

WORKSHOP RESTORATION OF ISLAND ECOSYSTEMS

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ABSTRACT BOOK

Restoration of Island Ecosystems Workshop

Peniche, ESTM | 29 - 31 January 2018

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To work towards the study and the conservation of wild birds and their habitats by promoting sustainable development for the benefit of the future generations.

SPEA is a nonprofit scientific association that promotes the study and conservation of birds in Portugal. Belongs to a global network of NGOs, the BirdLife International, which works in more than 115 countries and aims the protection of biological diversity through the conservation of birds, their habitats and promoting the sustainable use of natural resources.
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The project LIFE Berlengas will contribute to the sustainable management of the Berlengas Special Protection Area (SPA), aiming the conservation of its habitats, seabird populations and endemic plants.

To achieve this, the focus will be on developing strategies to minimize or remove the main threats to the natural values of Berlengas, both on land and at sea. At the same time the project will promote the sustainable use of the Berlengas SPA, focusing on three key activities: fishing, recreational activities and tourism. A framework to prepare and approve an effective management plan for the Berlengas SPA will be implemented.

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The threat of invasive species to island birds

Steffen Oppel

RSPB Centre for Conservation Science, Cambridge, UK

Corresponding author: Steffen.Oppel@rspb.org.uk

The world's 465,000 islands cover only ~5% of land mass, but 19% of all bird species live only on islands. Many of these species have adapted to the often simplified ecosystems on islands and lack defence mechanisms that make them highly vulnerable to invasive species. Humans have brought >180 invasive mammal species to >90% of the world's islands, and 95% of island bird extinctions in the past centuries were a result of invasive species. Since the 1970s conservationists have developed and refined techniques to eradicate invasive species from islands, and to date >900 invasive species eradications have been successfully completed with demonstrated success for 236 island species around the world. Eradications can be expensive and complicated, and several prioritisations have been carried out to identify the islands where invasive vertebrate eradication would save the most threatened native species. These prioritisations generally use simple rules to determine what is practically feasible, and on many islands it is not feasible to remove all invasive species simultaneously. For eradication planning it is therefore critical to examine potential interactions between invasive species if only some of them can be eradicated. These interactions may render partial eradications more detrimental than doing nothing at all, but interactions can vary by island or even by habitat within a given island, and are difficult to predict. This talk presents some background on threats and eradications based on examples from islands around the world.

Rat Eradication from Berlengas Island, Portugal

Pedro Geraldes¹, Nuno Oliveira¹, Ana Isabel Fagundes¹, Paulo Oliveira² and Joana Andrade¹

¹SPEA, Avenida Columbano Bordalo Pinheiro, 87 3º. 1070-062 Lisboa

²IFCN, Quinta Vila Passos, Rua Alferes Veiga Pestana, 15. 9054-505, Funchal, Madeira

Corresponding author: pedro.geraldes@spea.pt

The Berlengas archipelago, 6 miles of the coast of Portugal, is composed by a main island of 95 ha and 5 small islets. It holds the only colony of Cory's shearwaters *Calonectris borealis* on Continental Portugal, and the largest Portuguese colonies of Shag *Phalacrocorax aristotelis* and Yellow-legged Gull *Larus michaellis*. A breeding population of Madeiran storm-petrel *Hydrobates castro* of unknown size also breeds on the nearby islets. The native vegetation includes three endemic species of conservation concern. The presence of IAS in Berlengas (Black rat *R. rattus*) was considered to have a significant impact on several seabird species and on the island vegetation and It was also thought to prevent colonization of the main island by prospecting Madeiran Storm-petrels that were often registered there.

On the scope of an EU funded LIFE program, a full rat eradication started on 2014 and is still underway to restore the local ecosystem. A grid 1000 closed baiting stations (25x25m) was used with cereal pellets containing the anticoagulant brodifacoum. Special care was taken to prevent second hand poisoning of non-target species, and a full assessment of the invasive alien species populations was made before any control action started. Species abundance, local distribution, inter-annual abundance variation, and genetic characterization was determined prior to the baiting operations that started on September 2016.

The last confirmed rat sign was registered at the end of October 2016 during the weekly monitoring surveys. After December the remaining toxic baits were removed from the baiting stations and non toxic scented baits were used to detect any remaining signs of rat activity. The operational phase is expected to last at least two years after the first baiting station was set and we expect that after the eradication, the subsequent recovery by seabirds and native plants will make a substantial conservation contribution at European level.

Removing *Carpobrotus* from Berlenga Island. How difficult to achieve this objective?

Ana Isabel Fagundes¹, Nuno Oliveira¹, Eduardo Mourato², Paulo Crisóstomo², Pedro Geraldés¹ and Joana Andrade¹

¹SPEA, Avenida Columbano Bordalo Pinheiro, 87 3º. 1070-062 Lisboa

²ICNF, Reserva Natural das Berlengas. Avenida Mariano Calado, 57. 2520-224 Peniche

Corresponding author: isabel.fagundes@spea.pt

The Hottentot fig or Ice plant (*Carpobrotus edulis*) is on the top 100 of the biological invasions that threaten European environments and one of the 28 'flagship' species selected by European Environment Agency to describe the impacts of Invasive Alien Species on the European ecosystems. It was brought to Berlengas in the fifties' when it was planted near the restaurant and fishermen's neighbourhood, with the intention to minimise rock falls.

Without any control, it quickly spread throughout several slopes of the island. In addition to the optimal environmental conditions for its growth, the black rats (*Rattus rattus*), rabbits (*Oryctolagus cuniculus*) and Yellow-legged gulls (*Larus michahellis*) are seed dispersers, which facilitated its spread throughout the years.

As this plant covers the entire soil and competes with native vegetation, it represents a major threat for the conservation of the 3 endemic species, the Berlengas Thrift (*Armeria berlengensis*), the Berlengas Rupturewort (*Herniaria berlengiana*) and the Berlengas Fleabane (*Pulicaria microcephala*) the first being listed as Critically Endangered.

Following international guidelines, the Hottentot fig is being removed along stripes. The plant is removed manually, rolled up and left to dry on top of the *Carpobrotus* mats below. Removal of the remaining stripes is made in a second and third passage.

When the LIFE Berlengas project started, in June 2014, the Hottentot fig occupied around 38533 m² mainly on the south side of the Island. Since then, the LIFE Berlengas team and more than 100 volunteers have been working hard to remove this species from the Berlenga Island. Until December 2017 the teams worked for more than 350 hours. All this effort allowed us to achieve 80% of our goal!

Habitat restoration and IAS management. Which are the new challenges?

Paulo Oliveira

Instituto das Florestas e Conservação da Natureza – Quinta Vila Passos, Rua Alferes Veiga Pestana, 15. 9054-505, Funchal, Madeira

Corresponding author: paulooliveira@gov-madeira.pt

Invasive alien species (IAS) are a major driver of biodiversity loss, and their management is a key measure to ensure concrete, effective and long lasting results in terms of nature conservation.

During the last 20 years an impressive number of restoration projects were implemented all over Europe. Financing through LIFE program was the key for the success of the great majority of these initiatives. Additionally, in general these project were accepted/tolerated by the public.

However, nowadays the “tide is turning”; unfortunately not the way Veitch and Clout (2002) anticipated. Due to conflicts with other policy and legislation enforced at the local, national and EU level, the sound implementation of measures dealing with IAS are being strongly affected, including those supported by LIFE and in line with the EU Regulation on IAS. Additionally, project managers also failed in their communication skills and a growing hostility is raising amongst the general public.

It is important to work with the competent national and European institutions to ensure the consistency and harmonisation between different policies and legislations relevant for IAS management. Additionally, it is important to improve the communication with the public and to rationalize the action of the extreme animal rights groups.

Crypto-ecology and ecosystems: the overlooked impacts and their importance in the restoration ecology of islands

Manuel Nogales¹, Félix M. Medina² and Marta López-Darias¹

¹Island Ecology and Evolution Research Group (IPNA-CSIC). Canary Islands

²Unidad de Medio Ambiente, Cabildo Insular de La Palma. Canary Islands

Corresponding autor: mnogales@ipna.csic.es

Although predation has been frequently considered as the strongest deleterious effect of some of the most pervasive introduced species on islands, inducing a direct negative impact on population size and dynamics, breeding success and changes in species assemblages, this direct predation is not the only damaging impact on native wildlife. Other poorly-documented underlying ecological impacts, like competition, hybridization, disease transmission, ecological process alteration, and behavioural change can also be important for the disruption of the dynamic of ecosystems. Most of these impacts are not frequently considered when managing practices of restoration ecosystem are considered. Here, we will try to compile some examples of these ecological impacts, by searching for precise data from published literature. We used electronic databases covering most of the world islands where the effects of predators were documented. Lastly, knowledge of these impacts can be of great importance to preserve insular ecosystem functions and persistence of endangered native species.

The Forgotten side of Island Restoration: Biosecurity and Incursion Response

Karen Varnham¹, Laura Bambini², Leigh Lock¹ and Sophie Thomas¹

¹ RSPB, The Lodge, Sandy, Beds, UK

² RSPB Scotland Headquarters, Edinburgh Park, Edinburgh, UK

Corresponding author: karen.varnham@rspb.org.uk

Island Restoration is often, incorrectly, used as a synonym for the eradication of invasive non-native species (INNS) from islands. However, investing time and resources in biosecurity (i.e. preventing INNS establishing on islands) and in incursion response (i.e. responding rapidly and effectively to INNS which reach islands) is essential to properly protect the investments made in eradication projects. Additionally, islands which are naturally free of INNS are equally in need of this protection. An objective of the RSPB's Seabird Island Restoration Project is to develop integrated and effective biosecurity and incursion response best practice, protecting islands within the UK and beyond. We have developed biosecurity plans for vulnerable seabird islands and assisted in incursion responses. We have developed and run biosecurity training courses for island managers around the UK and overseas. We are also involved in developing incursion response teams, currently focussed on islands from which rats have been eradicated, but we plan to extend this to include other INNS-free islands. Additionally, we provide training in safe and effective rodenticide use, allowing us to train our existing response teams and also to rapidly train up additional people in the event of an incursion. We have ambitious plans to continue developing our work, including a nationwide network of incursion response hubs, training detector dogs, developing ways to use novel trap types and to continue to share best practice advice and training both nationally and internationally. This approach will help better protect vulnerable island species and maximise the impact of limited conservation funding.

Ecological restoration of Bagaud Island (south-eastern France) eradicating invasive taxa: *Rattus rattus* and *Carpobrotus* sp.

Elise Buisson¹, Annie Aboucaya², Laurence Affre¹, Alain Barcelo², Laurence Berville¹, Nathalie Bigeart², Julie Braschi¹, Lenka Brousset¹, Julie Chenot¹, Cyril Cottaz², H  l  ne De M  ringo¹, Damien Fourcy³, Pascal Gillet², Elise Krebs^{1,2}, Patricia LeQuilliec³, Yannick Limouzin², Olivier Lorvelec³, Fr  d  ric M  dail¹, Jean-Yves Meunier¹, Marine Pascal¹, Michel Pascal³, Aur  lie Passetti¹, Philippe Ponef¹, Fran  ois Rifflet², Lise Ruffino^{1,4}, Coralie Santelli¹ and Eric Vidal¹

¹Institut M  diterran  en de Biodiversit   et d'Ecologie (IMBE), Universit   d'Avignon et des Pays de Vaucluse, UMR CNRS IRD Aix Marseille Universit  , France

²Parc National de Port Cros, Hy  res, France

³INRA Rennes, France

⁴University of Aberdeen, UK

Corresponding author: elise.buisson@univ-avignon.fr

Islands are particularly good models for studying the impact of invasive species, one of the world's leading causes of biodiversity loss. Bagaud island, a 58 ha strict nature reserve in Port-Cros National Park (south-eastern France), was invaded by black rats, *Rattus rattus* and iceplant, *Carpobrotus* spp.. A restoration project was established with the aim of eradicating these species to protect native ecosystems. In order to minimize unwanted hazardous outcomes and produce scientific knowledge, the operations were embedded in a three steps strategy. The first step (2010-2011) consisted in i) monitoring plants, insects, reptiles and birds prior to eradication and ii) trying *Carpobrotus* removal techniques. The second step, i.e. the eradication of the invasive taxa, took place in 2011 and 2012. Trapping, which resulted in the removal of 1923 rats in 21045 trap-nights, made it possible to eliminate a substantial proportion of the resident rat population and to reduce the amount of rodenticide delivered subsequently. Forty tons of *Carpobrotus* spp. were manually uprooted from a total area of 18000 m²; yet careful monitoring over a decade is still required to prevent germinations from the seed bank. Therefore, the third step began in mid-2012 and will continue until 2019. It includes post-eradication monitoring and biosecurity measures which have been implemented to reduce reinvasion risks of both taxa. In the talk, all steps will be detailed and the results on vegetation, insect, reptile and bird monitoring, 5 years after eradication, will be presented.

The Isles of Scilly Seabird Recovery Project

Paul St Pierre

RSPB Penzance, 2 The Old Smelting House, Chyandour Coombe, Penzance, TR18 3LP

Corresponding author: Paul.StPierre@rspb.org.uk

Island restoration projects are increasingly focusing on islands where success requires support of local communities. The Isles of Scilly Seabird Recovery Project (IOSSRP) provides a case study.

The Isles of Scilly, located 45km off Cornwall, UK, are home to 7,969 seabird territories of 13 species. There has been a 14.3% decline since the Special Protected Area baseline and a 31.3% decrease since 1983. In response, a partnership set up the IOSSRP to restore the islands of St Agnes and Gugh, between 2012 and 2017.

Ten years of strategy development and partnership working predated LIFE project establishment. Involving the community in decision-making and activities at critical stages throughout project development and delivery, strengthened local ownership, and resulted in the 100% support needed from the 86 residents on St Agnes and Gugh for the project to commence. A ground-based rat eradication operation was carried out and two years later the islands were declared officially rat-free in 2016. Project funding has ended and we are now in the legacy phase. Manx shearwater and storm petrel are breeding again, and the 'Scilly' shrew has increased. Community ownership remains strong with all saying that the eradication and associated seabird response will have a positive effect on the economy. Ongoing bio-security measures are carried out by a team of trained islanders, supported by partners.

The eradication of *Carpobrotus sp.* on the Island of Giannutri (Tuscan Archipelago, Italy): insights and first results from a low-impact approach

Lorenzo Lazzaro¹, Giulio Ferretti¹, Renato Benesperi¹, Bruno Foggi¹, Francesca Giannini², Paolo Sposimo³ and Michele Giunti³

¹ Department of Biology, University of Florence, Via La Pira 4, 50121 Firenze, Italy

² National Park of the Tuscan Archipelago, Portoferraio, Italy

³ Nature and Environment Management Operators s.r.l., Piazza M. D'Azeglio 11, 50121 Firenze, Italy

Corresponding author: lorenzo.lazzaro@unifi.it

Biological invasions represent a global threat to biodiversity. Particular attention should be posed concerning the management of alien plants. *Carpobrotus sp.* is a well-known invasive plant native from South Africa whose detrimental effects on native communities are widely documented.

We report the experience from the eradication of this species from the Island of Giannutri (Tuscan Archipelago, Italy), an action comprised in the Life Project "RESTO CON LIFE" together with the following restoration of native vegetation. On the island, *Carpobrotus sp.* occurred on of about 14,000 m² in several sites, with variable cover. The eradication involved an integrate approach with two control methods: manual removal and covering with mulching sheets, according to the inclination of the substratum, the presence of non-target species (especially if conservational interest) and the *Carpobrotus sp.* stand surface. The main intervention took place in the period May-October 2016, with quite successfully results (few individuals retrieved in the following checks).

The restoration of the flat areas with a suitable soil cover was enhanced with the transplantation of native plants. The first data showed that survival of young transplants was higher in the areas once covered by *Carpobrotus sp.* compared to natural areas. The restoration of the habitats interested by the intervention is monitored with permanent plots. The first data showed a rapid recovering of few nitrophilous species in the flat areas with a suitable soil, while still no native species colonized the rocky cliffs one year after the interventions.

Social implications of invasive alien plants control in the Mediterranean islands

Giuseppe Brundu

Department of Agriculture, University of Sassari, Italy

Corresponding author: gbrundu@uniss.it

Biological invasions and plant invasions have become one of the main drivers of habitat degradation and a leading cause of biodiversity loss in island ecosystems worldwide. The spread of invasive species poses a particular environmental threat on the islands of the Mediterranean Basin, which are hot spots of biodiversity and contain rare habitats and endemic species, especially on small islands, which are highly vulnerable to biodiversity loss. Importantly, many invasive alien plant species have been deliberately introduced in the Mediterranean islands as ornamental, forestry species or for many other purposes. Remarkable examples are the following non-native species: *Acacia* spp., *Agave Americana*, *Carpobrotus* spp., *Ailanthus altissima*, *Mesembryanthemum* spp., *Nicotiana glauca*, *Opuntia* spp., *Baccharis* spp., *Cortaderia* spp., to cite a few.

The presentation will focus on three different LIFE projects (i.e., LIFE Puffinus, LIFE IAP-RISK and LIFE ASAP) which are tackling invasive alien species acting from local (Tavolara Island, NE Sardinia, Italy) to national and to international level. These projects are dealing, from different viewpoints, with eradication actions, education and public awareness, risk assessment and management. Many different stakeholders are involved in these three LIFE projects, from local land owner to Public Authorities.

The prevention, control, management of plant invasion in Mediterranean islands is of particular conservation concern. Most islands are rich in endemism and natural resources (including landscape), but have been facing deep socio-economic and environmental transformations in these last decades as a consequence of the abandonment of traditional management practices and the development of tourism. These aspects have to be taken into account as well, in the framework of dedicated strategic plans aim to reach adequate conservation goals.

Soil and water lines stabilization using natural engineering techniques. The case study in São Miguel Island on the scope of Project Life Terras do Priolo

Filipe Figueiredo, Rui Botelho, Lourdes Peñil and Joaquim Teodósio

¹SPEA, Rua António Alves de Oliveira nº1 R/C. 9630-147 Nordeste, São Miguel, Açores

Corresponding author: filipe.figueiredo@spea.pt

The Azores bullfinch is a unique bird existing in São Miguel Island, Azores, and the beginning point for a practical case of soil stabilization and control of water lines. Invasive alien species are a main problem in the Azores archipelago, more precisely in São Miguel, and these override native plants which occur in the Azores bullfinch habitat, the Laurel forest. This forest is confined to higher altitudes since lower altitudes are occupied by human change, mainly urban uses, agriculture, forest production and abandoned areas. Many of these abandoned areas are occupied by several invasive species, such as Australian cheesewood *Pittosporum undulatum*, Kahili ginger *Hedychium gardnerianum*, lilly-of-the-valley-tree *Clethra arborea*, and Chilean rhubarb *Gunnera tinctoria*, and a result of this occupation, in lower areas with intense precipitation landslides can occur and cause damages to the populations. Natural engineering techniques were studied to reduce landslides in natural areas at lower altitudes (<500m) and practical examples of natural engineering applied were: vegetation grid, Cribwall, slope reprofiling, micro-weirs, rolls of plant material (*Sphagnum* sp.), geotextile/organic blanket, drainage ditches with support of sedimentation basins, planting of native species, hydroseeding of seeds of native plants and staking of plants. All these techniques of natural engineering intended also to improve information on this subject and make them available more locally. Three years after their implementation these structures did not yet needed any kind of maintenance and are perfectly functional for their purpose.

Micropropagation and seed germination of endemic plants from Berlengas' Archipelago

Inês A. Franco, Teresa Mouga and Clélia Afonso

MARE – Marine and Environmental Sciences Centre, ESTM, Instituto Politécnico de Leiria, 2520-641 Peniche, Portugal

Corresponding author: inesmafranco@hotmail.com

Berlengas' archipelago is a Portuguese Natural Protected Area recently acknowledged as Unesco Heritage due to its natural patrimony, including three endemic botanical species: *Pulicaria microcephala*, *Armeria berlenguensis* and *Herniaria berlengiana*. All classified as critically endangered or at risk of extinction mainly due to manmade interference, as the introduction of invasive species: *Carpobrotus edulis*, *Oryctolagus cuniculos* and *Rattus rattus*. The main objective of this study was to establish micropropagation and germination protocols for the three endemic plant species.

Disinfection efficacy was evaluated, being the best results attained for *P. microcephala* with 24.4% of success rate and for *A. berlenguensis* with 11.6%. As to *H. berlengiana*, the best results were of 18.2%. As to germination, *P. microcephala* reached a 100% rate depending on the technique used. Less success was obtained with *A. berlenguensis*, with only 20% germination rate, that along with a fecundity rate of 3.5%, clearly indicates the need for urgent measures. We have also successfully established micropropagation protocols both for *P. microcephala* and *A. berlenguensis*. Both showed good results, particularly when acclimatization occurred outdoor, with 100% and 80% survival rates, respectively.

These results allow us to conclude that *in-vitro* micropropagation might be an effective procedure to introduce more specimens in the wild, being the best strategy to achieve the successful conservation of the three mentioned species.

The Shiant Isles Recovery Project – securing safe breeding places for seabirds in Scotland

Laura Bambini¹, Elizabeth Bell², George Campbell¹, Andy Douse³, Charlie Main¹, Adam Nicolson⁴, Tom Nicolson⁴ and Robin Reid¹

¹ RSPB Scotland HQ, 2 Lochside View, Edinburgh, EH12 9DH, UK

² Wildlife Management International Ltd., PO Box 607, Blenheim 7240, New Zealand

³ Scottish Natural Heritage, Great Glen House, Leachkin Road, Inverness, IV3 8NW, UK

⁴ Sissinghurst Castle, Cranbrook, Kent, TN17 2AB, UK

Corresponding author: laura.bambini@rspb.org.uk

The Shiant Isles, a group of three islands and sea stacks, are located in the Minch off the coast of northwest Scotland, UK. The islands are internationally important for breeding seabirds, particularly Atlantic puffins *Fratercula arctica* (around 10% of the UK breeding population), razorbill *Alca torda* and guillemots *Uria aalge*, and are classified a Special Protection Area for their seabird assemblage. Black rats *Rattus rattus* were introduced to the islands sometime before the end of the 19th century. Predation by rat provides possible explanation for the absence of Manx shearwaters *Puffinus puffinus* and European storm petrels *Hydrobates pelagicus*, despite availability of suitable habitat. Rats may also have affected the size and distribution of the puffin colonies. In 2015-16 the RSPB in partnership with SNH and the owners of the island, and with funding from EU LIFE Nature, eradicated rats in a ground-based winter operation using Bromadiolone 0.005% w/w in bait stations in a 25-50 m grid across the islands. Petrel attraction work has been carried out 2016-17 with promising results, and pre-eradication survey to establish baseline conditions has been undertaken. Post-eradication monitoring is ongoing to collect information on the ecosystem response to the rat removal. We present technical information on the rat eradication, and preliminary results on the ecosystem response to the eradication and seabird recovery work.

LIFE Puffinus Tavolara - Protection of the largest population of *Puffinus yelkouan* on Earth and containment and eradication of invasive alien species

Paolo Sposimo¹, Filippo Dell'Agnello¹, Augusto Navone², Jacopo Primicerio¹, Massimo Putzu¹, Valentina Secchi³ and Giovanna Spano²

¹ NEMO S.r.l. Piazza d'Azeglio 11, Firenze, Italia

² Area Marina Protetta di Tavolara – Punta Coda Cavallo, Via Dante 1, Olbia (OT), Italia

³ Comune di Olbia, Olbia (OT), Italia

Corresponding author: sposimo@nemoambiente.com

The aim of the project is to protect the population of Yelkouan shearwaters (*Puffinus yelkouan*) breeding on Tavolara island (Italy). This population has been estimated of 9.600 – 13.000 breeding pairs and it is the largest in the world, out of a global population of 15.300 – 30.500 pairs. Unfortunately, this important population is highly threatened by the presence of introduced black rat (*Rattus rattus*), which feed on shearwater eggs and chicks. This project includes other three target species: house mouse (*Mus musculus*), feral goat (*Capra hircus*) and ice plant (*Carpobrotus sp.*). The first two ones have significant impacts on other ecosystem components, like invertebrates, reptiles, plants, while ice plant could potentially occupy most of the SW island sector, threatening habitats and 3 plant species listed in Annex I-II.

Between October and November 2017, we carried out two aerial bait distributions using a helicopter fitted with navigational guidance systems which carry purpose built bait application bucket. To achieve the eradication of rats and mice we overflew pre-determined parallel flight lines producing an even spread of rodent baits up to 40 m either side of each flight line.

Rat removal will increase the reproductive capacity and population size of *Puffinus yelkouan*. Benefits for other seabird species, reptiles and plants are expected. Other benefits from rodents' eradication and goats numerical control may consist in an increase of biodiversity and an improvement of ecosystem functions. Eradication of ice plant will remove one of the most important threats for habitats and plant species.

Rodent control at seabird colonies in Malta

Paulo Lago Barreiro¹, J. S Santiago Cabello¹, Martin Austad¹ and Karen Varnham²

¹ BirdLife Malta, 2 RSPB, 57/28, Marina Court, Abate Rigord Street, Ta' Xbiex (Malta) XBX 1120

² RSPB, The Lodge, Potton Road, Sandy, Bedfordshire, SG19 2DL

Corresponding author: paulo.lagobarreiro@birdlifemalta.org

The Maltese archipelago, found in the central Mediterranean, harbours important seabird populations of Yelkouan shearwater *Puffinus yelkouan*, Scopoli's shearwaters *Calonectris diomedea* and European Storm petrel *Hydrobates pelagicus melitensis*. The most important threat in the shearwater colonies is predation by invasive rodents, mainly the black rat *Rattus rattus*. Localised rat control in the main *P.yelkouan* colony at Rdum tal-Madonna from 2007 to 2017 has increased the breeding success of *P.yelkouan* dramatically and lead to the establishment of *H. pelagicus melitensis*. Rat control takes place during the *P.yelkouan* breeding season using anticoagulant rodenticide in bait stations. In 2016 and 2017 the LIFE Arcipelagu Garnija project carried out an assessment of predator presence and their impacts in all *P.yelkouan* colonies of the Maltese archipelago. Rat footprints, teeth marks, faeces, live and dead rats observed, camera trap pictures, trap lines and other signs were recorded to assess rat presence and density. Eggs and/or chicks predated and reproductive success were recorded to assess the impact of predation.

Rodent control is planned to start in 2018 in seven *P.yelkouan* colonies based on the results of the assessment and the lessons learned during 11 years of rodent control in the main colony. The colonies were chosen according to their population size, accessibility, human resources and budget available, and feasibility to maintain rodent control in the long term. A test of mechanical traps (Goodnature E2) was carried out during 2017 to assess their effectivity as alternative or complementary method to the use of rodenticide.

Out of sight, out of mind? Preliminary findings on the biology and control of the Argentine ant in Madeira archipelago

Mário Boeiro¹, Cândida Ramos, Isamberto Silva², Nádía Coelho², Dília Menezes² and Carla Rego¹

¹Centre for Ecology, Evolution and Environmental Changes/Azorean Biodiversity Group, Dep. de Ciências e Engenharia do Ambiente, Universidade dos Açores, Angra do Heroísmo, Açores, Portugal

²Instituto das Florestas e da Conservação da Natureza, Funchal, Madeira, Portugal

Corresponding author: mboeiro@fc.ul.pt

The Argentine ant (*Linepithema humile*) is one of the worst invasive species worldwide. This species was recorded for the first time in Madeira by the end of the XIXth century and since then several reports of its impact on agriculture and urban environments have been made jointly with suspicions of severe impacts on natural ecosystems. In the last few years, several studies were carried out in Madeira archipelago to improve our knowledge on its distribution, abundance and ecology (diet and ecological associations with trophobionts). The Argentine ant preys upon endemic invertebrate species and occasionally on nestlings of several bird species, and interferes on the pollination of native plants. Several areas with high ant densities were identified for population control and preliminary assays showed that this species can be locally controlled. However, these actions need to be carried out with great care to minimize the effects on native invertebrate species.

Programme

Day 1

9:30 Registration

10:00 Formal Opening with all LIFE Berlengas partners (Portuguese Society for the Study of Birds – SPEA, Institute for Nature Conservation and Forests - ICNF, Peniche Municipal Council - CMP and School of Tourism and Maritime Technology – ESTM).

10:30 The threat of invasive species to island birds. **Steffen Opper (RSPB)**

11:00 Coffee break

The Berlengas case study

Moderator: Joana Andrade (SPEA)

11:20 Rat Eradication from Berlengas Island, Portugal. **Pedro Geraldes (SPEA)**

11:40 Removing *Carpobrotus* from Berlenga Island. How difficult to achieve this objective? **Ana Isabel Fagundes (SPEA)**

12:00 Q & A

12:30 Lunch

Eradication Impacts on native species. Problems in restoration projects and decisions

Moderator: Lurdes Morais (ICNF)

14:30 Habitat restoration and IAS management. Which are the new challenges? **Paulo Oliveira (IFCN)**

14:50 Crypto-ecology and ecosystems: the overlooked impacts and their importance in the restoration ecology of islands. **Manuel Nogales (IPNA-CSIC)**

15:10 The Forgotten side of Island Restoration: Biosecurity and Incursion Response - **Karen Varnham (RSPB)**

15:30 Q & A

15:50 Coffee break

Recovering habitats in inhabited/touristic islands. Communicating with the public and community engagement in ecological restoration

Moderator: Ana Almeida (SPEA)

16:10 Ecological restoration of Bagaud Island (south-eastern France) eradicating invasive taxa: *Rattus rattus* and *Carpobrotus sp.* **Elise Buison (University of Avignon)**

16:30 The Isles of Scilly Seabird Recovery Project. **Paul St Pierre (RSPB)**

16:50 The eradication of *Carpobrotus sp.* on the Island of Giannutri (Tuscan Archipelago, Italy): insights and first results from a low-impact approach. **Lorenzo Lazzaro (University of Florence)**

17:10 Q & A

17:30 Closing session

Day 2

Economic and social implications. Landscape ecology and restoration.

Moderator: Teresa Mouga (MARE-Leiria)

9:30 Social implications of invasive alien plants control in the Mediterranean islands. **Giuseppe Brundu (University of Sassari)**

9:50 Soil and water lines stabilization using natural engineering techniques. The case study in São Miguel Island on the scope of Project Life Terras do Priolo. **Filipe Figueiredo (SPEA)**

10:10 Micropropagation and seed germination of endemic plants from Berlengas' Archipelago. **Inês Franco (MARE-Leiria)**

10:30 Q & A

10:50 Coffee break

Protecting species and habitats around Europe. The importance of LIFE projects to island ecosystem recover.

Moderator: Pedro Geraldes (SPEA)

11:10 The Shiant Isles Recovery Project - securing safe breeding places for seabirds in Scotland. **Laura Bambini (RSPB)**

11:30 LIFE Puffinus Tavolara - Protection of the largest population of Puffinus yelkouan on Earth and containment and eradication of invasive alien species. **Paolo Sposimo (NEMO)**

11:50 Rodent control at seabird colonies in Malta. **Paulo Lago (BirdLife Malta)**

12:10 Out of sight, out of mind? Preliminary findings on the biology and control of the Argentine ant in Madeira archipelago. **Mário Boeiro (CE3C)**

12:30 Q & A

12:50 Lunch

14:30 Round tables to exchange of experiences. Definition of topics for each group to discuss

Moderator: Joana Andrade (SPEA)

16:30 Coffee break

16:50 Presentation of each group ideas

17:30 Closing Remarks

Day 3

9:00 – 16:00 Field Trip to Berlenga



Berlengas

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