

Annual Evolution - Activity and influence of the Goat in two Insular Biotopes Island of Naxos, Cyclades, Aegean Sea, Greece

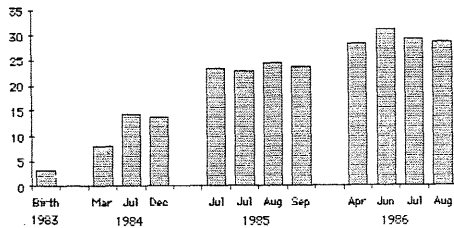
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In the SE part of the island of Naxos, at the locations Siderobouki and Troulada, we studied the annual evolution and the activity of the goat, and its influence upon the vegetation of the region. We also compared the results of an experiment of controlled pasturing against that of the traditional free pasturing which is done on these islands.

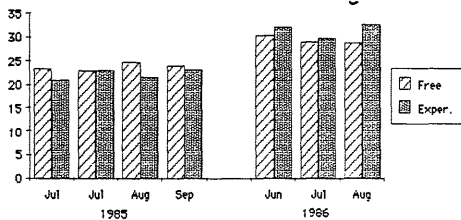
The biotopes which were under investigation consisted of phryganic and maccia vegetation. The main plants were: *Thymus capitatus*, *Genista acanthocladia*, *Quercus coccifera*, *Pistacia lentiscus*. The soil is characterized by the red mediterranean soil with intense erosion and the absence of leaf litter except under some shrubs. The island is characterized by a semi-arid mediterranean climate. In this area, during the summer period of drought, we usually have temperatures higher than 40°C, while the mean rainfall does not exceed 380 mm per annum, with some intense fluctuations.

FIGURE A. Free Pasturing - Course of the mean weight.



RESULTS AND DISCUSSION: During March of 1984 we selected an experimental group of 22 animals (20 females, 2 males). These animals remained with the other goats of the flock until the beginning of July 1985 when the rotation grazing experiment was started. In March of 1985 we had fenced in this region an area of 2.4 Ha. In July we divided the experimental group in to two equal new groups of 11 individuals. One of these was transferred in to the fenced area, (which had not been pastured during the previous 4 months), while the other remained with the whole flock to be used as a control group. The experimental animals remained there for 3 months, while from the beginning of August they were given supplemental food of oats and vetch, (0.3-0.4 Kgr/goat/day). The water required by the animals was brought in from a neighbouring well, by means of a pump. The next year, the experiment was repeated with another neighbouring flock with animals of the same age as the previous one.

FIGURE B. Course of the mean weight of the goats during Free and Experimental Pasturing.



The main aim was to avoid grazing upon vegetation during the period of the spring growth. The time required is 40-60 days, because the kern oak, (*Quercus coccifera*) the main food in the diet of the goats will have completed its annual growth in this time. This aim could be achieved by rotation grazing. In this way the vegetation can be protected especially during the spring, a period, during which the danger of intense goat activity and influence interrupting even future plant growth, is very high.

The results of the annual evolution and experiment are given in Figures A, B.

CONCLUSIONS: 1. The traditional management of the flocks of goats which is employed on the islands of the Cyclades is based on the special abilities of resistance and adaptation of the native goat to the climatic conditions. It permits the animals to make use of the sclerophyllous vegetation during the year.

2. The general condition of the flocks is not satisfactory. There is a high fluctuation in the percentage of mortality, 0-32%, especially in the immature animals. There is also a remarkable decrease in the goats weight during the summer months. This happens because the continuous and extreme grazing does not allow a normal growth of the vegetation which in turn depletes the vegetation's own nutritive reserves. And as direct result we have a decrease in the vegetation's nutritive value as a food. Finally, it observed a low reproduction among the goats of ages less than two years, while animal productivity is medium to low.

3. The course of the mean weight of the goats was: At birth 3.3 Kgr., during the first spring of its life 8.0 Kgr and 14.6 Kgr at the beginning of the summer. Later, in the summer a reduction in the weight was observed and during the autumn it stabilized at 13.8 Kgr.

4. The experimentation proved the positive role of unpastured spring on the animals as well as of the provision of supplementary food during the critical dry period. By the end of the experiment we had a percentage of 8% in favour of the experimental group, and this means a fresh biomass increase of 2.1 Kgr/goat and a simultaneous decrease of 0.5 Kgr/control-goat. For the immature animals the results were more visible. We had 23.5% in favour of the control immature goats. During the second year of the experiment we have the same type of evolution with different quantitative results because of an unusual wintering drought.

5. Finally we should note that in this study, even if the positive affect of the unpastured spring vegetation is not very clear, while the result of the supplementary food is more visible, it is certain that: with a rotation system of grazing we assist the vegetation to be more tolerant to future goat activity.

Sur le Peuplement Microfaunistique de deux Îlots Volcaniques de la Côte Méditerranéenne Espagnole

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Summary

In this paper is studied the lichen inhabiting microfauna in two little islets of Spanish mediterranean coast, particularly the nematofauna. Some regards on ecological and faunistic aspects are exposed. The nematocenosis is very representative, with detritophageous and saprobiontic forms almost exclusively.

Resumen

En esta nota se estudia el poblamiento microfaunístico liquenicola en dos islotes volcánicos del litoral mediterráneo español, particularmente la nematofauna. Se expone algunas consideraciones sobre los aspectos ecológicos y faunísticos. La nematocenosis es muy representativa, con formas detritofagas y saprobionticas casi exclusivamente.

Nous avons étudié, dans le cadre de cette recherche, deux îlots d'origine et de nature volcanique, mais ayant des caractéristiques différentes : le Columbrete Grande et l'île Mayor. Dans le premier cas, il s'agit d'un îlot du petit Archipel des Columbretes, à 35 Km au large de la Côte continentale Ibérique (Castellon); dans le second cas, l'île Mayor est située dans une petite mer littorale, la Mar Menor (Murcie), au SE, près du Cap de Palos.

En ce qui concerne ces deux sites, il s'agit d'îlots de nature éruptive, mais tandis que les Columbretes sont de roches volcanique basique (type basaltique), l'île Mayor est constituée de riparites et riolites récentes, probablement pliocéniques, avec des andésites, d'où l'intérêt de comparer le peuplement microfaunistique de ces deux îlots.

Le matériel prélevé comporte exclusivement des Lichens (*Xanthoria aureola*) dans tous les échantillons. La nature de ce matériel est très uniforme dans les deux îlots ce qui a permis d'établir des comparaisons très valables, avec une certaine similitude dans les résultats. Il s'agit de petites masses de Lichens dont la réaction au milieu est acide (pH = 5-5,5).

La microflore est relativement pauvre en bactéries, mais révèle une abondance de Cyanophycées (*Nostoc*, *Oscillatoria*). La microfaune hydrophile présente des Rotifères, Tardigrades, Thécamoebiens, Ciliés et Nématodes. La composition relative de cette biocénose hydrophile est approximativement la suivante (par ordre de dominance) : Tartigrades, 40%, Ciliés, 25%, Rotifères, 20%, Nématodes, 10% et Thécamoebiens, 5%.

Nos études ont essentiellement porté sur la Nématofaune. les résultats concernant les Nématodes sont les suivants : *Pelodera (P.) teres*, 42%, *Ditylenchus intermedius*, 19%, *Plectus cirratus*, 13%, *Panagrolaimus rigidus*, 10%, *Tylenchus (F.) filiformis*, 8%, *Mesodorylaimus bastiani*, 3%, *Rhabdolaimus terrestris*, 2% et *Aphelenchoides parietinus*, 2%.

Du point de vue écologique, on constate que l'on retrouve essentiellement des éléments détritophages et saprobiontiques (représentés par des Tylenchoïdés, 12%, des Araeolaimoïdés, 32% et des Rhabditoïdés, 50%), des éléments bryophages (représentés par des Dorylaimoïdés, 6%) dans un seul échantillon, avec une espèce (*Mesodorylaimus bastiani*) et enfin, une absence totale de formes prédatrices (Mononchoïdés et Tripyloïdés).

Dans l'ordre faunistique, les espèces découvertes sont propres aux biotopes de ce type : il s'agit d'une Nématofaune caractéristique bien définie. Elles sont de formes communes et cosmopolites dont l'intérêt biogéographique est très faible. Il faut cependant tenir compte du peuplement récent de ces petits îlots volcaniques.

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