

DEPARTURE and ARRIVAL of butterflies in France

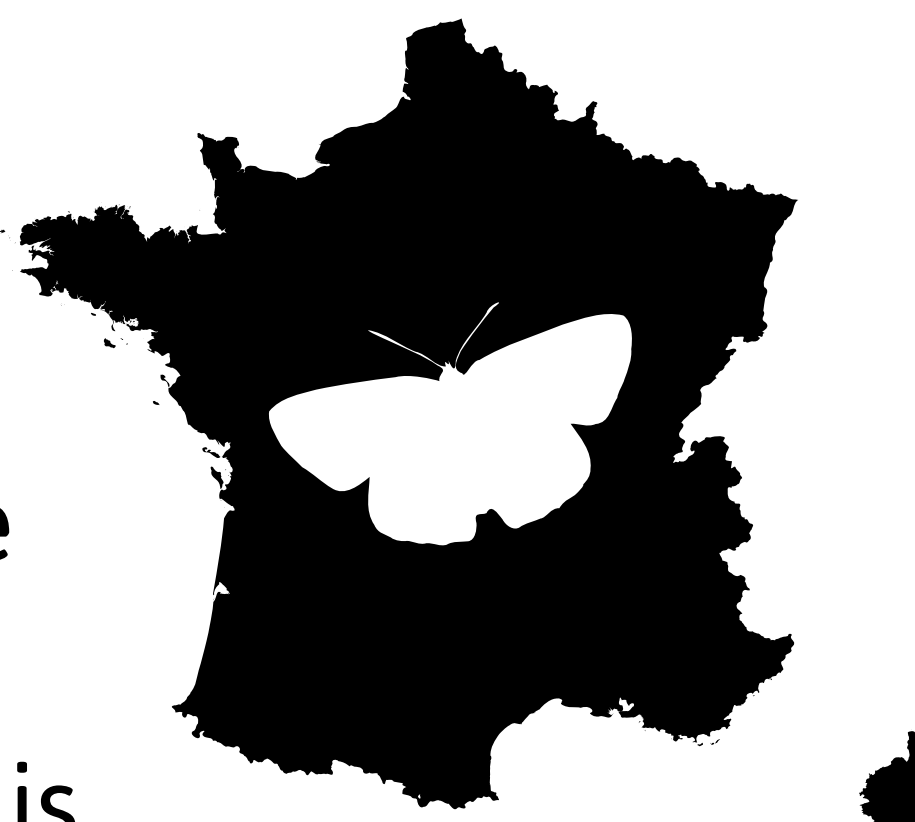
A database-based study about disappearance and discovery of butterfly and burnet moth species in metropolitan french departments

Context

You –might– have heard about the decline in insects populations?

We took a look at the order that has the most data – and love from the public : butterflies!

In France, a department is an administrative and political division. We study here which departments have gained or lost butterfly and burnet moth species.



Actors network



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They finance!

We study!



We share knowledge with partners and communicate to the general public!



NAPs are french strategic operational tools to ensure the protection of species so that France can fulfill its obligations concerning the Birds Directive and Habitats Directive.

ONB
Observatoire National de la Biodiversité

Methods

- Data gathering:** from the MNHN* database (our national GBIF) and from Lépi'Net data (national experts website).
- Deciding if the species has been seen** in the department (at least once, one day, even far away from now) relying on Lépi'Net data.
- Getting first and last year of observation** for each species in each department relying on MNHN* data.
- Assigning a status** to each species in each department:
 - **present:** observed before 2000 AND since 2000
 - **gone:** observed ONLY before 2000
 - **arrived:** observed ONLY since 2000
- Spurious data hunting:** discussion with the local experts to validate or fix the status

Those steps lead us to create the

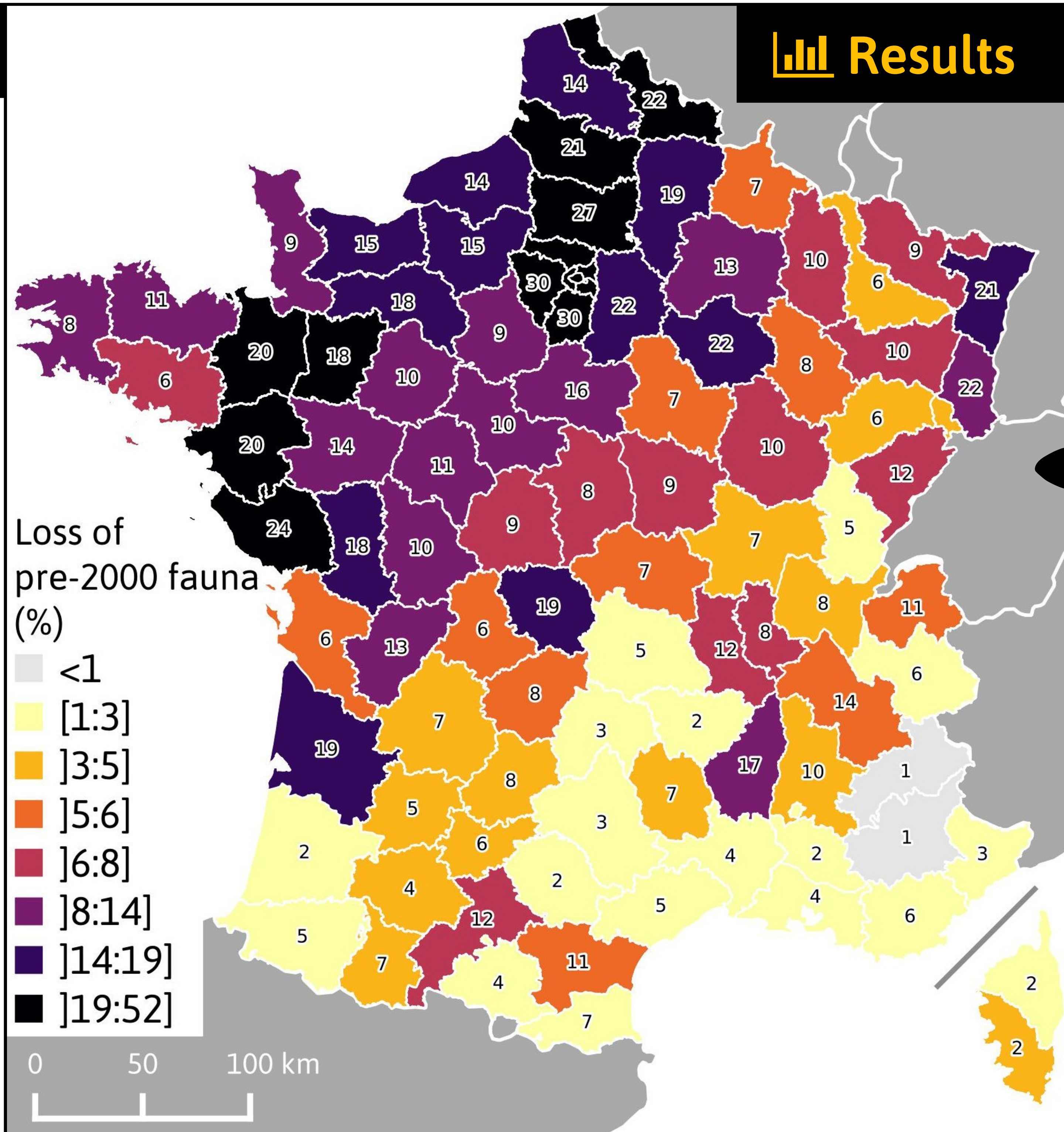
ULTIMATE STATUS TABLE. Here is an extract:

Dept n°	Species	1st year	Last year	Status	Fixed status
75	C. marshalli	2003	2022	ARRIVED	ARRIVED
75	C. hyale	1969	2006	PRESENT	GONE
75	A. io	1969	2018	PRESENT	PRESENT
75	T. betulae	1910	1910	CANCELED	CANCELED

This is a 4-rows extract from our nearly 14K-rows work table. We can read that in Paris department (75), C. marshalli is newly observed and A. io is present. There is an occurrence of C. hyale after 2000 but experts said it must be a mistake so the fixed status is "gone". The T. betulae data must be wrong as there are no data for this species in this department in the Lépi'Net database. This table makes it possible to create de map displayed, and makes it easy to calculate a wild range of indicators.

*National Natural History Museum

Results



100% of the departments lost at least one species.

The departments lost an average of 12 species.

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66% of the species lost at least one department.

46% of the species lost more than won departments.

25% of the species won more than lost departments.

NUMBERS AND RATES OF SPECIES DEPARTURES FROM DEPARTMENTS

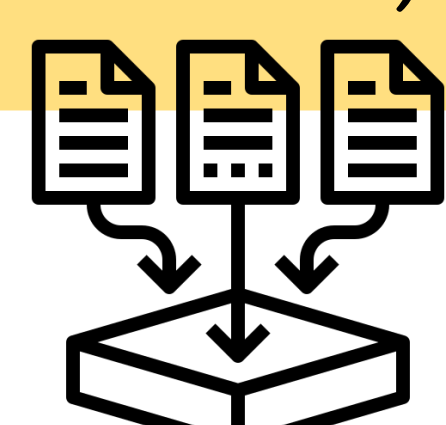
As we can see, the northern departments are the most affected by the loss: in some of them, 30 species haven't been seen since 2000, which represents up to 52% of the department fauna.

Discussion

Using data to demonstrate what's happening



Developing tools to produce more qualitative data (ex. : the Butterfly Monitoring Scheme)



Taking actions to prevent the world from the collapse of insects populations



Contact us!

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