



Environment: habitat and conservation

Managing Habitats in Wicken Fen

Voice Over

Key to the maintenance of this diversity is the management of habitats, a human intervention that has been happening for centuries. At the edge of the fen the Cottage Museum depicts how life may have been for workers on the fen before it became a nature reserve. The vegetation was cut for thatching local houses and as bedding and feed for domestic animals. Tools such as this were used to cut peat for fuel. The result is a landscape stamped with centuries of rural culture. Physically in the peat-diggings, paths, ditches and dykes and ecologically in the plant and animal communities that have developed over time.

Joanna Freeland, Open University

The reason why Wicken Fen has to be managed is because humans have been cutting it back and tending the ditches and so on and creating as a result of this certain habitats and within these habitats different sets of species co-exist with each other.

Voice Over

Wicken Fen was given to the National Trust in 1900, since when it's been run as a nature reserve. Tasks such as hay-cutting used to be part of people's livelihood. Today they're continued as a means of conservation. The driving force behind much of the Trust's activity is managing a natural process known as succession.

Joanna Freeland, Open University

Succession is the natural way in which habitats change over time. If you start with a habitat that has essentially nothing living there, the first species that come in will be weedy plant species because they can survive on soil that has low nutrients and they can take energy from the sun and therefore form the basis for a food web to begin then. Associated with these plants, these first plants coming in, will be a range of invertebrates and when the plants and the invertebrates die, the detritivores will help to decompose them and their nutrients will be released into the soil and as the soil becomes richer a wider range of plant species can now come in and grow there. And over time you'll get the progression from weeds to grassy species, to shrubs, hedges and eventually you'll end up with forests there.

Voice Over

If woodland were the only habitat here then biodiversity would plummet and if succession were allowed to proceed naturally much of the fen would be covered by bushes or trees. It's only by halting the process of succession at various stages that so many habitats can be maintained. This idea of conserving habitats by managing succession was first explored in the early 1900's. Wicken was one of the first sites at which the effects of management on habitat diversity were explored. An early experiment of this was Harry Godwin, a pioneer of plant ecology.

Adrian Calston, Property Manager

These are the Godwin plots and they're an experiment that was set up in the 1920's to look at the impact of management on vegetation. There are four plots and then down at the far end there is a control and the idea is to see what happens with different frequency of cutting and the impact of that on vegetation and we found out also since then is that obviously has an impact also on the types of animals that live here as well. So where we are we are in the first year and this vegetation is cut every year and it's dominated by grasses and this is the purple moor grass. In addition to grass being in here we can see there are a number of flowering plants; this one here is purple loosestrife. And in this kind of community we'll find that there are butterflies such as the large skipper and the small skipper and moths such as the silver bard, which occur. And if we just move a couple of yards over to here we're now in the area

that's cut every two years and here a new plant has come in. This one here is called the saw-sedge; it has a very jagged edge along the back of it.

Voice Over

Even as little as one year difference between cutting periods has a significant impact on the species that are able to grow. This difference could be attributed to succession.

Adrian Calston, Property Manager

Well I'm now moving from the area which is cut every two years into this one which is cut every three years, then immediately you can see that this is much denser and much taller than the previous area. It's almost dominated now by the saw-sedge. But we can begin to see now the beginnings of seedlings of small shrubs. This one here is alder buckthorn, for example. And moving along over here we can see the reed is quite dominant and this one obviously is a couple of years old as it's got a dead flower head on the top. Not only is the vegetation different with this longer cutting regime, but this is also reflected within the animals. Now some animals live as little, tiny larvae for two or three years within side the stems of these grasses and of course in the plots over there where they're cut every year, those animals have got no chance of maturing and becoming adult, whereas here they actually can. And one animal that lives in here is a moth called the reed leopard. It lives as a larvae inside here for two to three years and then emerges as the adult and here it's able to do that. What you can also see within this plot as well is there are an awful lot of spider's webs. As there's no annual disturbance these animals can build these complicated webs and then hunt around in this longer grass upon the things that also live within here.

This is the compartment that's cut every four years and again we can see very tall, very coarse vegetation, dominated by the reeds and the sedge, but also increasingly now by areas of scrub. Here, this plant here is a creeping willow, a little bush that's beginning to come in, it's coming in because it's been cut so infrequently it's able to shoot and actually get growing, and grow reasonably tall. And then finally moving on over to here, this is the area which is not cut at all and we can see now it's dominated by bushes which are growing quite tall now. This plant here is the gelder rose, over there is privet which is now coming into flower, and above us is a birch tree.

Voice Over

The trees and bushes of the control which hasn't been cut at all represent the final stage of succession in this area. The plots illustrate the process of succession from an open meadow to woodland. The different stages are entirely a result of how frequently each plot is cut.

Adrian Calston, Property Manager

The Godwin plots at Wicken show a number of different things really. They show the role of management, that if you manage things in one type of way you can create one type of habitat, if you manage it differently, a different habitat can be created. But what they also show if you look at them all in sequence, it shows you a succession from basically fen meadows through to scrub.