

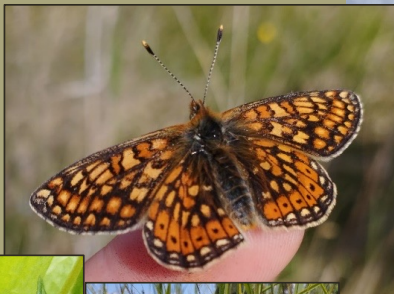
Experiences with monitoring the marsh fritillary (*Euphydryas aurinia*)

National Park Research Day, Andau, 17.10.2025.

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Introduction



• Description of the marsh fritillary (*EU Habitats Directive: Annex II., Bern Convention Annex II., IUCN Least Concern, Overall decline in Europe estimated by 20-50 %*)

- Eurosiberian widespread
- Univoltin Nymphalid species, in W-Hungary locally (used to be) abundant
- Two „ecotypes”
 1. Dry steppic grasslands, *Scabiosa sp.* Related colonies- do well (Bakony, Vértes)
 2. Wet meadows, *Succisa pratensis* related colonies- heavily declined or extinct (Őrség, Vendvidék, Bakony foothill- strong decline, Zala, Kerka valley- extinct)
- Never been reported from the Hanság, only one record was known from the Marcal valley (1957. MTTM) so far. From the Seewinkel extinct (probably it was the closest area to the Hanság)
- The population was discovered in Hanság in 2021.
- Monitoring- population size/ dynamics and spread, nest survival- to understand the relationships between these factors and habitat management

Material and methodes



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30
EUROPEAN UNION
NEUSIEDLER SEE · SEEWINKEL
PERTO · HANAU
1992-2022

Material and methodes

- Capture-mark-recapture method=CMR in 2022, 2023, 2025 - 1 transect, 2024 – 3 tarnsect, to detect movement within the metapopulation
- Epicollect 5, MARK
- Metapopulation mapping (2022-2023)- with eBMS (standard time limit counting) and nest survey in potential habitats
- Monitoring the survival of nests after mowing



Results-CMR

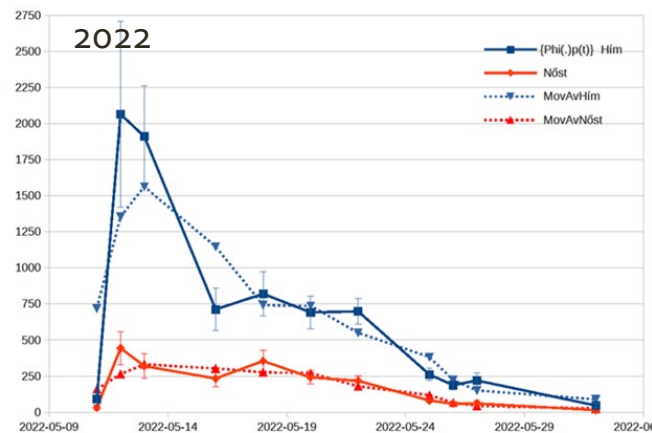
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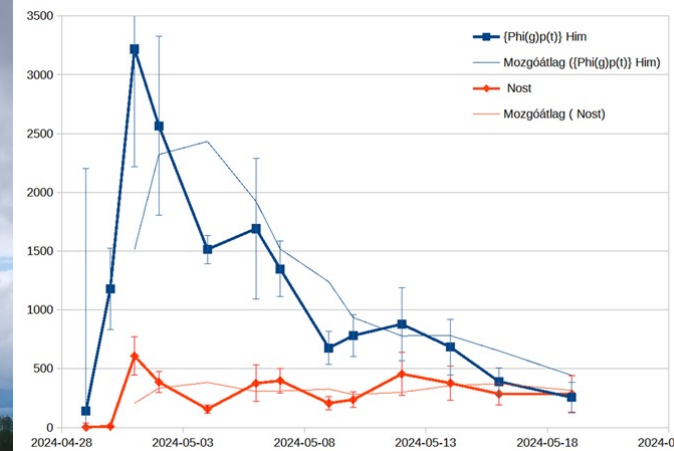
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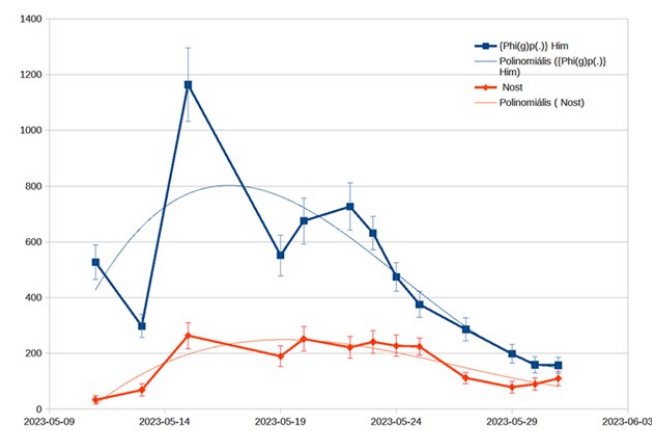
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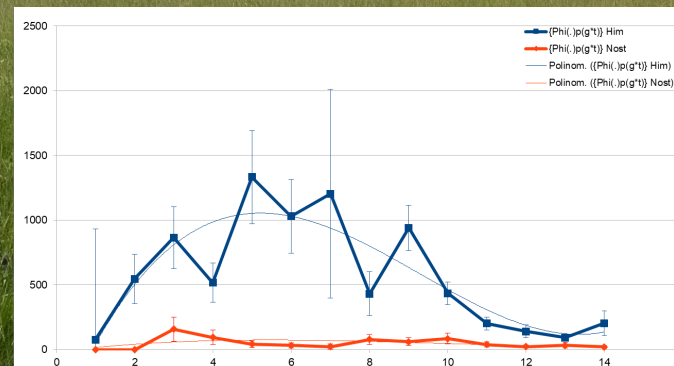
11 sampling occasions
1239 capture
1065 marked individuals
14% recapture rate
Superpopulation:
males: 4484
females: 1257
total: ~5500 individuals



13 sampling occasions
1404 capture
1281 marked individuals
8% recapture rate
Superpopulation:
males: 7977
females: 3062
total: ~11000



13 sampling occasions
1268 capture
1012 marked individuals
19% recapture rate
Superpopulation:
males: 3006
females: 1219
total: ~4200 individuals



14 sampling occasions
891 capture
790 marked individuals
11% recapture rate
Superpopulation:
males: 5392
females: 520

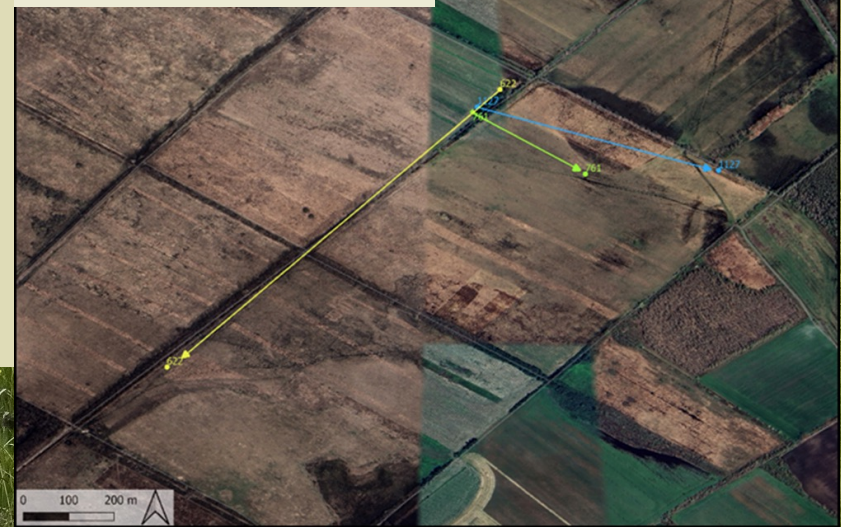
Results- movement detection- 2024

- Most of the recaptured individuals moved in a 100 metres area
- Three males detected to leave the most densely populated area.
- The longest distance covered was 1100 meters (the absolute largest movement was 46 km S-SW /Kenyeri/, detected in 2022.)
- CMR result for the 3 transects together:
 - 2147 capture, 1985 marked individuals, 8% recapture rate
 - Superpopulation: ~ 15.000 males, ~ 5.000 females

Metapopulation structure



Moves between colonies



Results- nests (2024-2025)

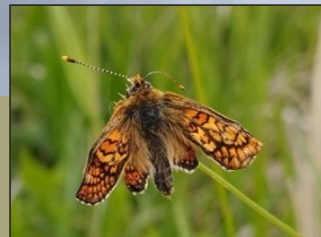
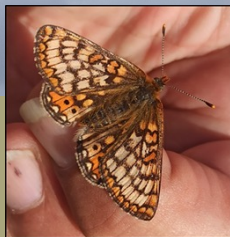
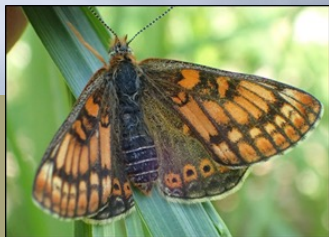
- Counting nests at designated sampling sites (moved-controll)
- Moving in the second half of July - Most of the nests covered a large part of the host plant.
- 80 nests- 44 in mowed area, 36 in controll area
- Of the 80 nests, 22 were checked again in the fall-winter period of 2024 and in the spring of 2025.
- In the case of controll area, 3 nests could not be found, and 7 nests disappeared from the mowed area. .



Conclusions/ experiences



- It is not bad if there is a water coverage, even if the solitary larvae can't swim very well
- It is a useful device to have the keys of the sluits - if there are any water supply, canal, etc.
- If there is enough water , the mowing or grazing is not essential...(practically unnecessary)
- If there are enough foodplant, the density can be very high
- If there are enough place, the tree lines and other vertical structures dissecting the whole site do not cause any troubles, fragmentation: the species can fly if necessary, but usually do not do it, strict to the „home range“ instead.
- Light grazing may be accepted, but very carefully, for management purpose
- Light mowing acceptable only late summer (when the nests are on the lower layers)
- If there is a slight variation in the microrelief it would help the failsafe management
- Probably the best practice is similar to the requirements of the meadow viper



Thank you for your attention!

