

On the consumption of *Launaea arborescens* flowers by the lizard *Gallotia atlantica* in Lanzarote, Canary Islands.

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(Aceptado el 17 de Enero de 1986)

MOLINA-BORJA, M. & E. BARQUIN, 1986. On the consumption of *Launaea arborescens* flowers by the lizard *Gallotia atlantica* in Lanzarote, Canary Islands. *Vieraea* 16: 233-236.

ABSTRACT: In this paper a part of the plant diet of *Gallotia atlantica* -reported as mainly insectivorous- is recorded for the second time. Some considerations are included on the critical trophic position of the genus *Gallotia* and the lack of Canarian, endemic, strictly herbivorous land vertebrates.

Key words: *Gallotia*, diet, herbivorous, behaviour, trophic plasticity, Canary Islands.

RESUMEN: En este artículo se concreta por segunda vez una parte de la dieta vegetal de *Gallotia atlantica*, considerada como fundamentalmente insectívora. Se hacen algunas consideraciones sobre la posición trófica crucial del género *Gallotia* y la ausencia en Canarias de vertebrados terrestres endémicos, estrictamente herbívoros.

Palabras clave: *Gallotia*, dieta, herbívoro, comportamiento, plasticidad trófica, Islas Canarias.

INTRODUCTION

The diet of several lacertid lizards has been shown to be varied, some species being mainly insectivorous: *Lacerta vivipara* (AVERY, 1966; ITAMIES & KOSKELA, 1971), *Podarcis taurica* (KABISCH, 1971), *P. muralis* and *P. sicula* (AVERY, 1978), other species being omnivorous: *Lacerta dugesii* (SADEK, 1981).

Canarian lizards, genus *Gallotia*, Fam. Lacertidae (BOULENGER, 1920; ARNOLD, 1973) seem to be omnivorous considering the few data available for *Gallotia galloti galloti* and *G. g. eisentrauti* from Tenerife (BARQUIN & WILDPRET, 1975; BISCHOFF et al., 1979; MOLINA-BORJA, 1981 and submitted), *G. stehlini* from Gran Canaria (STEINDACHNER, 1891; KREFFT, 1950; MOLINA-BORJA, in press; NOGALES, 1985; BARQUIN & NOGALES, in press) and *G. aff. simonyi* s. MACHADO (1985a) from El Hierro (MACHADO, 1985a; MARTINEZ-RICA, 1982; MOLINA-BORJA, unpublished).

The species *G. atlantica* from Lanzarote and Fuerteventura has been reported to be chiefly insectivorous but also to consume plants in summer (LOPEZ-

JURADO, 1981): 6.1% of the diet was said to be vegetable matter, but the component species were not specified. However, KREFFT (1950) cited Launaea arborescens (Batt.) Murb. as being ingested by this species (see also VOGGENREITER, 1985:267). Anyway the proportion of insects in the diet may depend on the site composition and/or the season as has been noticed for Gallotia galloti from Tenerife (BARQUIN, 1973 and personal observations).

FIELD DATA AND DISCUSSION

A field observation of G. atlantica atlantica (BISCHOFF, 1985) behaviour was made by the first author in July 1983 near the village of San Antonio, close to Arrecife, Lanzarote. During the study, at least four different individuals were seen at different times to climb each one a Launaea arborescens plant (Asteraceae-Cichorieae, "ahulaga") and once on the upper branches, to walk until they reached several flowers and ate them.

The climate at the site being arid and oceanic (total amount of rain in Arrecife: 35 litres per year; KAMMER, 1982), Launaea arborescens was almost the only active vegetable species present in July in the observation grounds and an average of one adult lizard per individual plant could be seen. Although the lizards moved over the ground and among the several Launaea plants, they also stayed resting under each plant, in the shade. We have supposed that they must find their shelter under an ahulaga since there was no stone pile near the plants. This introduces an interesting problem of spatial distribution.

The ahulaga has already been cited as being part of the diet of other Canarian lizards: G. galloti galloti and G. g. eisentrauti (MOLINA-BORJA, submitted) and probably is also for those lizard species of the Archipelago sympatric with Launaea arborescens (the surveyed Lanzarote and also Fuerteventura, Gran Canaria, Tenerife and La Gomera).

Yet from the authors' personal observations it seems reasonable that the rate: plant food used by Gallotia spp./ total plant biomass, is very low; that is, the influence of the lizards on the Canarian vegetation is unimportant, though locally the rate of consumed flowers + flower buds may be high (cf. MOLINA-BORJA, submitted and this paper).

The present non-existence in the Canaries of endemic, strictly herbivorous land vertebrates is remarkable, contrasting with the current high load of introduced goats and rabbits that many plant communities support. It is most probable that the proportions and composition of the floristic land plant stock were very different before the recent arrival of the various man-introduced herbivorous (goats, rabbits, sheep, camels, cows, horses, donkeys, mules, mouflons...).

The high trophic plasticity of the genus Gallotia places it in a sort of "knot" connecting several trophic levels, likely a regulation mechanism before the climatic fluctuations between subarid and arid conditions that control much the populations of plants and animals and characterize the overall Canarian ecosystems.

To better understand the role of lizards (and other animals) in the Canarian ecosystems, a number of observations should be made from natural populations, e.g.: spatial and temporal evolution of diet composition and of size and shape of territories; ecological efficiencies; individual weights and sizes, age and sex; influence of temperature on metabolism (see BAEZ, 1985) and so on. Similar and complementary comments are made by MACHADO (1985b: 476).

ACKNOWLEDGEMENTS

To Pauline Agnew for revising the English text.

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