

HERBIVORY

Herbivore response to leaf damage in two herbaceous species

Abstract

Herbivore response to damage of two early successional herbaceous species was measured. A generalist herbivore was used in choice chamber experiments over a period of 6 days. Damage to leaves was found to have no effect on herbivory. This result was not affected by day or chamber. The relative amount of leaf eaten differed significantly between species and the reasons for this are discussed in relation to defense strategies and leaf characteristics.

Sarah Harding, University of Liverpool, UK

Anna Grace Kyoma, Tanzania National Parks, Tanzania

1998

A comparison of invertebrate herbivory on native and introduced plant species in Amani Nature Reserve, Tanzania

Abstract

In order to test the hypothesis: “Native plant species are predated more heavily upon by invertebrate herbivores than introduced species of the same family”, we chose nine pairs of plant species and laid transects with random quadrats through the respective habitats and individuals of both species of the pair were examined for predation. Analysis of the field work data demonstrated that native species had a significantly higher overall rate of predation than their introduced equivalents and also a significantly higher rate of fungal infection, as fungal infection was found to be positively correlated with predation. Controlled feeding experiments with two of the species pairs however, failed to consolidate these results, most likely due to an unrepresentative selection of herbivores used in the experiments. This study shows that spreading of invasive plant species in a new environment may be helped by the smaller herbivore load. The effects of secondary

plant metabolites and other plant defenses in both introduced and native plant species remains to be studied.

D. Kernott, University of East Anglia, UK

E.J. Sayer, University of Bern, Switzerland

2000

Extent of herbivory in patches of three flowering plant species

Abstract

This study investigate the relationship between the extent of herbivory and both patch size and distance to neighbour patches of three common plant species in the East Usambara Mountains. Significant positive correlations were detected between patch size and degree of herbivory in all three species. No correlation was found, in any of the species, between herbivory and distance to other flowering patches either of the same or different species. The results are interpreted in terms of the availability and detectability of plants by herbivores, and it suggests that further studies on this field are necessary.

Mariana Carvalho, University of Lisbon, Portugal

Thomas Niebuhr, University of Copenhagen, Denmark

2000

Levels of herbivory on three ecological categories of trees in the Amani Nature Reserve

Abstract

The aim of this research was to test if gap-colonizing tree species (*Anthocleista grandiflora*, *Macaranga capensis*) were more susceptible to herbivory than emergent tree species (*Allanblackia stuhlmannii*, *Cephalosphaera usambarensis*). Therefore leaf damage was estimated for each tree species. In addition, leaf damage was estimated for the invasive gap-colonizing tree species, *Maesopsis eminii*. Significant relationships were found between leaf damage and these three different types of tree species. Relative abundance of both leaf-chewing insects and ants were measured for each of the tree

species in order to test whether there was a correlation with the amount of leaf damage. No correlation was found.

Matthijs van der Geest, University of Groningen, Netherlands

Donald Mc Gann, National University of Ireland, Ireland

2001

Herbivory of *Clidemia hirta* in two sites within Amani Nature Reserve, Tanzania

Abstract

Leaf damage caused by natural enemies of *Clidemia hirta* was investigated in two sites within Amani Nature Reserve with respect to light environment, density of conspecifics and reproductive status. There is little evidence from the result to suggest that the light environment influences level of herbivory. Reproductive status of plants was also shown to have no influence on the level of herbivory. However, leaf damage in non-reproductive plants from ‘bird walk’ was found to correlate significantly with distance to nearest conspecific. No difference was found to exist in level of herbivory between leaves of different age. On the basis of insect collections we propose that leaf herbivory at the two sites is carried out by native generalist herbivores.

Wilhelm A. Kiwango, Sokoine University of Agriculture, Tanzania

Ben Butler, University of Cambridge, England

2002

Comparative study of herbivory and herbivore diversity on two plant species of the genus *Piper* (piperaceae), *Piper Nigrum* and *P. Umbellatum* in Amani Nature Reserve

Abstract

Leaf herbivory and diversity of herbivores on the native *Piper umbellatum* and the introduced spice plant, *Piper nigrum* were studied at seven different sites in the Amani Nature Reserve. Samples of each 20 leaves of both species at each site were randomly

collected to measure leaf herbivory. All herbivorous arthropods and molluscs of 30 *P.umbellatum* and 10 *P.nigrum* were collected from each site using a beating tray. Herbivores could be assigned to 46 morpho-species, and for abundant herbivores feeding experiments were conducted. Herbivory was significantly higher on the native species. Average faunal overlap for both plant species between sites were of 30% and no significant correlation to distance of sites could be found. Only each two species of Lepidoptera larva and Gastropoda feed on the leaves during the feeding experiments only on the native species. No shift of herbivores from the native to the introduced species could be found.

Janice Oduro Dwomoh, University of Cape Coast, Ghana

Yonas Meherehu, Addis Ababa University, Ethiopia

2003
