The Lawton report

A landscape approach to making policy relevant recommendations

The Lawton report

Commissioned for Department of Enironment Food and Rural Affairs (DEFRA) by last Labour government
Supported by the coalition
“Kicked into the long grass” by current government, but still forms an important part of strategic thinking

“Enhance ecological England”
“Allow nature to thrive”

The future of wildlife conservation in the UK?

The report argues that we need a step-change in our approach to wildlife conservation, from trying to hang on to what we have, to one of large-scale habitat restoration and recreation, under-pinned by the re-establishment of ecological processes and ecosystem services, for the benefits of both people and wildlife. We are not proposing a heavy, top-down set of solutions. It is a long-term vision, out to 2050, and defines a direction of travel, not an end- point. This vision will only be realised if, within the overall aims, we work at local scales, in partnership with local people, local authorities, the voluntary sector, farmers, other land- managers, statutory agencies, and other stakeholders. Private landowners, land managers and farmers have a crucial role to play in delivering a more coherent and resilient wildlife network.

The questions

Do England's wildlife sites comprise a coherent and resilient **ecological network?**
What are the past, current and future pressures on the environment?
What are the strengths and weaknesses of our current wildlife sites?
What needs to be done?

Why is a network important?

England's wildlife and landscapes have inspired and delighted through generations. There are strong moral arguments for recognising the intrinsic values of other species and for passing on the natural riches we have inherited to future generations. We have also recently begun to better understand (or perhaps remember) that our natural world is not a luxury: it is fundamental to our well-being, health and economy. The natural environment provides us with a range of benefits – ecosystem services including food, water, materials, flood defences and carbon sequestration – and biodiversity underpins most, if not all, of them. The pressures on our land and water are likely to continue to increase and we need to learn how to manage these resources in ways which deliver multiple benefits.

Why is a network important?

The UK took its first steps along the road of restoring our wildlife with the publication of the UK Biodiversity Action Plan (BAP) (Anon. 1994), which was supported by 436 targeted action plans (published in a number of volumes up to 1999) for habitats and species in most need of conservation action. The UK BAP has now been superseded by country-led strategies, including an England Biodiversity Strategy (EBS) (Defra 2003), but the focus on restoration has remained. Action stimulated by the UK BAP and the EBS has led to many of the conservation successes achieved in England in recent years, and described earlier. Following a recent revision of the UK BAP list, there are now 943 species and 56 habitats recognised as BAP priorities in England (see section 4.1.3). The growing size of the BAP priority list calls for a step-change in action. We need to do better.

Loss of natural areas

1916 182 sites in England known as ‘Rothschild’s Reserves’.

By 1996

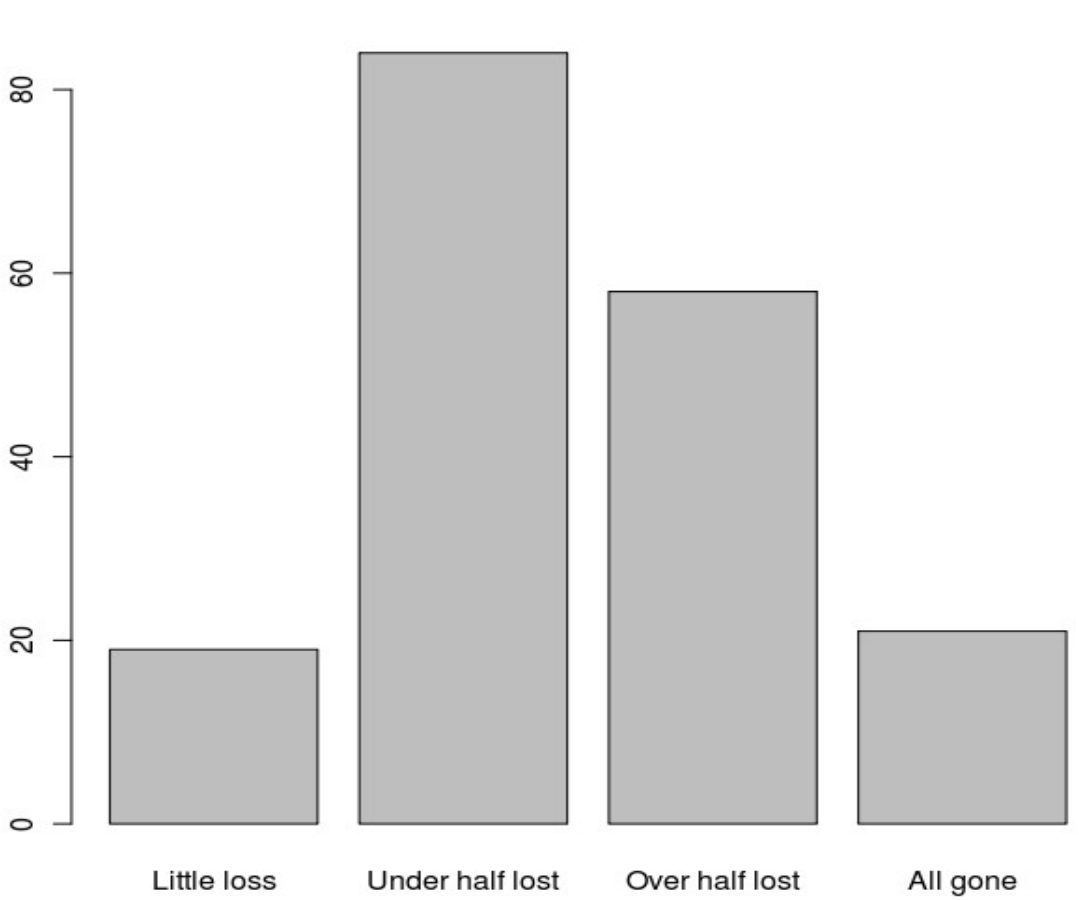
Little or no loss 19 (10.4%)

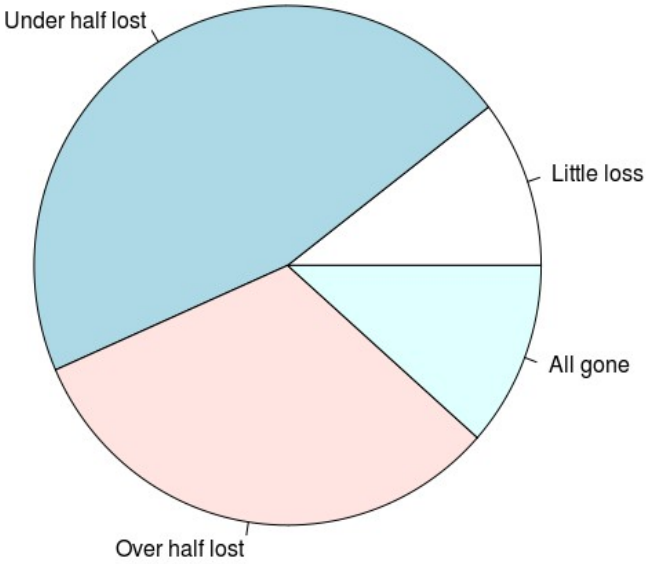
Less than 50% loss of the habitats for which it was originally listed 84 (46.2%)

More than 50% loss 58 (31.9%)

Total loss 21 (11.5%)

Fate of Rothschild's reserves





People

People who live within 500m of accessible green space are 24 per cent more likely to meet recommended levels of physical activity
Reducing the numbers of sedentary individuals in the population by just 1 per cent could reduce morbidity and mortality rates valued at £1.44 billion for the UK.

Wildlife

England supports at least 55,000 species of animals and plants
18% of the world's heathland
More chalk rivers than any other country in Europe
Globally important populations of breeding wintering waders and wildfowl
Internationally important populations of bats and oceanic lichens
More than half the mainland European species of bryophytes (mosses) including endemic species (found nowhere else in the world);
About 10% of all the world’s species of bumblebees
The highest representation of veteran oak trees in Europe
Peatlands, hay meadows and chalk grasslands of international importance

Species decline

Well known common species
- Hedgehogs
- House sparrows
- Toads

Farmland birds
- Tree sparrows
- Corn buntings
- Skylarks
- Turtle doves

Butterflies
- 94% of habitat specialists and 76% of all butterflies declined since 1970s

Less well known organisms
- 38 species of the 87 native land snails declining
- Total abundance of moths in decline

Drivers of change

Habitat loss, and the resulting fragmentation and isolation of surviving patches of semi-natural habitats.

- In 2008 11 out of the 15 (73%) priority habitats were declining as a result of agricultural practices

Habitat deterioration. The abandonment of traditional management practices on surviving patches of semi-natural habitats because they are no longer viewed as economically viable. For example..

- Cessation of grazing on such habitats as flower-rich chalk grassland (resulting in scrub-invasion)
- Lack of coppicing in woodland (resulting in a closure of the canopy and loss of internal heterogeneity)

Illegal collection and persecution of wildlife

Threats from invasive non-native species

Eutrophication.

Habitat loss

Habitat	Amount lost	Timescale of loss	References and Comment
Species-rich grassland habitats (includes meadows and calcareous grasslands)	97% loss in England and Wales	1930-1984	Fuller (1987) More recent losses have also been documented. In Derbyshire 91% of unimproved grasslands surviving in 1983 had disappeared by 1999. In Worcestershire there were losses of at least 64% of meadows between 1978 and 1996 (Stephen 1996).
Ancient woodland	7% loss	c.1930 - 1985	Spencer & Kirby (1992) In addition to this complete loss, about 38% of ancient woodland has been converted to plantations, predominantly of non-native species. These can potentially be restored. Taking a longer perspective, most of England was once wooded but nearly all of this was lost prior to 1600.
Grazing marsh	81% loss	Historic to today	RSPB *et al.* (1997) 1.2 million ha lost. Losses from the early 1930s to mid 1980s include 64% in the Greater Thames, 48% in Romney Marsh and 37% in Broadland.
Fens	99.7 % loss	Since 1637	Thomas *et al.* (1981) 3,400 km^2 lost, leaving just 10 km^2 today.
Lowland Raised Bog	44% loss	Historic to today	Hulme (2008) In addition to this loss, there has been degradation of other areas: the total area of lowland raised bog in the UK which remains largely undisturbed has diminished by 94% from 95,000 ha to c6,000 today.

Habitat loss

Lowland heathland	80% loss	1800-1980	Farrell (1993) Much of this loss occurred relatively recently: losses of 40% were reported between 1950 and 1984 for six major heathland areas (Nature Conservancy Council 1984).
Upland heathland	27% loss in England and Wales	1947-1980	Bardgett *et al.*(1995)

Conclusion

Tiers of protected areas

Tier 1 - Sites whose primary purpose is nature conservation and which have a high level of protection either due to their statutory status or to their ownership.

- SSSIs
- Statutory sites designated as a result of international treaties and obligations (overlaps with SSSIs)
  - RAMSAR
  - Special Areas of Conservation
  - Special Protection Areas
- National nature reserves (also almost all designated as SSSI)
- Land owned and managed for nature by National trust, RSPB, Wildlife trusts, The Woodland Trust

Tiers of protected areas

Tier 2 - Sites designated for their high biodiversity value but which do not receive full statutory protection.

Local Wildlife Site (Defra 2006). AKA County Wildlife Site, Site of Nature Conservation Interest

- Non statutory sites identified by Local Wildlife Site partnerships
- 42,000 sites across England.
- 690,000 ha of wildlife habitat
- Knowledge base improving through local authority performance indicators (BAPs)

Ancient woodland (continuous woodland cover since 1600)

- No statutory protection but current forestry and planning policy avoids their destruction.

Tiers of protected areas

Tier 3 – Areas designated for landscape, culture and/ or recreation and with wildlife conservation included in their statutory purpose

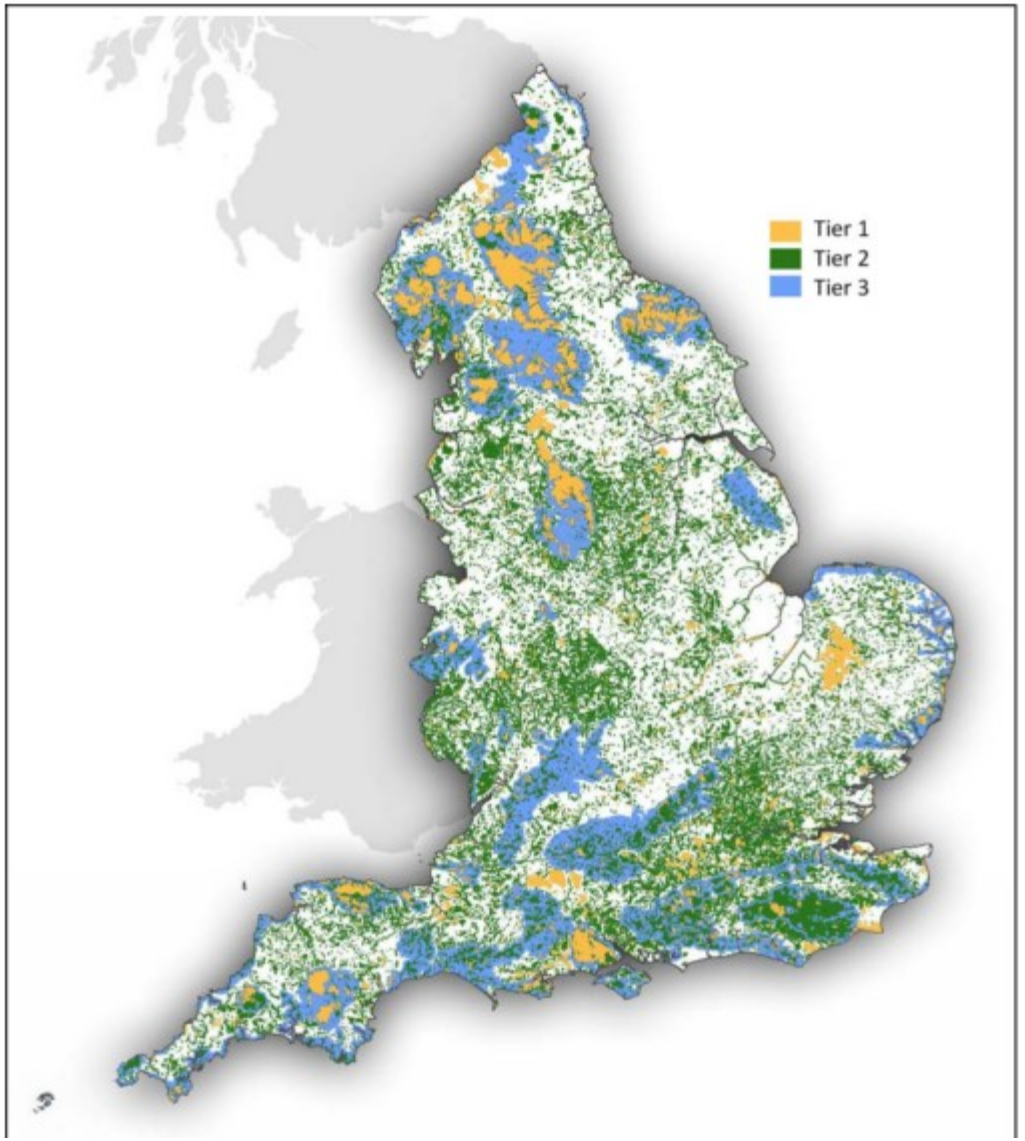
Large areas that cover much more land than Tiers 1 and 2. “Landscape designations”

- National parks
  - 24% consists of SSSIs
- Areas of outstanding natural beauty
  - 12% consist of SSSIs

Protected areas

	Site type	Number of sites	Mean (ha)	Median (ha)	90th percentile size (ha)
Tier 1	SSSI	3,174	255.3	25.5	278.7
	NGO land	3,313	56.0	2.4	44.2
Tier 2	LWS	42,799	16.2	4.6	31.1
	Ancient Woodland Inventory	27,724	12.8	3.9	26.2
Tier 3	AONB	34	56,646	35,481	136,201
	NP	10	121,611	124,438	182,051

Distribution of three tiers of protection



Are species adequately protected?

Table 2. Representation of species within different types of site.

The values in the table show the percentage of species represented at least once within each site series, based on a sample of 22 BAP priority butterflies, 50 threatened vascular plants and 50 threatened bryophytes. There are only 23 BAP priority butterflies in England, for which data were available on 22. See section 4.2 for further information on the data used.

Site type	Threatened vascular plants	Threatened bryophytes	BAP priority butterflies
SSSI	86%	70%	100%
LWS	80%	54%	100%
National Parks	42%	28%	91%
AONBs	68%	68%	100%
All sites combined	96%	98%	100%

Are habitats protected?

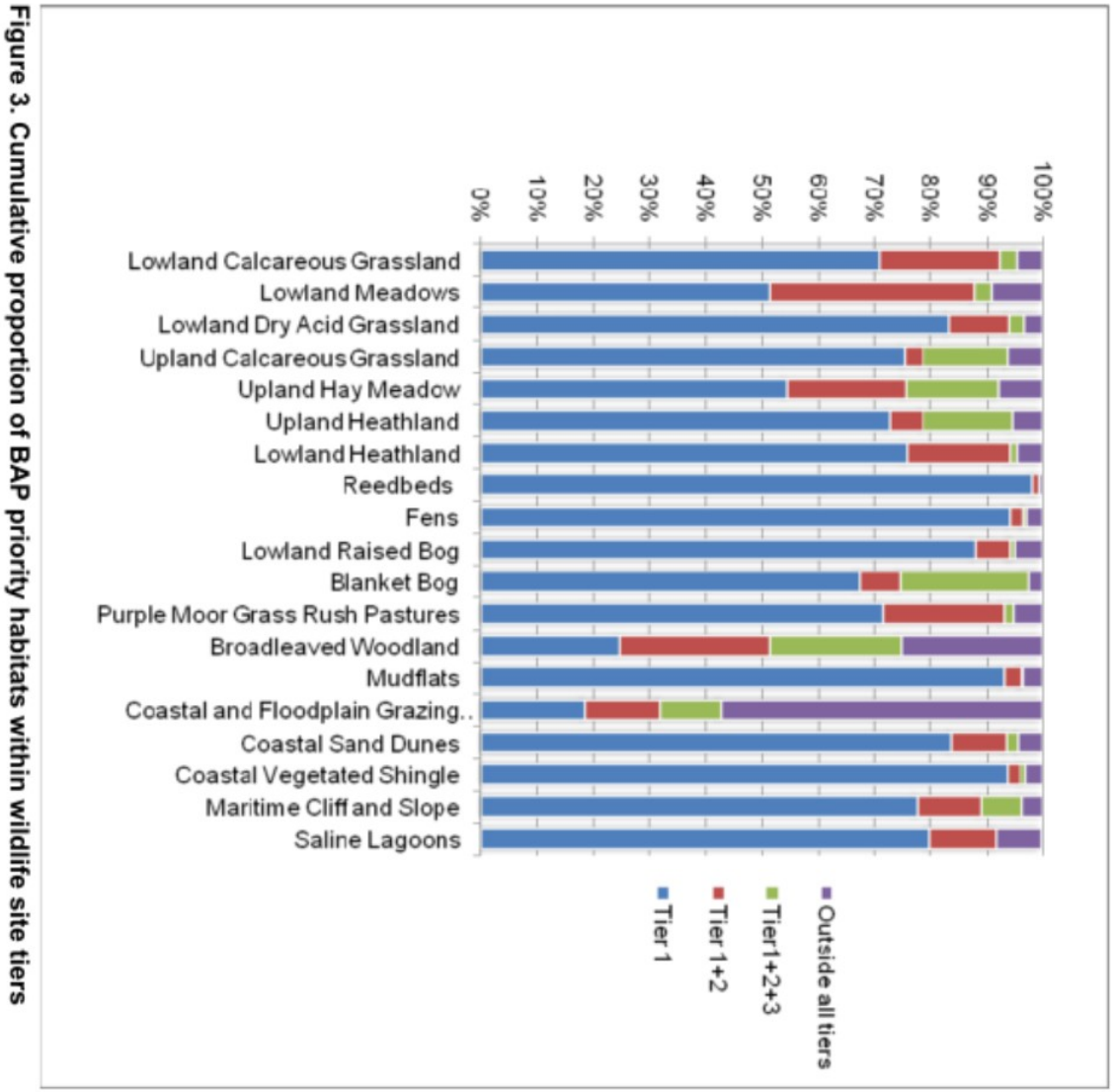


Figure 3. Cumulative proportion of BAP priority habitats within wildlife site tiers

Are habitats adequately protected?

A large proportion of the remaining BAP habitats are apparently protected
But …. this is because BAP habitats have been identified because they are being lost.
E.g. 50% of species rich grassland is within SSSIs. But this represents less than 2% of the habitat in the 1930s
"T*he reason why so much of the current extent of BAP priority habitats is now within wildlife sites is simply because they have largely been lost from everywhere else.*"

Size of habitat patches

BAP priority habitat	Number of habitat patches	Average patch size (ha)	Median patch size (ha)	Size of 90th percentile patch (ha)
Lowland calcareous grassland	4728	10.7	1.9	14.5
Lowland dry acid grassland	2904	18.9	1.8	24.7
Lowland meadows	5769	6.3	2.0	10.7
Upland calcareous grassland	955	15.8	3.1	25.5
Upland hay meadow	284	4.4	2.5	10.8
Lowland heathland	2987	30.8	3.0	52.7
Upland heathland	2857	79.2	4.1	98.1
Blanket Bog	1854	127.4	3.9	86.9
Lowland raised bog	144	69.2	14.1	101.1
Purple moor grass and rush pastures	2982	7.3	1.5	11.6
Reedbeds	1183	44.8	3.3	81.6
Coastal and Floodplain Grazing Marsh	2244	102.4	28.7	169.2
Broadleaved woodland	57453	9.5	3.9	18.1
Coastal Sand Dunes	220	46.0	5.1	126.1
Coastal Vegetated Shingle	144	25.0	1.8	40.0
Maritime Cliff and Slope	655	36.7	3.3	84.1
Mudflats	3361	19.5	0.6	18.5
Saline lagoons	133	6.7	1.0	8.5

Fragmentation

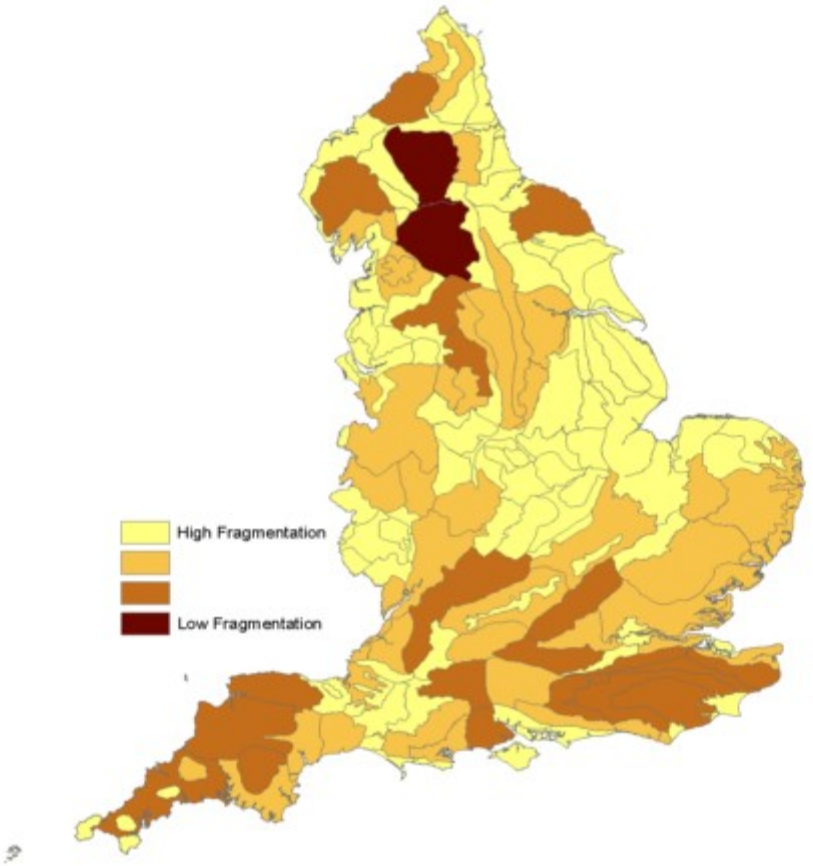


Figure 4. Levels of habitat fragmentation across National Character Areas. This analysis takes account of habitat extent and permeability land between habitat patches to produce a ranking from areas where habitats are most fragmented (lighter) to less fragmented and more connected (darker). From a new analysis carried out by

What is needed

- More, bigger, better connected wildlife sites
- Permeable matrix through which species can move
- A well planned ecological network

What is an ecological network?

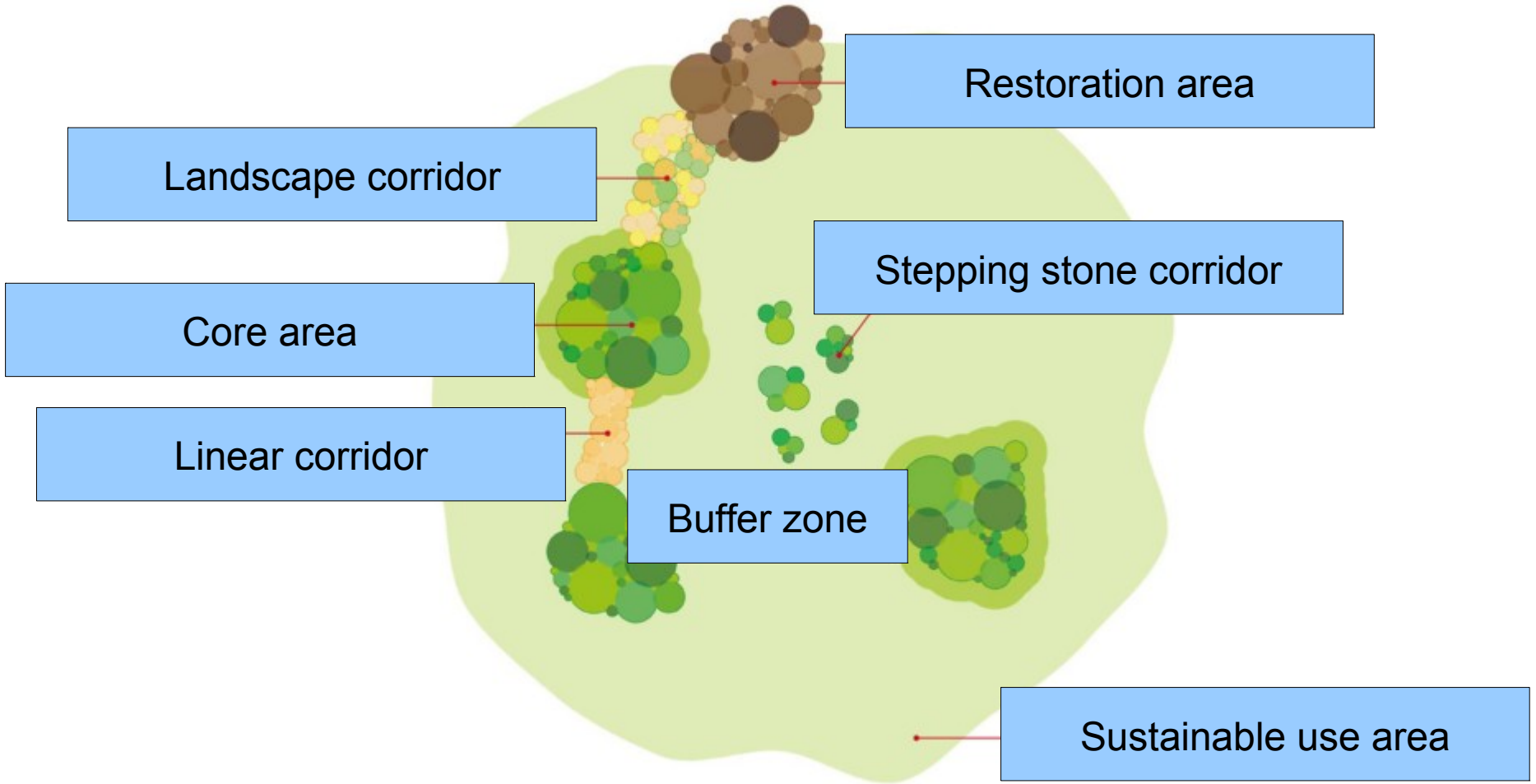
Pioneered in Central and Eastern European countries in the 1970s and 1980s
More than 250 ecological networks planned or being established at regional, national and international levels around the World
Large areas of wilderness can be focus of networks. North American 'Wildlands' project (wolves and bears)
Western Europe the most important areas - semi-natural habitats
Commonalities

- a focus on conserving wild plants and animals at the landscape, ecosystem or regional scale;
- an emphasis on maintaining or strengthening ecological coherence, primarily by increasing connectivity with corridors and 'stepping stones';
- ensuring that critical areas are buffered from the effects of potentially damaging external activities;
- restoring degraded ecosystems and ecological processes; and
- promoting the sustainable use of natural resources in areas of importance to wildlife.

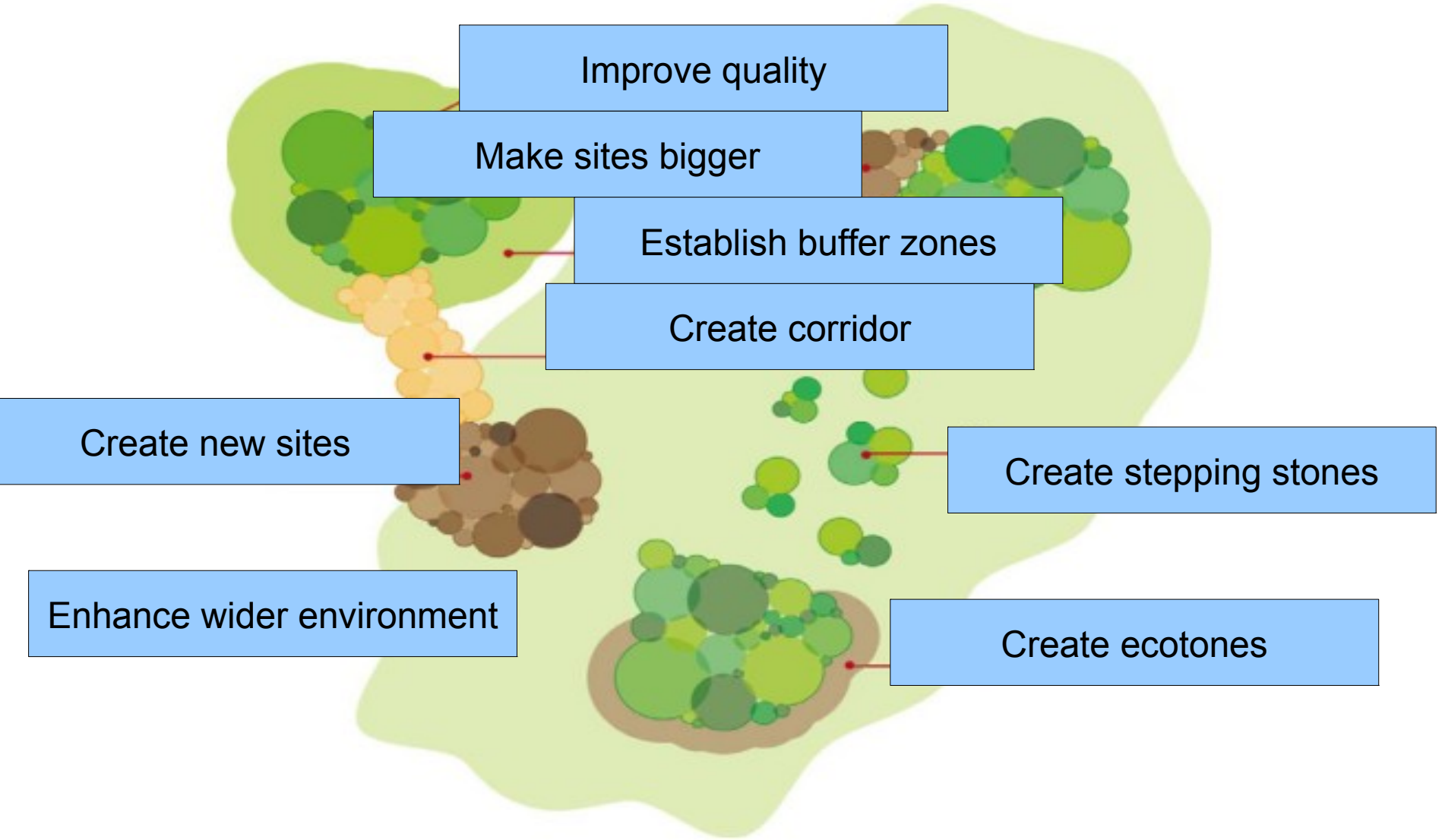
The English context

Much of England's wildlife is now restricted to certain places, our wildlife sites, consisting largely of semi-natural habitats moulded by millennia of human-use. These sites are essential for the survival of many plants and animals and will remain important even if the species and habitats within them change (see Section 5.3). Surviving in small, isolated sites is, however, difficult for many species, and often impossible in the longer term, because they rarely contain the level of resources or the diversity of habitats needed to support sustainable populations (see Section 4.3.2). However, re-creating large expanses of continuous natural habitat is not a feasible option over most of England. An alternative approach is to secure a suite of high quality sites which collectively contain the range and area of habitats that species require and ensure that ecological connections exist to allow species, or at least their genes, to move between them. It is this network of core sites connected by buffer zones, wildlife corridors and smaller but still wildlife-rich sites that are important in their own right and can also act as 'stepping stones' (see Section 2.2.3) that we call an ecological network. 'Wildlife corridors' do not have to be continuous, physical connections: a mosaic of mixed land use, for example, may be all that is needed – it is the permeability of the landscape to species (or their genes) that matters (Hilty et al. 2006).

Components of a ecological network



Enhancing the network



Coherence and resilience

- A **coherent** ecological network is one that has all the elements necessary to achieve its overall objectives; the components are chosen to be complementary and mutually reinforcing so that the value of the whole network is greater than the sum of its parts.
- A **resilient** ecological network is one that is capable of absorbing, resisting or recovering from disturbances and damage caused by natural perturbations and human activities (including climate change) while continuing to meet its overall objectives of supporting biodiversity and providing ecosystem services.

Needs for the network

Support the full range of England's biodiversity and incorporate ecologically important areas, including special biodiversity.
Be of adequate size, taking account of the needs of our natural environment to adapt to climate change
Receive long-term protection and appropriate management
Have sufficient ecological connections between sites to enable species movement
Should also be valued by people, accessible to people and include sites close to where they live.

Prioritising action

(a) Increase habitat diversity and quality

(b) Increase habitat diversity and / or connectivity

(c) Increase area of habitat and / or connectivity

Prioritising action

(c) Increase area of habitat and / or connectivity

(d) Create new habitat / increase size of sites

Recommendations

24 recommendations

Identifying and protecting the components of the network – the role of local planning.
The critical role of management
Approaches to create new components
Enhancing the wider countryside (reducing pressure on the network)
Monitoring and evaluating progress
Financing the scheme