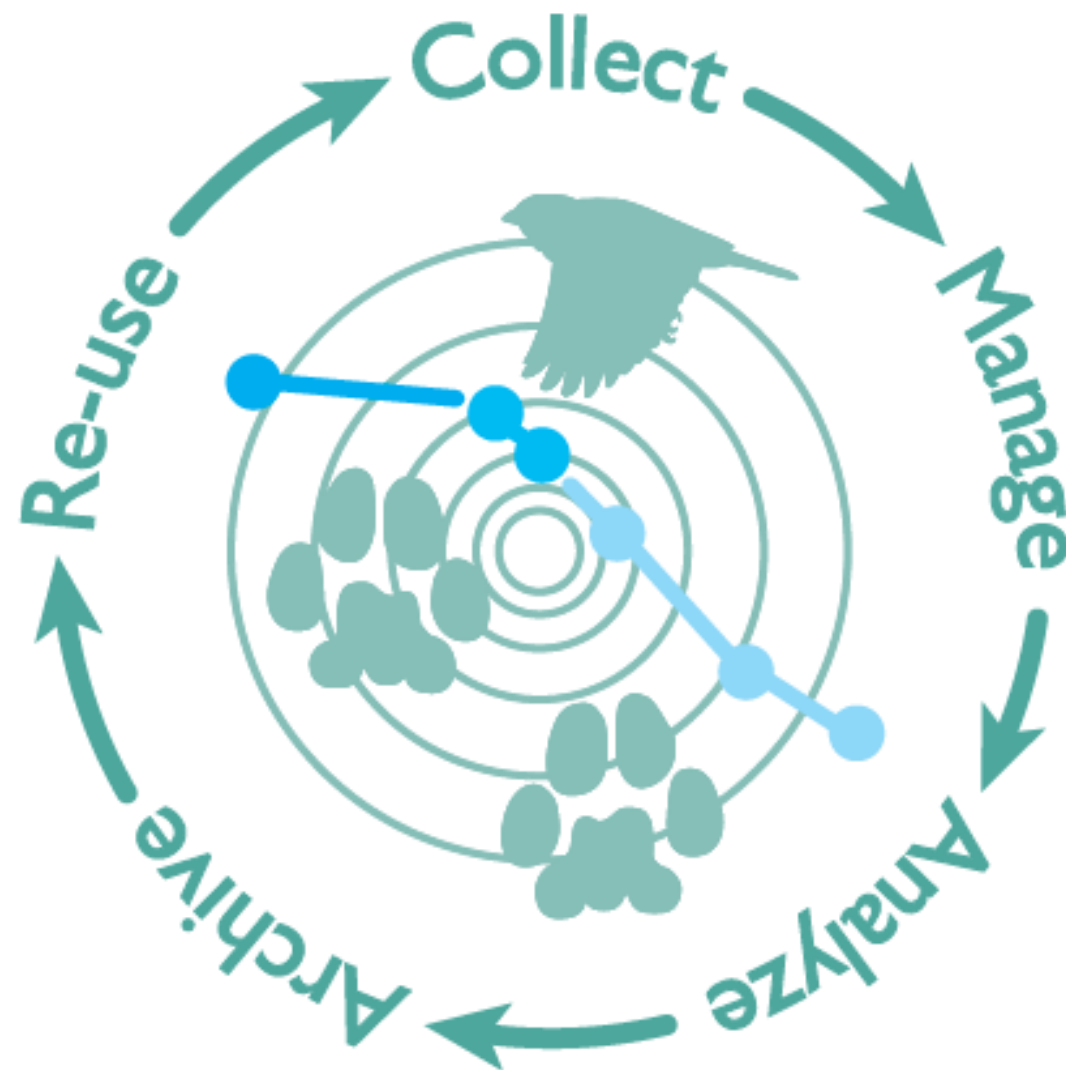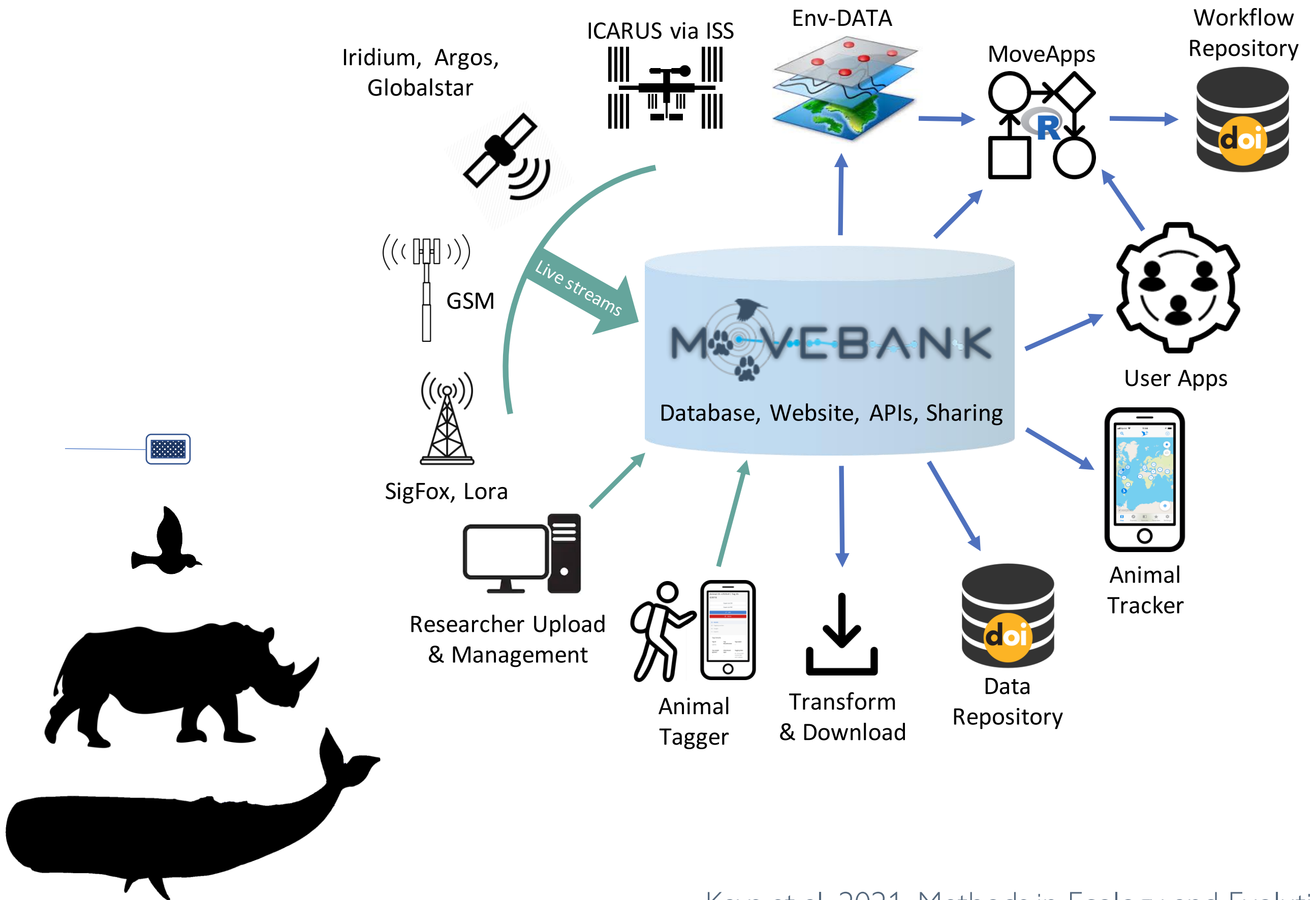# Movebank is a **global database**
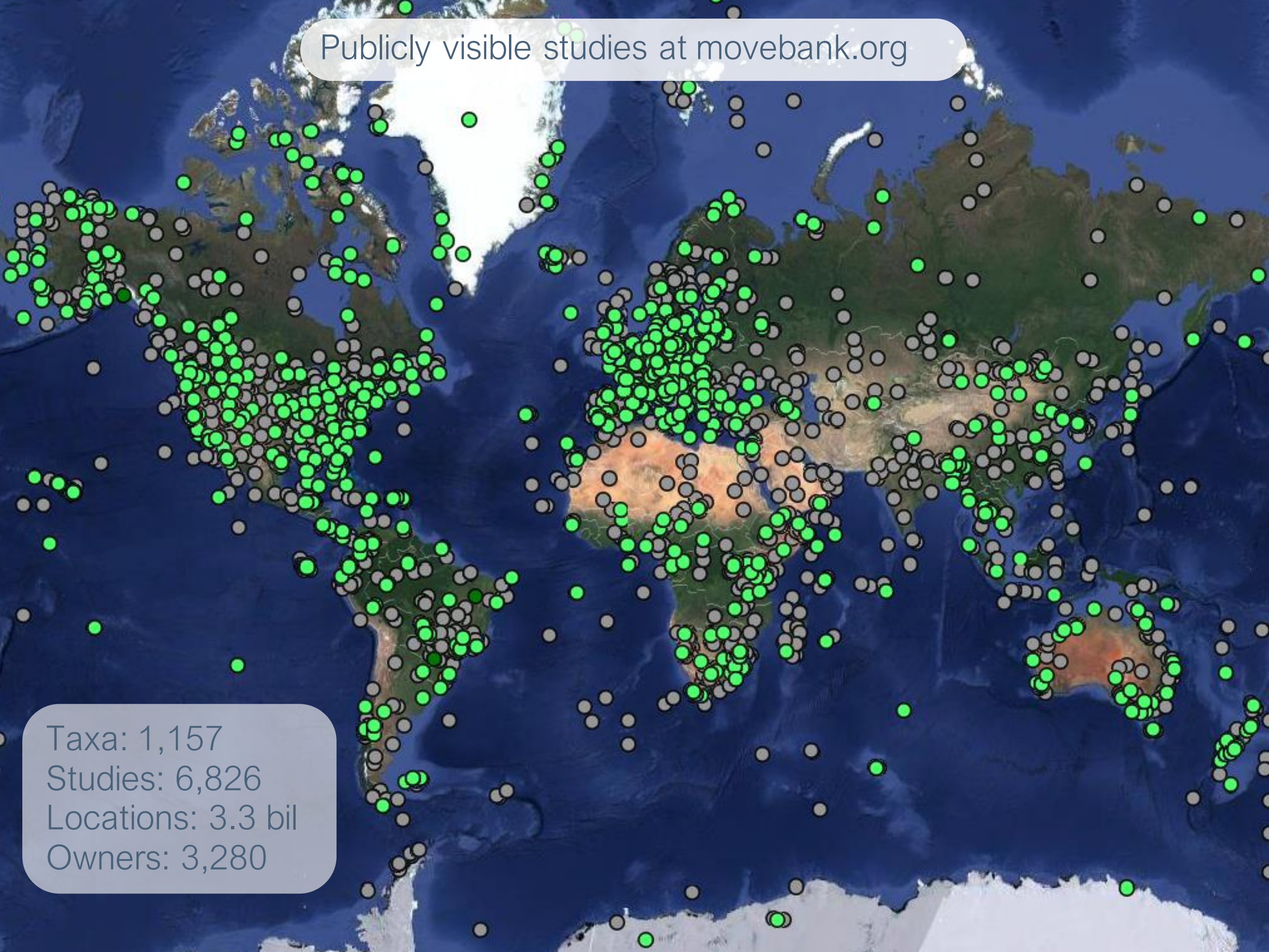
for animal tracking and animal-borne sensor data

and a **tool**

for working with data throughout its life cycle.

Iridium, Argos, Globalstar

ICARUS via ISS

Env-DATA

MoveApps

Workflow Repository

Live streams

GSM

MOVEBANK

Database, Website, APIs, Sharing

User Apps

SigFox, Lora

Researcher Upload & Management

Animal Tagger

Transform & Download

Data Repository

Animal Tracker

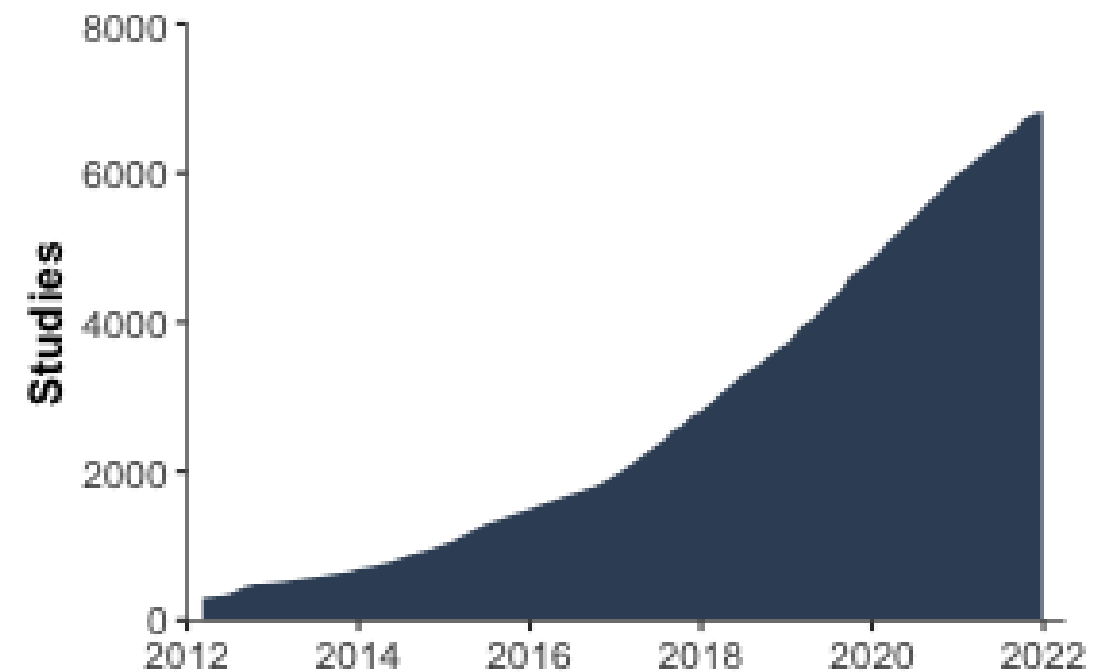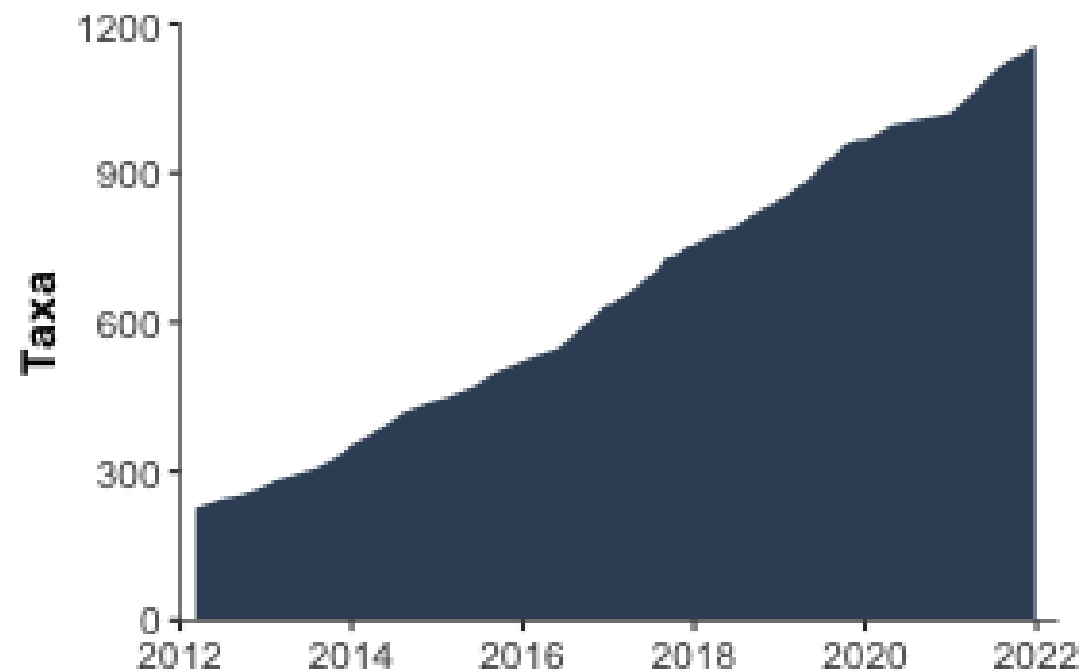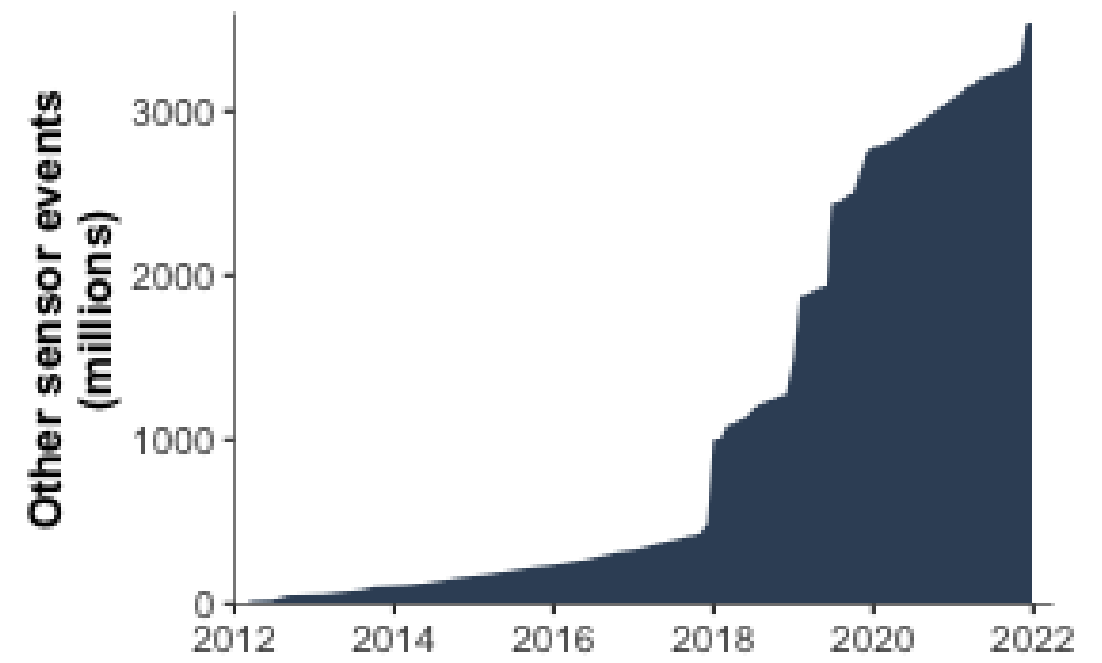Kays et al. 2021, Methods in Ecology and Evolution
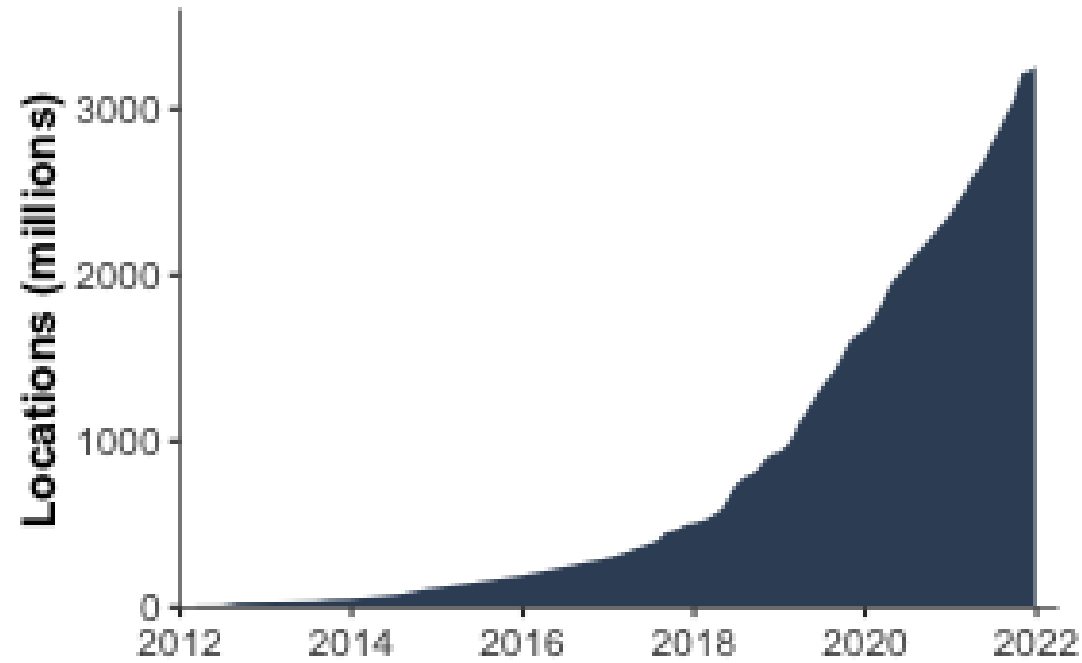
Publicly visible studies at movebank.org

Taxa: 1,157
Studies: 6,826
Locations: 3.3 bil
Owners: 3,280

Database Content

Harmonized Data

Tracking methods

   Radio & acoustic telemetry

   Argos Doppler

   GPS

   Radio telemetry

   Solar geolocator

   Bird rings, markings

Other sensors
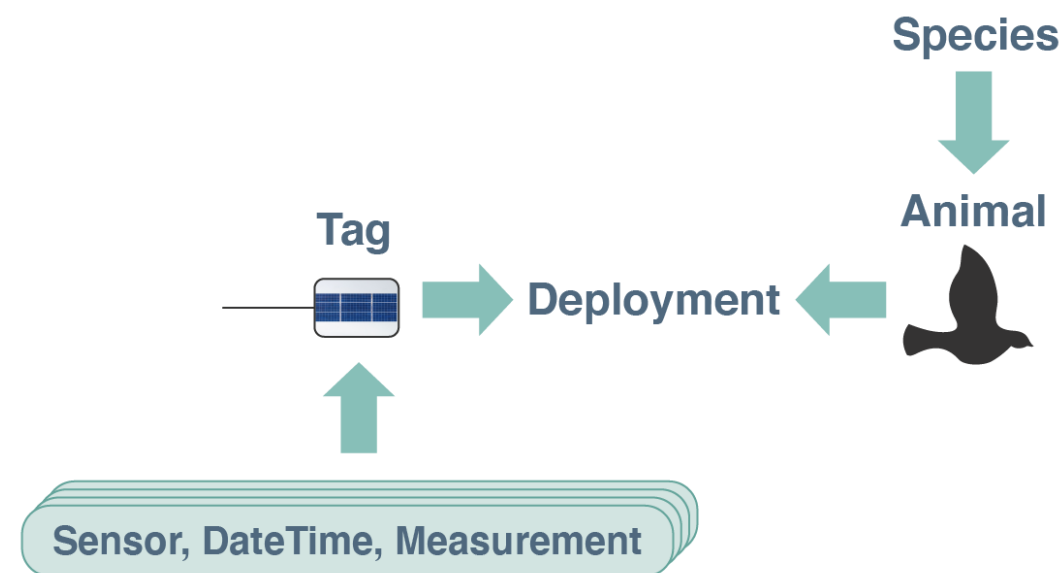
   Accelerometer

   Barometer

   Gyroscope

   Light levels

   Magnetometer

   Orientation

   Temperature

Species

Animal

Tag

Deployment

Sensor, DateTime, Measurement

Flexible Sharing

Public or controlled-access sharing, decided by data owners.

Permissions

Visibility of study and tracks

Visibility of study name and summary	Public
Default visibility of tracking data	Public
☐ Reset visibility of all tracking data to default⑦	

Data Downloads

☑ Restrict data downloads to	Collaborators Only
☑ Prompt users to accept license terms?⑦	

Embargoes for recent data or to schedule future archiving.

Public Embargo

☐ Restrict public access, as selected in **Visibility of Study and Tracks** and **Data Download** above, to events older than

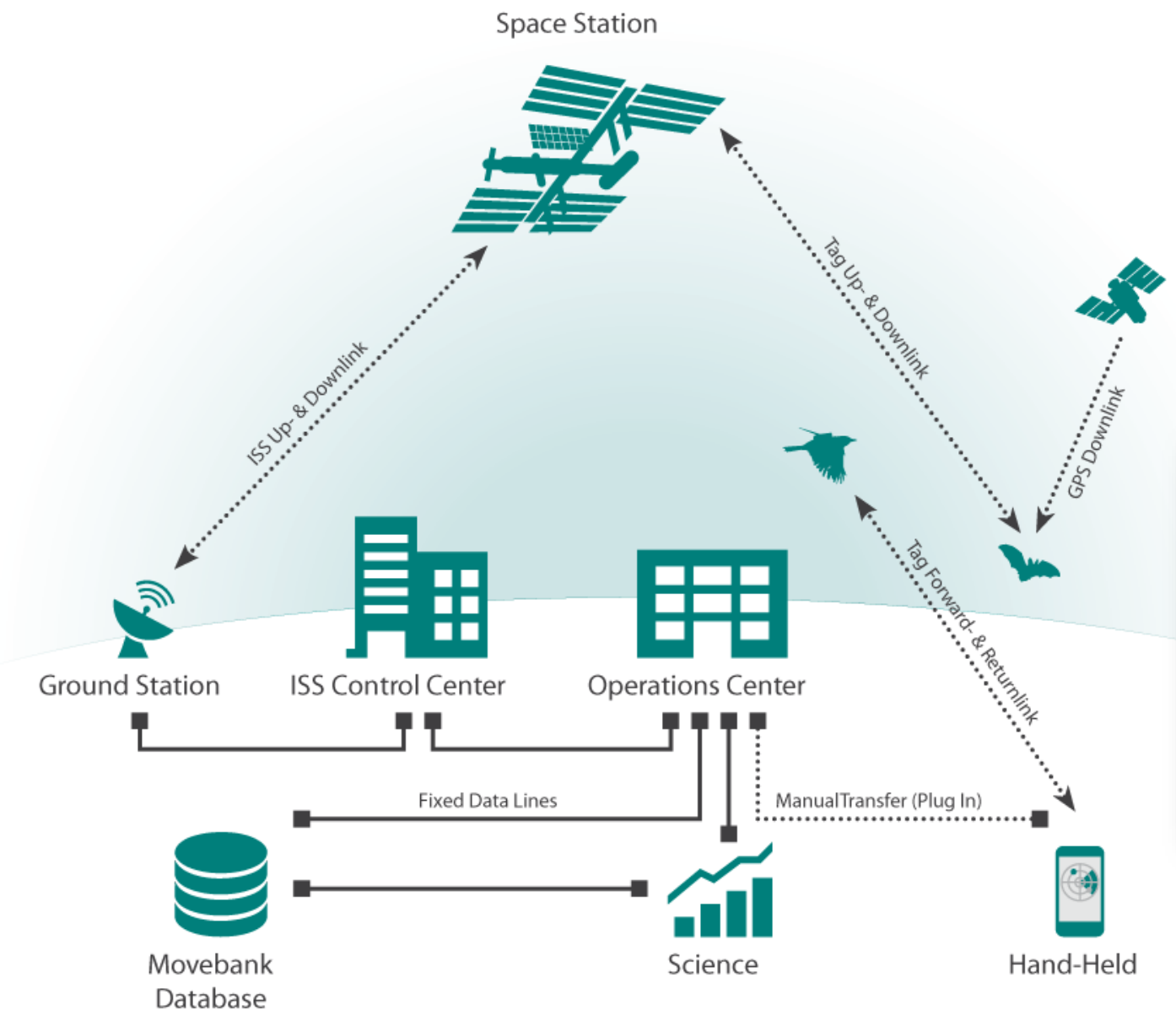You can optionally select a date in the future on which your study will become public.

☐ Allow the public to view tracks and download data after this date

License type after this date

movebank.org/cms/movebank-content/permissions-and-sharing

Data Feeds

25+ tag manufacturers

Argos, GSM, ICARUS, Iridium, GlobalStar, wireless networks

Manage live feed: CTT GSM

Provider — CTT GSM
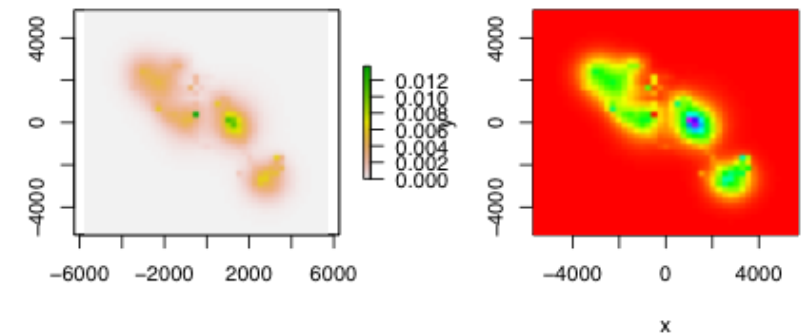Feed subscriber — j.schmoe (Joseph Schmoe)
Feed activity — ● on ○ off

Feed elements:

Tag ID	Data points	Last import	Status
89014103256540803045	2184	Thu May 15 10:20:34 GMT-400 2014	OK
89014103256540803078	2964	Thu May 15 10:20:30 GMT-400 2014	OK
89014103256345345796	6484	Wed May 21 08:37:45 GMT-400 2014	OK
89014103256345345804	5313	Wed May 21 08:40:03 GMT-400 2014	OK

movebank.org/cms/movebank-content/live-data-feeds

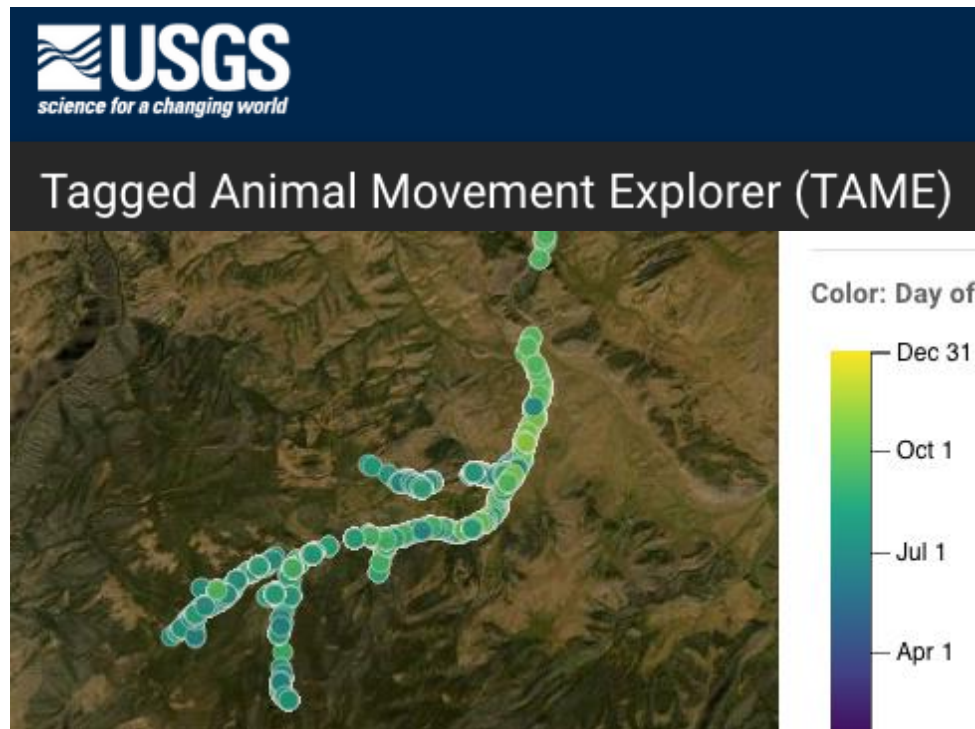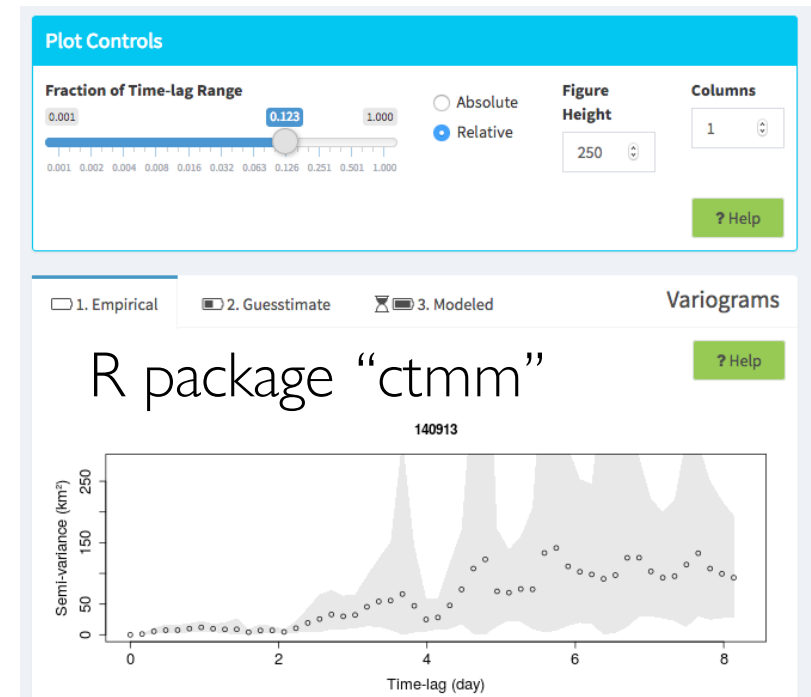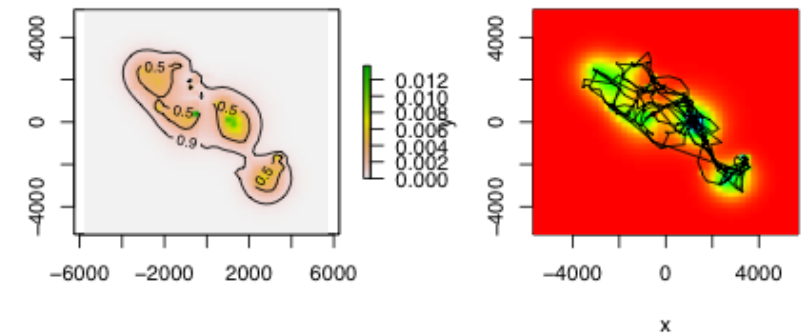# Uniform Access Protocols

File Downloads

○ Csv   ○ ESRI shapefile
○ Excel 97   ○ GoogleEarth (Tracks)
○ Excel 2007   ○ GoogleEarth (Home Range)

Direct access via REST API

R package "move"

R package "ctmm"

Responsive Tracking

Mortality detection
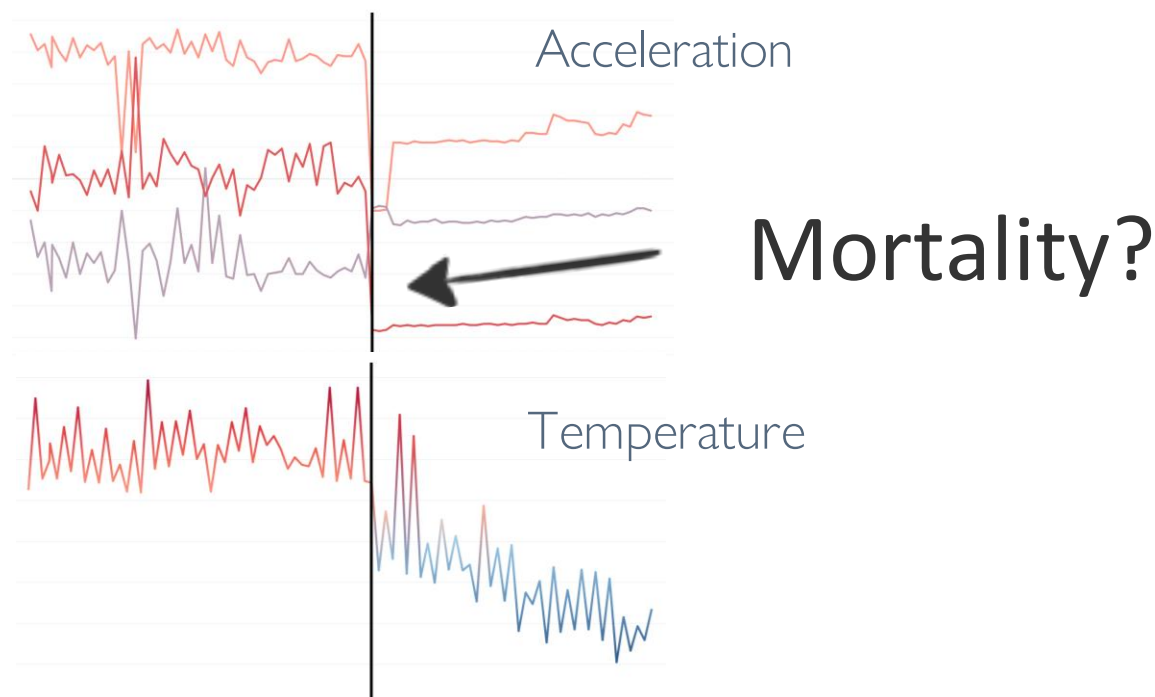
1. Live data feeds

Responsive Tracking

Mortality detection

1. Live data feeds

2. MoveApps Morning Report
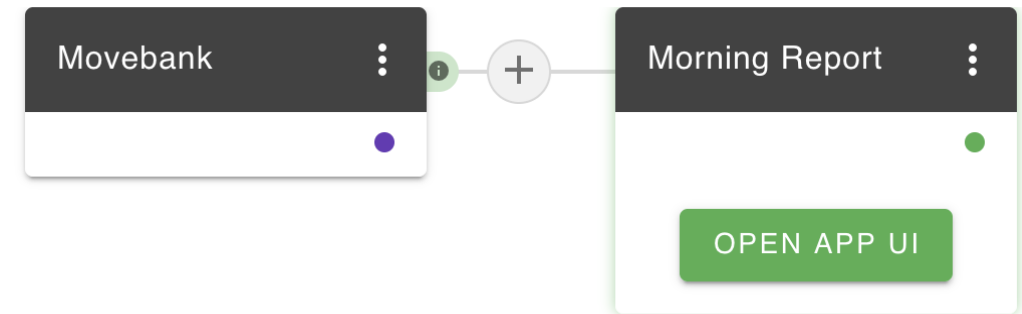
Morning Report

	Show Plots and Map	Animal	Tag	First timestamp	Last timestamp	Last timestamp local tz	N positions last 24h	N positions last 7d	Moved distance last 24h	Moved distance last 7d	Event last 7d
1	⦿	HL384_2749_	2749	2013-07-03 09:10:56	2014-09-10 04:41:02	2014-09-10 07:41:02	10	70	9.548 km	39.435 km	-
2	○	HL432_2746_	2746	2013-08-05 18:34:44	2014-09-22 20:00:11	2014-09-22 23:00:11	0	0			no data
3	○	HL442_3036_	3036	2013-07-15 07:25:23	2014-05-08 18:00:41	2014-05-08 21:00:41	0	0			no data
4	○	HL451_3062_	3062	2013-07-16 12:20:23	2014-09-04 07:41:14	2014-09-04 10:41:14	218	1517	42.339 km	171.717 km	-

Acceleration

Mortality?

Temperature

Kays et al. 2022, Meth Ecol Evol.

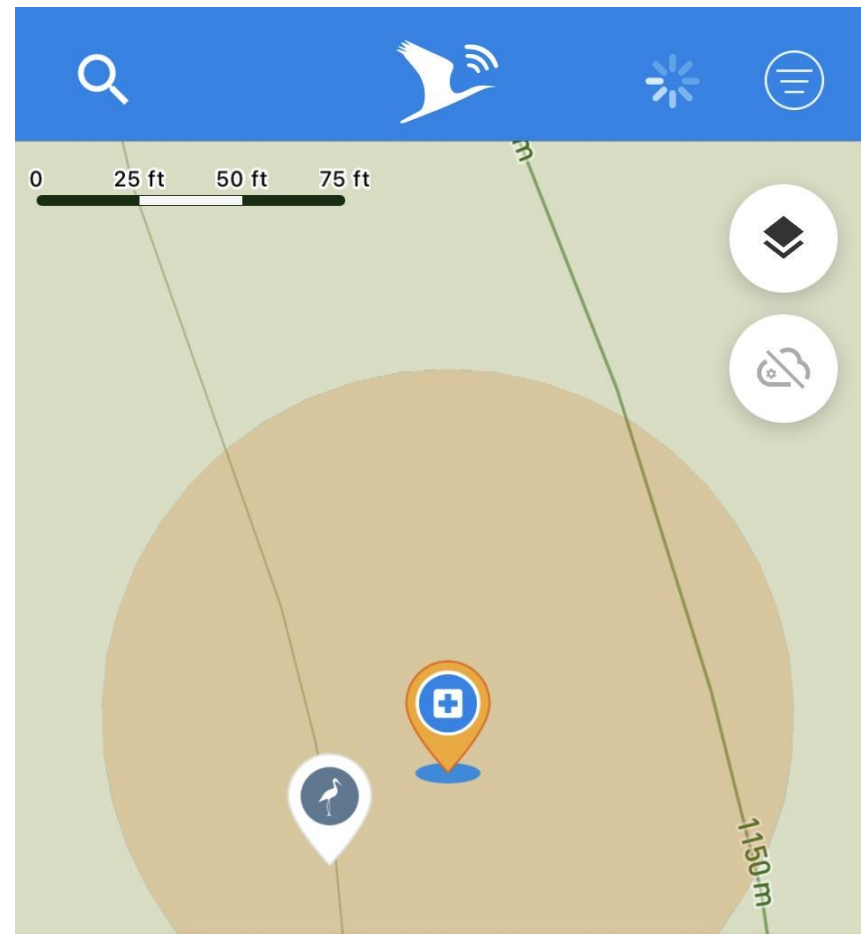White stork tracking, Max Planck Institute of Animal Behavior
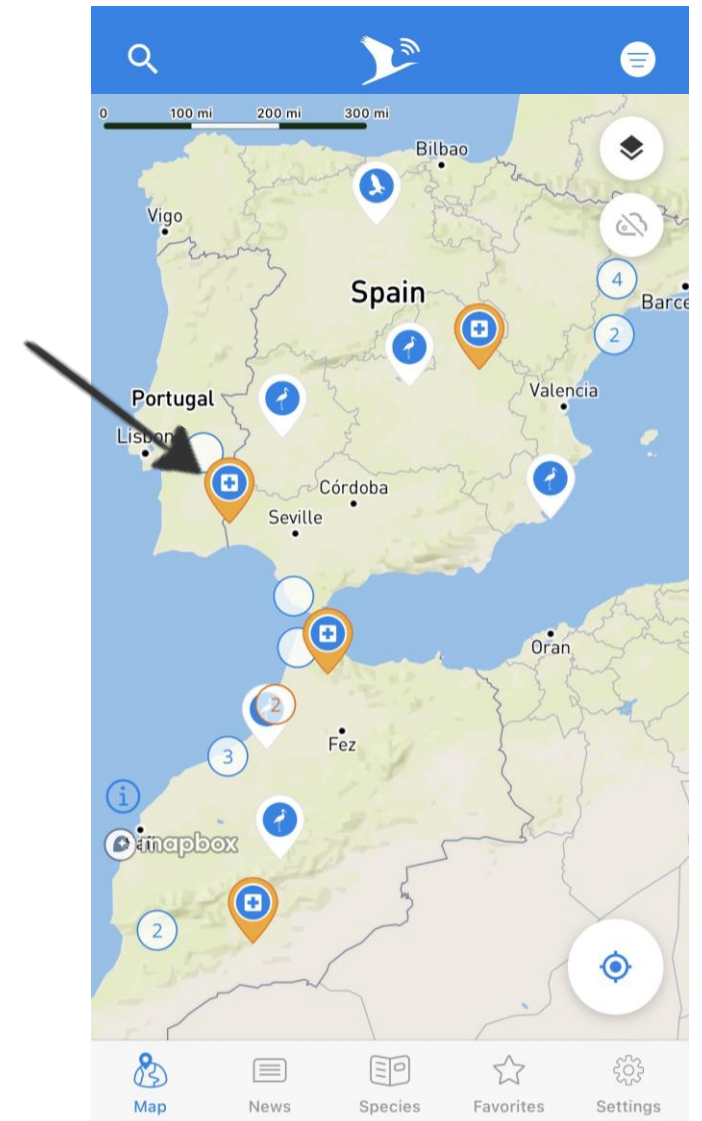
Responsive Tracking

Mortality detection

1. Live data feeds

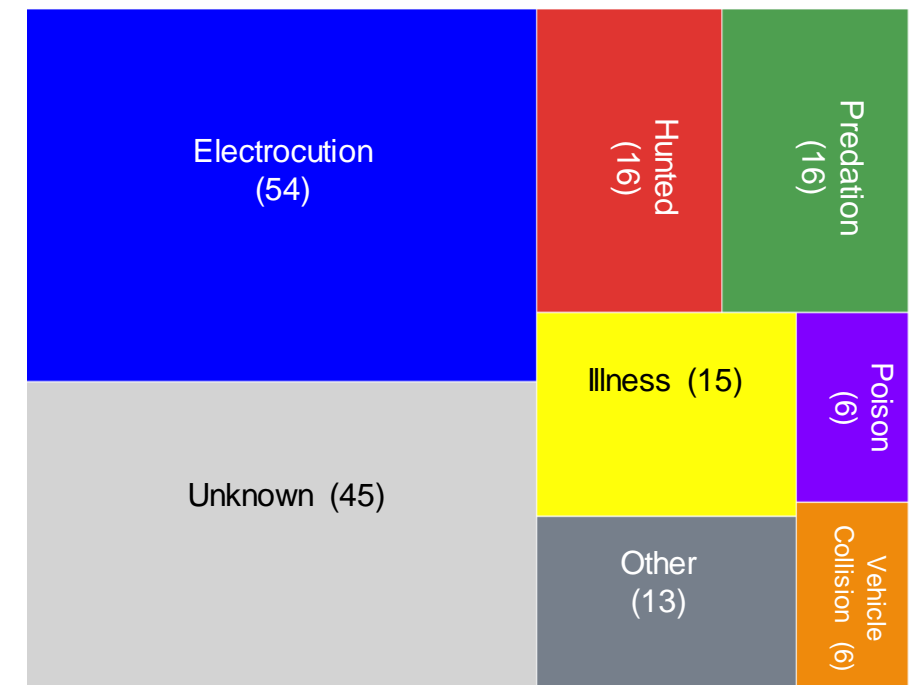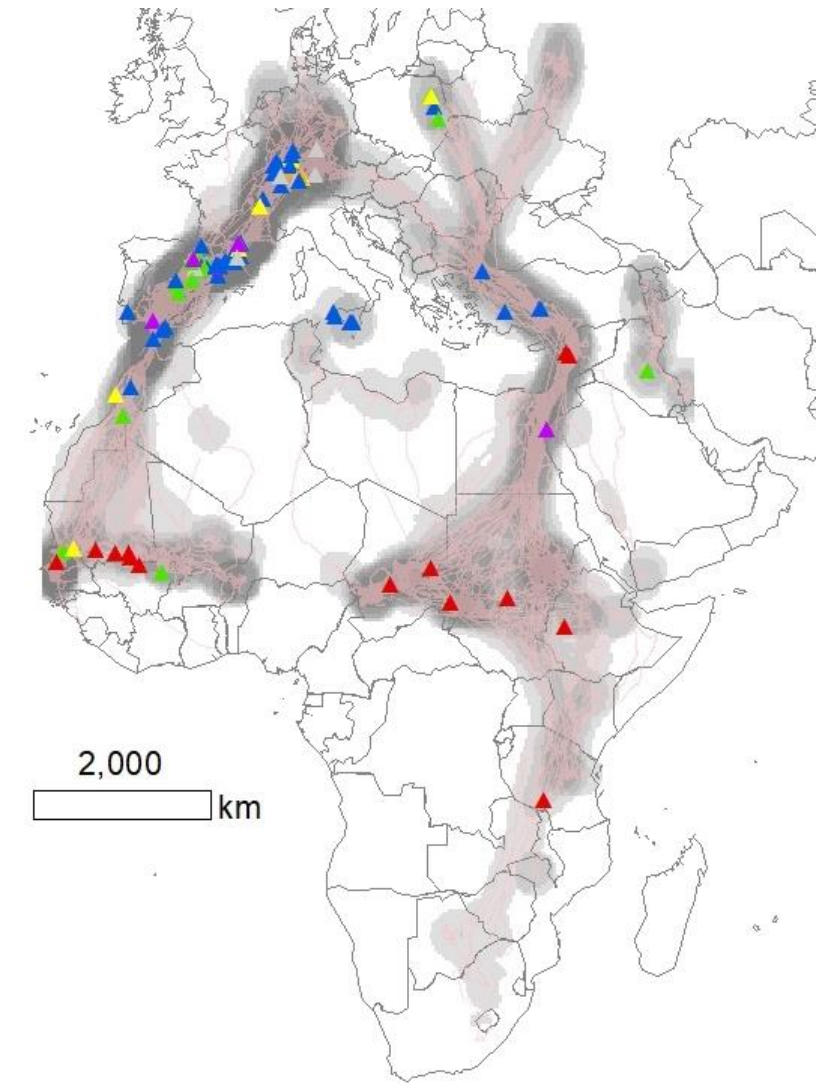2. MoveApps Morning Report

3. Animal Tracker alert

Alert

Transmitter Recovery - Mirabelle
Sender Recovery

White Stork Mirabelle´s
transmitter has to be recovered in
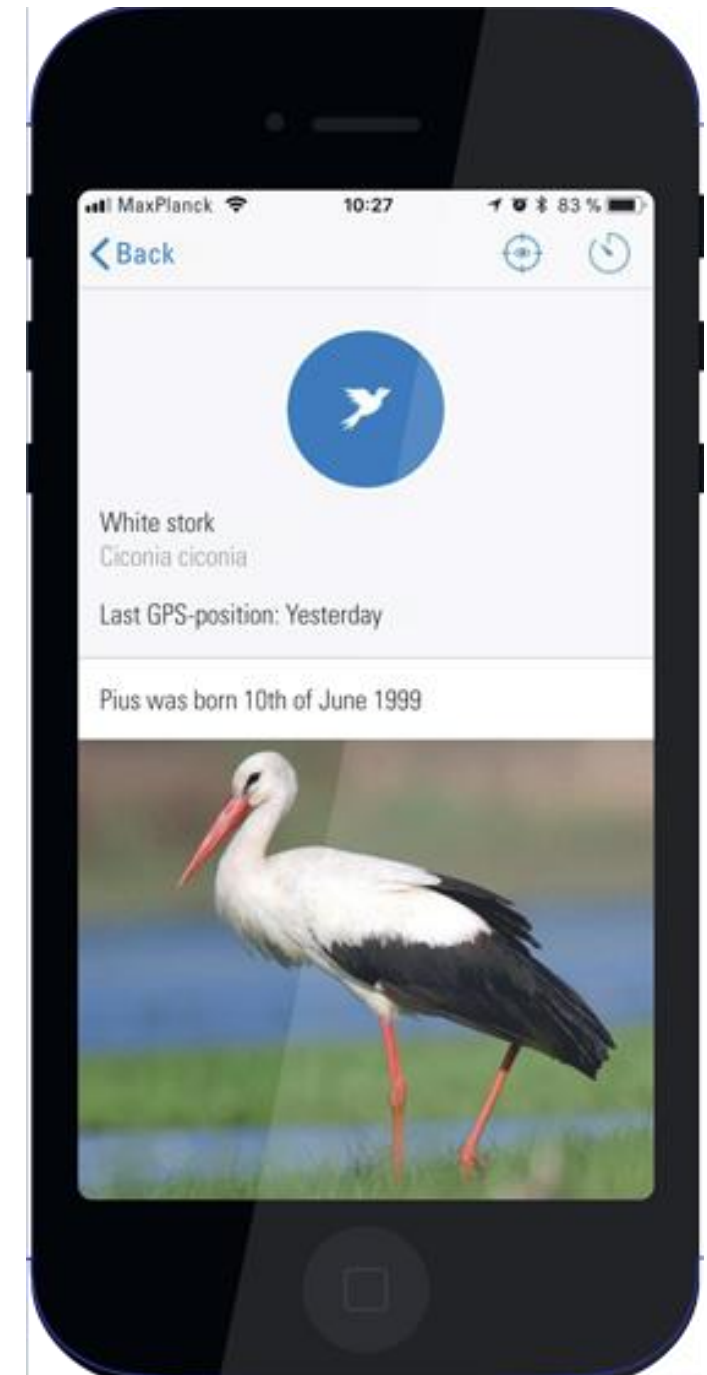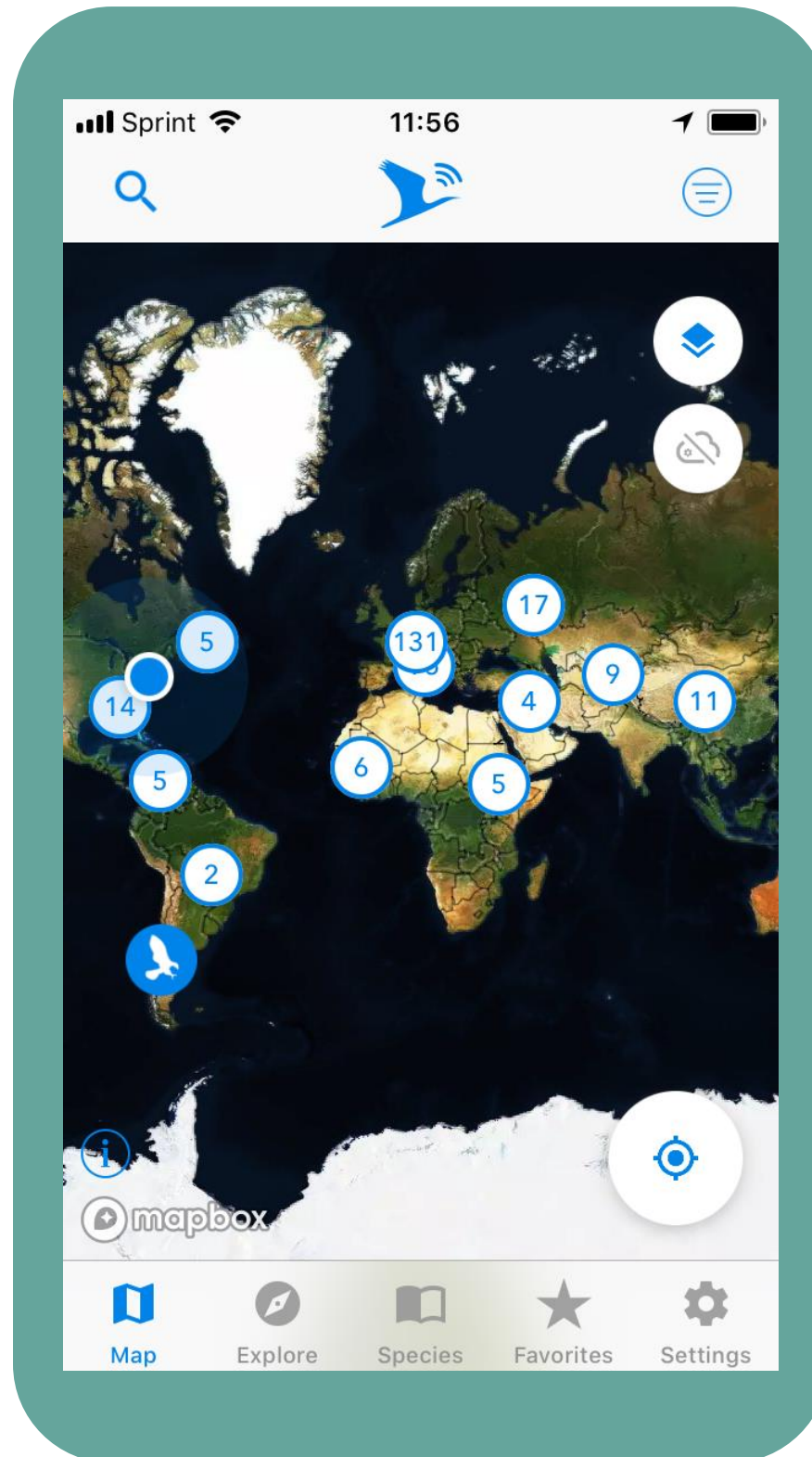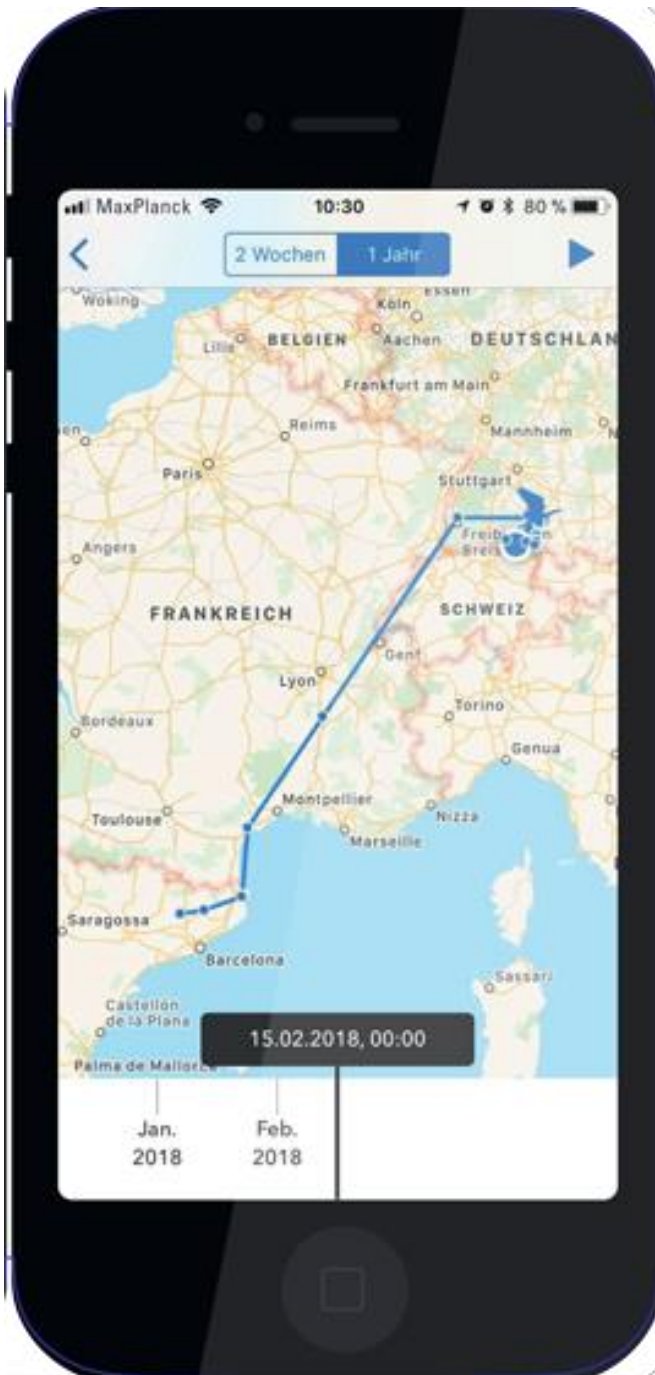Spain, at coordinates: 40.76052 /
-2.167536

Responsive Tracking

Mortality detection

1. Live data feeds

2. MoveApps Morning Report

3. Animal Tracker alert

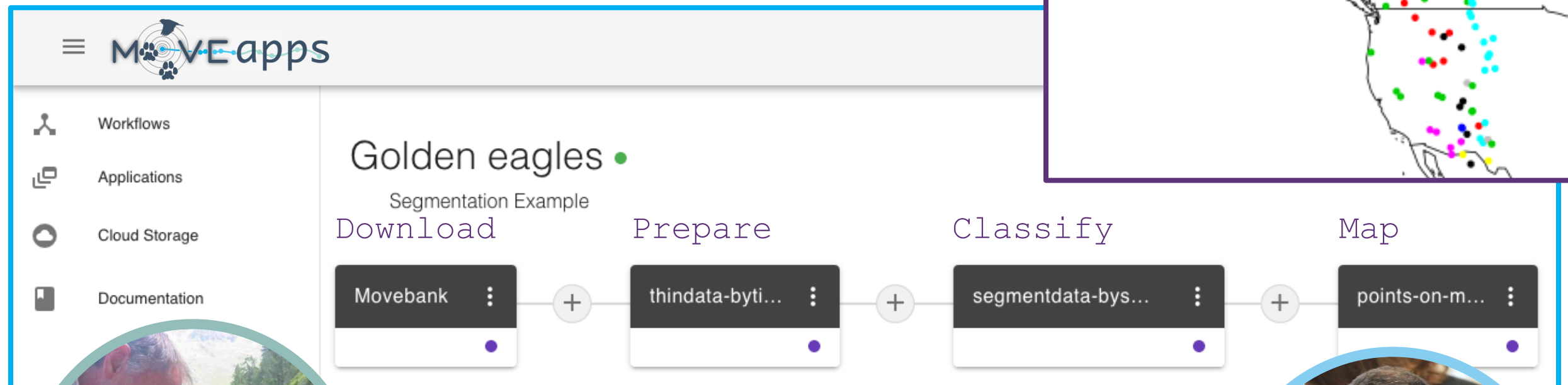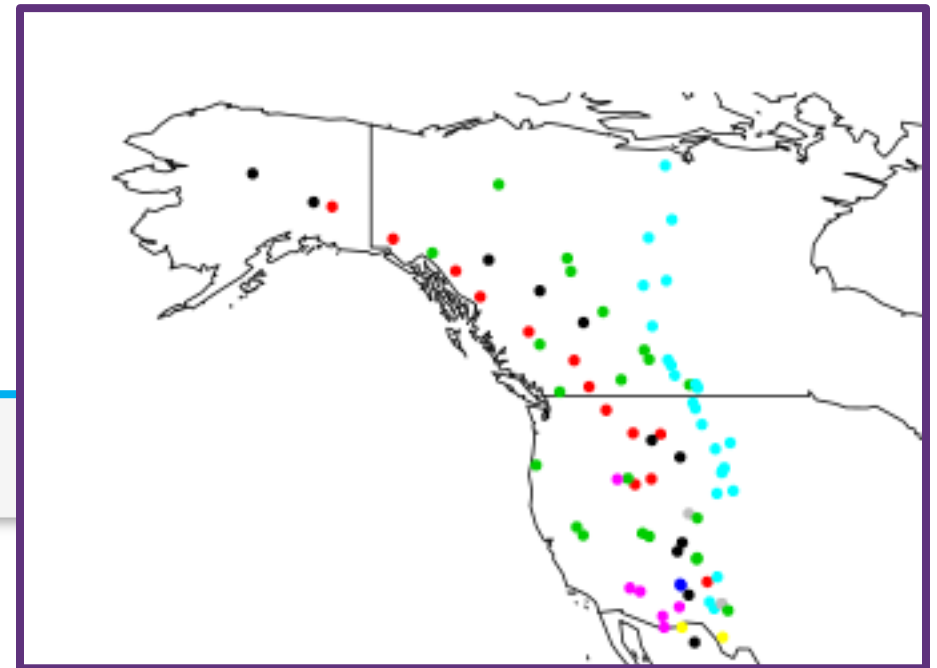4. Cause of mortality for 171 white storks

2,000 km

Electrocution (54)

Hunted (16)

Predation (16)

Illness (15)

Poison (6)

Unknown (45)

Other (13)

Vehicle Collision (6)

Kays et al., in review, Meth Ecol Evol.

White stork tracking, Max Planck Institute of Animal Behavior

Animal Tracker App

MoveApps

Build repeatable workflows out of user-contributed analysis apps.
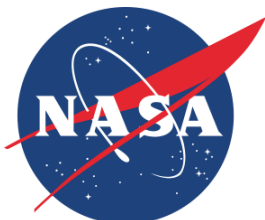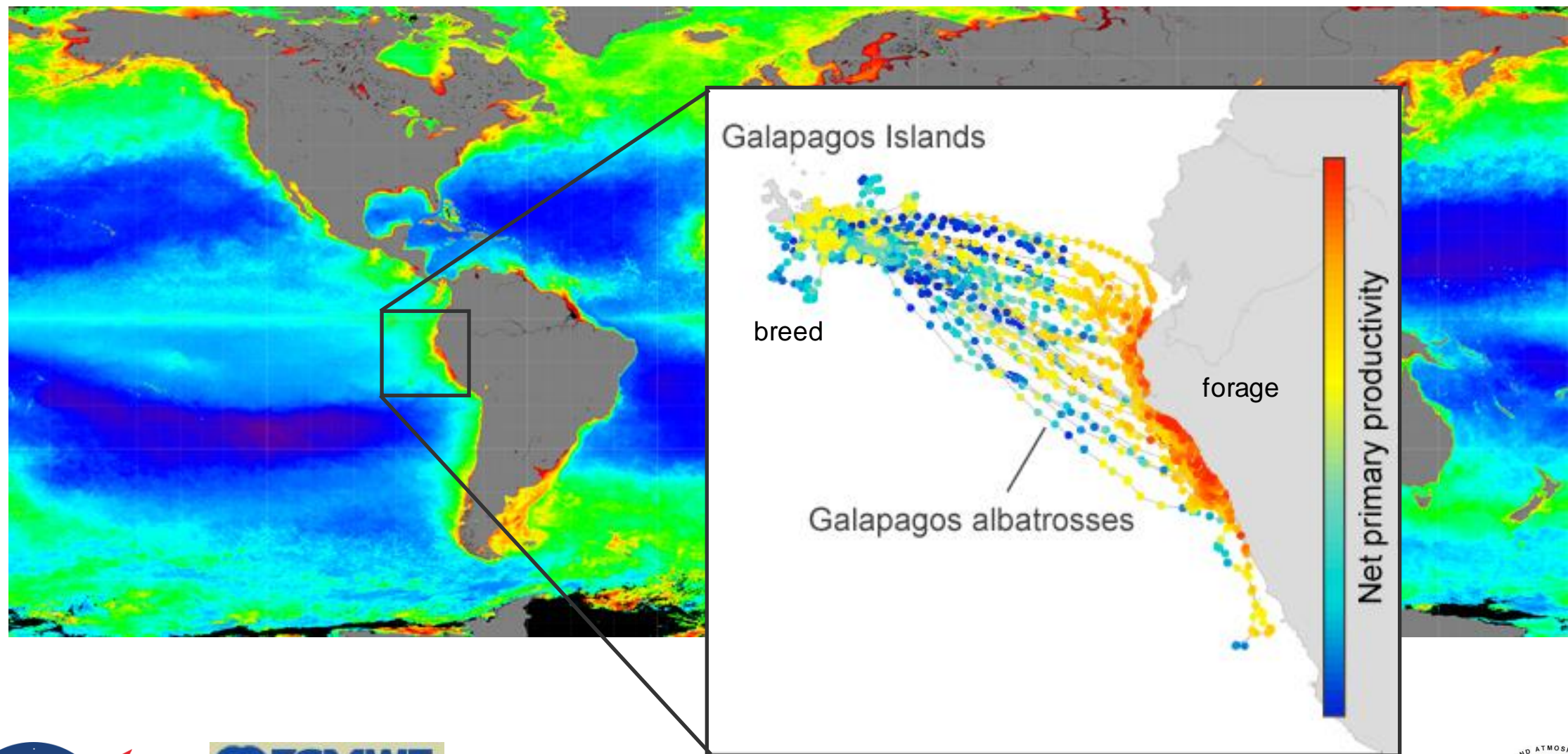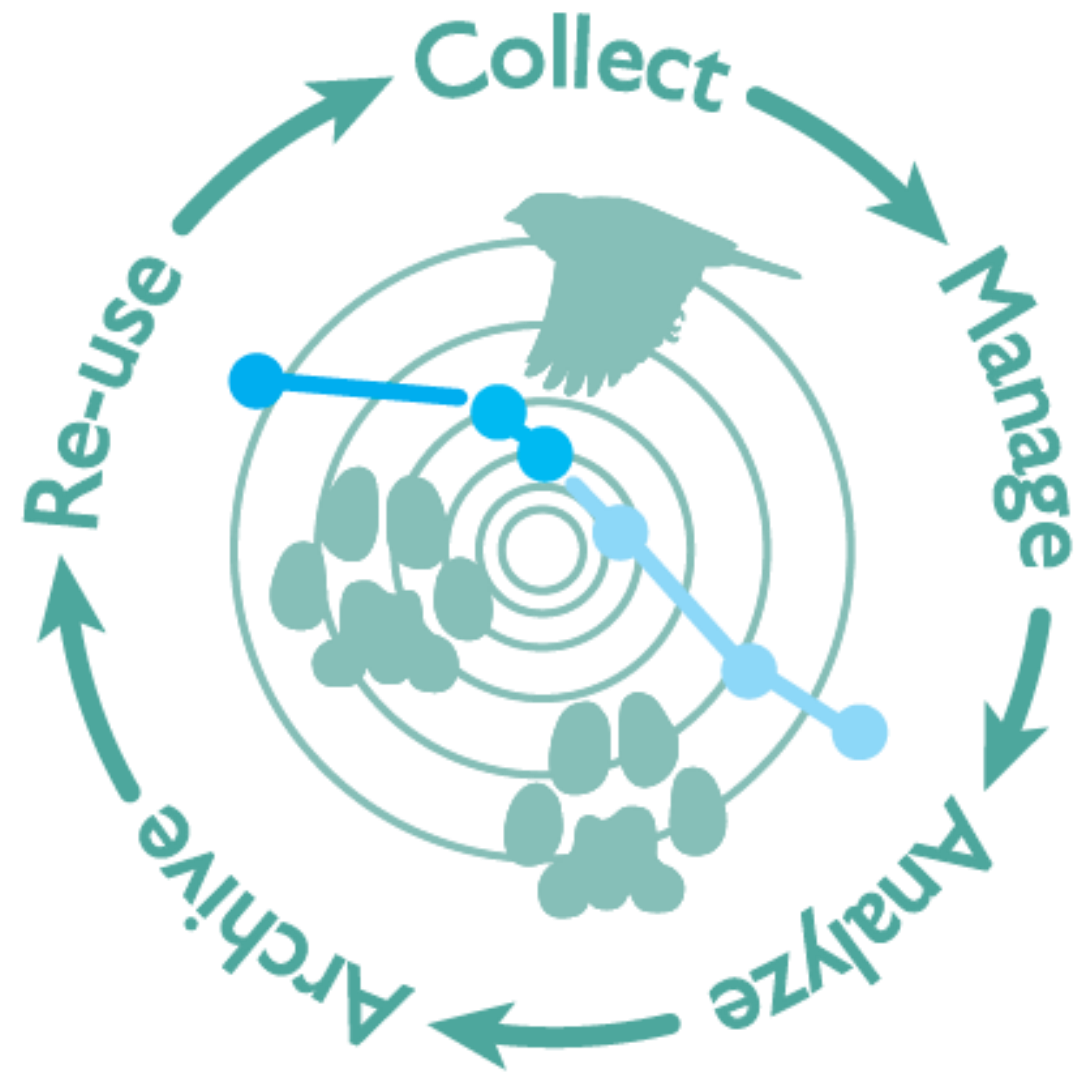
EnvDATA

Environmental Data Automated Track Annotation System

Link to 80 global remote sensing products, 821 variables

Dodge et al. 2013, Movement Ecology

fiedler@ab.mpg.de

www.movebank.org