




Successful restoration of marsh fritillary butterfly habitat

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BACKGROUND


-  The marsh fritillary (*Euphydryas aurinia*) butterfly is of conservation concern due to the loss and degradation of its habitat caused by anthropogenic activities
-  The marsh fritillary serves as an indicator species for the overall health of its habitat
-  Protecting and restoring the marsh fritillary's habitat can have positive impacts on other organisms that depend on the same habitat

AIMS

- 1 Identify habitat preferences of the marsh fritillary on two different scales (adult butterflies and larvae colonies)
- 2 Analyse the success of three restored areas on Gotland, Sweden, in supporting marsh fritillary populations

METHODS

 capture-mark-recapture surveys and grid surveys to study adult butterflies

 Transect surveys and complete surveys to study larvae, while also assessing habitat preferences

All studies were conducted in three restored areas and an established marsh fritillary habitat

RESULTS

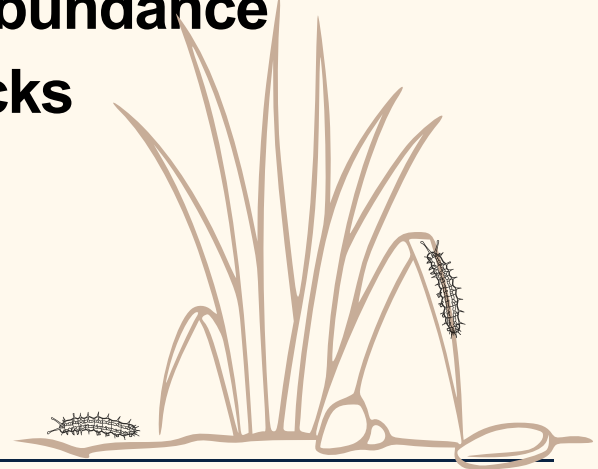
Factors that explain butterfly occurrence:

Factors that explain larvae colony occurrence:

- Positive
- + Ground moisture
 - + Connectivity
 - + Bush cover
 - + Open land
- Negative
- Intensive grazing



- Positive
- + Host plant abundance
 - + Host plant stems abundance
 - + Presence of tussocks
- Negative
- High vegetation



Restorations were successful!

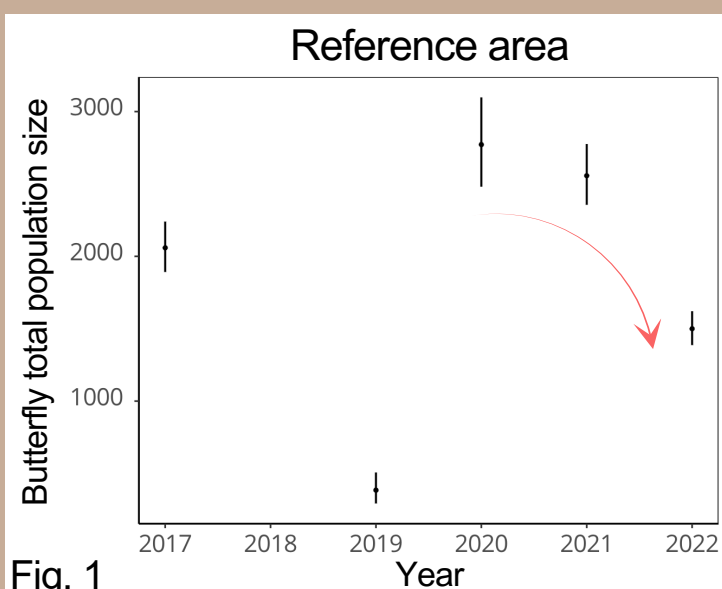


Fig. 1

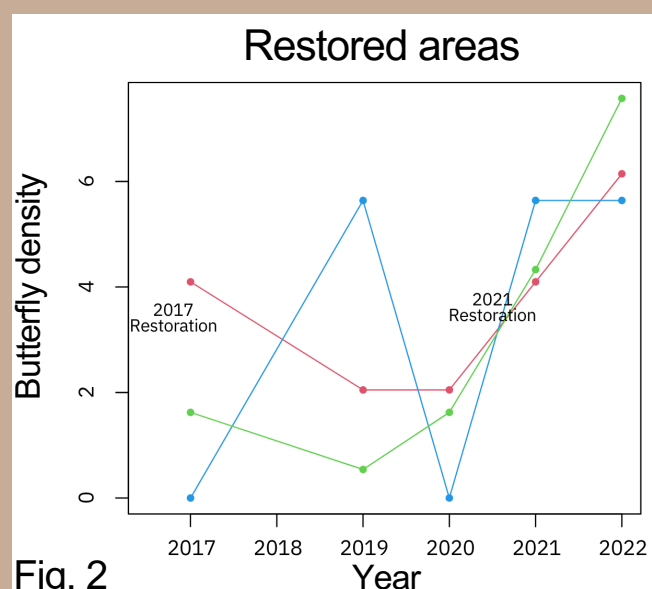


Fig. 2

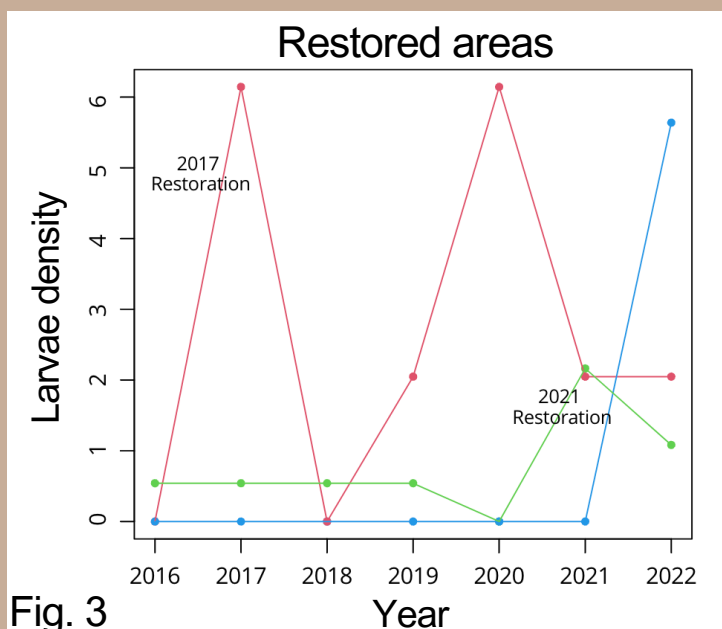


Fig. 3

- Butterfly populations in restored areas are increasing (Fig. 2) while the general population is decreasing (Fig. 1)
- After restoration, all restored areas were used as breeding grounds (Fig. 3)

— Larger restored area 2017
— Smaller restored area 2017
— Restored area 2021

CONCLUSION

- All three restored areas supported butterfly breeding successfully after restoration, but colonization time varied based on habitat preference fulfillment
- Butterfly numbers increased with increasing ground moisture, connectivity, bush cover, and open land, and were lower in grazed grid cells
- Larvae occurrence probability increased with increasing abundance of host plants and host plant stems and the presence of tussocks, while it decreased with increasing vegetation height