



Ecology: conservation, restoration and participation

*What is natural? What are conservationists conserving?
Alan Carter explains the need for participation ecology and
warns against confusing romantic remoteness with wildness.*

Words matter. They bring with them histories and associations that shape our thinking when we use them. This is nowhere more true than with two words close to the heart of Reforesting Scotland: 'wild' and 'nature'. In referring to individual objects, we describe those which are born as 'natural' (from the Latin *natus*: born). Those which are made, we call 'artificial' (Latin *artificium*: craftsmanship). So a whale is born and is natural, but a ship is made and is artificial; an object is either one or the other. So far, so good, but we then use the same word, 'nature', to refer to the whole biosphere. A word used in one context carries its associations

from others, so we think that 'nature' must be something untouched by human artifice. This sets up what mathematicians call a zero-sum game between humans and nature. In a zero-sum game one player can only benefit at the expense of the other; there is no room for collaboration for the benefit of both.

Our concept of what is wild in Scotland is dominated by this aversion to human beings. A recent mapping of wild land by Scottish Natural Heritage used four criteria to assess wildness: (1) perceived naturalness of the land cover; (2) the ruggedness of the terrain; (3) remoteness from public roads, ferries or railway stations; and (4) the visible lack of buildings, roads, pylons and other modern artefacts. Since

'perceived naturalness' is also defined in many people's minds by the lack of (obvious) human influence, all four of these criteria relate to the absence of humans and human activity.

Restoration

When Reforesting Scotland began, there was much talk of 'restoration ecology': the science and practice of re-establishing ecosystems, or elements of ecosystems, on land where they have been lost. It came with philosophical underpinnings, casting itself as a second phase of conservation and explicitly criticising aspects of traditional conservation, which had often focused on trying to preserve unchanging habitats within isolated nature reserves.

Above: Beaver. Photo: Ray Scott.

Restoration ecology paints a more dynamic picture of nature. Species and ecosystems shift around and undergo succession: they cannot be frozen in time and space in an idealised condition. What happens beyond the reserve has an effect within its borders, in everything from disease transmission to gene flow. Species interact, often in unexpected ways. The positive side of this is that damaged habitats can be restored: put back the missing pieces and the dynamic between them will reappear.

However, much restoration ecology is based on the zero-sum view of nature and humanity. The ecosystem that is being restored is always the one thought to have existed before human interference. Once the work of restoration is done, the main role of humans is to keep well away. In an article in issue 15 of *Reforesting Scotland* outlining proposals for a Borders Wildwood, two key aspects were laid out in the first two sentences. The area would recreate the forest that existed before human activities became dominant, and the impact of people would be kept to a minimum.

We need a measure of wildness that is not simply the opposite of humanity.

Participation

By contrast, *Reforesting Scotland* has generally held more to a vision that I like to call ‘participation ecology’, in which humans are not an alienated species, separate from the rest of nature, but an integral part of the whole, capable of positive impact as well as negative. There are a number of benefits to such a view. Firstly, the idea that humans are a fallen species, capable of doing good for nature only by minimising their interaction, is a dispiriting, discouraging vision for conservation. Participation ecology calls on us to be creative, engaged and positive. Secondly, it focuses us on the genuine impacts of our actions. A human activity such as building a wind farm may certainly have negative impacts on nature, from bird strikes on the turbines to disturbance from road building, but let us measure and judge these real effects rather than damning the whole

enterprise as ‘un-natural’ simply because it is visibly human. Thirdly, it encourages us to seek win-win, or ‘positive sum’, situations for humans and nature. Our parks and gardens can be sterile expanses of mown grass and hard standing or they can be oases that support more wildlife than the farmed countryside. Our hunting culture can promote overgrazed, burned hillsides or rich forests. Our agriculture can put sheep dip in the burns and ‘tidy’ away natural vegetation or it can integrate hedges, shelterbelts and agro-forestry.

The difference between zero-sum and positive-sum games is generally recognised to be intelligence. Finding synergies and opportunities for co-operation takes smarts. In alienated ecology, intelligence is the factor that divides humans from the rest of life and means that nothing that we touch can be considered natural. In participation ecology, it is the thing that most defines the nature of our participation. We need a measure of wildness that is not simply the opposite of humanity. Perhaps we could start by getting a better feel for ecological processes and whether human activities

in a landscape hinder them or allow them to flourish alongside what we do. I would pick five:

herbivory, predation, reproduction, movement and diversity.

Balance

Herbivory and predation are opposite sides of the same coin. The story of the cascade of changes caused by the reintroduction of wolves to Yellowstone is now too well known to need repeating. As well as reducing absolute numbers of herbivores, predators keep them on the move and out of certain areas, allowing the recovery and increased diversity of the vegetation. Traditional game estates attempted to remove predators wholesale from the landscape and a legacy of persecution and poisoning persists to this day. But herbivore numbers should not be too low either. When we fence them out completely from an area the vegetation grows rank and many species are smothered out.

Reproduction is essential to the continued existence of any species.

Overgrazed landscapes can be mown so short that few plants are even able to form reproductive structures. Once seed sources are lost, there may be no easy way back for a species. The iconic Caledonian pinewoods were not always pure pine. It is simply that in some places pine is the last man standing: they have been grazed for so long that other species having died out without ever leaving descendents.

Animals can walk or fly around; plants can only move between generations, but in either case movement is essential to maintaining genetic diversity and responding to changing climates. We prevent it with roads, fences and all manner of habitat fragmentation. In the United States, ‘bear bridges’ have been built over some roads: these are wide bridges of natural vegetation that join up areas separated by roads. As climate change progresses we will need landscape-level planning to join up fragmented habitats and ensure that species can move their ranges to adapt.

Diversity is the hallmark of a rich, robust ecosystem. It is useful to think of species in terms of their ecological functions: browsers, grazers, predators of this or that size – but we should not lose sight of the fact that each species is unique and carries out those functions in subtly – or radically – different ways. Each species also creates new niches that make ecological space for yet more diversity. A beaver is a herbivore but it fulfils this role like no other herbivore. It is also a landscape engineer, creating clearings, ponds and wetlands that make habitat for a suite of other creatures.

A rewilded country would, I hope, have room for some large areas where human influence is minimal, but if we keep confusing romantic remoteness with wildness we will have missed the point. We also need to learn to value and nurture the low-key wildness that exists on our doorsteps. The seagull raising its chick on my roof is expressing its nature just as much as one doing so on stormy sea-cliffs, and the bumble bees enjoying the forest garden in my allotment are no less wild than those on a nature reserve.

Alan Carter is a forester and greenspace manager based in Aberdeen.