

# EXPANSION OF NATIVE OAKWOODS INTO HABITAT CLEARED OF CONIFERS

## Introduction

- Many Atlantic oakwoods were under-planted with conifers, particularly Sitka spruce, during the second half of the 20<sup>th</sup> century.
- In the course of the EU LIFE 97 project, large areas of conifers have been clear-felled, some to waste.
- How should restoration of oak woodland be progressed on sites cleared of conifers?

## Aims

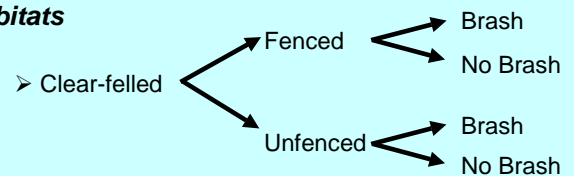
- Assess methods applicable to the restoration and expansion of Atlantic oakwoods into areas cleared of conifers.
- Determine survival and growth rates of saplings planted in clear-felled areas compared to more shaded habitats.
- Test whether brash left from felling protects saplings against browsing by ungulates.

The study site in Glen Nant Caledonian Forest Reserve, Argyll.



## Methods

### Habitats

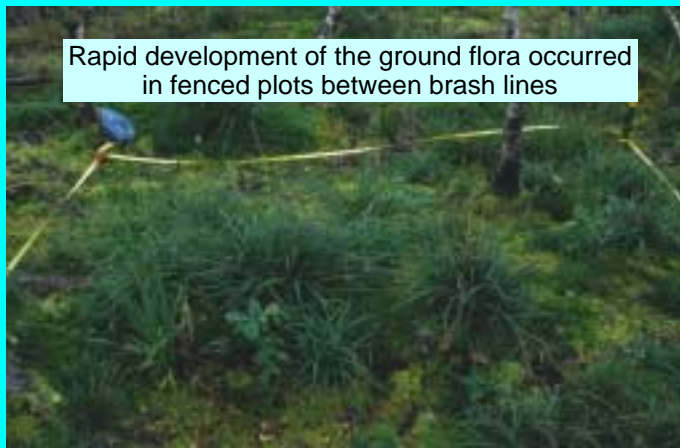


➤ Under a birch canopy (moderate shading)

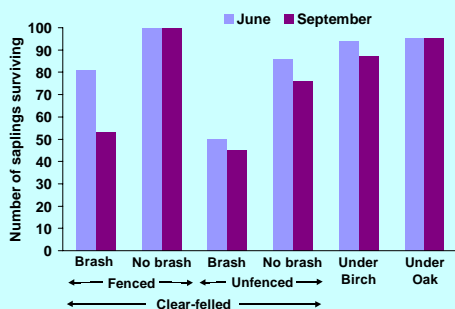
➤ Under an oak canopy (heavy shading)

- In each habitat, ten 2 m x 2 m plots were set up in March 2000 with ten one-year-old oak saplings planted per plot.
- The height, number of leaves and browsing incidence were recorded in June and September 2000.

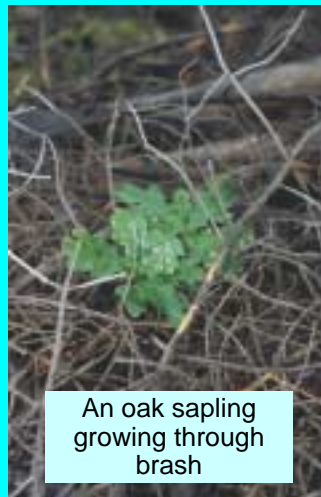
Rapid development of the ground flora occurred in fenced plots between brash lines



## Survival of saplings

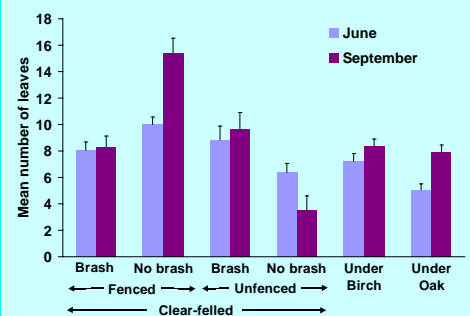


- Survival was higher in plots without brash than in plots with brash.



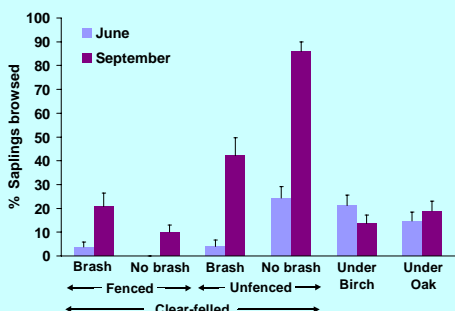
An oak sapling growing through brash

## Development of foliage



- Saplings in fenced plots without brash had more leaves than saplings in fenced plots with brash or under a tree canopy.

## Browsing Incidence



- Browsing was higher in clear-felled areas (where the ground vegetation attracted sheep) than under oak and birch canopies.

- On unfenced areas, saplings planted in brash plots were less likely to be browsed than saplings planted in plots with no brash.

## Conclusions

- Browsing can be relatively high in clear-felled areas.
- Brash offered protection against browsing by ungulates ...
- ... but survival in brash plots was lower than in non-brash plots (probably because planting was more difficult in brash).
- Oak saplings planted between brash lines in the fenced area showed the best performance in the first summer after planting.
- Also, there was prolific natural colonisation of the clear-felled area by birch ...
- ... but there was no natural colonisation by oak.

