
MOVE2GBIF - Mobilizing animal GPS tracking data to Movebank and GBIF

A Data Management Plan created using DMPonline.be

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Template: INBO Project focus template

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Project abstract:

The goal of this project is to develop an open source workflow to make animal GPS tracking data at Movebank accessible to the GBIF community. This workflow will consist of best practices and software to allow semi-automated publication of Movebank data to GBIF. We will test these by publishing a set of datasets from NIOO-KNAW and INBO that represent similar and relatively straightforward methodology and quality (avian GPS tracking). Doing so will provide a basis for other use cases of sensor-based occurrence data (acoustic telemetry, bird ringing data, camera traps). In this project, we will: 1. Publish five NIOO-KNAW bird GPS tracking studies as open data on Movebank 2. Create best practices and software to publish Movebank animal GPS tracking data to GBIF 3. Publish 11 bird GPS tracking datasets from Movebank to GBIF

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DMP information

DMP Title

DMP for MOVE2GBIF

DMP Description

This DMP summarizes our data publication intentions for the MOVE2GBIF project. Data will be published on Movebank, Zenodo and GBIF.

DMP Authors/Contacts

Desmet, Peter (INBO)

DMP Language

English

Project information

Project title

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Project description

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1. Publish five NIOO-KNAW bird GPS tracking studies as open data on Movebank
2. Create best practices and software to publish Movebank animal GPS tracking data to GBIF
3. Publish 11 bird GPS tracking datasets from Movebank to GBIF

Link(s) to existing information/documentation on the project

- INBO: <https://www.inbo.be/inbo/en-GB/projects/move2gbif-mobilizing-animal-gps-tracking-data-to-movebank-and-gbif-evinbo>
- NLBIF: <https://www.nlbif.nl/move2gbif-gps-zendergegevens-van-dieren-mobiliseren-naar-movebank-en-gbif/>

Project contact

Jongejans, Eelke (Radboud University); Desmet, Peter (INBO)

Dataset(s) information

What types and formats of data will the project generate/collect?

Bird **GPS** tracking data, with associated **reference data** (metadata about bird/tag deployments), **acceleration data** and (for one study) **behaviour data**.

Will you re-use any existing data and, if so, how?

No new data will be generated for this project. All data are existing bird GPS tracking data, collected using UvA-BiTS trackers and organized in 11 studies/projects.

What is the origin of the data?

Source data are stored at UvA-BiTS (<https://uva-bits.nl>), a bird tracking system and data management platform developed by the University of Amsterdam.

Dataset(s) name(s) or title(s)

- H_GRONINGEN - Western marsh harriers (*Circus aeruginosus*, Accipitridae) breeding in Groningen (the Netherlands)
- HG_OOSTENDE - Herring gulls (*Larus argentatus*, Laridae) breeding at the southern North Sea coast (Belgium)
- LBBG_ZEEBRUGGE - Lesser black-backed gulls (*Larus fuscus*, Laridae) breeding at the southern North Sea coast (Belgium and the Netherlands)
- MH_ANTWERPEN - Western marsh harriers (*Circus aeruginosus*, Accipitridae) breeding near Antwerp (Belgium)
- MH_WATERLAND - Western marsh harriers (*Circus aeruginosus*, Accipitridae) breeding near the Belgium-Netherlands border
- O_AMELAND - Eurasian oystercatchers (*Haematopus ostralegus*, Haematopodidae) breeding on Ameland (the Netherlands)
- O_ASSEN - Eurasian oystercatchers (*Haematopus ostralegus*, Haematopodidae) breeding in Assen (the Netherlands)
- O_BALGZAND - Eurasian oystercatchers (*Haematopus ostralegus*, Haematopodidae) wintering on Balgzand (the Netherlands)
- O_SCHIERMONNIKOOG - Eurasian oystercatchers (*Haematopus ostralegus*, Haematopodidae) breeding on Schiermonnikoog (the Netherlands)
- O_VLIELAND - Eurasian oystercatchers (*Haematopus ostralegus*, Haematopodidae) breeding and wintering on Vlieland (the Netherlands)
- O_WESTERSCHELDE - Eurasian oystercatchers (*Haematopus ostralegus*, Haematopodidae) breeding in East Flanders (Belgium)

Dataset description(s)

Dataset shortname	Start year	End year	Movebank ID	Zenodo	GBIF
H_GRONINGEN	2012	2018	922263102	DOI	
HG_OOSTENDE	2013	active	986040562	DOI	
LBBG_ZEEBRUGGE	2013	active	985143423	DOI	
MH_ANTWERPEN	2018	active	938783961	DOI	
MH_WATERLAND	2013	2018	604806671	DOI	
O_AMELAND	2010	2013	1605803389	DOI	
O_ASSEN	2018	2019	1605797471	DOI	
O_BALGZAND	2010	2014	1605798640	DOI	
O_SCHIERMONNIKOOG	2008	2014	1605799506	DOI	
O_VLIELAND	2016	2021	1605802367	DOI	
O_WESTERSCHELDE	2018	active	1099562810	DOI	

Link(s) to existing information/documentation on the dataset(s)

The 11 datasets are listed with other bird GPS tracking datasets at <https://github.com/inbo/bird-tracking#datasets>

Research team contact for the dataset (business owner/contact/PI)

Desmet, Peter (INBO); van der Kolk, Henk-Jan (BLWG); Ens, Bruno (Sovon)

Support team contact for the dataset(s) (database manager/contact)

Desmet, Peter (INBO)

Data standards or conventions used

What (meta)data standards, methodologies, vocabularies, are or will be followed to ensure that the data can easily be used in combination with similar data from other sources (so-called interoperable data)?

1. Data are first uploaded to **Movebank** which follows the [Movebank data model](#).
2. Data are then downloaded from Movebank and uploaded to **Zenodo**. This process is lossless. Data are expressed using terms from the [Movebank Attribute Dictionary](#) and bundled as a [Frictionless Data Package](#), metadata are expressed in the Zenodo metadata format.
3. Data are then transformed to occurrence data and uploaded to **GBIF**. This process is lossy. Data are expressed in [Darwin Core](#), metadata are expressed in the [EML](#) format.

Data access and sharing

What is the current accessibility of the dataset?

The accessibility depends on the platform:

- **UvA-BiTS** (all 11 datasets): access to a limited set of users (typically PI and data manager). 5 datasets (O_AMELAND, O_ASSEN, O_BALGZAND, O_SCHIERMONNIKOOG and O_VLIELAND) are currently only stored at UvA-BiTS.
- **Movebank** (6/11 datasets): publicly accessible. A limited number of the living datasets have an embargo of 6 months in which recent data are only accessible to a number of collaborators.
- **Zenodo** (6/11 datasets): publicly accessible.
- **GBIF** (3/11 datasets): publicly accessible, but only currently only hosts older versions (HG_OOSTENDE, LBBG_ZEEBRUGGE and MH_WATERLAND).

Are there any restrictions on making the data publicly available?

The goal of this project is to make these data publicly available. Data will be published under a CC0 waiver.

How will the data be made publicly available? (If this is not yet the case)

1. All datasets will be uploaded from UvA-BiTS to **Movebank**. For 5 datasets this will be new, the 6 others will be updated with more recent data.
2. All datasets will then be deposited on **Zenodo**. Again, this will be new for 5 datasets, the 6 others will be updated with more data. Each dataset will get a DOI.
3. All datasets will then be downsampled (reference data + GPS data at 1 record/hour) to occurrence data and published to **GBIF**. This is new for all datasets, except for 3 previously published datasets which will be replaced more recent versions that use this common approach. Each dataset will get a DOI.

Data storage and back-up

How will the data be stored and backed up?

The data will be available at 3 places:

- Source: UvA-BiTS
- Active use and accessibility: Movebank
- Long-term preservation: Zenodo, which acts as backup for the data.