Files needed for occupancy modelling LPR-Belgium

1. Datafile, with specification:

|  |  |  |
| --- | --- | --- |
| Column | Class | Example |
| Species\_id | Numeric | 27 |
| Year | Numeric | 1990 |
| Month | Numeric | (Between 1-12) |
| Day | Numeric | (Between 1 and 31) |
| Site\_id | Numeric | 195535 |
| Count | Numeric  | Usually 1 (presence, but > 1 is allowed) |
|  |  |  |
| (Stage\_id | Numeric | 1) |

Use a file header, semi-colons to separate columns and save as .xls file.

So the table will look like:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Species\_id | Year | Month | Day | Site\_id | Count | Stage\_id |
| 27 | 1990 | 4 | 11 | 193388 | 1 | 1 |
| 25 | 1989 | 6 | 27 | 118796 | 1 | 2 |
| 3 | 1996 | 8 | 19 | 154879 | 1 | 1 |
| 87 | 2015 | 5 | 7 | 166799 | 1 | 1 |
| …. | … | Etc.. | .. | … | 1 | 1 |

Remarks:

* Put all records of one and the same species group (e.g. butterflies) in one file for the entire country (i.e,. records from Flandres, Wallon and Brussels together)
* Species\_id: apply standard numbers
* Site\_id: apply standard ids for 1 km x 1 km sites : ETRS89-LAEA Europe with EEA 1x1km2 reference grid
* Only include records georeferenced within 1 km x 1 km cell (discard observations which are not located precisely)
* Only include records for adults (because caterpillar or eggs for e.g. butterflies have different detections) OR include an extra column “stage” (so that stage can be included in the occupancy model)
* Only presence data are used, so discard any records with zero values (nondetections) as counts
* Do not include information on field protocols used, duration of field work, observer quality etc. Such information may be taken into account in future modelling work.
* Do not bother about identical records in the file; these will be removed during the data processing.
* Provide data covering the entire period available (thus include also the data outside season/flight period).
1. Extra file (as. xls)

|  |  |  |
| --- | --- | --- |
| Column | Class | Example |
| Site\_id | Numeric |  |
| Gewest | Alphanumeric | “Flandres” |
| Province | Alphanumeric | “Limburg” |

Remark:

* This file should cover ALL sites in Belgium, independent of species groups.
* Models will be run for separate “Gewesten” but depending on the amount of data it might be necessary to run models per province.
* Depending on the LPR content, separate trends will be assessed for sites in heathland, woodland etc. This selection requires information on the area of the habitat type within the site. The columns with area per habitat may be added in a later stage.
1. Extra file (as .xls) for each species group separately:

|  |  |  |
| --- | --- | --- |
| Column | Class | Example |
| Species\_id | Numeric | 27 |
| Species\_name\_NL | Alphanumeric | Citroenvlinder |
| Species\_name\_FR | Alphanumeric | … |
| Scientific\_name | Alphanumeruic | Gonepteryx rhamni |
| Season\_start | Numeric | 105 |
| Season\_end | Numeric | 155 |

Remark:

* Species\_id: from Catalogue of Life
* Scientific\_name : must be with authors, otherwise will not work in Catalogue of Life
* Season\_start: this is the start of the period in which (adults of) the species are visible (available for detection) in all sites, if they occur there.
* Season\_end: last day of this period.

For butterflies and dragonflies, this is equal to the flight period in which 5% of the earliest and 5% of the latest sightings are cut off[[1]](#footnote-1), [[2]](#footnote-2).

* Some species have more than 1 generation (butterflies): then select first generation and assess the start and end of it by cutting out the first and last 5% of observations in the period (after having put all the years together).
* Season\_start and Season\_end are needed for insect groups and reptiles and amphibians, but NOT for freshwater fish and mammals.
1. Extra file (as .xls) for species group separately, when appropriate: for Butterflies, Dragonflies, Amphibians,…

|  |  |  |
| --- | --- | --- |
| Column | Class | Example |
| Stage\_id | Numeric | 1 |
| Stage\_name | Alphanumeric | “caterpillar” (or “egg” or “adult” etc.) |

1. Assumption that after the first 5% of obs. And before the last 5% of obs. the species should be visible at all sites. [↑](#footnote-ref-1)
2. The cut off is used for calculating the flight period (start date and end date). Data falling outside the flight period need still to be delivered. [↑](#footnote-ref-2)