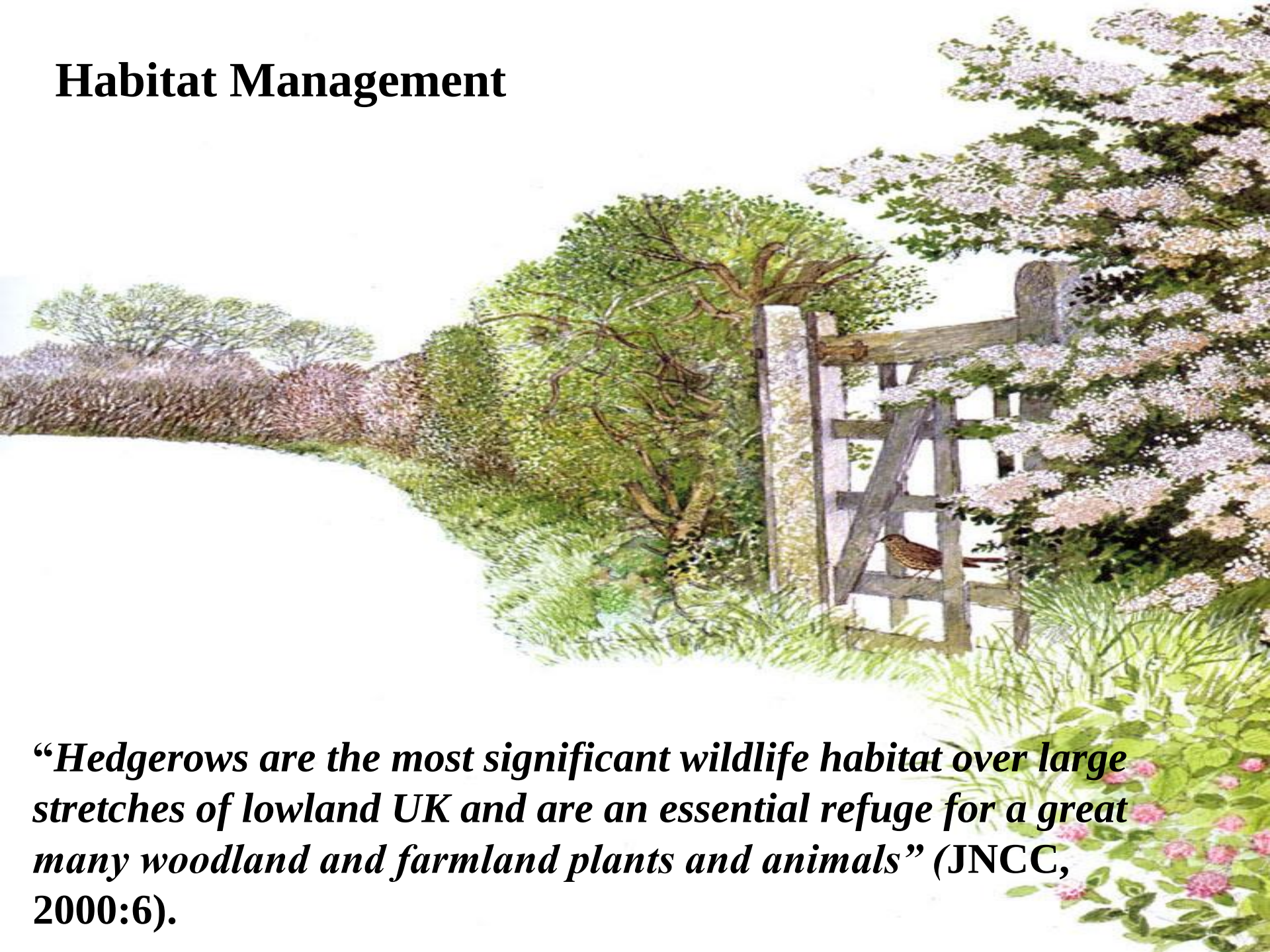
Habitat Management: HEDGEROWS

Habitat Management



“*Hedgerows are the most significant wildlife habitat over large stretches of lowland UK and are an essential refuge for a great many woodland and farmland plants and animals” (*JNCC, 2000:6).

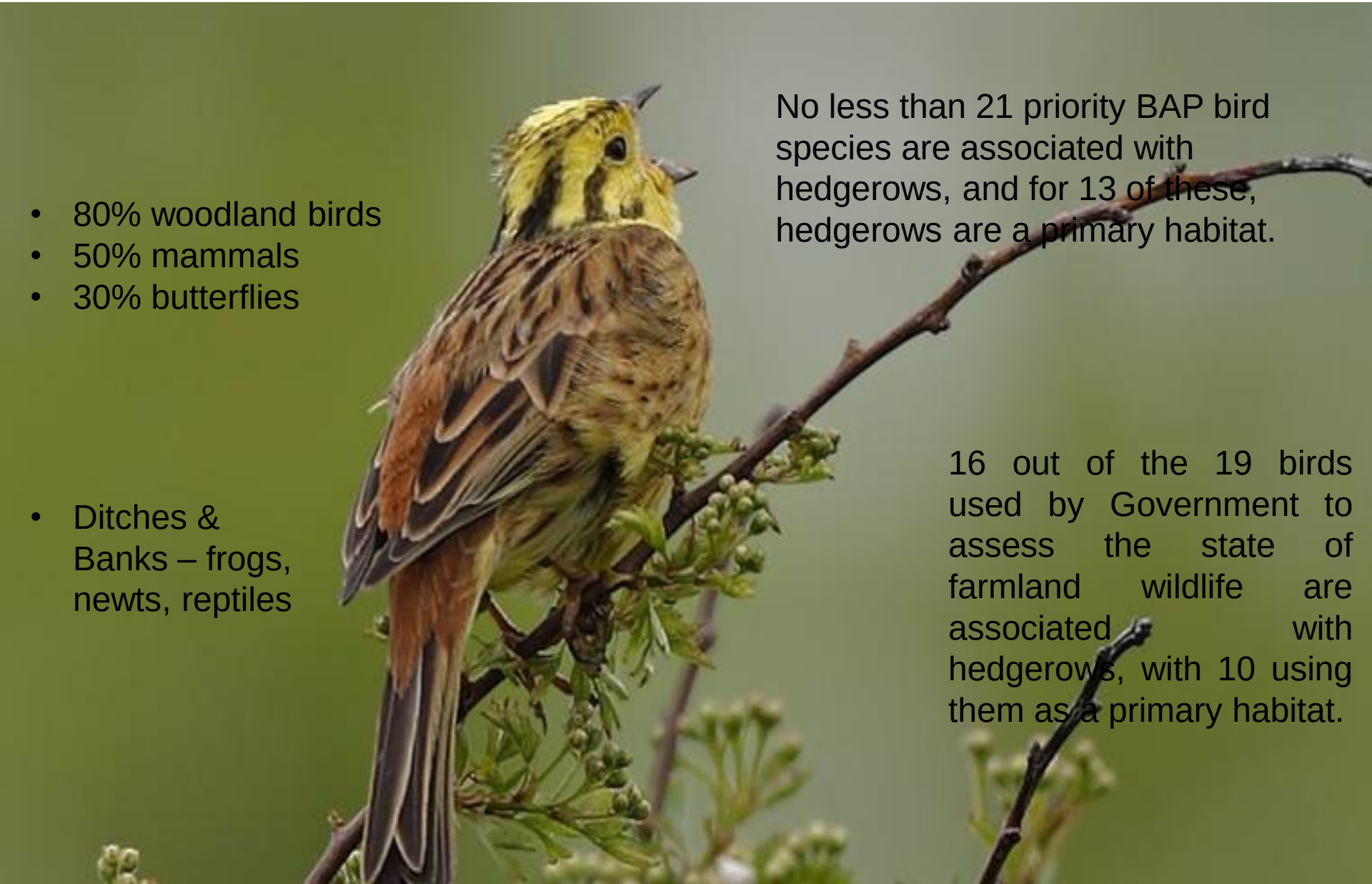
Hedgerows

- Complete ecosystem
- Size and structure varies
- Single species hedgerows
- Ancient hedgerows
- Species rich hedgerows

“Modern technology owes ecology an apology”……..

(Eddison, 2001:8)

Hedgerows and Birds



No less than 21 priority BAP bird species are associated with hedgerows, and for 13 of these, hedgerows are a primary habitat.

- 80% woodland birds
- 50% mammals
- 30% butterflies

- Ditches & Banks – frogs, newts, reptiles

16 out of the 19 birds used by Government to assess the state of farmland wildlife are associated with hedgerows, with 10 using them as a primary habitat.

- Where woodland is limited – hedgerows are vital
- 30% birds nest in hedges
- Dead wood – source insects

51 out of the 71 widespread and common moths listed as priority BAP species because they have declined hugely in recent decades & feed as caterpillars in hedgerows and their associated herbaceous margins.

Over 125 priority BAP species are closely associated with hedgerows

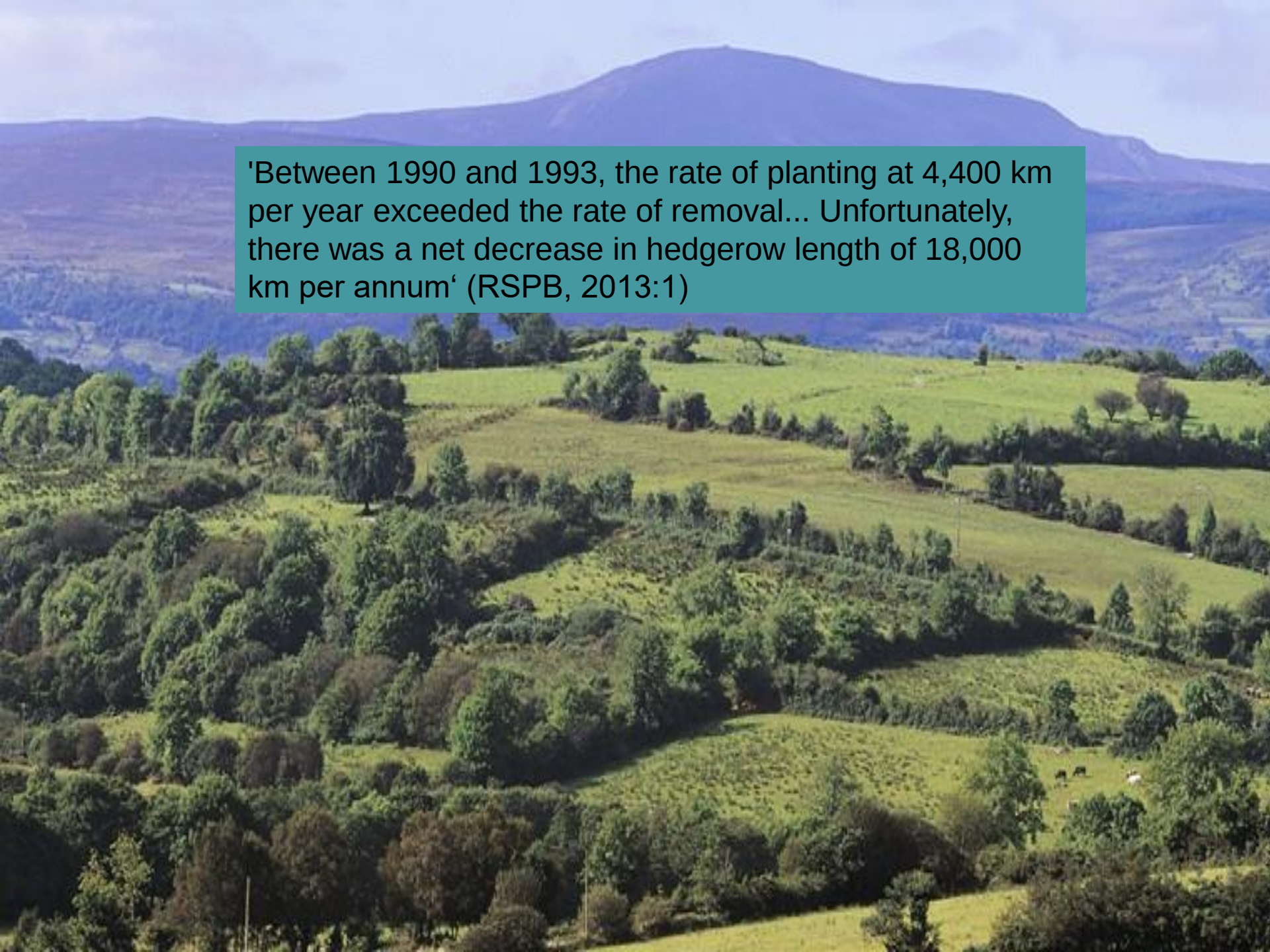
- Help to **conserve soil and water**:
  - preventing loss of soil from fields, either through reducing wind erosion or through acting as a barrier to water-borne run-off.
  - Especially useful in flat lands – Fens of East Anglia
- **Pollution control**:
  - ↓ polluting fertilisers, pesticides and sediment that reach watercourses – act as a physical barrier, and being recycled by the trees etc.
- For this reason they are often planted along contours above ditches, streams and rivers.

Regulating water supply for crops:

- ↓ wind speed over the ground surface, hedgerows reduce water loss through evaporation in areas prone to drought.
- Can help to store water for later use.
- Their deep roots remove water faster from the soil than crops during periods of excessive rainfall

Together with woods, hedges reduce the rate of flow of water within catchments, so help to reduce flooding downstream.

A comparison between two very similar catchments in Brittany, one with hedges and the other without, showed that peak flows in streams are less extreme and minimum flows greater in the hedged areas.



'Between 1990 and 1993, the rate of planting at 4,400 km per year exceeded the rate of removal... Unfortunately, there was a net decrease in hedgerow length of 18,000 km per annum‘ (RSPB, 2013:1)

Hedges as a fuel supply?

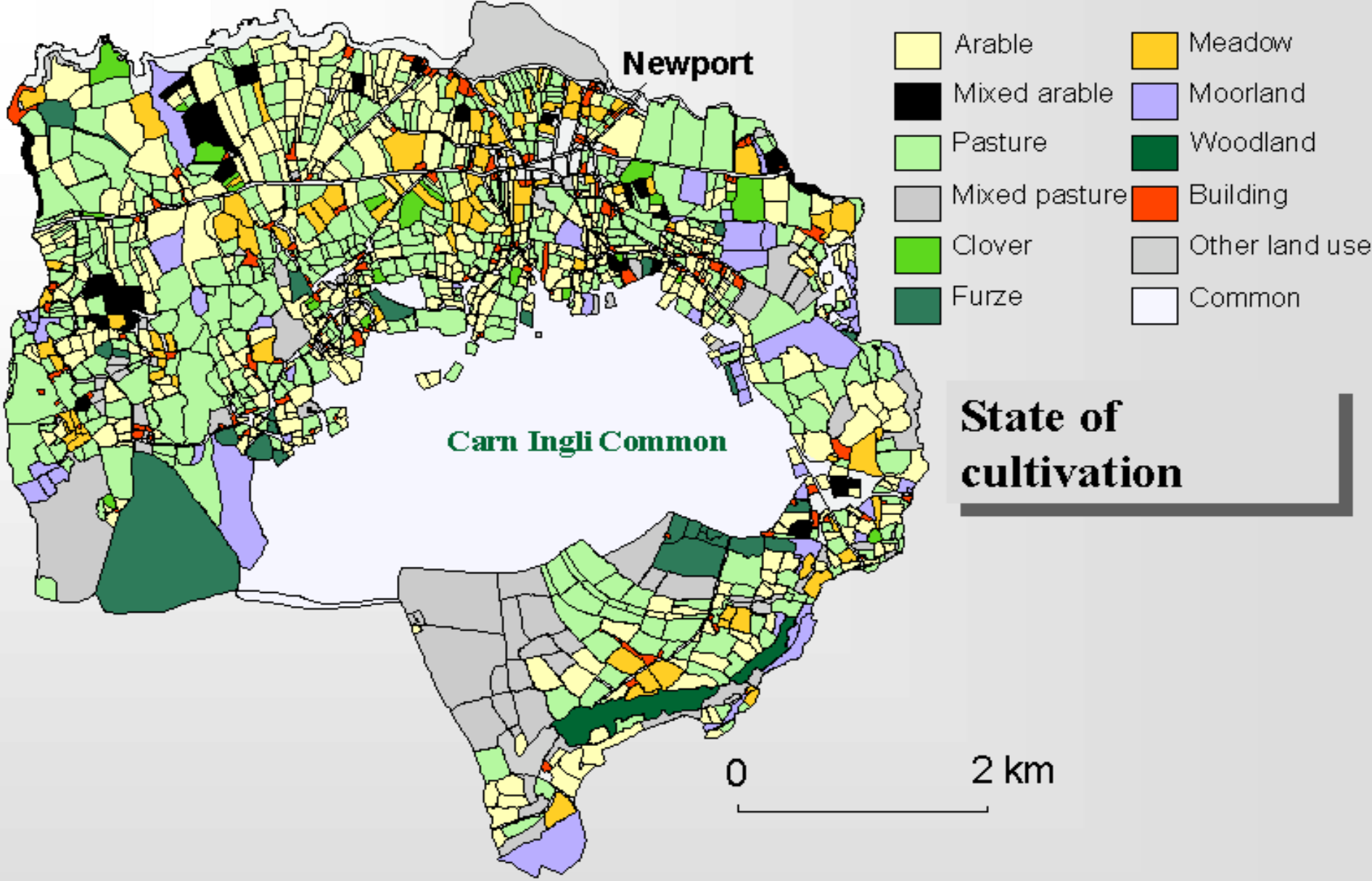
- Historically, hedges were managed and harvested for fuel
- Use of cloam ovens in Devon were still commonplace at the start of the 20th century
- When a hedge was laid or coppiced little was wasted
- Today, most timber is burnt on site wasting valuable fuel and nutrients
- With ↑ fuel prices and climate change – opportunity?
- Wood can be chipped for burning in biomass boilers or burned as logs in domestic settings

Tithe Maps

- Bronze Age & Roman times
- Increase in planting 19th century – tree nurseries
- History of field patterns
- Changes of land-use

Important Hedgerows

- Marks a pre-1850 parish
- Township boundary
- Includes at least 5-7 woody species in 30m
- Associated with:
  - Archaeological site
  - Ditch
  - Bank or wall



Tithe Map of Newport, 1845

(Pearson & Collier, 2001)

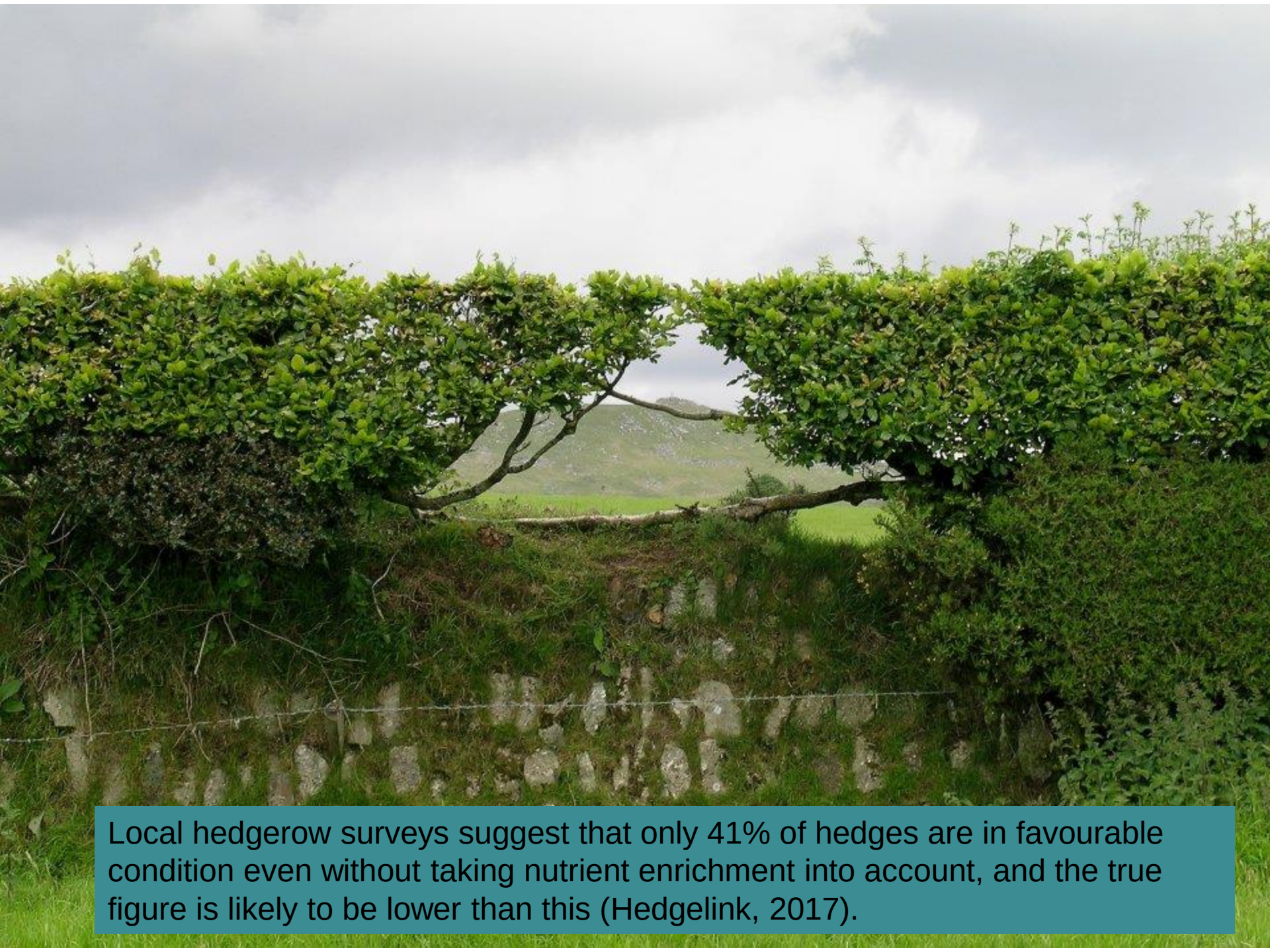
Hedgerow Management

- Livestock enclosure
- Define boundaries
- Rare in Europe
- Agricultural mechanisation – demise

A set of criteria to define ‘favourable condition’ was developed by the Steering Group for the UK BAP for Hedgerows

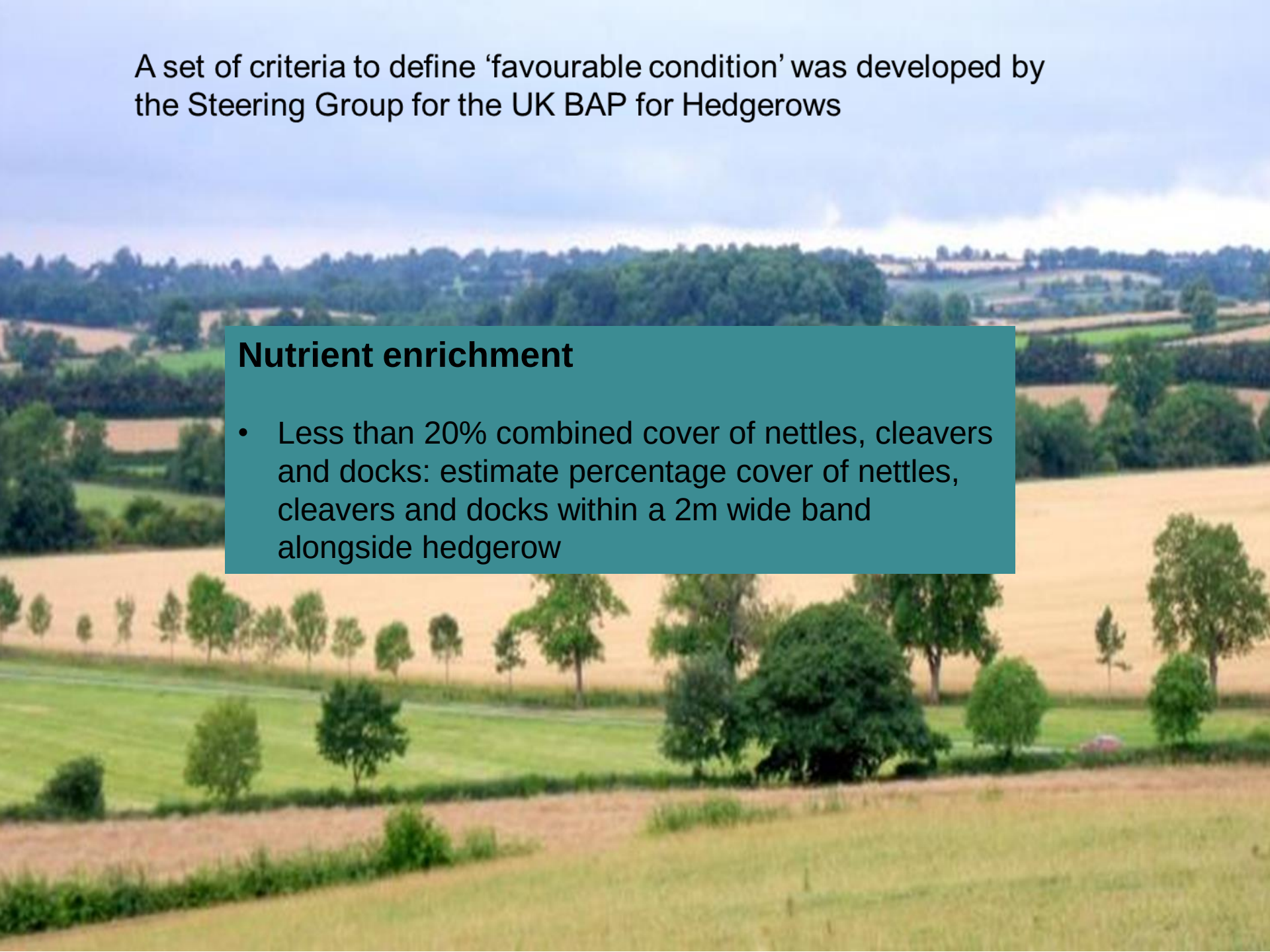
Integrity/continuity

- <10% gaps: estimate of total length of gaps present as a percentage of the total hedgerow length or 30m section (as appropriate)
- No gaps >5m wide: excludes access points
- Base of canopy less than 0.5m above the ground for shrubby hedgerows: estimate of average height from base of the hedgerow to the lowest leafy growth



Local hedgerow surveys suggest that only 41% of hedges are in favourable condition even without taking nutrient enrichment into account, and the true figure is likely to be lower than this (Hedgelink, 2017).

A set of criteria to define ‘favourable condition’ was developed by the Steering Group for the UK BAP for Hedgerows



Nutrient enrichment

- Less than 20% combined cover of nettles, cleavers and docks: estimate percentage cover of nettles, cleavers and docks within a 2m wide band alongside hedgerow

Nutrient enrichment is the single most important reason for poor condition, 38% failing on this criterion. The other main reasons for poor condition are excessive gaps and hedgerows being too low or too thin.

A set of criteria to define ‘favourable condition’ was developed by the Steering Group for the UK BAP for Hedgerows

Size

- Height at least 1m: measure of average height excluding the bank
- Width at least 1.5m: measure of average width at widest point of the hedgerow canopy, shoot tip to shoot tip
- Cross sectional area at least $3m^2$: multiplication of the average height and width for the hedgerow

A set of criteria to define ‘favourable condition’ was developed by the Steering Group for the UK BAP for Hedgerows

Recently introduced species

- Non-native herbaceous species (max 10%): estimate the cover of all non-native woody species as a percentage of area

A set of criteria to define ‘favourable condition’ was developed by the Steering Group for the UK BAP for Hedgerows

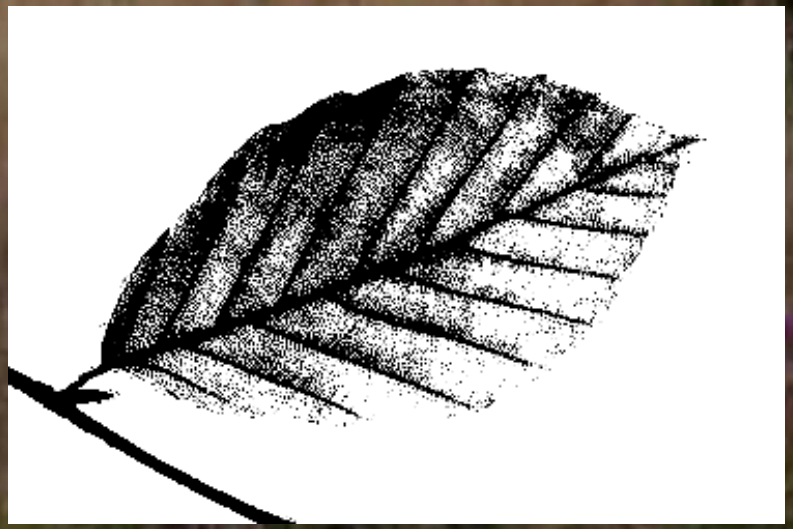
- **Undisturbed ground and perennial herbaceous vegetation cover**

- Width of undisturbed ground must be at least 2m: estimate average width of undisturbed (uncultivated) ground from the centre-line of the hedgerow

- Width of perennial herbaceous vegetation must be at least 1m: estimate average width of perennial herbaceous vegetation between the centre-line of the hedgerow and the adjacent disturbed ground

Hedgerow Management

- **1997 legal protection- Hedgerow Regulations**
- **Under review**
- **Management of existing hedges**



Hedgerow Regs (1997)

- Complicated and often criticised
- Excludes any hedgerow within or borders a domestic garden
- Those covered by the Regs include:
  - Common land
  - Village Greens
  - SSSIs
  - LNRs
  - Land used for agriculture
  - Land used for forestry
  - Land used for keeping/breeding horses, ponies or donkeys
- But not hedgerows (including any in the above list) which are 'within or marking the boundary of the curtilage of a dwelling-house‘
- Must be 20m in length or connected to another hedge at both ends

Hedgerow Regulations 1997

- **Illegal to remove without permission**
- **Prohibition orders within 6 wks**
- **Local planning authority**
- **Unlimited fine & replacement**

“The Swansea millionaire, his chopper and an historic hedgerow”
(South Wales Evening Post, 07/01/15)

- 3 hedgerow sections removed from his field in Caswell
- On tithe map since 1847 – ancient hedge
- Fined and issued with a hedgerow replacement notice

When to trim?

- Outside nesting season!
- Late winter preferable
- Retain ground cover
- Best practice guidelines:
  - not permitted between 1 March 31 July (England and Scotland)
  - Not permitted between 1 March 31 August in Wales and Northern Ireland.

Advice and grant aid

- Advice
  - Farmers - Farming and Wildlife Advisory Group
  - Wildlife Groups

- Grants:
  - England - The Countryside Stewardship Scheme (CSS) offers voluntary 10-year agreements for managing and restoring farmland habitats including hedgerows
  - English Nature
  - Wales – Glastir & CCW (NRW)
  - DEFRA – Environmentally Sensitive Areas

‘Saving Gower’ – Heritage Lottery Fund

- £1,315,200 – for various community and environmental projects in Gower
  - Restoration and conservation projects
  - Re-establishing customs/boundaries
  - Training
  - Record ancient hedgerows – identification first

Saving Gower' – Heritage Lottery Fund – meeting at Rhossili 25/02/15

Agenda

1. **Hedgerows:**
   Look at the desk based archaeological survey
   Way forward for the ecological survey
   Volunteer involvement
   Future activities.

2. **Hay meadow project:**
   Programme of activities
   Bailing machinery application
   Base line survey of sites
   Best practice - North Pennines project
   Code of conduct of participants

Welsh hedges

- Estimated 0.5 million km in England and Wales – 42% (≈154,000km) are ancient or species rich
- Since 1984 – 25% loss in Wales
- Banning straw and stubble burning (1992)
- Neglect and spray drift

(Carmarthenshire Council, 2007)

Loss of Hedgerows

- Neglect – no laying
- Loss of hedgerow trees
- Use of herbicides, fertilisers and pesticides
- Increased stocking rate
- Careless encouragement

(Museum of Wales, 2004)

BENEFITS - SUMMARY

- Habitat in itself
- Wildlife corridor
- Aesthetics
- Wind break

(English Heritage, 2003)

Managing Hedgerows for wildlife

- **Variation**
- **Management – trimming/cutting**
- **Seasonality**
- **Hedge junctions**
- **Gap up**
- **Agri-environmental schemes : 1st Mar – 31st July**
- **Fence livestock**
- **Grass buffer strips – Agri-environmental grants**
- **Avoid fertiliser drift**
- **Avoid close cultivating**

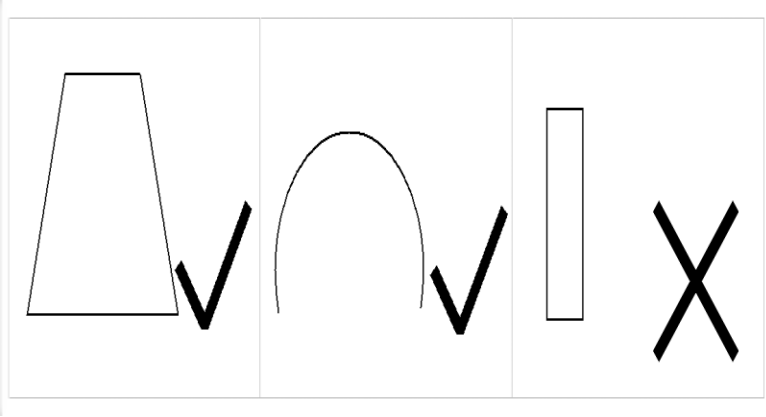
Improve Hedge Biodiversity

- Thicker
- Trees
- Large variety
- Wide separation
- Understorey
- Artificial habitats

(JNCC, 2000)

Species Variation

- Structure attracts different species
- Thick down to the base – blackbirds, robins and wrens
- Tall trees – owls and sparrowhawks
- Grassy areas and brambles – small mammals – barn owls



(JNCC, 2000)

- **Grass Buffer**
- **Effects of flailing**

Maintenance

- Flail trimming - used with care
- Cost-effective
- Alternate years (The Farming and Wildlife Advisory Group)
- Roadside hedges
- Young hedges

Long-term Management

- **Hedge Laying**
  - **Traditional**
  - **Neat, stock-proof barriers**
  - **Method dependent on stock and climate**
  - **Pleachers**
  - **Angled**
  - **15-20 years**

Stanley Anderson

The Flying Hedge Style

A low hedge on a bank – typically used in Pembrokeshire, Gower, and Carmarthenshire

Midland Bullock – for farms with large livestock

Welsh Border – double brush hedge with stakes @ 35º slant. Dead wood prevents regrowth being grazed

Derbyshire – stakes and pleachers

Long-term Management

- Coppicing
  - Cut to ground level
  - Coppice too high - gappy
  - Regrowth from base
  - Angled
  - Willow, hazel, alder and hawthorn

Carmarthenshire

- One of the most complex networks in Wales
- Wildlife rich
- LBAP – Hedgerow Action Plan
- Planted on a bank
- Wych elm *Ulnus glabra* – white hairstreak butterfly *Satyrium alba*

(Follett, 2005)

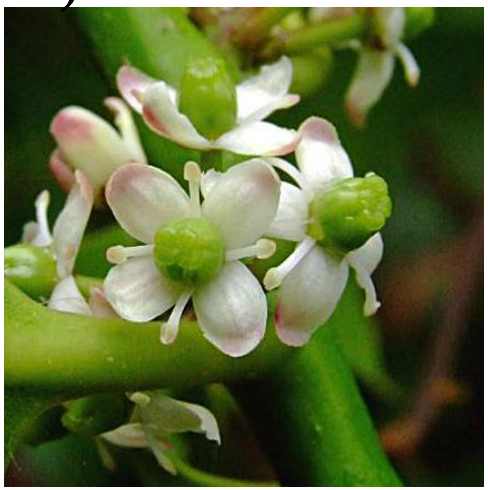
Elm *Ulnus procera* and Laburnham *Labernum anagyroides*

(Fenwick, 2004)

(Fenwick, 2004; Mitchell, 2004)

Carmarthenshire Hedgerow trees and shrubs

(Baker, 2004; Fenwick, 2004; Stables, 2004)



Penllergaer Hedgerows

- Narrow-leaved Ash *Fraxinus angustifolia*
- *Species-rich hedges*
- *Poorly recorded non-native*
- *Very long terminal leaves*
- *Native ash shown for comparison*

Gower Hedgerows

- Max Hooper – species diversity of a hedge related to its age and the manner in which it was created(Pollard *et al.,* 1974)
- While older hedges tend to be more species rich, the converse is not necessarily true!

(Fenwick, 2004)

Hedge Management in Gower

- Planting and repairs
- Hazel *Corylus avellana*
- Gorse *Ulex europaeus*
- Holly *Ilex aquifolium*
- Assart vs enclosure

(Crellin, 2004; Fenwick, 2004)

- Self Study :

- Consider the paper on Moodle. Does Hooper’s Rule apply to hedgerows in Gower?

Gower - Gorse

- Overton Mere – gorse clearance
- Wildlife benefits but invasive
- Threatening delicate flora such as the rare Goldilocks aster *Aster linosyris*
- Future grazing to maintain maritime heath and limestone grassland
- Funded by CCWs Ecosystem Resilience & Diversity Fund

Overton Mere

- Calcareous plant
- Gorse protects aster from grazing livestock
- Gorse <20cm high
- Population currently stable but vulnerable
- Grazing/burning/

Assart Hedges in Gower

(Davidson ,2003; Fenwick, 2004; Calow, 2007)

Gower Hedgerows

- Recent hedgerows – Elder *Sambucus nigra* and Dog-rose *Rosa canina*
- Species richness in lane hedges – origins in woodland
- Diversity affected by vehicles

(Fenwick, 2004)

Gower Hedgerows

- Slow colonisers such as Dogwood *Cornus sanguinea*
- More prevalent along lanes
- Roadside hedges – anomalous results when Hooper's Rule is applied?

(Mitchell, 2001)

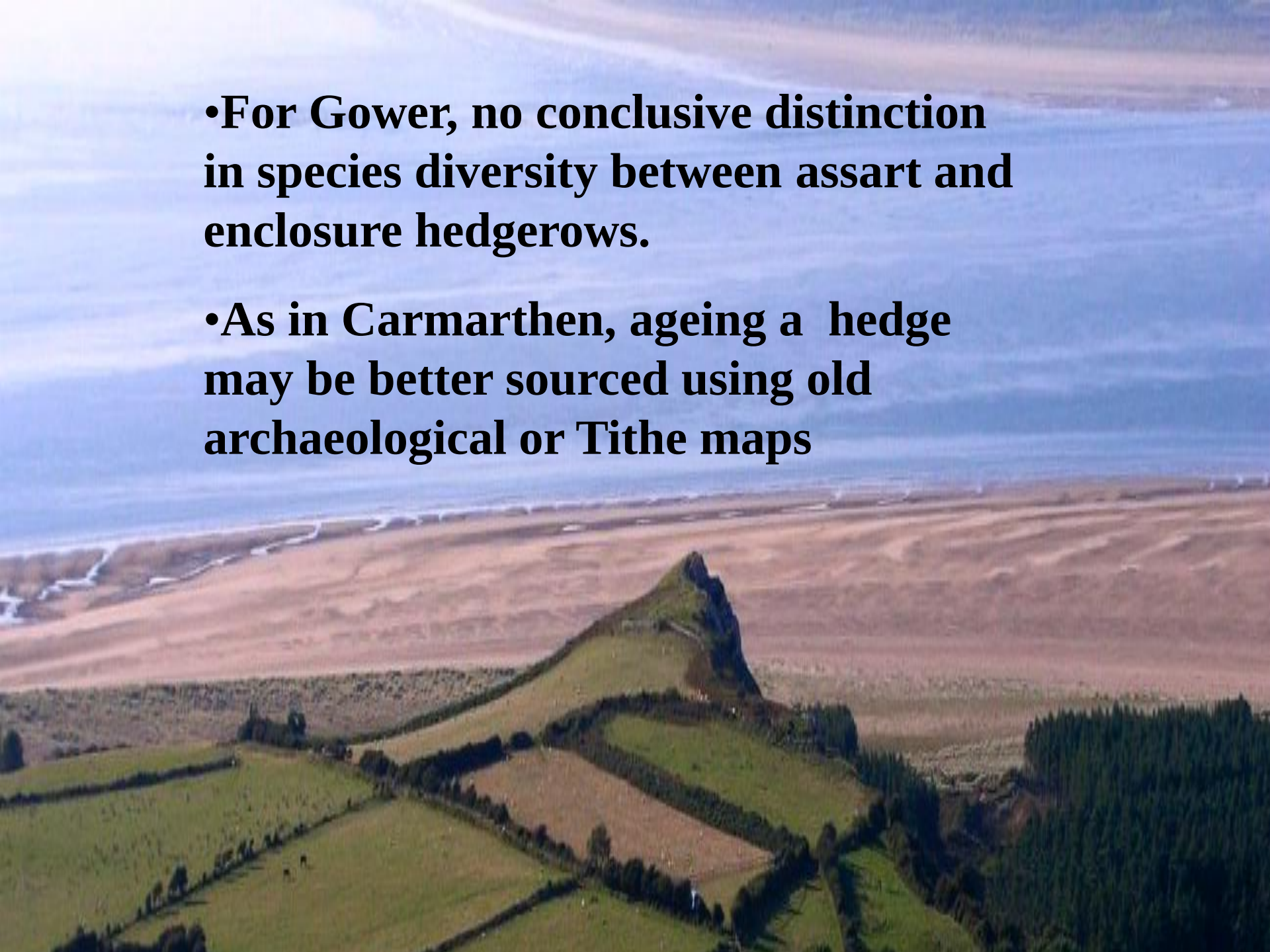
Gower banks and ditches

- More diversity if accompanied by ditch
- Age?

(Jones, 2006)

"Under favourable conditions, the analysis of species diversity can provide supporting data for historical models but it does not offer a 'fast-track' solution to chronological problems of landscape change"

(Edwards *et al*., 2006:269)



- For Gower, no conclusive distinction in species diversity between assart and enclosure hedgerows.
- As in Carmarthen, ageing a hedge may be better sourced using old archaeological or Tithe maps

- **Edwards, K., Leighton, D. and Llewellyn,P. (2006). Hedgerows and the historic landscape: A case study from South Gower. *British Wildlife*, April: 260-269**

- **Rich, T.C.G., Clements, D.K. ,Lewis, J. and Moore, L. (2000). A comparison of four methods used to survey hedgerows: The Cardiff Hedgerow Survey 1998. *Journal of Environmental Management,* 60:91-100**