IMPACT OF CHANGES IN LAND USING ON ORTHOPTERA IN LANGUEDOC


Diversity of land use in Languedoc © E. Blanchet

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Global changes have an impact on the species habitats and their uses. Some regions, as Languedoc in the Mediterranean basin, experiment since a long time, an important human pressure, in particular an important fall of agricultural practices. Considered as a hot spot of biodiversity, Mediterranean landscape represent a particular field of interest where changes in land use, lead to close favorable environments of some endemic or pests grasshoppers.

Issue

This work expects to know if changes in land use, which encourage closure of the vegetation, could have an impact on *Calliptaminae* populations through different parameters such as:

- Genetic structure
- Dispersion capacities

Hypotheses

Changes in land use → enclosure/ fragmentation of habitat → Genetic differentiation and Limitation of dispersion

Methodology

Models
Three *Calliptaminae* species, with different habitats, and different dispersion capacities: *Calliptamus italicus, C. barbarus, C. wattenwylianus*

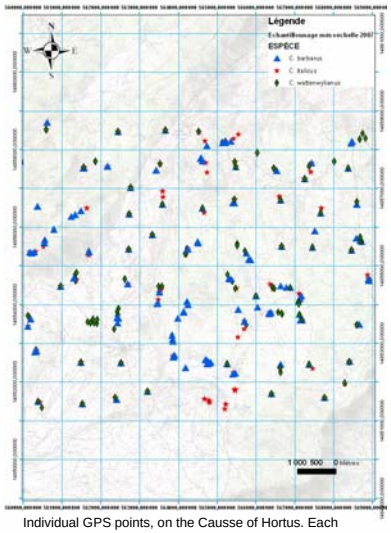
Site
Three sites: Hortus, Aumelas, Larzac,
Differing by their geomorphology, climatic condition, habitats structure and enclosure

Sampling method
Georeferenced random sampling on two sites (72 km²) distant by 40 km, of three species. A GPS point has been taken for each individual.

Molecular tools
Microsatellite markers have been developed with an enriched library

Analysis
GIS-based vegetation model

Preliminary results



Individual GPS points, on the Causse of Hortus. Each symbol represent one specie.

- 1300 individuals sampled
- 11 polymorphic markers
- Four markers cross amplify on the three species, two amplify on *C. italicus* and five on *C. barbarus*
- Each marker have more than 20 alleles
- First analysis show any differentiation for *C. barbarus* between Hortus and Aumelas Sites.


Causse of Hortus © E. Blanchet

Prospects

- Check null alleles.
- First genetic analyses and then choose scale of GIS-based vegetation model.
- Plan a second sampling campaign on a larger scale.
- Cross GIS and genetic information to identify natural migration barrier.
- Evaluate dispersion capacities of *C. italicus*.


Causse of Aumelas © E. Blanchet

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