

NOTES ON THE ECOLOGY OF RABBIT FLEAS (SIPHONAPTERA)
PARASITING WILD RABBITS (*ORYCTOLAGUS CUNICULUS*) IN
EBRO'S MIDDLE VALLEY (NORTHEAST OF SPAIN)

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Fleas have been often considered important myxomatosis vectors in many wild rabbit populations. *Spilopsyllus cuniculi*, the most widespread species, has been the subject of much research but there are other flea species that may have epidemiological importance in certain regions.

Results of a sampling year (1991–92) in four locations of Ebro's Middle Valley (Finca Arpal, Torrecilla de Valmadrid, Zuera and Almudévar) are displayed. Fleas have been removed monthly from rabbits (caught by shooting, ferret or cage-traps) and from their burrows.

2669 fleas have been classified into 5 species: *Spilopsyllus cuniculi* (35.96 %) and *Xenopsylla cunicularis* (34.09 %) are the commonest, whereas *Caenopsylla laptevi ibera* (15.17 %) and *Echidnophaga gallinacea* (14.68 %) have been found regularly, and only one specimen of *Odontopsyllus quirosi quirosi* (0.037 %) was taken out of a burrow in Zuera.

We have noticed differences in the relative abundance of flea species in every sampling location. Because of the semi-arid climate, *S. cuniculi* (12.68 %) is not the predominant one in Finca Arpal where *X. cunicularis* (29.68 %), *E. gallinacea* (29.76 %) and *C. laptevi ibera* (27.77 %) – more adapted to dryness and high temperatures – are the main species. Equally, *X. cunicularis* (72.94 %) is nearly three times more common than *S. cuniculi* (26.30 %) in Almudévar. Not only climate, but also soil texture in burrows may explain these differences. Almudévar, a more humid and colder location, occupies a lime soil, whereas in Finca Arpal, where relative humidity in the burrows may fall below 60 %, the substratum is constituted by terrace soil.

C. laptevi ibera shows a strong seasonality. Absent during summer months, it is first collected in October when rabbits are found carrying 19 fleas each (mean). Numbers fall slowly from this month to March, and in following months practically no fleas are picked up.

S. cuniculi, another winter species, depends completely on the rabbits breeding season. So, pregnant female rabbits (since December) usually support large numbers of fleas (469 ex. parasiting a female rabbit in Torrecilla de Valmadrid in March).

E. gallinacea and *X. cunicularis* are summer species, but they do not show such a pronounced seasonality.

This study has been financed by the local government of Aragón (D.G.A.).