Monitoring landscape-scale grazing by large mammals as a tool for enhancing heathland biodiversity

Questions

• What use are large grazers currently making of the Purbeck Heaths NNR, why is this and how might this be predicted to change?

• What plant species communities and habitat structures currently occur across the Purbeck Heaths and how do these change in response to grazing?

• What other management factors need to be considered and how can these be integrated and monitored in more naturalistic grazing systems
Purbeck Heath NNR
One e.g. - Arne RSPB Reserve
2005.......2017

- 2005 Approx 700 sika.
- 2017 Approx 150 sika

- Density of sika varies across reserve
- Internationally important saltmarshs and heaths
- Huge public interest (including in deer)
- Working farm in centre
- Wish to re-introduce domestic grazers, particularly cattle
Arrived Brownsea Island 1896 & Hyde House early C20. Here to stay ...probably let’s face it ....
Total movement recorded

Feb

May
Size of home range is consistent through year

Hinds use approximately 120 ha maximum of 200 ha

Box plot of median, inter-quartile range, minimum and maximum.
Available habitat

Arne Habitat Types in Hectares (aprox.)

- Dry Heath: 158 hectares
- Saltmarsh: 82 hectares
- Coniferous Plantation: 76 hectares
- Coniferous + Scrub: 50 hectares
- Deciduous + Scrub: 46 hectares
- Improved Grassland: 44 hectares
- Wet Heath: 43 hectares
- Gorse Scrub: 41 hectares
- Deciduous Woodland: 37 hectares
- Reedbed Saltmarsh Trans: 29 hectares
- Acid Grassland: 9 hectares
- Post-management Trans: 8 hectares
Available habitat differs between ranges
Habitat choice Feb & May

Choice of key habitats against total available within range of each deer (i.e. $A - B$ when $A$ = total % use of habitat $X$ and $B$ = total % availability of habitat $X$)
Informing management e.g. - What if Sika are excluded from the fields at Arne?
Informing management e.g. - What if Sika are excluded from the fields at Arne?

- Prediction of use of other habitats (from radio tracking)
  - Worst case scenario (selection of saltmarsh as alternative grassland) = 200% increase in use
Monitoring 2007 – 2017 with students/citizen scientists
Monitoring deer tracks with students/citizen scientists
Monitoring *Erica tetralix* with students/citizen scientists

![Maps showing percentage cover of *Erica tetralix* from 2007 to 2017.]
Purbeck Heaths NNR

plus
NT grazing management areas
Burns, toppled trees, wet scrapes
SERT square locations so far

- Dry heath
- Wet heath
- Mire
- Acid grassland
- Restored dry heath
- Restored wet heath
SERT Squares recording

- 20m x 20 m
  - DAFOR plant species, veg structure, signs of grazers, other disturbance etc
  - Photos (N,E,S, W)

- 10 randomly located 2m x 2m quadrat
  - Located within 20m x 20 m to measure fine scale heterogeneity and compare with overall survey
  - % cover plant species, veg structure,
  - Counts/% cover signs of grazers, other disturbance
SERT square locations so far

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- Acid grassland
- Restored dry heath
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GPG gone on 13 cattle spring 2019
The future
The future is partnership

conservation organisations

graziers

public

academics

students

others!
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..& ..yes funding!
Further information


