

# Evidence-based or evidence-blind?

## Priorities for revitalising conservation

*As conservationists pursue their goals of defending and managing the natural world, too often they stick to their prejudices. This article asks for greater realisation of the types of bias which can influence decisions and attitudes of conservation managers.*

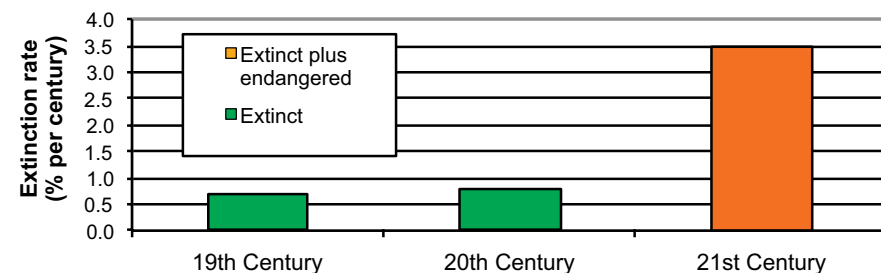
### CLIVE HAMBLER

#### Thinking like an alien

If alien conservationists were advising Earth, what would they deduce and do? It would be clear to them that the dominant species here does not demonstrate effective respect for other beings. Humans advocate 'evidence based conservation', yet evidence is wilfully or subconsciously ignored because of human biases.

Even in Britain, despite a long history of conservation and legally binding conventions, the rate of loss of species is stable or rising (Figure 1). The rate of extinction in England is probably about one species a month, possibly double that. An alien might investigate why this evidence contradicts ecomodernists, who correctly argue development could reduce extinction by decoupling exploitation from nature. However, ecomodernists downplay concerns over human population growth, despite it fuelling developments which destroy habitats and which demand water. Some environmentalists embrace invasive species and 'novel ecosystems' alike, hoping (despite evidence) they will remain stable. Another key to the problem is that dogma dominates conservation management, not ecological evidence.

Figure 1. Recent and projected extinction rates in Britain (methods in Hambler et al.<sup>1</sup>).



#### Extinction rates – will rewilding help or hinder?

We know the causes of many of the recorded global extinctions in the last 400 years: habitat loss, invasive species and exploitation. Britain is no different, with many species surviving much of the Holocene, so long as natural habitats were expansive. The safest bet as to how to reduce extinction is to reduce these threats, and that leads to a natural conclusion: 'rewilding'. Rewilding covers many approaches to land management using a greater degree of natural processes. One of the main models of rewilding is simply the rebranded and widely recognised practice of restoration management. This has no dogmatic emotional focus on traditional cultural landscapes such as semi-natural habitats. Debates about the merits of rewilding, and cultural relativist suggestions that it is just another subjective choice, ignore the central, rational reason for rewilding: reducing extinction rates.

Rewilding will cause regional extinctions amongst commensal species of grassland, heathland, moorland and coppice. Yet a brutal use of evidence shows that declines in farmland birds or heat-loving species such as blue and fritillary butterflies can indicate conservation success as habitats recover from exploitation or the impacts of invasive species.<sup>1</sup> The small pearl-bordered fritillary, allegedly in desperate need of coppice, is actually one of the world's commonest butterflies - so aliens might prefer to replace them (or large blues) with rainforest lichens.

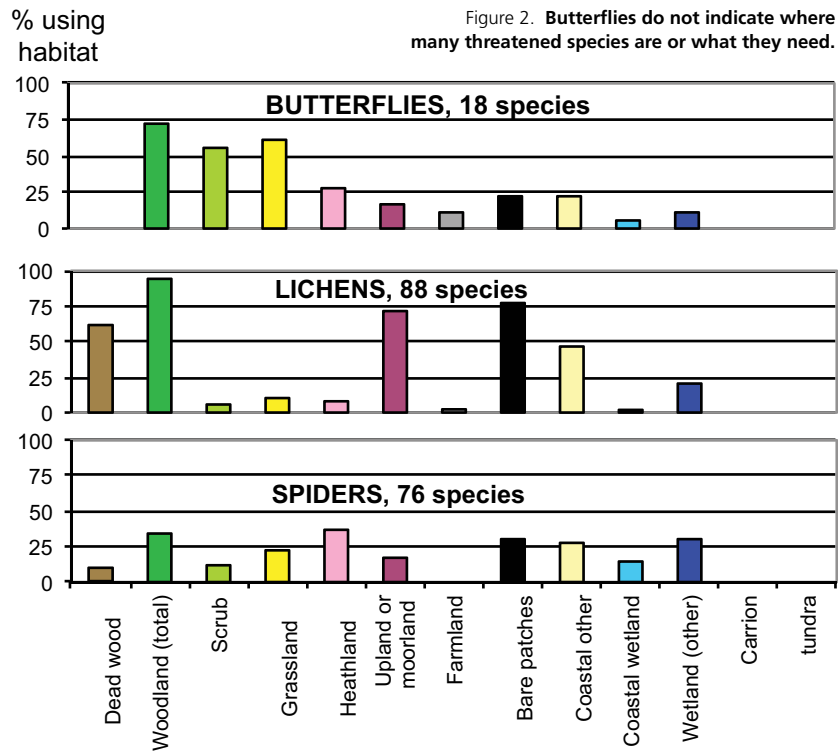
Many claim that 'neglect' or 'under-management' leads to dull woodlands of little wildlife value. Some argue it's too late to get benefits from rewilding, or that bringing species back will harm others (with which they co-exist elsewhere!). Some defy evidence from subfossil beetles and pollen<sup>2</sup> and believe rewilding should create herbivore-regulated parkland, not carnivore-regulated high forest. They ignore evidence that forests have been improving as trees age: the horned leafhopper, light orange underwing and internationally important *Lobarion* communities occur in former coppice.

#### Enabling succession, allowing for neglect...

In a 'neglected' landscape, with minimal intervention against invasive species, succession is generating greater habitat diversity, complexity and extent. Key microhabitats recover, including dead wood and detritus, damp microclimates, low windspeeds and diverse structures for mosses, lichens, ferns and spiders to hang on. The darkest canopies are the richest in Britain. Rewilding will liberate many species currently fizzling out in relict habitat patches that have fortuitously retained these elements of naturalness. Such species are identifiable in the lists of threatened species (Figure 2). The old paradigm of 'letting in the light' destroys habitat, reduces habitat diversity, and indicates widespread unawareness of how energy moves through the food web. Neglect favours many neglected taxa.<sup>1, 3</sup>

#### Carbon, climate and the biomass blunder

Yet Britain is reversing some 70 years of recovery in its woodland habitats. This results in part from a drive to biomass fuel - in habitat-burning devices of many sizes. Ignoring the evidence that biomass burning wiped out many species of mature forests, some opportunists advocate it as a route to the aesthetic goal of abundant



flowers, beautiful butterflies and a relatively few threatened species of structurally impoverished mid-successional habitats. Aspen fuelwood is being extracted from wildlife sites such as Wappenbury Wood. A look through threatened species lists would rapidly reveal the folly, with many species benefitting from old aspen.

Why is Britain getting worse at conservation, such as rediscovering a destructive woodland industry and threatening top priority sites such as the river Severn with tidal energy development? Strangely, some still fear climate change to be the greater threat to wildlife. Some conservation practitioners ignore the survival of many species through the turbulent temperatures of the Holocene, and ignore the fact that 'basic physics' proved inadequate to model an ecosphere with negative biological feedbacks. Dogmatists promoting alarm messages on climate change ignore evidence of cooling (such as the return of cold-water species to the Bristol Channel), and evidence of how to mitigate change. Just as aliens could appreciate that many species survived despite traditional management, not because of it, they could understand that 20th Century warming may be despite CO<sub>2</sub>, not because of it. CO<sub>2</sub> may be boosting plankton which generate cooling clouds. Ironically, the removal of forest canopy releases CO<sub>2</sub> and destroys a buffer against climate changes.

Fortunately, whilst British conservationists are still erring, they have been learning. Rewilding is capturing minds and energizing in a way restoration ecology failed.

Why? Is it the charisma of big beasts or the intrigue of trophic cascades? Did people finally use evidence? Ecologists have identified where problems and vulnerable species are. They have demonstrated that the majority of species decline in tandem with the relatively easily monitored birds and fish. They know how to manage for many species (and 'services'). There are new conservation flagships to learn from including the Alladale Wilderness Reserve, Trees for Life, the Atlantic Hazelwoods protected from re-coppicing,<sup>4</sup> restoration of Otmoor's wetland, and eradication of damaging invasive species on the wildlife rich Overseas Territories.

Scanning ahead, conservationists need open minds. They need to observe developing concepts and influences with caution, including 'natural capital', 'sustainability', 'resilience', 'biodiversity mitigation' and pathogens. Most of all they need to think more like an alien.

**References**

1. Hambler, C. et al. (2011) *Biological Conservation* 144, 713-721.
2. Robinson, M. (2014) *Environmental Archaeology* 19, 291-297.
3. National Ecosystem Assessment (2011) Technical Report. Chapter 4, p. 87.
- 4) Plantlife (2010) *Lichens and bryophytes of Atlantic woodland in Scotland: an introduction to their ecology and management*. Back from the Brink Management Series.

*Clive Hambler* is an ecologist in the Department of Zoology, University of Oxford. [clive.hambler@zoo.ox.ac.uk](mailto:clive.hambler@zoo.ox.ac.uk)

*Lobaria pulmonaria*. This species of lichen could spread if more of the Lake District were rewilded. Photo: Bernd Haynold. Licensed under CC BY-SA 3.0 via Commons

