

## Ants in the supraforestral pastures of the Tendeñera massif

by

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**Summary :** *The heterogenous character of supraforestral pyrenean pastures, due to their geomorphology, is clearly reflected in their vegetation. The objective is to characterize, according to their fauna, areas which have previously been defined using floristic and geomorphological criteria. Ants were chosen as the object of study, and there were observed in mat-grass pastures (« Cervunal »), dry stony pastures, flysch summits, humid pastures around sporadic water sources, pastures subjected to heavy snowfalls, etc ...*

*Conclusions about the preferences in the choice of habitat shown by ants which have adapted to life in high altitude areas have been established.*

*Fourmis des pâturages supraforestiers du massif de Tendeñera*

**Résumé :** Le caractère hétérogène des pâturages supraforestiers pyrénéens, étant donné leur géomorphologie, se reflète nettement sur la végétation. Le but de ce travail est de caractériser à l'aide de la faune de fourmis des zones qui ont été définies au préalable grâce à des critères floristiques et géomorphologiques.

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The heterogenous character of the pyrenean supraforestal pastures, which is due to their geomorphology, is clearly reflected in their vegetation. The present study was carried out during the Introduction to Research Course directed by Dr.A.PALANCA and C. CASTAN with the cooperation of the High Aragon Environment-Faune Relationship Work Group (I.M.O.). The fieldwork was carried out during the months of July and August 1981, and the objective was to study the extent to which this heterogenous character is reflected in the fauna, taking as the object of our study those ants which live under stones. The area which was specially studied was that of the supraforestal pastures surrounding the Ibon de los Asnos glacier lake, at altitudes between 2000 and 2200 m.a.s.l. in the Tendeñera Massif.

The most common species of ants living under stones in High Aragon supraforestal pastures can be grouped according to their spatial distribution in the following way :

- a. - Species having a wide distribution : *Tetramorium caespitum* L., a species having a wide distribution but showing a preference for sunny slopes ; *Lasius flavus* Fab. and *Tapinoma erraticum* Latr., which have a more limited distribution (*T. erraticum* avoids high altitudes) and have a preference for sunny slopes and flat areas.
- b. - Species which colonize slopes which are not very exposed to the sun (facing East and West) : *Myrmica sulcinodis* Nyl. in the higher areas and *Myrmica rubra* L. in the lower ones.
- c. - Species which colonize the sunnier slopes (facing South) : *Formica sanguinea* Latreille and *Lasius umbratus* Nyl.
- d. - Species found on most slopes : *Formica lemani* Bondroit and *Lasius alienus* Foerster.
- e. - Species found on sunny slopes and valley bottoms : *Myrmica sabuleti* Meinert.
- f. - Species found on valley bottoms : *Lasius niger* L., *Myrmica scabrinodis* Nyl. and *Formica rufibarbis* Fab.

In general terms, the number of species of ants and also the number of antholes increases on valley bottoms which are highly permeable and on the sunnier slopes, but at high altitudes the number of antholes decrease due to the presence of snow and the frequent flooding of the ground.

In these high altitude areas, which are the object of our study, four species are frequently found. The most abundant one, which also has the widest distribution, is *Tetramorium caespitum* L.

They all avoid flooded areas (although *T. caespitum* L. may inhabit them if the flooding doesn't last very long) and shaded slopes (facing North).

These species define very peculiar areas, which, ordered according to their humidity, from lowest to highest, are :

1. Areas inhabited by *Lasius alienus* Foerster, which outnumber *Formica lemani* Bondroit, also present by 4 to 1 as far the number of antholes is concerned. Dry stony pastures exposed to winds and periglacial phenomena, covering from 20 to 60 % of the ground. The most characteristic plants are : *Festuca gautieri*, *F. pyrenaica*, *Linaria alpina*, *Helictotrichon sedenense*, *Sideritis hyssopifolia*, *Vitaliana primuliflora*, *Arenaria ciliata*, *Minuartia verna*, *Thymus praecox*, *Trifolium thalii*, *Vicia pyrenaica* and *Crepis pygmaea*.

2. Areas inhabited by *Myrmica sulcinodis* Nyl., which outnumber *Formica lemani* Bondroit, also present. Thick grass pastures covering 100 % of the ground, grazed on by cattle and sheep. The most characteristic plants are : *Nardus stricta*, *Conopodium majus*, *Plantago alpina*, *Cirsium eriophorum*, *Taraxacum pyrenaicum*, *Eryngium bourgatii*, *Festuca rubra*, *Ranunculus bulbosus*, *Trifolium alpinum* and *Chenopodium bonus-henricus*.

3. Areas inhabited by *Formica lemani* Bondroit outnumbering *Myrmica sulcinodis* Nyl. in antholes by 2 to 1. Short, thick grass pastures heavily snowed under in winter. Characteristic plants are : *Ranunculus gouanii*, *Poa alpina*, *Trifolium thalii*, *Plantago alpina*, *Phleum alpinum*, *Festuca rubra*, *Conopodium majus* and *Lotus corniculatus*.

4. Areas inhabited by *Tetramorium caespitum* L. which outnumber all other species. Limestone areas covered by snow for considerable periods of time, having a scant covering (soil is found almost exclusively in crevices). Here we find snow plants such as : *Polygonum viviparum*, *Salix pyrenaica*, *Carex ornithopoda*, *Salix reticulata*, *Saxifraga praetervis* and *Ranunculus alpestris*.

Finally, we might add that ants prefer stones embedded in the ground rather than those which lie on it. This preference creates an interaction with other animals living under stones. This phenomena has been studied by some of our colleagues in other papers presented at this Conference.

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