Butterfly Behaviour for Assessing Habitat Quality

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Background

- Many butterflies are threatened by habitat changes such as intensive grazing and afforestation
- Understanding the relationship between habitat quality and behaviour is key for their conservation

Aim

Study the relationship between behaviours of three threatened butterflies and different environmental variables

Methods

Study location: Gotland, Sweden

Apollo (larvae): olfactory and sunlight orientation

- Final distance to host plant when released upwind vs. downwind
- Final position in relation to sunlight when released in shade

Large Blue: choice of oviposition spots

- Compared proportions of environmental variables at random spots with the spots where oviposition took place

Marsh Fritillary: Flight patterns in relation to grazing

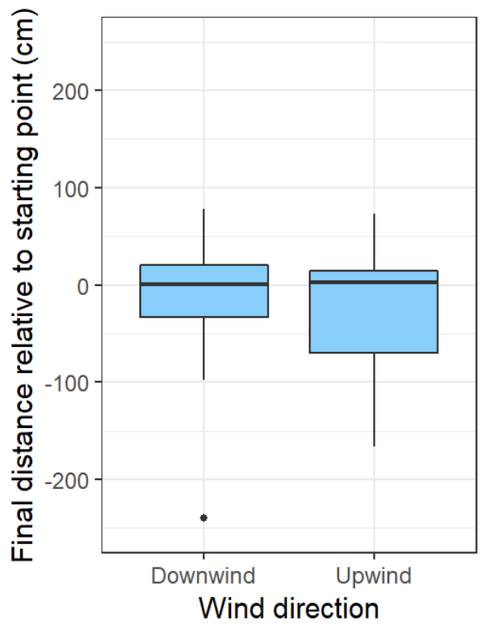
- Compared the proportion of butterflies that crossed edges of grazed vs. ungrazed habitat

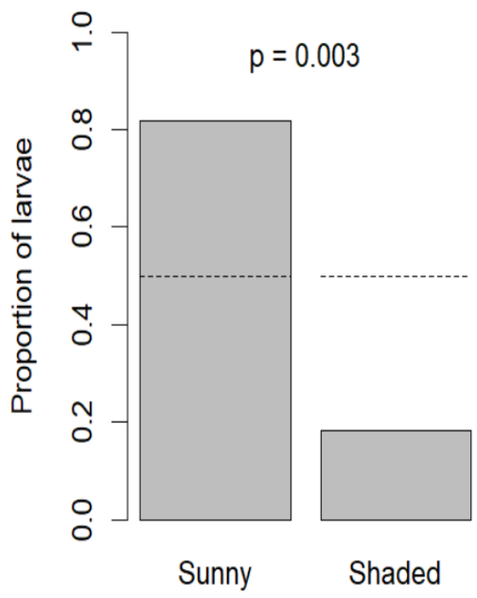
Conclusions

- Butterfly behaviour is clearly affected by habitat quality
- Habitat should be open, contain lots of host plants and, for the Marsh Fritillary, be left ungrazed

Results

Apollo

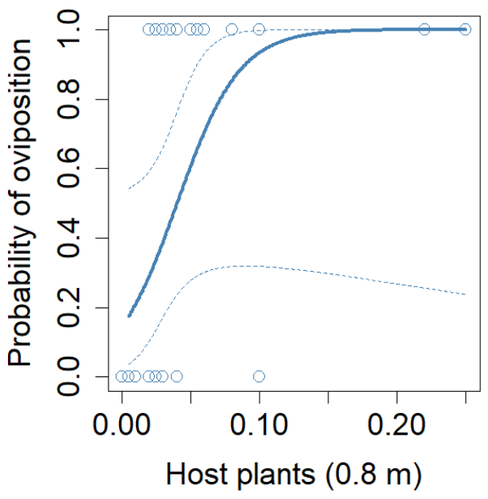


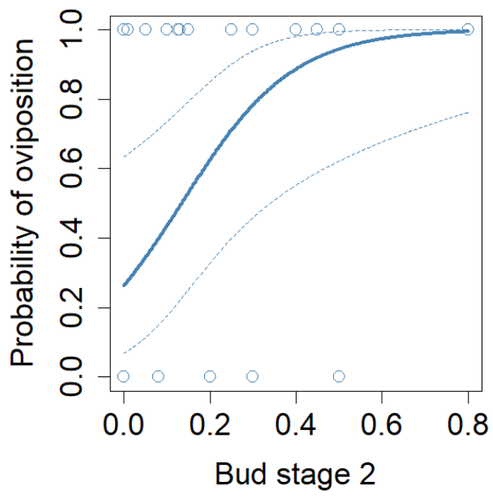


Apollo (*Parnassius apollo*)

Larvae did not use olfactory cues (left) but showed a preference for sunlight (right)

Large Blue

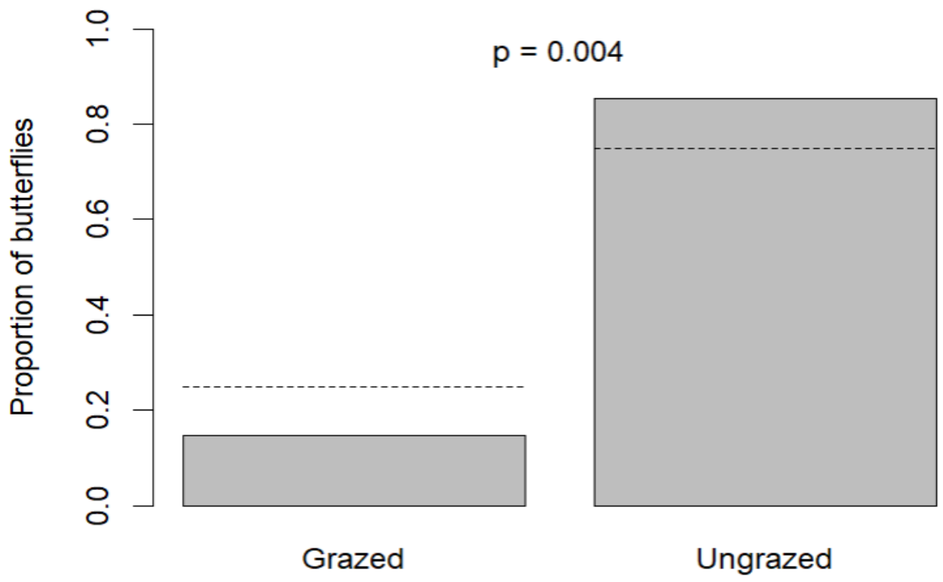




Large Blue (*Phengaris arion*)

Oviposition was more likely where host plants were abundant (left) and in the right bud development stage (right)

Marsh Fritillary



Marsh Fritillary (*Euphydryas aurinia*)

A larger proportion than expected crossed ungrazed edges compared to grazed edges

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