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The effects of a mixed grazing regime on sand dune vegetation communities at Braunton Burrows, Devon

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Introduction

Braunton Burrows SSSI and SAC is a large sand dune system on the north coast of Devon, with lime-rich dunes and an extensive system of variably-flooded slacks, grassland and scrub, inland of a wide sandy foreshore. The majority of the sand dune communities at Braunton Burrows are currently (April 2005) assessed by English Nature as being in 'unfavourable condition', principally due to high frequency and cover of scrub, leading to loss of typical sand dune communities and their characteristic plants. The principal scrub species of concern are willows, privet and brambles. An extensive grazing trial was carried out between 1997 and 2003, with the aim of determining:

(a) Whether cattle grazing, in conjunction with sheep grazing, has a significant effect on the vegetation of Braunton Burrows and in particular whether mixed grazing is likely to be successful in achieving 'favourable condition' status in terms of JNCC's Common Standards Monitoring guidance for sand dunes.

(b) Whether the timing of grazing and the stocking density have had a significant effect on how grazing affected the vegetation of the Burrows.

What was done

The 27 hectare trial area was grazed by a mix of cattle and sheep. Stocking rates varied between years from 0.12 LU/ha/day to 0.49 LU/ha/day. Detailed vegetation monitoring was carried out in five grazed and control plots (each 30m x 30m) in July of each year.

Generalised linear mixed modelling was used to analyse the effects of grazing on species richness and on the frequency of individual plant species. Relevant studies from the literature were reviewed to help to evaluate the effects of varying breed type, stocking density and the timing of grazing.

Results and conclusions

- Grazing had a beneficial effect on the plant community, in terms of an overall increase in species richness, a significant decline in the rate of increase of privet (and a tendency to reduce the extent of grey willow) and an increase in the frequency of a number of plant species considered typical of sand dune vegetation communities.

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- There was no detectable decrease in the frequency of occurrence of brambles, the most frequently occurring scrub species in the trial area. There was also some indication that grazing resulted in a slight increase in the frequency of broad-leaved grasses. However, it is likely that grazing was effective in reducing the canopy of at least some broad-leaved grass species and brambles, reducing competition for low-growing herbs.

English Nature's viewpoint

The results indicate that a mixed grazing regime will help achieve 'favourable condition' status at Braunton Burrows. However, it is unlikely that such a regime alone, in the absence of other management practices, will be successful in achieving 'favourable condition' status, primarily due to its limited impact on some scrub species. This may have been due to the relatively low levels of grazing in some years. Higher grazing densities may increase the impact of grazing on scrub, but this could have detrimental effects on other measures of habitat quality. We suggest a combination of extensive mixed grazing and mechanical control of established scrub stands as the most appropriate management technique to reduce scrub frequency and maintain species-rich sand dune communities.

Selected references

PACKHAM, J.R. & WILLIS, A.J. 2001. Braunton Burrows in context: a comparative management study. *In*: J.A. HOUSTON, S.E. EDMONDSON & P.J. ROONEY, eds. *Coastal dune management: shared experience of European conservation practice*. Liverpool University Press.

ROBINSON, P.C. 1997-2003. *Botanical monitoring on Braunton Burrows associated with grazing trials in the area of Fox and Bushgrass slacks*. Unpublished annual reports to English Nature.

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