

Project

Currently, the aim is to replicate the analysis from the “Moving in the Anthropocene” paper, but adding a comparison of the movements before and after the lockdown. The overarching goal is thus to identify how large the effect of the human presence in the human footprint is, e.g. is it just infrastructure that causes animals to move more or less, or actual human activity. We aim to consider two types of before/after comparisons: Comparisons before and after lockdown in 2020 and – ideally a comparison to potential changes at the same time of year in 2019 to have a baseline of changes due to the ecology of a population (start of migration etc., see data requirements below).

We aim to again pursue a macroecological approach and include as many terrestrial mammal species in as many regions as possible. At this stage, we plan to include data from all regions of the world, assuming different types and stages of lockdown – including very remote areas that possible have no or little effect. The information for each region on what effect the lockdown actually has on human presence will be thus key.

We may modify the analysis of the previous effort slightly with updated methodologies and potentially include metrics additional to displacement, such as diurnality and percentage of time spent in human-modified landscapes.

Data requirements

There are a couple of criteria for the data to be included in this study:

- Ideally we would like to have a minimum of 5 GPS tracked individuals, but we will consider fewer individuals if the data contributes an additional species or location.
- We would like to include individuals with a relatively fine temporal resolution (e.g., hourly), however, we request that at least one location per day as a minimum.
- To compare before and after lockdown movements, ideally it would be best to also include movements from the previous year during the same time frame to serve as a baseline comparison and account for the seasonal differences. However, we realise that is not always possible. Therefore, we would like to include data that has been collected during the one of the following categories:
 - January –Mid-May 2019 and January –Mid-May 2020, OR
 - January –Mid-May 2020, OR
 - Mid-May 2019 AND Mid-May 2020
- If the tracking period only starts in early February, we will still consider the data.

To do's

If you are still happy to participate, we would like two things from you:

1. We will need a brief description of the lockdown:
 - When did the initial lockdown begin (i.e., date)?
 - Were there several stages (i.e., relaxation of the lockdown etc.)?
 - Level of the lockdown;
 - a) **Strict**: confined to home, all outdoor activities strictly limited (e.g., Italy)
 - b) **Medium**: shops/restaurants closed but outdoor activities allowed/encouraged (e.g., walking, running, green space use)
 - c) **Low**: no to very limited lockdown
 - Please also provide a brief description of your opinion on how the lockdown may affect human activity in the areas where your animals have been tracked?
 - Where were your animals tracked? For example: in a national park, urban area or a mixture of human-modified landscapes and relatively natural areas.
2. We request that the movement data are sent in a common format, such as Movebank, .csv, .Rdata. We would appreciate if your data are pre-checked and cleaned up as much as possible (no data from collars on vehicles, test locations, or dead animals etc.). Please let us know if the data has been pre-cleaned. As a bare minimum, we would like to have individual ID, longitude/latitude, timestamp (please make a note if this is local or GMT). If available, additional information is welcome, such as sex and weight.

The aim would be to begin collecting data and to start the analyses as soon as possible. Ideally we would like that the tracking period to span all of April and up to mid-May. If possible and depending on data collection schedules, please send us the data by **May 22nd**.

Mode of collaboration

We plan to handle everything else in a very similar way as the previous project: You will retain data ownership and we will only use your data for this specific project. If other opportunities arise, we will inform you and ask if you are happy to be involved. You retain the right to remove your data from the project until we finalise the analyses (we will let you know when that is). We will provide regular updates throughout the project.

Please let us know if you require a data sharing agreement.

We will offer co-authorship to those whose data will be included in the manuscript. We will rely upon the PI's of the tracking data to decide who should be included from their group (i.e., whose significant contribution was essential to the collection of the data). We will also provide opportunities for suggestions and comments throughout the project.

We are happy to Skype, if you have further questions or suggestions. Alternatively, feel free to send Marlee an email.

If you know of anyone tracking animals in human-modified landscapes that might be interested in being involved in the project, please let us know.

Thank you for your assistance and contribution!

Best wishes,

Marlee and Thomas