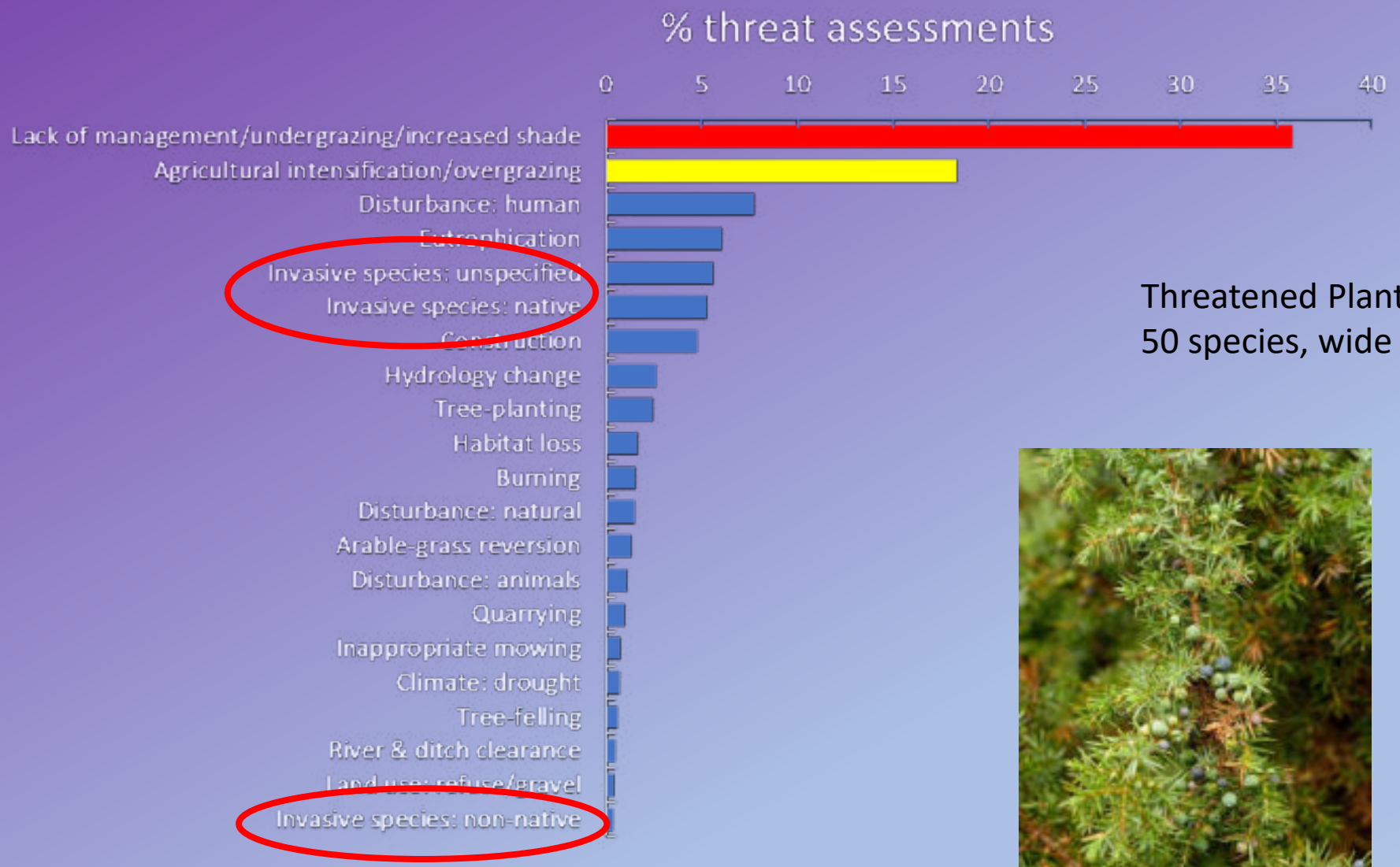
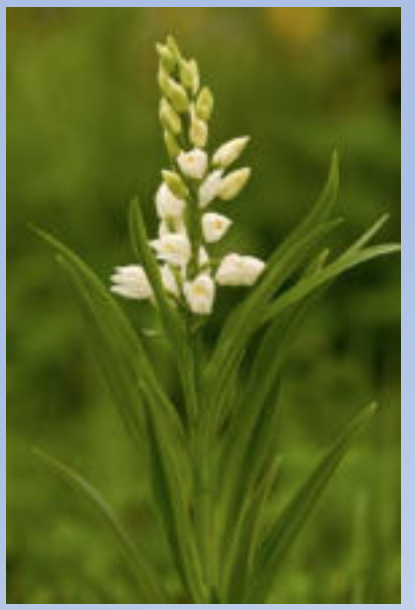
The challenges of managing native woodlands

Dr Maria Long, Ecologist

Too little or too much management….



Threatened Plants Project: 2,000 sites, 50 species, wide range of habitats



Walker, Stroh & Ellis (2017) Threatened Plants in Britain and Ireland

Too little or too much management….

Irish Semi-natural Grasslands Survey:
"The most frequent pressures recorded were all related to undermanagement or abandonment (e.g., undergrazing, succession to scrub or heath, bracken encroachment), although issu intensification (e.g., fertiliser a overgrazing, drainage) were a recorded."

Similar story for fens….

Vertigo geyeri

O'Neill et al (2013)

What about our woodlands?

NSNW (National Survey of Native Woodlands):

"The main threats posed came mainly from invasive species, heavy grazing and damaging activities such as non-native planting, native felling and dumping."

'Management Guidelines for Ireland's Native Woodlands':

- Non-native invasive species
- Inappropriate grazing regime
- Poor woodland structure
- Lack of natural regeneration

Perrin et al (2008), Cross & Collins (2017)

Some of the other issues…..

- Pests/diseases
- Problematic native species (e.g. bramble, bracken)
- Over-use for recreation (e.g. motor bikes; walking – with litter, dog fouling, etc.)
- Inappropriate or over-harvesting
- Mis-guided conservation measures
- Fragmentation, or lack of connectivity
- Removal of (or simply lack of) deadwood
- People wanting a ‘tidy’ habitat – the best woodlands are messy!
- Lack of appreciation, particularly of ecosystem services provided
- Water management
- Climate change

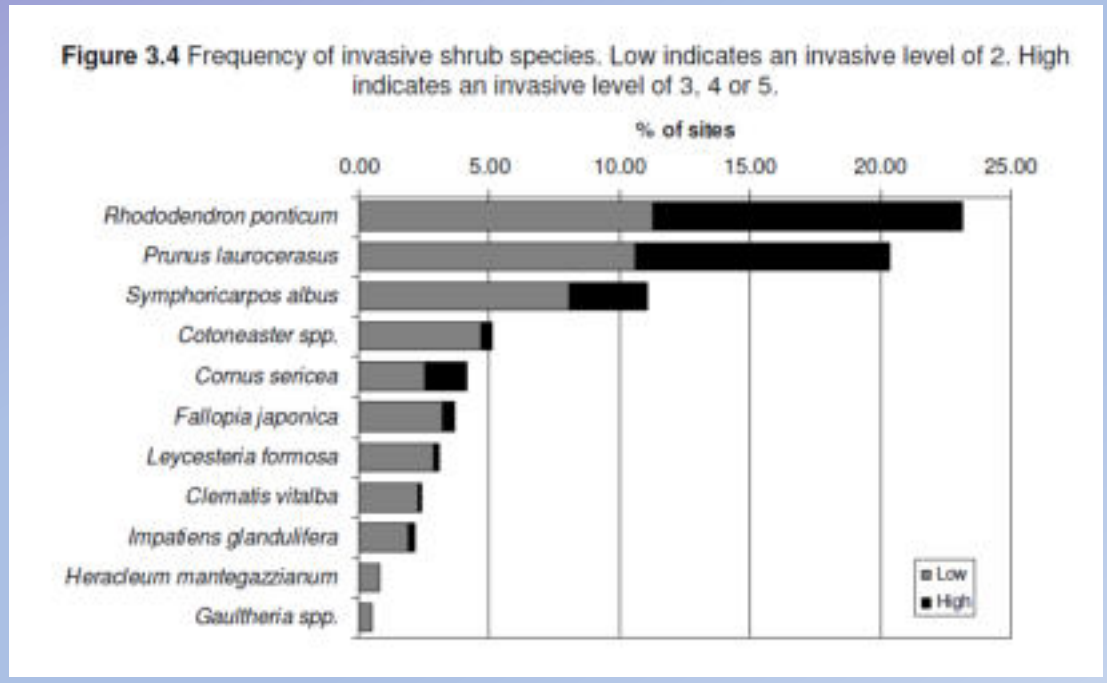
Quick overview - invasive species

- The biggest trouble-maker: *Rhododendron ponticum*

- NSNW - most frequently occurring non-natives:

Trees: sycamore (73% of sites), beech (69%)

Shrubs: rhododendron (25%) and laurel (22%)



Focus on grazing…

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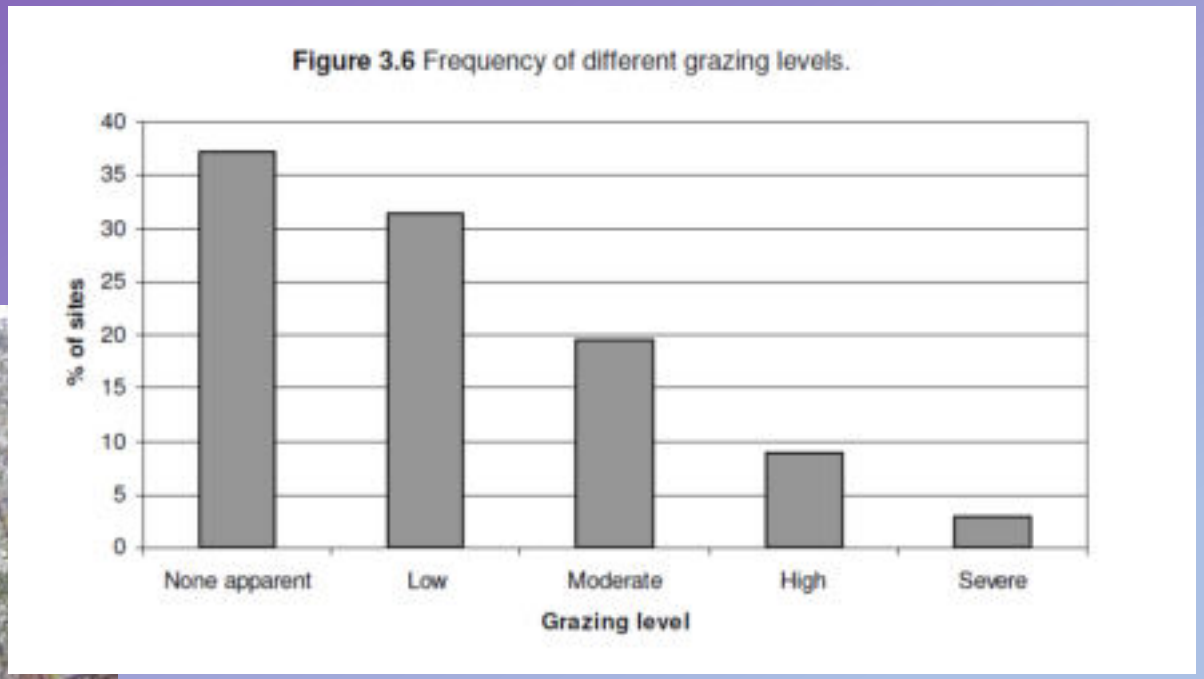
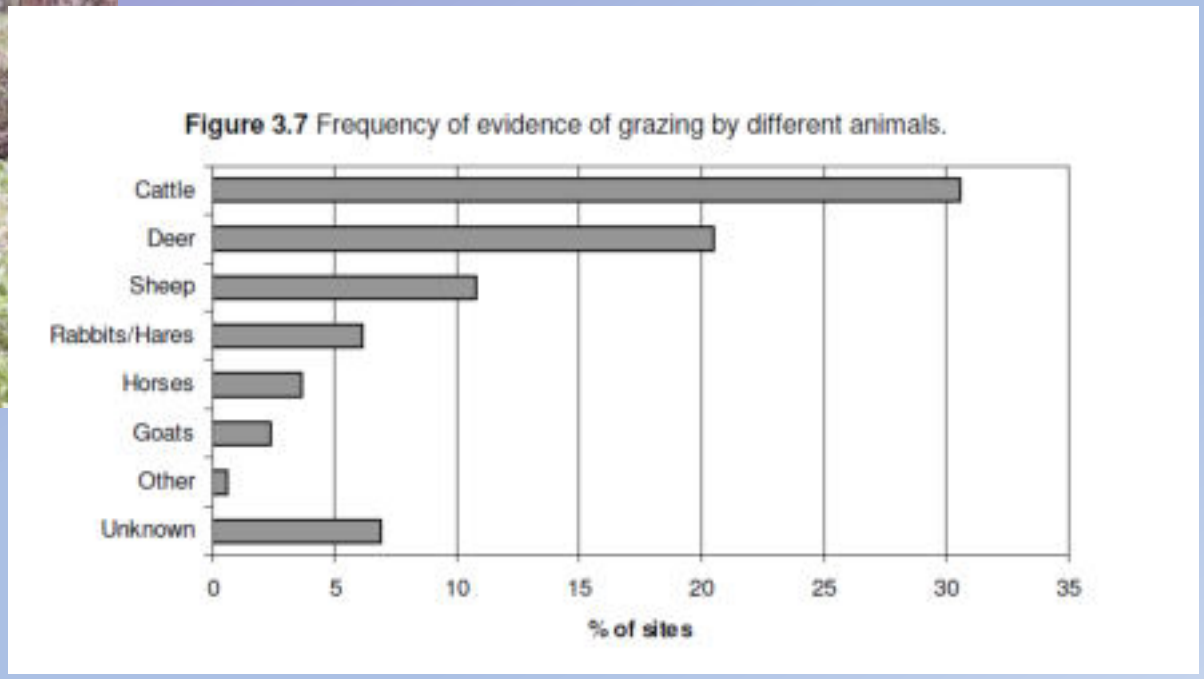




Focus on investigating grazing effects…

Some recent investigations in Ireland:

- Perrin et al (2006, 2011) – Yew woods
- Cooper and McCann (2010) – Wet oak woods
- Long (2011) – Ash/hazel woods
- Newman (2014), Newman et al (2014) – Oak woods

Grazing exclosure KNP. (Photo: John Cross)

Camillan exclosure KNP. (Photo: www.blackthornecology.ie)

Long (2011) Effects of grazing cessation on plant and mollusc diversity in woodland, scrub and grassland habitats

Ash/hazel woodlands

Burren woodlands

- Hazel-dominated (Corylo-Fraxinetum association)
- Typical canopy hgt: 6-8m (!)

  (occas. emergents - typically *Fraxinus*)
- Usually small and/or fragmented
- Rich ground flora, bryophytes + lichens

Top 10 spp:

Corylus avellana

Hedera helix

Rubus fruticosus

Crataegus monogyna

Viola riv/reich

Brachypodium sylvaticum

Prunus spinosa

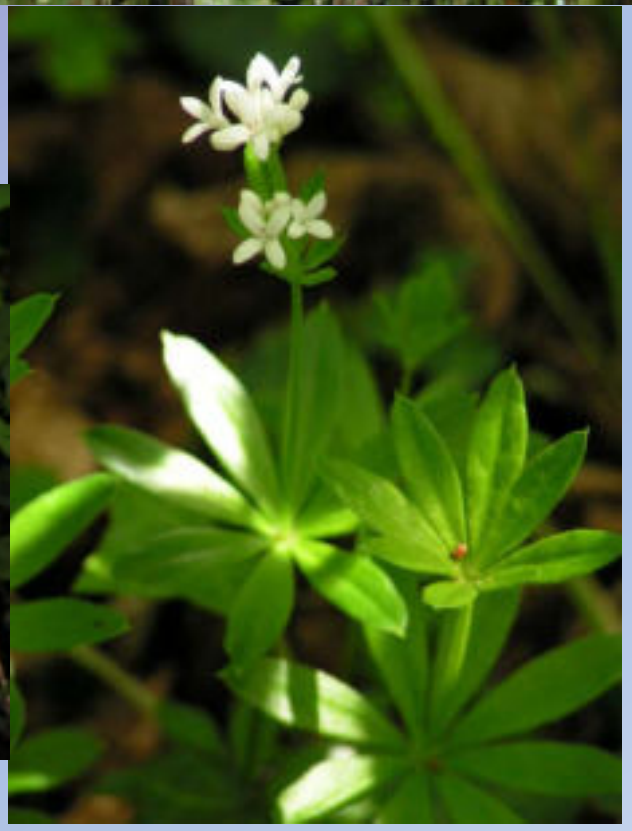
Potentilla sterilis

Fraxinus excelsior

Fragaria vesca

Burren woodlands

- 98 vascular spp recorded from 4 plots
- Lots of old woodland indicators



Main changes in cover values

Cover of field layer:

- Ave inc: 33%
- Range: 23-48.5%

[Change in control: ↑ 10.4%]

Amount bare earth:

- Ave dec: 9%
- Range dec: 1-20%

[Change in C: ↓ 1.75%]

Woodland diversity – Overall finding

Herbs, grasses and low woody species all showed change

Diversity *increased* inside the fenced plots

(1) **Average species number** (across all sites)

11.15 (SE: 0.76) → 12.25 in **fenced** plots (SE: 0.95) (i.e. ↑ 10%)

(2) By comparison, spp no. changed only slightly from

10.25 (SE: 1.6) → 10 in **control** plots (SE: 1.08) (i.e. ↓ 2.5%)

Longer time-scale needed for woodland study….

but, in short-term, …

- no grazing ≈ increased biodiversity (particularly in herb layer)

MSc study after 7 years:

- initial increase in species richness dropped off again
- regeneration was greater within exclosures compared to outside

But what have longer-term studies found?

- Significant amount of work in oak woodlands
- Newman (2014) – thesis; Newman et al (2014)
- Studies from grazing exclosures at three national parks

- Homogenisation of vegetation in the absence of grazing

- Small suite species often come to dominate:
  - *Luzula sylvatica,* great woodrush
  - *Rubus fruticosus,* bramble
  - *Lonicera periclymenum,* honeysuckle
  - *Vaccinium myrtillus,* bilberry
  - *Hedera helix,* ivy
  - *Pteridium aquilinum,* bracken

Recommendations (widely echoed in other research):

- Grazing management needed, but long-term grazer exclusion not the best way
- Adaptive and responsive herbivore management programmes
- A diversity of approaches is needed over space and time
- Moveable fences may be worth considering

- multiple challenges when managing native woodlands

- foremost is getting the grazing right, to allow natural regeneration (lots will follow if this is right)

- other big challenges – invasives, small size & fragmented nature, facilitating production/other use where approp.

- clear plans and supports needed; at site, regional and national levels

Thank you!

Thanks also to Daniel L. Kelly, for years of support and advice, and to all whose work I've mentioned here, and those who have contributed to our understanding of native woodlands in Ireland