



Natura 2000 Biogeographical Process

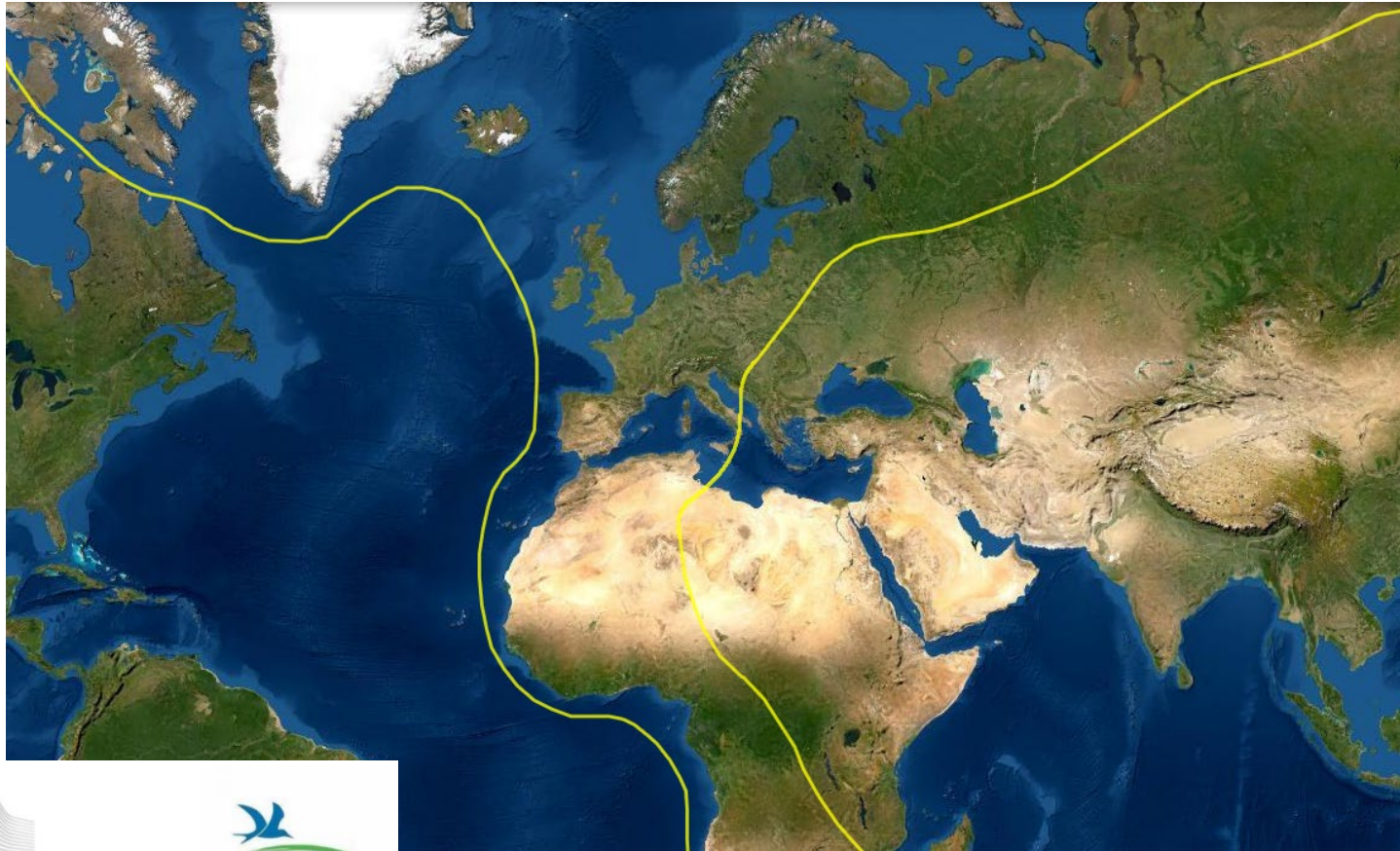
Selection of key SPAs supporting migration within the Eastern Atlantic Flyway (EAF)

Continental Biogeographic seminar Prague, 25-27th June 2024

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Motivation. Key SPAs of the East Atlantic Flyway



Motivation. The key SPA selection should:

- support as many of the priority species, as possible;
- cover the continuity of functions/populations i.e. breeding, stopover, wintering, moulting;
- allow for resources optimisation;
- be replicable elsewhere providing compatible results when upscaling;
- facilitate the flyway-wide Road Map development;
- facilitate international networking (e.g., LIFE, INTERREG, Horizon etc.)

Methods. Key site selection events. Two stage approach

Baltic BGP Networking Event in Gdańsk, Nov 2020 (DE, DK, EE, FI, LT, LV, PL, SE):

Event itself: habitats, species, threats, conservation activities => selection criteria.

Follow up deskwork: selection of key SPAs for 8 countries using

- Natura2000 database (SDFs) for quantitative criteria;
- Individual/small group experts assessment for qualitative criteria (for some countries – e.g., DK – quantitative criteria were used only).

BGP Networking Event for Atlantic and Continental Realms in Dublin, Oct 2021 (BE, DE, DK, FR, IE, LU, NL, UK):

‘homework’: SPA/ASCI preselection prior to the Networking Event (N2000 database/SDFs and quantitative criteria);

final selection at the Networking Event by the participants;

‘post-production’ phase.

BGP Networking Event Mediterranean and Macaronesia Natura 2000 Sites as Bird Migration Hotspots in Madrid, Oct 2022 (ES, FR, IT, MT, PT):

sites for ES have been preselected on the basis of SDF only

‘post-production’ phase – which did not fully succeed

Norway Grants/NCM-funded quadrilateral project (BY, IS, NO, PL) – ‘model’ sites selection



Methods. Species lists

Countries	EE, DE, DK, FI, LT, LV, PL, SE	DE (Northern Part), GB, IE	ES
Biogeographical realm	Continental (Baltic Sea Basin)	Atlantic & Continental	Mediterranean & Macaronesia
Assessment carried out at	After Gdańsk event (2020)	Dublin event (2021) and after	Prior to Madrid event (2022) and after
Species considered	Tundra (Bewick's) Swan <i>Cygnus columbianus bewickii</i> Curlew Sandpiper <i>Calidris ferruginea</i> Common Snipe <i>Gallinago gallinago</i> Black-Tailed Godwit <i>Limosa limosa</i> Common Redshank <i>Tringa totanus</i> Aquatic Warbler <i>Acrocephalus paludicola</i> Baltic Dunlin <i>Calidris alpina schinzii</i> Eurasian Curlew <i>Numenius arquata</i>	<i>Anser albifrons flavirostris</i> <i>Aythya marila</i> <i>Calidris alpina</i> <i>Calidris canutus</i> <i>Circus cyaneus</i> <i>Cygnus columbianus bewickii</i> <i>Haematopus ostralegus</i> <i>Limosa lapponica</i> <i>Limosa limosa</i> <i>Numenius arquata</i> <i>Philomachus pugnax</i> <i>Sterna dougallii</i> <i>Tringa totanus</i>	<i>Gallinago gallinago</i> <i>Haematopus ostralegus</i> <i>Limosa limosa</i> <i>Numenius arquata</i> <i>Philomachus pugnax</i> <i>Tringa totanus</i> <i>Vanellus vanellus</i>

Methods. Selection criteria (as of Gdańsk Networking Event)

Parameter	Criterion Type
Number of priority species	Quantitative
Proportion of stage population present – global	Quantitative
Function of the site within the flyway	Quantitative
Population decline rate on site	Quantitative
Proportion of stage population present - flyway	Quantitative
Population size	Quantitative
Site size	Quantitative
Proportion of stage population present - local	Quantitative
Replicability of action(s) proposed	Qualitative
Potential for flyway-level actions	Qualitative
Threats clearly defined and reversible on the site	Qualitative
Knowledge available (evidence basis) for actions	Qualitative
Feasibility of proposed actions	Qualitative
Identification of former sites – building migration paths and re-establishing populations	Qualitative

Methods. Quantitative selection criteria (2)

1.1. Cardinality of the site-supported populations, reflecting the variety of the SPA functions for each migratory species, where the permanent, reproducing, concentration, and wintering populations of the same species are treated as separate entries to the model;

1.2. The sum of proportions of the upper bound counts of all site-supported species populations in their total county's SPA counts (denominated in different counting units, e.g. pairs, individuals, breeding males) divided by the site size (in ha).

Nature2000 database/SDFs

Methods. Qualitative selection criteria (3)

- 2.1. Replicability of action(s) needed for the site.
- 2.2. Potential of the site for the East Atlantic Flyway (EAF) - level actions.
- 2.3. Threats clearly defined and reversible on the site.

Individual/collective expert judgement

Methods. Multi-criteria analysis (e.g., Dodgson, et al. 2009)

Quantitative criteria:
$$P_{ij} = \left(1 + \frac{N_{ij} - N_{wj}}{N_{bj} - N_{wj}} * (Q_{max} - Q_{min})\right) * W_j$$

where:

P_{ij} the standardised score which SPA i receives in accordance with criterion j;

N_{ij} the raw score SPA i receives in accordance with criterion j;

N_{bj} score which the best SPA receives in accordance with criterion j;

N_{wj} score which the worst SPA receives in accordance with criterion j;

W_j weight assigned to criterion j;

Q_{max}, Q_{min} the highest and the lowest scores of the baseline for criterion j, here $Q_{max} = 10$ and $Q_{min} = 1$).

Qualitative criteria:

$$L_{ik} = Q_{ik} * W_k$$

SPAs' total score:

$$S_i = \sum_{j=1}^n P_{ij} + \sum_{k=1}^m L_{ik},$$

where

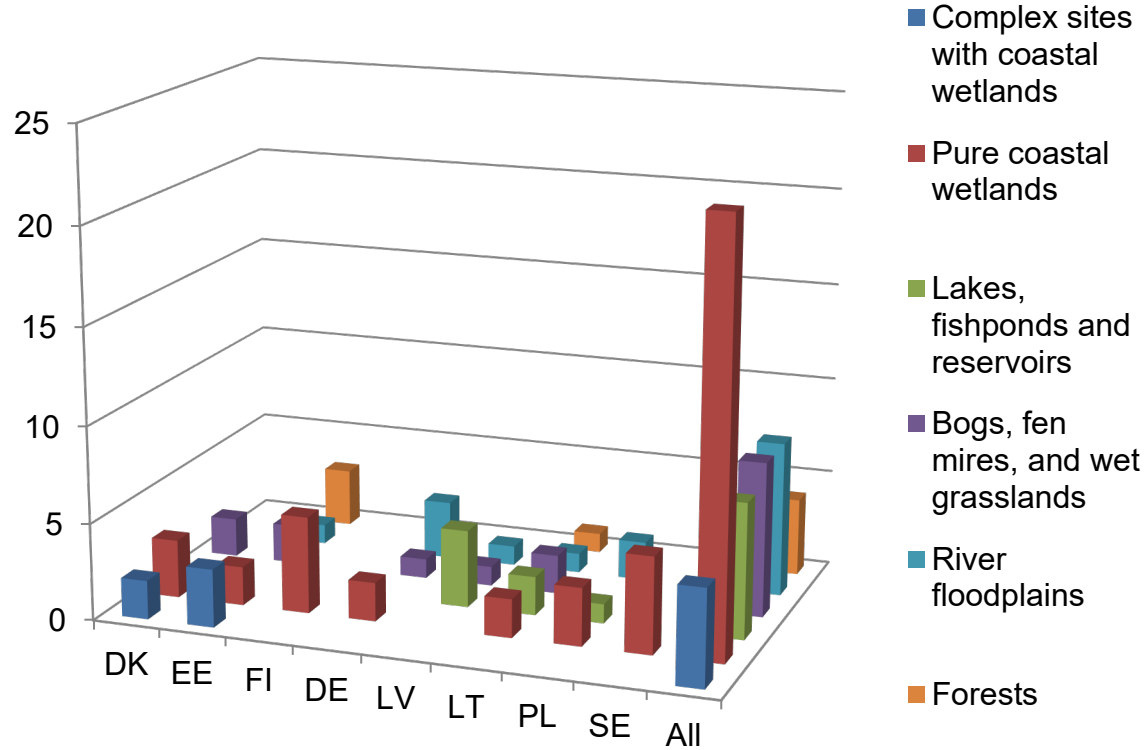
$n=2$ is the number of quantitative criteria used;

$m=3$ is the number of qualitative criteria used.

Methods. Case-studies overview

Countries	EE, DE, DK, FI, LT, LV, PL, SE	DE (Northern Part), GB, IE	ES
Biogeographical realm	Continental (Baltic Sea Basin)	Atlantic & Continental	Mediterranean & Macaronesia
Assessment carried out at	After Gdańsk event (2020)	Dublin event (2021) and after	Prior to Madrid event (2022) and after
Criteria used in assessment	Quantitative and qualitative (except DK, LT, and SE)	Quantitative and qualitative	Quantitative and qualitative
Experts' involvement mode	Individual	Individual, group, mixed	Averaged individual
Experts' results approval	Yes	Yes	No

Results. Baltic NE – a (relative) success story



Selection results (PL)

SPAs	Quantitative criteria			Qualitative criteria				Total
	1.1.	1.2.	Subtotal	2.1.	2.2.	2.3.	Subtotal	
Weights:	0.35	0.2		0.12	0.22	0.11		
Zatoka Pucka	3.1	2.0	3.7	1.2	2.2	1.1	4.5	8.2
Dolina Nidy	1.7	1.0	5.1	1.0	1.1	0.8	2.8	7.9
Delta Świny	2.6	0.3	3.5	1.1	2.2	0.9	4.2	7.7
Ujście Warty	2.6	0.3	2.9	1.2	2.2	1.1	4.5	7.4
Ostoja Biebrzańska	3.5	0.3	2.9	1.2	2.2	1.1	4.5	7.4
Zbiornik Turawa	3.1	0.2	3.2	1.0	2.2	0.9	4.0	7.3
Ujście Wisły	3.1	0.5	2.7	1.2	2.2	1.1	4.5	7.2
Jezioro Miedwie i okolice	2.6	0.6	3.8	0.8	1.8	0.8	3.4	7.2
Puszcza Kampinoska	2.6	0.2	3.3	1.0	1.1	1.1	3.2	6.4
Zbiornik Jeziorsko	3.5	0.2	2.8	0.8	1.8	0.9	3.5	6.3

Results. Irealnd. Dublin NE – a (partly) failed objectification attempt

- an attempt to give a say to a wider range of participating experts;
- criteria weights were to be agreed across the experts involved;
- qualitative scores were to be averaged over the experts involved;
- several iterations were allowed (formalised vs intuitive results);
- success in 2 countries out of 8 involved:
 - GB (Nothern Ireland excluded): one expert + one moderator;
 - DE: a larger group managed the task yielding plausible results even without moderator's assistance;
- the attempt has failed in 6 other countries (including for the Island of Ireland).

Selection results (Northern DE)

SPAs	Quantitative criteria			Qualitative criteria				Total
	1.1.	1.2.	Subtotal	2.1.	2.2.	2.3.	Subtotal	
Weights:	0.25	0.25		0.0	0.25	0.25		
Ramsar-Gebiet S-H Wattenmeer und angrenzende Küstengebiete	2.5	0.3	2.8	0.0	2.3	2.4	4.7	7.4
Niedersächsisches Wattenmeer und angrenzendes Küstenmeer	1.6	0.3	1.8	0.0	2.2	2.4	4.6	6.4
Untereelbe	1.3	0.3	1.6	0.0	2.4	2.4	4.8	6.3
Dümmer	1.2	0.3	1.5	0.0	2.3	2.3	4.6	6.1
Hund und Paapsand	0.6	0.3	0.9	0.0	2.5	2.5	5.0	5.9
Wangerland	0.9	0.3	1.2	0.0	2.3	2.5	4.8	5.9
Hammeniederung	1.2	0.3	1.4	0.0	2.1	2.3	4.4	5.8
Krummhörn	1.0	0.3	1.3	0.0	2.2	2.3	4.4	5.7
Rheiderland	1.0	0.3	1.3	0.0	2.1	2.3	4.4	5.7
Hamburgisches Wattenmeer	0.6	0.3	0.9	0.0	2.3	2.5	4.8	5.7

Dublin Networking Event: lack of result for the Island of Ireland

Key difficulties/mistakes:

- Data and experts from Northern Ireland and from the Republic were pooled;
- Systematically incompatible data of the SDFs between Northern Ireland and the Republic;
- All the Northern Ireland's sites (ASCIs) appeared in the bottom of the joint longlist;
- Long debates: the experts have only agreed on common criteria weights

IE case, second attempt : experts' survey to elicit qualitative scores

- together with BWI;
- questionnaire in Google Forms;
- only the longlisted SPAs of the Republic of Ireland were considered;
- administered to local experts

Selection of the key Natura2000 Special Protected Areas (SPA) for birds' migration in the Republic of Ireland

Dear Colleagues,

BirdWatch Ireland (BWI) is carrying out the selection exercise under auspices of the East Atlantic Flyway Initiative. We would like to ask you opinion on which of the Ireland's internationally protected sites, i.e. Natura2000 Special Protected Areas (SPA) are the most essential to support migration of birds. The results of selection will be taken into account by the European Commission for funding of conservation activities via programmes like LIFE, Interreg, etc.

On the subsequent pages you will be presented a list of twenty preselected sites representing the Republic of Ireland. You will be asked to assign scores to as many of the sites as you like. Every site's assessment has been broken down into three criteria, namely

- replicability of action(s) needed for the site;
- potential of the site for the East Atlantic Flyway (EAF) - level actions;
- threats clearly defined and reversible on the site.

Below we provide the concise descriptions of the selection criteria:

Selection results (IE). Collective scores only

SPAs	Quantitative criteria			Qualitative criteria				Total
	1.1.	1.2.	Subtotal	2.1.	2.2.	2.3.	Subtotal	
Weights:	0.35	0.1		0.1	0.35	0.1		
Wexford Harbour and Slobbs SPA	3.5	0.1	3.6	1.0	3.5	0.6	5.1	8.7
Dundalk Bay SPA	2.9	0.1	3.0	1.0	3.5	0.8	5.3	8.3
Middle Shannon Callows SPA	2.9	0.1	3.0	1.0	3.5	0.8	5.3	8.3
Lough Swilly SPA	2.6	0.1	2.7	1.0	3.5	0.7	5.2	7.9
Cork Harbour SPA	2.6	0.1	2.8	1.0	3.5	0.5	5	7.8
Tacumshin Lake SPA	2.4	0.3	2.6	1.0	3.5	0.6	5.1	7.7
Castlemaine Harbour SPA	2.4	0.1	2.5	1.0	3.5	0.7	5.2	7.7
North Bull Island SPA	2.4	0.1	2.5	1.0	3.5	0.6	5.1	7.6
River Shannon and River Fergus Estuaries SPA	2.4	0.1	2.5	1.0	3.5	0.6	5.1	7.6
Lady's Island Lake SPA	2.4	0.2	2.5	1.0	3.5	0.5	5	7.5

ES case: experts' survey to elicit qualitative scores

- together with SEO;
- questionnaire in Google Forms;
- only the longlisted SPAs of Spain were considered;
- administered to local experts
- weights were assumed equal to those used for Poland;

Selection of the key Natura2000 Special Protected Areas (SPA) for birds' migration in Spain

Dear Colleagues,

SEO/BirdLife is carrying out the selection exercise under the auspices of the East Atlantic Flyway Initiative. We would like to ask your opinion on which of Spain's internationally protected sites, i.e. Natura 2000 Special Protected Areas (SPA) are the most essential to support the migration of birds. The results of the selection will be taken into account by the European Commission for funding conservation activities via programs like LIFE, Interreg, etc.

On the subsequent pages, you will be presented with a list of twenty preselected sites representing Spain. You will be asked to assign scores to as many of the sites as you like. Every site's assessment has been broken down into three criteria, namely

- replicability of action(s) needed for the site;
- potential of the site for the East Atlantic Flyway (EAF) - level actions;
- threats are clearly defined and reversible on the site.

Below we provide concise descriptions of the selection criteria:

Selection results (ES):

SPAs	Quantitative criteria			Qualitative criteria				Total
	1.1.	1.2.	Subtotal	2.1.	2.2.	2.3.	Subtotal	
Weights:	0.35	0.2		0.12	0.22	0.11		
Doñana	3.5	0.4	3.9	0.5	1.3	0.6	2.4	6.2
Marismas de Santoña, Victoria y Joyel y Ría de Ajo	2.8	0.6	3.3	0.4	0.9	0.5	1.8	5.1
Salburua	2.5	0.2	2.7	0.3	0.7	0.3	1.3	4.1
el Fondo d'Elx-Crevillent (ZEPA)	1.6	0.3	1.8	0.5	0.9	0.5	2.0	3.8
Arrozales de Palazuelo y Guadalperales	3.0	0.2	3.2	0.1	0.2	0.1	0.4	3.6
Ría de Villaviciosa	2.0	0.4	2.4	0.2	0.6	0.3	1.1	3.6
ZEPA Humedales de La Mancha	2.0	0.2	2.2	0.3	0.6	0.3	1.3	3.5
Lagunas de Villafáfila	2.0	0.2	2.3	0.3	0.6	0.3	1.2	3.5
Salinas y Arenales de San Pedro del Pinatar	1.8	0.2	2.0	0.2	0.6	0.4	1.2	3.2
Embalse de Valdecañas	2.5	0.2	2.7	0.1	0.1	0.1	0.3	3.1

Discussion, conclusions, and follow-up

- Coastal wetlands absolutely predominate;
- Rankings are clearly affected by the migrating populations of migratory species;
- Data quality is a central issue.

Discussion, conclusions, and follow-up

- Iterative process;
- List of species is key;
- Other modes of experts' involvement;
- Upscaling: the rest of EU countries.

Practical outcomes of the selection exercise: LIFE FlyWaders application

Coordinator: OTOP – BirdLife Poland

Partners: BirdLife International Partners in EE, LT, NL + 3 National Parks in Poland + Tartu University

Target species: Black-Tailed Godwit, Common Redshank, Eurasian Curlew

Covering the entire lifecycle including breeding, resting, feeding, roosting, stop-over and wintering places.

Practical outcomes of the selection exercise: LIFE FlyWaders application

Specific objectives:

- increase of reproductive success rates at population-stabilising levels through restoration of habitats and protection of breeding grounds **in key SPAs**;
- restoration and improvement of connectivity as well as reduction of human pressure from tourism **in key SPAs**;
- systematic adaptation of **key SPA** Management Plans along the entire EAF course.

Target indicators:

- conservation status improved of min.8% of national SPA populations;
- population decline halted in min.50% of project sites;
- breeding success improved by min.20%;
- ca 2,100 ha of habitats restored.

Thank you for your attention and questions!



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