Meeting reports Workshop 06/09/2019

# Dragonflies

## General conclusion

Experts agree that dragonflies are doing better in general, but the trends should be put in perspective, e.g. we come from a very low point. Management measures taken seem to have helped many species. The decline of vulnerable and rare species is masked from the increasing trends from most species.

## Comments

* 72 species of Belgian dragonflies are included in the analysis but many of the rare species have uncertain trends or could not be included because of a lack of data;
* Define a statistical threshold to exclude automatically the species with unreliable trends (confidence intervals too large)?
* The data for rare species should be used despite high CI because trends are reliable;
* Make a separate LPI for groups of species with similar characteristics: **stenotopic** species (oligotrophic, rare species); ‘**southern’** (meridional) and ‘**northern’** (boreal) species. The classification contains so far: stenotopic species (C. hastulatum, C. lunulatum, A. juncea, 614, 622, 635, 644, 645, 646) and southern species (A. affinis, 637, 638).

Comment A. Van Strien: *this can be done easily*;

**To do: RM Lafontaine and G Deknijf volunteered to provide a definite list of the species belonging to the different groups (stenotopic and southern species);**

* Make clear in the text that rare and specialized species may be missing from the analysis and are probably worse off than the rest of the species;

# Amphibians and reptiles

## General conclusion

The analysis provides the first annual trends for such species. Overall, species are increasing as they are in the Netherlands.

## Comments

* A few trends are not reliable (E. Graitson, see excel file, TO BE CHECKED);
* Only native species decrease, but the trend is masked because of numerous introduced species and high hybridization levels;
* It would be better to start the trends later for some species and for some regions (species with too much noise at the beginning of the trend, *e.g.* H. arborea which had too little data between 1990 and 2000/2005).

Comment A. Van Strien: *I can easily apply another starting year for Belgium as a whole, but not so for Flanders or Wallonia only, because assessing trends for Belgium as a whole would become difficult.*

**To do: Make a list of species for which another starting date may be needed nonetheless? (Chair)**

* For some species, it may be better to use the migration data *e.g. Bufo bufo*?
* SOM does not seem to be very appropriate to create trends for these groups but the trends should be kept because they seem to be right.
* New analysis needed for the 4 species of newts: generate zeroes from other newt species only and not from frogs and toads? **DONE by Arco; few changes in the results (see SWAN\_NEWTS.csv). CCL: use the original trends**.
* The increase in amphibian populations may be because most monitoring is carried out in nature reserves.

# Butterflies and moths

## General conclusion

* Using occupancy is too optimistic for butterflies because their populations can spread out but be declining;
* Many trends may be wrong because of the way data is collected.
* The 200 species for which TRIM trends were calculated in Flanders should be included in the LPI for Flanders (or at least for a selection, e.g. all those where GLM and Trim trends indicate the same direction, or where abundance in at least one year exceeded a certain limit, to exclude the rarer species). No such data exist for Wallonia.
* It is correct that many butterfly trends are more positive in Wallonia than in Flanders. Flanders has been described as Europe’s worst case for butterfly conservation. The habitat conditions in Wallonia are generally better.
* The trends look too optimistic to experts maybe because they perceive abundance changes rather than changes in distribution but there are documented spectacular declines for which the SOM trend is too optimistic (see table below): comparing information from 4 other sources in the summary table: the distribution trends calculated in the atlas of Maes et al., abundance trends (Trim) calculated for a few species in monthly garden counts for the last 12 years, abundance trends calculated from w.be (daghokbezoeken method, however not yet validated), abundance data from monitoring routes (INBO), however few. All of these data have shortcomings and are not that strong (otherwise we could use them instead of SOM), but they give an indication. For some common species I have listed below the differences: it confirms that SOM trends tend to be on the positive site.



Comments

* There is much fluctuation at the beginning for the rare species and an alternative method should be used to calculate trends for these species (see Outwaith et al. 2018);
* Trends should be recalculated for species with more than one flight peak based on the flight period with the largest numbers;

**To do: generate a list of these species and which peak to use (INBO)**

* Change the beginning of the year for the species which have appeared after 1990? But which year to choose?
* The detection probability has changed over the years but targeted effort search is considered in the detection probability;
* The genereation of 0 values is a problem, remove them?
* New LPI with mountain/plain species?
* There is not enough abundance data available and it can only be used to validate the trends.
* **The specialists question whether there might be a structural flaw where the model might be affected by some peculiar aspects of the data.** This could e.g. be due to the changes in the observation/reporting process over the years: e.g. increased search effort, relative increase in recent years of the reporting of common species making that list length in recent years means something else than in earlier years (generated non-detections mean something else now), more directed searches to fill in gaps, increased knowledge of observers, more and more reporting by mobile devices generating information record by record at the exact location while earlier reporting was lumped by area, square, community, … etc. Or could it be that in the models newly discovered occurrences (in a previously unoccupied square) are given relatively more weight than disappearances which are impossible to prove and may be filled in as still present by spatial autocorrelation procedures or detection probability ?

-Comment from A. Van Strien (post-workshop): *There was a suggestion to skip the first ten years of all butterfly indices in Flanders. But I cannot easily cope with that, because then I can no longer assess trends for Belgium as a whole (there is no "combination tool" currently available for occupancy model output as there is for TRIM-output).*

**To do**: **make a list of the species for which the dates should be changed for both Wallonia and Flanders should be sent to A. Van Strien** (chair)

# Birds

## General conclusion

Trends are sound for most species

Comments

* Technical problem in TRIM with CI.
* Winter counts are mixed with migratory species so are excluded;
* Include the introduced/exotic species in a separate graph;
* Combine the data when data is lacking at the regional level (uncertain trend) for the national LPI;

**To do:**

* + Send the combine tool to Natagora to combine bird indices of Flanders and Wallonia (A. Van Strien)
  + Fix bug in rTRIM shell (A Van Strien: done)
* (Some) waterbirds are included in the analysis (comment form Glenn Vermeersh);

# Mammals

## Comments

* The trends seem to correspond to those observed in the Netherlands.
* Day active mammals do not have the same phenology, circadian rythms (so using lists to infer not detection may be problematic of detection probably: check the brown hare (with abundance data)?
* Dormouse - nest on the forest edge or inside the forest - systematic count on the edge of the forest  which may conclude a drop in population altough perhaps just shifted inside the forest.
* Additional comment from Vinciane Schockert: *I just doubt a bit about the selection of the species group to correct and interpreted in the best way the non-détections.* *Concerning the SOM for mammals, I would just add a comment about the species choice for the species group composition. If I understand it well the group includes squirrel, roe deer, hare and rabbit. However, even if they are potentially day-active, these species don’t have the same activity pattern. For example, the red squirrel is day-active with two peaks (morning & mid-afternoon) while the roe deer is mostly active at dusk. Correcting the detection probability of one of those species based on opportunistic data and taking into account the detection probability of the other three species must therefore be partly inappropriate to build the mammal occupancy model.*

*But the detection problem will never be completely solved (except with a standardized detection of signs of presence).*

Red squirrel (*Sciurus vulgaris*): the trend overall is OK (maybe Wallonia a little off?).

* **Possible to add the fox?It is more day-active than the roe deer for example.**

# Grasshoppers

## General conclusion

Experts agree with the trends observed in general although the overall positive/increasing trend is possibly influenced by more ubiquitous species.

Comments

* Some rare species (from calcareous grasslands) were not analyzed because they had less than 200 sightings in total (*Stenobothrus*, *Chortippus vagans*);
* Delete the first few years for species with large fluctuations in the first years of the analysis;

**To do: decide if must be done and make a list of the species for which the dates should be changed (for both Wallonia and Flanders), send to A. Van Strien**