Assessing and addressing the impacts of ash dieback on UK woodlands and species of conservation importance

Case study 11 : Downton Gorge

Case study key facts

Total area of woodland: **48 ha with 24 ha of ash**

Proportion of ash in canopy: ***c.* 50% in ash area**

Woodland structure: **high forest**

NVC: **W8**

Vulnerable ash-associated species: **115**

Alternative trees and shrubs: **present but privet could be planted**

Management: **establish new plants within fenced, recently felled, coppice coupes**

Site and Location

Name	Downton Gorge
Country	England
Local Authority	Hereford and Worcester
National Character Area	The Clun and North West Herefordshire Hills
Landscape context	A strip of woodland covering both slopes of a steep-sided gorge with a river flowing in the bottom. Immediately adjacent to and surrounded by conifer plantations. There are some small blocks areas of mixed broadleaved woodland in the local area.

Old maiden ash in relatively open area with stored coppice on opposite bank of river (photo Natural England).

Site Characteristics

Woodland area
The site is 48 ha in total of which about half is ash woodland the remainder being oak and birch.

Woodland type
The ash woodland is NVC W8

Soil type
Calcareous on lower slopes, upper slopes more acidic.

Lithology
Lower slopes limestone and siltstone the upper slopes of sandstone.

Stand structure
The ash woodland occupies a ribbon of land on each bank of the river. The stand is high forest derived from areas of neglected coppice and others which have been managed as wood pasture. The overstorey cover is variable, but about 60% overall and mostly provided by large stems of stored coppice and old maidens. Ash is present throughout comprising about 50% of the overstorey with the remainder of the canopy provided by similar amounts of birch, small-leaved lime and beech with some oak. Other rarer species include large-leaved lime, wild service tree and yew. A narrow strip of alder, with a few poplar, occurs alongside the river. An understorey with an overall cover of *c.* 50% occurs throughout, it is predominantly moribund hazel stools and hawthorn, but a variety of other species occur in smaller amounts including elder, holly, crab apple, willow, birch and field maple. Natural regeneration only occurs within deer fenced areas. Ash regeneration is common with recruitment to large saplings taking place, hazel and beech regeneration is less frequent – small-leaved lime has also been recorded. Other species are rarer or do not appear to regenerate. A herd of fallow deer use the site and evidence of damage outside the fenced exclosures is obvious and abundant - including slots, fraying damage and browsing damage to ground flora.

Biodiversity interest

Designations
The site is an NNR which forms part of a larger SSSI and SAC (*c.* 70 ha) designated for *Tilio – Acerion forests of slopes and ravines* (*i.e.* mixed woodland on base rich soils associated with rocky slopes) which are present in the gorge.

Vulnerable species likely to be affected
A total of 115 species were identified including an additional 3 known by local staff to be present. A majority of these are lichens (70), the remainder being fungi (17) and bryophytes (14) with several invertebrates and birds. However only 14 species are obligately or highly associated with ash.

Other species of conservation interest
There are a number of rare or notable species in a variety of taxa including lichens, bryophytes, fungi and saproxylic invertebrates. Several bats (all of which are European protected Species) have been occasionally recorded foraging, with some roosting in caves on the site.

Management

Historical
Much of the area was managed as coppice which ceased during the 20th century. Parts of the site were wood pasture which has developed into high forest. Conifers were established on some areas during the 20th century but these have been removed in recent years.

Current
Generally limited intervention allowing natural process to take place. Some areas are managed as coppice with standards on a 10 – 15 year rotation, deer exclosures have been established to promote natural regeneration, and sycamore and rhododendron are removed in some areas.

Long-term vision for site
High forest of mixed native broadleaved species having a range of age-classes in a multi-layered canopy.

Factors limiting delivery of management currently planned
Excessive browsing by deer and agreeing management with the landholding estate which has different objectives.

Future methods of management

Potential response of ash associated species to ash dieback
Although the 6 obligate species will be lost (5 fungi and 1 invertebrate) all except one of the remaining species which are threatened are likely to survive as for each there are 2 – 5 alternative species which are present and common at the site. The only known alternative species for the moth *Ennomos fuscantaria* is privet which is very uncommon in the woodland.

Continuation of existing management with loss of ash occurring
Loss of ash will change the characteristics of the stand, but as there are other common trees and shrubs already present which provide alternatives to ash, most of the threatened species are likely to survive in the short to medium term. Excluding deer from coppiced areas can allow natural regeneration and privet which is reasonably shade tolerant should be able to establish in the fenced coupes. However, it is scarce at the site and use of natural regeneration to establish new plants across the woodland is unlikely to occur quickly, if at all. Consequently the population of *Ennomos fuscantaria* is likely to decline.

Management allowing for loss of ash but maximising persistence of ash related biodiversity
Under current deer pressure restocking by natural regeneration, coppice or planting will not take place unless plants are adequately protected. As some species present will regrow well following coppicing if protected, and canopy reduction will be necessary to allow establishment of natural regeneration or transplants, a progressive series of fenced coppice coupes may be one method of replacing the existing stand. If successful it should create a stand of mixed ages with varied structure that replace older elements of the stand over time. However, supplementary planting may be necessary for species that are unlikely to regrow as coppice after felling or regenerate reliably from seed (*e.g.* oak). Planting can also be used to enrich the stand with species that are present but rare, this would include privet which is an alternative species for the one threatened moth. Planting and any treatments thought necessary to promote natural regeneration (*e.g.* exposure of mineral soil) should take place within a coppiced area immediately after the fence has been erected. Transplants should be established at appropriate locations (*e.g.* suitable soil conditions for species, in gaps between coppice stools, not beneath standards) and management should follow best practice to ensure establishment. If necessary, vegetation management should be carried out to prevent the development of a competitive ground flora.

Factors likely to constrain delivery of future management to maximise persistence of ash associated species
Protection from browsing by deer.

Potential for use of generic methods to establish alternative species

As privet is unlikely to regenerate by natural regeneration all options except felling and replanting (option 4) are unlikely to succeed. Removal of all ash at once would create some large canopy gaps in the stand which could be fenced to allow establishment of privet. However, felling and removing all ash at once will remove potential habitat for organisms which require dead and dying trees and may not be a realistic option as such organisms are an important part of the community.