protection Areas those areas at sea that the project data has identified as being critical for the Yelkouan Shearwaters. This will ensure that these important areas are adequately studied and managed so that they continue to provide the ideal conditions for Yelkouan Shearwaters.

– The Capture Fisheries Branch within the MRRA continues to work hand in hand with fishermen to find innovative ways of improving local fisheries and avoiding the catch of non-target species such as shearwaters.

– All project partners continue to act together for the conservation of Yelkouan Shearwaters at Rdum tal-Madonna as part of the After-LIFE plan. The strong partnership achieved between government and non-government organizations as a result of this project will continue to offer an example of how successful conservation projects for other Natura 2000 sites in Malta can be conducted.

Further reading

As part of the various project actions within the EU LIFE Yelkouan Shearwater Project, the project team has published a number of reports which can be downloaded from the project's website **www.lifeshearwaterproject.org.mt/en/publications** for further reading:

Report on the identification of Maltese fishing grounds

Report on Studies to Investigate Seabird By-catch by Maltese Fishers

Light pollution and its effect on Yelkouan Shearwaters; causes and solutions

Marine Special Protection Areas: A report outlining national mechanisms being used to develop the Marine IBA/SPA programme across Europe with recommendations for Malta

Management Plan for the Ramla tat-Torri/Rdum tal-Madonna SPA/cSAC

The After-LIFE conservation plan

Full Plan for conducting Marine IBA identification

Report on marine habitat use of adult and juvenile *Puffinus yelkouan* originating from the SPA project site

Protecting Malta's wind chaser
The EU LIFE Yelkouan Shearwater Project Report

Project reference: LIFE06/NAT/MT/000097 "SPA site and sea actions saving *Puffinus yelkouan* in Malta"
Beneficiary: BirdLife Malta
Project duration: September 2006 – June 2010
Project location: Rdum tal-Madonna (L'Ahrax tal-Mellieha) SPA & cSAC, Malta

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Raine, A.F., Sultana J. & Gillings S. (2009). *Malta Breeding Bird Atlas 2008*. Malta: BirdLife Malta.
BirdLife International (2010) Species Factsheet: *Puffinus yelkouan.*
Downloaded from www.birdlife.org on 30/05/2010

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Malta hosts as much as 10% of the global population of the Yelkouan Shearwater, a third of which nest at the cliffs of Rdum tal-Madonna at l-Ahrax, Mellieha. The EU LIFE Yelkouan Shearwater Project has striven to reverse the decline in the population of Yelkouan Shearwaters, increase awareness about these seabirds, secure Rdum tal-Madonna as their safe haven and discover key areas for them in the seas around us.

To secure the future of this threatened seabird, continued conservation work must ensure the protection and management of its nesting grounds, rafting zones, feeding waters and migratory rest spots.

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