

Management Plan for the Conservation of the Kleides Seabird Islands



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Suggested citation:

Snape, R. T. E & Beton, D. 2017. Management Plan for the Conservation of Kleides Seabird Islands. KUŞKOR report. pp.16.

Cover Image: TRNC Ministry for Tourism and Environment

Acknowledgements: Rodent surveys and intensified monitoring efforts undertaken by KUŞKOR in 2017 were with the aid of a grant from the Anglo Turkish Association of Northern Cyprus (ATA). The authors thank the ATA and their members for their support and their appreciation of Cypriot natural heritage. The work of Peter Flint and Bannerman and Bannerman in documenting early records of seabird nesting on the Kleides Islands, the initiative of Iris Charalambidou and Salih Gücel in undertaking a complete survey in 2007 and the collaborative efforts of Martin Hellicar and Martin Marancos in establishing an annual census, must all be congratulated. KUŞKOR thank ecologist and invasive species management expert Prof Tony Martin for advising on rat eradication methods toward this management plan. For permission to carry out surveys we thank the TRNC Ministry for Tourism and Environment and for acting to reduce disturbance to seabirds by rod fishermen we thank the TRNC Ministry for Agriculture and Natural Resources in particular Ercan Sinay of the latter office.

KUZEY KIBRIS TÜRK - İNGİLİZ DERNEĞİ
THE ANGLO TURKISH ASSOCIATION OF NORTHERN CYPRUS

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Executive Summary

The Mediterranean is one of 25 regions of the world declared as a global biodiversity hotspot¹. Cyprus, as an island of high biodiversity and high endemism, is an important target for international conservation efforts. This report and plan summarises the information available from studies undertaken to date on the seabirds and biodiversity of the Kleides Island chain off the Karpaz Peninsular of Cyprus. It considers this information and advises conservation actions that will mitigate biodiversity loss and that could be used to direct further conservation actions at and around these islands. It is known through several published studies that the Kleides Islands host breeding seabirds. Among these are the threatened Audouin's Gull and Mediterranean Shag. Both are under protective legislation that requires member states of the European Community and the European Union to act to identify important habitats and to prioritise and address threats to these species. Audouin's Gulls at the Kleides Islands, the world's most easterly colony, are in decline and the current population has dropped to fewer than ten pairs. There is a real threat that Audouin's Gull could become extinct as a breeding bird of Cyprus, resulting in a significant contraction in its global range. Recent success in identifying the site as a conservation area under international schemes such as Important Bird Areas and Natura 2000, and in implementing a ban on landings at the islands to reduce disturbance, are positive steps. However, The Society for Protection of Birds and Nature (KUŞKOR) in 2017 surveyed the islands for rodents and found rats to be present on a key island, which ten years ago hosted larger numbers of successfully nesting Audouin's Gulls. No complete survey has yet been undertaken to estimate the Mediterranean Shag population on the islands. Nothing is known of the marine habitat utilisation of any of the seabird species nesting on Kleides Islands and continued human landings will pose a threat to biodiversity, not just through disturbance of nesting from December through August, but through transmission of non-native plant and animal species. This management plan provides a tool with which to manage the islands and their seabird colonies for the future. The management plan is aligned to and addresses the aims and objectives of the international Species Action Plans for both Audouin's Gull² and Mediterranean Shag³.

¹ Myers, N, Mittermeier, R. A., Mittermeier, C. G., da Fonseca, G. A. B & Kent, J. 2000. Biodiversity hotspots for conservation priorities. *Nature*. **403**. pp853-858.

² Lambertini, M. 1996. International action plan for Audouin's Gull (*Larus audouinii*). European Commission. Brussels. pp.1-26.

³ Aguilar, J. S & Fernández, G. 1999. Species Action Plan for the Mediterranean Shag *Phalacrocorax aristotelis desmarestii* in Europe. European Commission. Brussels. pp.1-23.

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Background

Three seabird species breed on Cyprus and all regular nesting is restricted to the largest offshore island chain, the Kleides Islands, which lie off the Karpaz Peninsula. Here, Audouin's Gull *Larus audouinii*, Yellow-legged Gull *Larus michahellis* and Mediterranean Shag *Phalacrocorax aristotelis desmarestii*, are known to have nested since at least the early 1960s⁴. The first thorough breeding seabird census occurred in 2007⁵ and subsequently, an annual census comprising of at least one count of breeding gulls during incubation and chick rearing and of fledged shags during post-breeding, has been undertaken from a boat in May. This baseline monitoring continues as a collaboration between the Greek Cypriot and Turkish Cypriot conservation societies, Birdlife Cyprus and KUŞKOR respectively⁶. During these surveys three islands are known to support or have supported seabirds, these are Zinaritou, Kasteletta and Kleide Rock (Fig. 1). The islands are of important conservation value for their seabird populations and likely home important biodiversity due to the relatively low human impact incurred to date and lack of grazing. However, human threats are growing, threatened seabird numbers are declining and strategic action is required to minimise biodiversity loss at this important site.

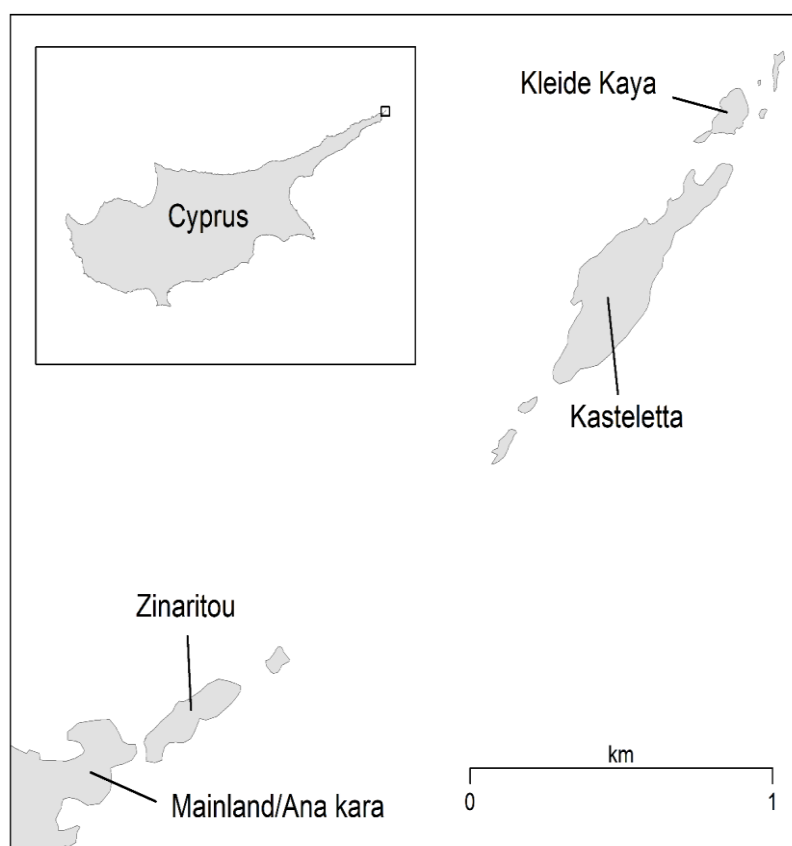


Figure 1. The Kleides Island chain off the Karpaz Peninsula, Cyprus.

4 Flint, P. R & Stewart, P. F. 1990. The Birds of Cyprus. 2nd ed. British Ornithologist's Union, Tring, UK.

5 Charalambidou, I & Gücel, S. 2008. First survey of Audouin's Gull, *Larus audouinii* (Payraudeau, 1826), colonies at Kleidhes Islands, Cyprus. *Zoology in the Middle East*. 45. 29-34

6 Hellicar, M. 2016. Rare and localised Audouin's Gull *Larus audouinii* declining in Cyprus; results from systematic monitoring 2007-2015 and data for Yellow-legged Gulls *Larus Michahellis* and Mediterranean Shags *Gulosus aristotelis desmarestii*. *Sandgrouse*. 38. 1. 110-117.

Rationale of the Action Plan

The global Audouin's Gull population is estimated at around 21,000 pairs⁷. All breeding occurs in Mediterranean countries, with over 19,000 pairs nesting in Spain and 1000 pairs in Italy. The rest of the population is made up of small scattered colonies. Until 2015, Audouin's Gull was considered by Birdlife International a species of global conservation concern, but this assessment was revised in 2015, due to increasing nesting numbers in Western Mediterranean stronghold colonies. However, colonies have been lost across the Mediterranean and declines in Eastern Mediterranean colonies continue. The species is listed on Annex I of the European Union (EU) Birds Directive. Audouin's Gull therefore carries a Species Action Plan endorsed by the Standing Committee of the Bern Convention to which European Community members are party. It is listed in Appendix I of the Bonn Convention (Convention on Conservation of Migratory Species) as a species in danger of extinction throughout all or major parts of its range. This is particularly relevant for the Cyprus colony, as the world's easternmost colony, as its extinction from Cyprus would constitute a significant range reduction.

The Mediterranean Shag, a sub-species of the European Shag, is also listed on Annex I of the EU Birds Directive and carries a Species Action Plan of the Bern Convention and therefore requires conservation action to be undertaken by EC and EU member states. It has a population of less than 10,000 pairs.



Figure 2. Audouin's Gull and Mediterranean Shag are both protected by international directives and conventions.

The EU Birds Directive requires that these Annex I listed species "shall be subject to special conservation measures concerning their habitat to ensure their survival and reproduction" and that "Member States shall classify the most suitable territories in number and size as special protection areas for the conservation of these species"⁸. Parties to the Bern convention undertake to "provide immediate protection to species listed in Appendix I, and Range States of the Bonn Convention should conserve and where feasible and appropriate, restore those habitats of the species that are important in removing it from danger". These latter directives are applicable to EC (European Community) member states as well as EU member states. There is therefore a clear requirement for an action plan to monitor and to address the conservation of these species at the Kleides Islands.

⁷ <http://datazone.birdlife.org/species/factsheet/audouins-gull-larus-audouinii/text> (accessed 2 Oct 2017).

⁸ Birdlife International. 2004. Birds in Europe: population estimates, trends and conservation status. Birdlife International. Cambridge, UK.

Status of the Kleides Seabird Colonies

In 2007 a thorough survey by Charalambidou and Gücel estimated that 49 pairs of Audouin's Gull bred on the islands. The annual census established by KUŞKOR and Birdlife Cyprus in the same year, estimated 18-19 pairs. Our annual census in late May uses observations from onboard a boat to eliminate any human disturbance during nesting. Although the census probably underestimates the true number of breeding pairs, it provides a useful yardstick to track population trends and has demonstrated that the Audouin's Gull colony is in decline. In 2017, KUŞKOR undertook more intensive boat based counts and counted a maximum of 10 nests on May 5th. The Kleides colony has moved location from year to year. From 2007 to 2009 Zinaritou was used but the birds moved out to Kleidi Rock in 2010 and subsequently have used both Kleidi Rock and Kasteletta, with some nesting on Zinaritou during 2012 and 2014 (Fig.1). Audouin's Gull have also incidentally used a small island off Aphendrika north of Dipkarpaz, where 3 and 1 nests were found in 2012 and 2013 respectively.

To date, no complete census of the Kleides Island Mediterranean Shag has been undertaken during the breeding season, which is in December through March, but our census suggests that nest numbers are stable with 20-80 juveniles counted annually during our May census. During January and February 2017, KUŞKOR were permitted to land on the islands to undertake surveys for rodents. During this period, shags were observed to be nesting in tunnels that are maintained by the shags under dense vegetation, where they likely find shelter from predators such as Peregrine Falcon (of which at least one pair is resident on the islands), migratory birds of prey and the sympatric Yellow-legged Gulls (Fig.3).



Figure 3. On Kasteletta Island Mediterranean Shags build their nests in tunnels beneath dense vegetation, January 2017.

In addition to these two species, Yellow-legged Gulls also nest on the islands with a colony of 100 to 150 (approximately 30 to 50 pairs) adults nesting almost entirely on Kasteletta. This species does not require any special conservation measures and is known to prey on the eggs and chicks of other seabirds. Where Yellow-legged and Audouin's Gulls co-exist in proximal/sympatric breeding colonies, as on Kleides Islands, Yellow-legged Gulls negatively impact on the breeding success of Audouin's Gulls and may contribute to their declining numbers through predation of eggs and young and kleptoparasitism (stealing food). In such cases culling of Yellow-legged Gulls has been considered. However, on Kleides islands Yellow-Legged Gulls are also thought to be in decline.

Observed Threats to the Kleides Island Seabird Colonies and Biodiversity

Direct human disturbance

Disturbance by humans landing on the islands has been cited as one of the greatest threats to the breeding of these seabirds and one which is likely to have led to the decline of Audouin's and Yellow-legged Gull. When the gulls are disturbed they flush from their nests leaving eggs and young exposed to predation. During a census in 2016 when the islands were monitored by boat, rod fishers were seen fishing from rocks near to nesting birds (Fig. 4). On one occasion, two fishers crossed from the landing site on the north of Kasteletta, to fish on its southern side and back again, via the centre of the Yellow-legged Gull colony. The human population of Cyprus is growing, people increasingly have spare time and greater expendable income and amateur fishing using rods, fiberglass vessels and spear guns is gaining interest. Fiberglass vessels are trailered to launch sites on Zafer Burnu for fishing on and around the remote islands. An organised "survivor" camp held on the island in spring 2013, was reported through social media. People were photographed handling the chicks and eggs of gulls during the weekend long event. Recent legislation forbids landings and the new laws seem to be being upheld; no people were seen using the islands during intensified surveys by KUŞKOR in winter and spring 2017. The public are probably more aware of the threat to seabirds, due to awareness raising, signage erected by KUŞKOR around the peninsular and the efforts of Dipkarpaz police.



Figure 4. Two groups of rod fishers illegally landed on Kasteletta during a 2016 survey disturbing the nesting seabirds.

Fisheries

Small-scale commercial Turkish Cypriot fishermen use bottom set nets and demersal longlines off the islands throughout the year and intensively during the Audouin's Gull nesting season (Snape PhD thesis chapters in prep) and industrial purse seiner ships from Turkey operate and keep their catch off the islands during the Audouin's Gull breeding season. Local small-scale fishers and the seabirds may compete for fish and overfishing by small-scale fishermen around the island likely impacts the Shags in particular, as they are capable of diving to feed on the benthic fish targeted by these fisheries. However, discards of non-commercial and damaged catch by local fishers is specifically exploited by Audouin's Gulls throughout the year, across the north coast (Snape personal observations), thus the availability of discards through local fisheries may be of benefit to

this colony as it has been to others of this species⁹. Anthropological surveys and onboard observations found seabird bycatch in North Cyprus to be rare¹⁰, although on one occasion a flock of Scopoli's Shearwaters *Calonectris diomedea* were observed removing cuttlefish bait from a demersal longline that was being set by day (Robin Snape personal observation). Daytime setting of demersal longlines could pose a serious threat to any of the seabirds found off Cyprus.

Rodents and other non-native invasive species

The black rat *Rattus rattus* and other rodent species have led to declines in the world's seabird populations¹¹ and their human introduction to seabird islands can have profound impacts on these important ecosystems, affecting plant and invertebrate diversity¹². In 2017 KUŞKOR landed on the islands during January and February to survey the islands for rodents. In January, we deployed bait boxes loaded with rodenticide and hammered wooden stakes pre-impregnated with vegetable oil into the soil, or in the case of Kleide Rock into rock crevasses (Fig. 5). In February, we made a second landing to inspect and collect the boxes and stakes.



Figure 5. Distribution of baited rat boxes and chew sticks (red) and additional chew sticks (white) deployed by KUŞKOR in January 2017 to test for the presence of rodents.

There was no evidence of any rodent activity on Kleide Rock, where bait had not been removed or gnawed and chew sticks were not gnawed. On Kasteletta, bait had been consumed (Fig. 6) and faecal remains left in bait boxes were attributed to mice (Fig. 7). There was no sign of any

9 Bécarea J., García-Tarrasón M., Villero D., Bateman S., Jover L., García-Matarranz V, et al. 2015. Modelling Terrestrial and Marine Foraging Habitats in Breeding Audouin's Gulls *Larus audouinii*: Timing Matters. PLoS ONE 10: e0120799.

10 Snape R., Beton D., Broderick A., Çiçek B., Fuller W., Özden Ö & Godley, B.J. 2013. Strand Monitoring and Anthropological Surveys Provide Insight into Marine Turtle Bycatch in Small Scale Fisheries of the Eastern Mediterranean. *Chelonian Conservation and Biology*. 12. 1–15.

11 Jones, H. P., Tershy, B. R., Zavaleta, E. S., Croll, D. A., Keitt, B. S., Finkelstein, M. E & Howald, G. R. 2008. Severity of the effects of invasive rats on seabirds: A global Review. *Conservation Biology*. 22. 16-26.

12 Jones, H. P. 2010. Seabird islands take mere decades to recover following rat eradication. *Ecological Applications*. 20. 2075-2080.

gnawing to chew sticks. However, at Zinaritou, bait had been completely consumed from both bait boxes and both boxes had been gnawed heavily, to the extent that they were no longer functional (Fig. 6). Large gnaw marks and relatively large faecal remains in bait boxes were attributed to rats (Fig. 7). Chew sticks were heavily gnawed (Fig. 6). These results lead us to conclude that Kasteletta hosts a population of mice and that Zinaritou hosts a population of rats. The presence of mice on Kasteletta rules out the presence of rats, and rats on Zinaritou rules out the presence of mice, since on such small islands rats and mice do not co-exist.



Figure 6. (Clockwise) Consumed bait and droppings in bait box places on Kasteletta. Heavy gnawing to a bait box and to two chew sticks placed on Zinaritou.



Figure 7. Droppings found in bait boxes on Kasteletta (left) were attributed to mice whilst larger droppings found on Zinaritou (right) were attributed to rats. Droppings on Zinaritou were few and may also have been gnawed or eaten by rats.

Charalimbidou and Gücel in 2007 gave an account of vegetation cover and composition on Zinaritou and Kasteletta, but made no reference to the potential for rodents to be present. Although we made no vegetation surveys during our 2017 landings, we found the vegetation structure between Zinaritou and Kasteletta to be quite different, with patches of extremely low vegetation cover on Zinaritou, where soil had recently been disturbed and this was attributed to the burrowing efforts of rats. Rat trails among the existing vegetation were also noted. It may be, therefore, that Zinaritou was colonised by rats relatively recently resulting in changes to the vegetation composition. Given the extent of gnawing to bait boxes and chew sticks, the rats on Zinaritou seem highly voracious and are clearly of great threat to any nesting seabirds. A rat colonisation event during the last decade may have resulted in the abandonment of Zinaritou by Audouin's Gull. This is also supported by the high nesting numbers and high breeding success rates reported by Charalambidou and Gücel; not likely on the island in its current rat-infested condition. Alternative nest sites used in recent years are very near to the large Yellow-legged Gull colony on Kasteletta. Audouin's Gull breeding success may therefore have subsequently been impacted by increased proximity to Yellow-legged Gulls and poorer nesting habitat suitability contributing to an observed decline.

There are no reports of any invasive plant species at the islands. However, the risk of transmission of invasive plants to the island (by seeds or other tissues accidentally carried by boots, clothing or with equipment) by humans is great and should be mitigated in the future.

Conservation Action to Date

Potential Natura 2000 SPA designation

Areas of the Karpaz peninsular including the Kleides Islands have been delineated for designation as a Natura 2000 Specially Protected Area (SPA) if North Cyprus comes under EU community acquis. The management plans drawn up for the Karpaz peninsula state that restricting access to the seabird islands should be of priority. In the management plans Fuller et al¹³ suggest:

“Zone 1c: For Strict Protection Zone 1c, the target here is the nesting colonies of Audouin's Gulls and Shags, and for this purpose Zone1c covers Kleidhes Islands including a 200m exclusion zone surrounding the islands. The management strategy in this zone is the prevention of any disturbance to the nesting birds and their nests, through allowing access to the Kleidhes Islands only under special permission during the nesting seasons, providing information to the different stakeholder groups, and placing information boards for awareness raising. Indicators of success is the improved nesting success and increased population size, thus regular controls and monitoring are required in order to gather the appropriate information.”

13 W. J. Fuller, J. Seffer, B. A. Cicek, O. Ozden, G. Eroglu, C. Kara, V. Sefferova, O. Dogan. 2009. Management Plan for Karpaz SEPA. Project Europe Aid/125695/C/SER/CY/7, Technical assistance for management and protection of potential Natura 2000 sites in the northern part of Cyprus. Nicosia. pp 77.

Marine IBA designation

In 2014 an area of the Karpaz peninsular and the Kleides Islands were designated as an Important Bird and Biodiversity Area (IBA)¹⁴ and the Kleides and Aphenrika Islands and their offshore areas became Marine IBAs¹⁵. The designation was on the basis of data provided by KUŞKOR and Birdlife Cyprus and through an EU Civil Society Support grant implemented by KUŞKOR. The criteria used for selecting IBAs at the European level (C-criteria) are directly aligned with the criteria used for selecting Natura 2000 SPAs. Thus, reinforcing the potential designation of the Karpaz potential SPA. Again, disturbance caused by anglers was listed among key threats at the islands.



Figure 7. Kleides and Aphenrika Islands form part of a network of 300 Marine Important Bird Areas across the World's oceans and seas.

Ban on landings

Considering declining seabird numbers, the TRNC Animal Husbandry Department passed a law in 2015 forbidding landings on the island, except for in special cases where permission must be sought from the authorities. KUŞKOR erected three large signs in 2015 informing visitors to the Karpaz Peninsular of the law. Signs were placed at the entrance to the Zafer Burnu national park, at a key launch site used by rod and spear fishers, and at the Zafer Burnu cape, next to a police lookout which overlooks the islands.

14 Hellicar, M. A., Anistasi, VBeton, D & Snape, R. T. E. 2014. Important Bird Areas of Cyprus. Birdlife Cyprus, Nicosia.

15 https://maps.birdlife.org/european_infographic/Resources/Birdlife%20Int_Fact%20Sheet_CYPRUS.pdf (accessed Oct 4 2017).



Figure 6. In 2015 KUŞKOR placed signs at launch sites and around the peninsula informing the public of a ban on landings and police were notified. The signs include a hotline to the TRNC Department for Environmental Protection to whom illegal landings can be reported.

In 2016 rod fishers were recorded on the islands during surveys in May; the signs had been ignored. However, KUŞKOR raised this with the Dipkarpaz police who became more familiar with the law during our increased visits to the islands, when the KUŞKOR team would stop at the police station to discuss field work and confirm our permission documents. The KUŞKOR team were stopped by police while deploying rat surveillance gear on Zinaritou in January 2017 and during eight surveys that year, no fishers were present on the islands. The signage and lobbying therefore seem to have been effective, and landings are no longer common.

Ringling

Mark and recapture or resight is a fundamental methodology used in ecological studies as a tool for identifying species structures, taxonomy, demography and movements. In 2017 KUŞKOR established a European Colour Ring scheme sequence for Audouin's Gulls on Cyprus and ringed 7 of 9 chicks found during two one-off landings on Kleide Rock in June. The rings used are part of a Europe-wide database where field observers in any part of the world can easily look up and locate the ringling details^{16,17}. Such resights will provide useful information on the wider distribution of this threatened species, inter-colony interactions, may uncover other aspects of the ecology of the birds and threats faced in their non-breeding range.

16 <http://www.cr-birding.org/node/4316> (accessed Oct 4 2017).

17 <https://euring.org/national-schemes/euring-member-schemes> (accessed Oct 4 2017).



Figure 7. In 2017 seven Audouin's Gull chicks were fitted with colour rings through the KUŞKOR ringing scheme.

During these landings, several deserted nests with added eggs and depredated chick carcasses were observed. They were not systematically recorded as the landing duration was limited to 15 minutes to minimise disturbance.

Objectives of the Action Plan

1. To provide action points to implemented with urgency for the conservation of Audouin's Gulls, Mediterranean Shags and the biodiversity of the islands based on current evidence.
2. To plan further studies toward providing at-sea habitat use data toward sustainable fisheries management within a potential Marine Protected Area for Karpaz.
3. To ensure long term monitoring of the status of the three seabird species nesting on Klinedes Islands so that the action plan can be updated in future.

Action plan

1.1. Rationale for actions under objective 1.

1.1.1. Rodents. Zinaritou, the closest island to the mainland which formerly hosted the largest numbers of Audouin's Gulls recorded, is clearly rat infested. The voraciousness of the occupying rats (which are likely black rats *Rattus rattus* the most widespread and common rat on Cyprus) will continue to damage seabird nesting, since the rats will predate seabird eggs and chicks. The rats are also likely having a heavy impact on the native floral composition of Zinaritou. The rats should consequently be eradicated from Zinaritou before the 2018 breeding season. The mice on Kasteletta do not seem to be particularly voracious and their impact on the nesting seabirds and vegetation is not as significant as that of the rats on Kasteletta. Furthermore, Cyprus hosts

one of the world's few endemic rodents *Mus Cypriacus*. It is not clear whether the mouse on Kasteletta arrived by human mediation or of its own accord, therefore caution is required in their management. There is no information on the presence of rodents or the vegetation structure on Apendrika Islands and other small islands off North Cyprus. Wider rodent surveys are therefore merited as other islands could potentially be freed up for seabird nesting.

1.1.2. Landings. The efforts of the TRNC authorities and Dipkarpaz police seem to have been effective, and no people were observed on the islands in 2017. The threat of disturbance to Mediterranean Shags is year-round as this species uses the island as a resting place throughout the year. The threat is particularly acute during breeding from December through March, at which point disturbance to arriving gulls becomes an issue through until August. Perhaps a greater risk is the potential for introduction of non-native species including rodents and invasive plant species. Food, bait, discarded fish and offal make fishing vessels and fishing equipment boxes attractive hideouts for mice and rats, so the risk of transfer is considerable.

1.2. Action points under objective 1.

1.2.1. Rat eradication at Zinaritou is urgent. Given the vulnerable and declining situation of Audouin's Gulls currently nesting on Kleide Rock and in some years Kasteletta, a rat eradication project should be implemented at Zinaritou with urgency. This may allow the Audouin's Gulls to recolonise Zinaritou in future. If recolonization by Audouin's Gull is successful then given the reduced human disturbance already observed at the islands and the previous high breeding success recorded at Zinaritou, the colony may begin to recover or cease to decline. This should be undertaken in winter 2017 using the methods proposed by Sutherland for eradicating rats from islands¹⁸. The eradication will involve a series of daily landings on the island. Twenty-five numbered bait boxes should be loaded with poison (difenacoum blocks at 50ppm) and distributed to a density of one per 25m², their location marked with a GPS. The boxes should be located firmly, with a heavy weight or stake to prevent their movement. Daily surveys by a field team should be made at sunrise. During surveys, all bait boxes must be reloaded and a systematic search of the island must be made to locate and remove any dead or dying rats, which could lead to secondary poisoning of non-target birds if not removed. A log must be kept of which boxes have been frequented by rats. These surveys will be daily for the first 5 days when rats will be feeding heavily on the poison. After this, two surveys should be made at three-day intervals, and then further surveys at weekly intervals until no more bait is taken. By this method eradication may be complete within a month, but the most heavily frequented bait boxes should remain in position throughout the subsequent year for further monitoring. The risk of non-target species mortality is mitigated by a) enclosing bait within boxes designed to prevent non-target consumption of bait, b) making daily landings and patrols at dawn during initial baiting to remove any poisoned carcasses after nocturnal feeding by rats and c) undertaking this work outside the seabird breeding season, when the gulls are in their

¹⁸ Sutherland, W. 2000. The Conservation Handbook: Research, Management and Policy. Blackwell Publishing. Oxford, UK.

wintering grounds and outside spring and autumn migration, during which raptors are more likely to be impacted.

- 1.2.2. **Identification of the mouse species on Kasteletta.** The mouse species at Kasteletta should be trapped and identified. Further management decisions could then be taken given a) the mouse species concerned and b) the response of seabirds to other proposed management strategies of the action plan.
- 1.2.3. The **Aphendrika Islands** where Audouin's Gull have nested in former years and which are identified as part of the Marine IBA, should be surveyed for rodents during the coming winter. If rats are found an eradication programme should be performed as per 1.2.1.
- 1.2.4. **Monitoring of landings and penalising illegal landings.** The seasonal restriction on landings suggested by the Natura 2000 Specially Protected Areas Management Plan cited above is insufficient. The current year-round ban on landings is well justified. This is considering the year-round importance of the islands to seabirds and the likely important biodiversity of the islands, the increasing public interest in visiting the islands and the increasing propensity for invasive species to colonise that comes with increasing human movement between the islands and the mainland. In addition to local police, the coast guard should be informed of the ban on landings. The coast guard should monitor the islands during their regular patrols of the area. The coast guard should have authority to remove anyone landing on the islands without a permit and these people should incur a fine.
- 1.2.5. Landing on the **Aphendrika Islands** where Audouin's Gull have nested in former years and which are identified as part of the Marine IBA, should be prohibited and signage should be erected.
- 1.2.6. **Awareness raising.** Signage implemented by KUŞKOR will need to be replaced in 2018 and at least one information panel detailing the important and fragile ecology of islands, their significance and conservation measures in place, should be provided at Zafer Burnu for visitors.
- 1.2.7. A protocol should be established for landings to avoid transfer of invasive species. This should be followed for all official landings. This should involve checking equipment for traces of rats and mice, checking clothing and boots for seeds and scrubbing boots before boarding transfer vessels to remove mud and any potential seeds. Any construction projects on the islands, for instance rebuild or maintenance of light houses, should be properly risk assessed to minimise the risk of transfer of non-native plant or animals.
- 1.2.8. **Invasive plants.** *Acacia* spp. has degraded large areas of native habitat on the Cyprus mainland and is being controlled in some areas as a conservation measure. Introduction of this species must be avoided by best available means.

2.1. Rationale for actions under objective 2.

- 2.1.1. Nothing is known of the at-sea habitat requirements of the seabirds nesting at Kleides Islands. This information is required for Audouin's Gull and Mediterranean Shag to adapt local fisheries policies and to use Marine Spatial Planning in advising the boundaries and management of Marine Protected Areas/Marine SPAs off the Karpaz Peninsula. The current potential management plan for the Karpaz Peninsular is vague in its suggestions for management of a marine area and lacks data on species distributions and fisheries activities. Post-nesting habitat utilisation studies will be

important in informing governance in countries that host these sea birds during the non-breeding period and where they may be impacted by fisheries.

2.2. Action Points for objective 2.

- 2.2.1. **Tracking studies** should be implemented to assess habitat utilisation distribution of the seabirds during breeding and post-breeding. These studies would be useful for Audouin's Gull, but should be secondary as Audouin's Gull is less likely to be negatively impacted by local fisheries and could be considered after a period of population recovery, since the current colony is small and vulnerable to disturbance. Mediterranean shags are easy to catch and with little impact on breeding success since their nests well protected by vegetation cover. Mediterranean shags are priority for tracking since they are likely in competition with local demersal fisheries.
- 2.2.2. **Diet studies.** Mediterranean shags regurgitate pellets of indigestible food items. These should be collected and their contents analysed. Otoliths (fish ear bones) can be used to identify primary prey species and an assessment made of overlap with commercial fisheries target catch. Results of such studies will be useful in prioritising fisheries management in areas of high habitat utilisation of shags.
- 2.2.3. **Ringling studies** established by the KUŞKOR ringling scheme should continue. In addition to providing information on broad and international habitat use patterns, through resight, these studies will also be useful in providing index data (breeding success, number of and fitness of chicks) toward long-term monitoring of the marine environment. However, precaution must be taken to ensure that landing on the islands for ringling does not further compromise breeding success. Although landing on the islands does cause disturbance to the colony, as adult birds will leave chicks unguarded, the chicks are safe from most predators during the landing session, because Audouin's Gulls are the last of the three nesting seabird species to fledge young, so ringling of pulli/chicks occurs in June when Yellow Legged Gulls have fledged and when the migration of raptors is over. As a precaution though ringling should not be undertaken during years when fewer than 10 nests are recorded during boat based annual census.
- 2.2.4. A programme of onboard observation should be implemented with local fisheries to assess the interaction of fisheries with seabirds.

3.1. Rationale for actions under objective 3.

- 3.1.1. Continuous monitoring is required to assess a) the status of the seabirds at the islands, b) the occurrence of invasive species and their populations and c) the floral biodiversity of the islands. Currently data are available only for a).

3.2. Action points for objective 3.

- 3.2.1. The annual census of Monitoring of Audouin's Gulls and Yellow Legged Gulls should continue.
- 3.2.2. A boat-based census of Yellow-Legged Gulls should be established during incubation earlier in the year to achieve more accurate long-term monitoring data.
- 3.2.3. A project to monitor and census Mediterranean Shag breeding should be established in January and February.

- 3.2.4. More intensive boat based monitoring, with weekly checks through the incubation period would allow better understand the phenology of the gulls, allowing more accurate planning of censuses and better-informed population assessments.
- 3.2.5. A thorough vegetation survey should be undertaken and repeated with some regularity, such as once in every five years. Biologists undertaking seabird and rodent surveys should check for the occurrence of invasive plant species as an early warning indicator.