BirdLife International in the Mediterranean:

Seabird data submitted to the CBD EBSA workshop, April 2014

BirdLife International is a partnership of over 120 independent non-governmental organisations – one per country – and growing. Together the Partnership has more than 13 million members and supporters. BirdLife Partners work together in a collaborative, coordinated fashion across national boundaries to build a global Partnership of national conservation organisations that can provide both practical and sustainable solutions that significantly benefit nature and people.

1. BirdLife Partners working in the Med

BirdLife has 18 Partners working in the Mediterranean region. Some have been very active in marine research, developing new science to support seabird conservation, while others currently lack the capacity to engage fully in marine issues. Partners in the Mediterranean include:

- Croatia - Association BIOM
- Cyprus - BirdLife Cyprus
- Egypt - Nature Conservation Egypt
- France - Ligue pour la Protection des Oiseaux (LPO)
- Gibraltar Ornithological and Natural History Society (GONHS)
- Greece - Hellenic Ornithological Society (HOS)
- Israel - Society for the Protection of Nature in Israel (SPNI)
- Italy - Lega Italiana Protezione Uccelli (LIPU)
- Lebanon - Society for the Protection of Nature in Lebanon (SPNL)
- Malta - BirdLife Malta
- Montenegro - Center for Protection and Research of birds of Montenegro (CZIP)
- Morocco - GREPOM
- Palestine - Palestine Wildlife Society (PWLS)
- Slovenia - BirdLife Slovenia (DOPPS)
- Spain - SEO/BirdLife
- Syria - Syrian Society for Conservation of Wildlife (SSCW)
- Tunisia - Association Les Amis des Oiseaux (AAO)
- Turkey - Doğa Derneği (DD)

2. National marine IBA inventories

Comprehensive inventories of the key sites for seabird conservation have been completed for a number of countries in the Mediterranean over the last few years. These have combined multiple data sources on seabird distribution (e.g. tracking, at-sea surveys, habitat suitability models, foraging predictions, coastal counts etc) to identify sites that meet IBA criteria and thresholds. All data have been compiled and are presented via BirdLife's marine e-atlas www.birdlife.org/datazone/marine Examples of national inventories include:

- Malta - www.lifeshearwaterproject.org.mt/en/publications/; www.birdlifemalta.org/conservation/ibas/malta_ibas/#.Uzq2A6NwYos
- Spain - www.seo.org/media/docs/Informe_IBASMarinas_Ing1.pdf; www.seo.org/avesmarinas/#/0
- Italy - Celada, C., Gaibani, G., Cecere, I.G., Calabrese, L. and Piovani, P. (2009) Aree importanti per gli uccelli dalla terra al mare. Studio preliminare per l'individuazione delle IBA (Important Bird Areas) in ambiente marino [Important Bird Areas from land to sea. A preliminary study of Important Bird Area designation in the marine environment]. LIPU, Ministero Dell'Ambiente and DPN. [In Italian]
- Greece - http://ornithologiki.gr/page_cn.php?aID=1299&tID=2932; http://issuu.com/birdlife.greece/docs/marine_iba_book_birdlife_greece_2012
- France – Deceuninck B. and Micol T. (2008). Identification des sites marins prioritaires pour les oiseaux marins et les oiseaux d'eau. LPO

Selected marine IBA inventories and publications for (from left to right) Malta, Greece, Italy and Spain. Hyperlinks to the publications are provided above.

3. Seabird tracking data

Data collected from satellite tracking devices have given new insights into seabird distribution and been a core component of marine IBA assessments. Data collected form three types of devices (Global Positioning Systems (GPS), Platform Terminal Transponders (PPT) and Geolocators (GLS)) have been submitted and stored in a centralised system, the Tracking Ocean Wanderers database (www.seabirdtracking.org). These data have been analysed using novel techniques to define the most important areas. Seabird tracking data made available and analysed specifically for the EBSA workshop include:

Species	Colony	Breeding stage	Device	Number of tracks	Data contributors
Yelkouan Shearwater	Malta	chick-rearing	GPS	37	Benjamin Metzger
Yelkouan Shearwater	Malta	non-breeding	GLS	17	Andre Raine
Balearic Shearwater	Baleares (Spain)	breeding	GPS+PTT	25	SEO
Scopoli's Shearwater	Mallorca (Spain)	breeding	GPS	5	SEO
Scopoli's Shearwater	Menorca (Spain)	chick-rearing	GPS	11	UB-SEO
Scopoli's Shearwater	Menorca (Spain)	incubation	GPS	62	SEO
Scopoli's Shearwater	Chafarinas (Spain)	chick-rearing	GPS+PTT	20	SEO
Scopoli's Shearwater	Chafarinas (Spain)	incubation	GPS	16	SEO
Scopoli's Shearwater	Columbretes (Spain)	chick-rearing	GPS	26	SEO
Scopoli's Shearwater	Linosa (Italy)	chick-rearing	GPS	89	LIPU
Scopoli's Shearwater	Linosa (Italy)	incubation	GPS	14	LIPU
Scopoli's Shearwater	La Maddalena (Italy)	chick-rearing	GPS	13	LIPU
Scopoli's Shearwater	La Maddalena (Italy)	incubation	GPS	8	LIPU
Scopoli's Shearwater	Tremiti (Italy)	incubation	GPS	26	LIPU
Scopoli's Shearwater	Tuscany (Italy)	chick-rearing	GPS	28	LIPU
Scopoli's Shearwater	Filfla (Malta)	chick-rearing	GPS	15	Benjamin Metzger
Scopoli's Shearwater	Gozo (Malta)	breeding	GPS	10	Benjamin Metzger
Scopoli's Shearwater	Hal Far (Malta)	incubation	GPS	27	Benjamin Metzger
Scopoli's Shearwater	Hal Far (Malta)	chick-rearing	GPS	50	Benjamin Metzger
Audouin's Gull	Delta Ebro (Spain)	breeding	GPS	48	SEO

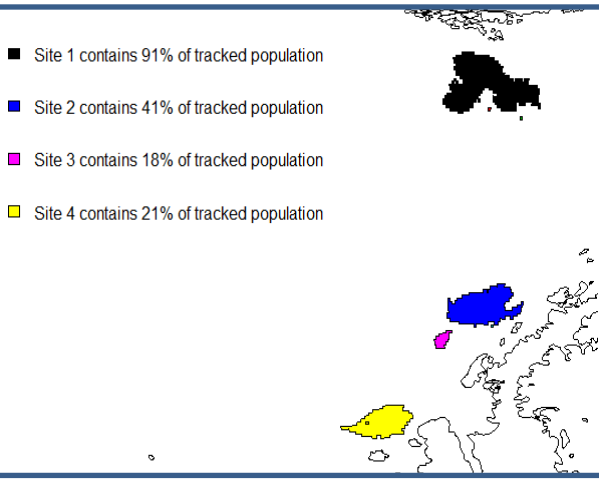
Table1: metadata summary of seabird tracking compiled in advance of the Med EBSA workshop

4. Analysis of tracking data

Tracking data need to be analysed to determine which areas might be most applicable to site-based conservation approaches. BirdLife has been working with many of the world's leading seabird tracking scientists over the last 5 years to develop the most appropriate methodology to identify marine IBAs and input to EBSA discussions. In brief the data analysis consists of:

1. Data standardised into individual trips and the overall dataset is split into unique data group combinations of species, site and life-history stage (to account for distribution variations that occur between these); data groups are then analysed individually.

2. Kernel Density Estimations (a measure of the proportion of time spent by an individual in an area) are made on each trip individually (using a 50% kernel to highlight key area), these are then summed to give an overall picture of the key sites used by the tracked populations.
3. First Passage Time analysis (a measure of the time taken for a bird to cross a circle of a given radius) is used to determine the scale at which each track is interacting with the environment. These values are averaged across the data group and then used to define the smoothing factor applied in the kernel analysis during step 2.
4. Results are extrapolated from the tracked population to the wider population using correction factors determined via a representativeness analysis. The results indicate how much an increase in sample size adds to the overall distribution and inclusion. When the rate of increase drops to 0 (i.e. when adding new samples simply replicate distributions already sampled), the data group is assumed to fully represent the population. Datasets that are <70% representative or have <15 tracks are excluded from the analysis.
5. Assessments are completed by determining if thresholds and criteria have been met for each site resulting within each data group. Final boundaries are determined by merging overlapping areas so the site adequately covers all species, site and life-history variation
6. For further details on the methodology see here www.birdlife.org/datazone/info/marmethods



Example of sites resulting from analysis of data for Grey-headed Albatross tracked from Isla Diego Ramirez, Chile during the incubation period.

Data courtesy of Graham Robertson

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