

Falklands wetlands and aquatic habitats: baselines for monitoring future change

Darwin Plus 116

Project and Fieldwork Brief



UK Centre for
Ecology & Hydrology



1. Introduction

The Darwin Plus project 'Falklands wetlands and aquatic habitats: baselines for monitoring future change' will be referred to as 'Wetlands Project' throughout this document. This project and fieldwork brief defines the Wetlands Project's scope in conjunction with the project proposal submitted to and approved by the Darwin Initiative as well as internationally accepted terminology and definitions of wetlands types. The document also defines the aims and objectives of the fieldwork and how the fieldwork plan will address the scope of the project. It is intended that this document will be a reference point for the Project Management Group (PMG) throughout the project.

2. Project Scope

The 'Falkland Islands Biodiversity Framework' (2016 - 2030) (FIG, 2016a) is a threats-based policy, which identifies high, medium and low priority threats, and outlines five strategies in response to the local priority threats. One of the strategies is the 'Falkland Islands Ecoregions, Habitats, Species and Sites Strategy' (2016 – 2020) (EHSSS), which was used to define the scope of the project in the proposal for funding to the Darwin Initiative. This strategy addresses Aichi targets 11, 12, 13 and 15 (see Appendix 1). The EHSSS identifies 11 ecoregions for the Falkland Islands and in the project proposal it was proposed that five of these will be addressed by the Wetlands Project: estuarine, fresh water/riverine, fresh water ponds/lakes, lowlands and montane. As outlined in the project description the project intends to collate evidence-baselines and to produce recommendations for a wetlands action plan for these five ecoregions.

However, these ecoregions are neither defined nor completely mapped for the Falkland Islands (unlike the habitats) and the term 'ecoregion' may have been applied incorrectly for the EHSSS because some of the ecoregions do not match generally accepted definitions¹ of ecoregions. Furthermore, whilst 'estuarine, fresh water/riverine and fresh water ponds/lakes' are very descriptive names suggesting clear definitions, it is unclear what 'lowlands and montane' might refer to, especially in relation to wetlands once the first three ecoregions are covered.

In order for the project's outputs to contribute to international wetlands inventories and UK reporting for overseas territories (OTs), the application of international terminology is crucial for the project even if it conflicts with the terminology of the local policy framework.

For the Wetlands Project, the most relevant international convention, which provides clear terminology and definitions, is the Ramsar Convention. In the 2008 update of the Strategic Framework in Appendix B the Ramsar Classification System provides a list of clearly defined Wetland Types. Wetlands are split into marine / coastal wetlands, inland wetlands and human-made wetlands. As outlined in the project proposal, our Wetlands Project will exclude marine and coastal wetlands because coastal habitats were the focus of the Darwin Plus 065 Coastal Habitat Mapping Project (2017 – 2019). Appendix 2 provides a list of all the other wetland types (inland and human-made) and highlights which occur in the Falkland Islands. Out of the Appendix 2 wetland types existing in the Falklands, type 'U - non-forested peatlands' is excluded from the project scope to avoid overlap with the current Darwin Plus 110 project on peatlands biodiversity led by Falklands Conservation.

¹ Abell *et al.* (2000) define ecoregions as follows: "An ecoregion is defined as a relatively large area of land or water that contains a geographically distinct assemblage of natural communities. These communities (1) share a large majority of their species, dynamics, and environmental conditions, and (2) function together effectively as a conservation unit."

The remaining wetland types that we include within the scope of the Wetlands Project are the following:

- Rivers, streams and creeks (permanent and seasonal)
- Freshwater lakes, over 8 ha (permanent and seasonal)
- Saline and brackish lakes, over 8 ha (permanent and seasonal)
- Saline and brackish marshes, pools and ponds, under 8 ha (permanent and seasonal)
- Freshwater marshes, pools and ponds, under 8 ha (permanent and seasonal)
- Water storage areas (reservoirs)
- Excavations (quarry lakes)

These wetlands types overlap with elements of the ecoregions 'fresh water/riverine' and 'fresh water ponds/lakes' from the project proposal and the EHSSS, remove the 'estuarine ecoregion' from the project proposal and add saline and brackish water bodies to the scope of the project. They also add two human-made wetland types to the scope of the project. For rivers, streams, creeks and freshwater lakes, marshes, pools and ponds lowland and montane examples will be included, which will thereby cover the 'lowlands and montane ecoregions' from the EHSSS. The above list therefore presents the best approach for adhering to the original project proposal whilst complying with international wetland types and definitions.

For these wetland types the project will produce baseline data by collating existing data and generating new data with an extensive fieldwork programme and some continuous monitoring. All data will be combined and analysed to produce recommendations for a wetlands action plan covering the wetland types as outlined in this project brief. Recommendations for long-term indicator monitoring will also refer to these wetland types.

3. Fieldwork – aims and objectives

The fieldwork aims to gather data for all aforementioned wetland types covered within the scope of the Wetlands Project across the Falkland Islands to characterise the natural variability of these wetland types and to define current baselines against which future change can be measured. The fieldwork also aims to instigate long-term monitoring of hydrological variables.

These aims will be achieved by:

- deploying loggers for water level, temperature, light levels, pH and conductivity at strategically selected sites
- visiting as many sites (replicates of the wetland types) as possible within the time frame and budget of the project
- collecting data and samples at each site in relation to hydrological characteristics, chemical properties, invertebrate communities and diatom assemblage

References

Abell, R. A., Olson, D. M., Dinerstein, E., Hurley, P., Diggs, J. T., Eichbaum, W., Walters, S., Wettengel, S., Allnutt, T., Loucks, C.J., Hedao, P. (2000) *Freshwater ecoregions of North America: a conservation assessment* (Vol. 2). Island Press, Washington, D.C.

FIG (2016a) *Falkland Islands Biodiversity Framework 2016 – 2030*. FIG Environmental Planning Department. Available from: <https://www.fig.gov.fk/policy/eviroment/biodiversity-framework>

FIG (2016b) *Falkland Islands Ecoregions, Habitats, Species and Sites Strategy 2016 – 2020*. FIG Environmental Planning Department. Available from: <https://www.fig.gov.fk/policy/eviroment/biodiversity-framework>

Ramsar (2018) *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance of the Convention on Wetlands (Ramsar, Iran, 1971) - 2018 update*. Available from: https://www.ramsar.org/sites/default/files/documents/library/xi.8_annex2_framework_for_new_rs_is_e_revcop13.pdf

Appendix 1: Aichi targets addressed by the Falkland Islands Ecoregions, Habitats, Species and Sites Strategy

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| Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity | |
| Target 11 | By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes. |
| Target 12 | By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained. |
| Target 13 | By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity. |
| Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services. | |
| Target 15 | By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification. |

Appendix 2: Inland wetland and human-made wetland types as listed in Appendix B of Ramsar's Strategic Framework

| Code | Wetland Type | Present in the Falkland Islands | Included in the scope of Wetlands Project |
|-------|---|---------------------------------|---|
| L | Permanent inland deltas | No | No |
| M | Permanent rivers/streams/creeks (includes waterfalls) | Yes | Yes |
| N | Seasonal/intermittent/irregular rivers/streams/creeks | Yes | Yes |
| O | Permanent freshwater lakes (over 8 ha, includes large oxbow lakes) | Yes | Yes |
| P | Seasonal/intermittent freshwater lakes (over 8 ha, includes floodplain lakes) | Yes | Yes |
| Q | Permanent saline/brackish/alkaline lakes | Yes | Yes |
| R | Seasonal/intermittent saline/brackish/alkaline lakes and flats | Yes ² | Yes |
| Sp | Permanent saline/brackish/alkaline marshes/pools | Yes ² | Yes |
| Ss | Seasonal/intermittent saline/brackish/alkaline marshes/pools | Yes | Yes |
| Tp | Permanent freshwater marshes/pools (ponds, below 8 ha, marshes and swamps on inorganic soils; with emergent vegetation water-logged for at least most of the growing season) | Yes | Yes |
| Ts | Seasonal/intermittent freshwater marshes/pools on inorganic soils (includes sloughs, potholes, seasonally flooded meadows, sedge marshes) | Yes | Yes |
| U | Non-forested peatlands (includes shrub or open bogs, swamps, fens) | Yes | No |
| Va | Alpine wetlands (includes alpine meadows, temporary waters from snowmelt) | No | No |
| Vt | Tundra wetlands (includes tundra pools, temporary waters from snowmelt) | No | No |
| W | Shrub-dominated wetlands (shrub swamps, shrub-dominated freshwater marshes, shrub carr, alder thicket on inorganic soils) | No | No |
| Xf | Freshwater, tree-dominated wetlands (includes freshwater swamp forests, seasonally flooded forests, wooded swamps on inorganic soils) | No | No |
| Xp | Forested peatlands (peatswamp forests) | No | No |
| Y | Freshwater springs; oases | No | No |
| Zg | Geothermal wetlands | No | No |
| Zk(b) | Karst and other subterranean hydrological systems (inland) | No | No |
| 1 | Aquaculture (e.g., fish/shrimp) ponds | No | No |

| | | | |
|-------|---|-----|-----|
| 2 | Ponds (includes farm ponds, stock ponds, small tanks; (generally below 8 ha) | No | No |
| 3 | Irrigated land (includes irrigation channels and rice fields) | No | No |
| 4 | Seasonally flooded agricultural land (including intensively managed or grazed wet meadow or pasture) | No | No |
| 5 | Salt exploitation sites (salt pans, salines, etc.) | No | No |
| 6 | Water storage areas (reservoirs/barrages/dams/impoundments , generally over 8 ha) | Yes | Yes |
| 7 | Excavations; gravel/brick/clay pits; borrow pits, mining pools | Yes | Yes |
| 8 | Wastewater treatment areas (sewage farms, settling ponds, oxidation basins, etc.) | No | No |
| 9 | Canals and drainage channels, ditches | No | No |
| Zk(c) | Karst and other subterranean hydrological systems (human-made) | No | No |

² – Presence in the Falkland Islands is restricted to saline and brackish waterbodies; alkaline lakes are highly unlikely to occur due to the underlying geology.