

The following note is a summary of a paper presented at the joint meeting of the British Isopod Study Group and the British Myriapod Group at Langford 23rd - 26th April 1987, beautifully illustrated by very helpful diagrams and supported by a poster display of the research site at Foljuif.

CONSUMED AND EGESTED FRACTIONS OF LEAF LITTER CONSUMED IN LABORATORY CONDITIONS BY AN ISOPOD AND THREE SPECIES OF DIPLOPOD FROM A TEMPERATE FOREST ECOSYSTEM

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Results of a laboratory investigation on the consumption and egestion of leaf litter by diplopods and isopods in a temperate ecosystem are presented. Foljuif is situated about 80km south of Paris. The breakdown of litter by the diplopods Glomeris marginata, Cylindroiulus punctatus and Cylindroiulus nitidus and by the isopod Philoscia muscorum is characterised at the individual level. Ingestion rate (I) and production of faecal pellets (NA) are determined under different temperature regimes and with different qualities of litter (oak, Quercus sessiliflora and hornbeam, Carpinus betulus) from the L and F horizons

The ingested, egested and assimilated fractions vary considerably according to the species of diplopod or isopod and also the species and condition of the litter consumed. At 10°C, the mean annual temperature in Foljuif forest, assimilation efficiencies have been estimated from 16.3 - 78.5 per cent according to the species; the highest assimilation efficiency for hornbeam leaves was observed in C. punctatus (78.5%), and for oak leaves, in Philoscia muscorum (41.5%).

Considering NA/I (rate of transforming litter into faecal pellets), we can say, after Crossley (1977), that Glomeris marginata followed by Philoscia muscorum are the best 'faeces machines' with similar values for hornbeam and oak. G. marginata is the most efficient transformer of litter because it consumes and egests the greatest quantities.

The influence of temperature and the quality of litter on the processes of breakdown and decay have been illustrated in the first place by results obtained with G. marginata feeding on dry or wet hornbeam leaves under a range of constant temperatures, and in the second place, by results obtained with Philoscia muscorum under fluctuating temperature regimes with free choice of leaves for food. At low temperatures, about 5°C, diplopods become inactive whilst the isopod continues to feed.

In the future these results will be used for a global and integrated study on the role played by a functional group of species in a temperate forest soil.