

Ústav zoológie, Slovenská akadémia vied



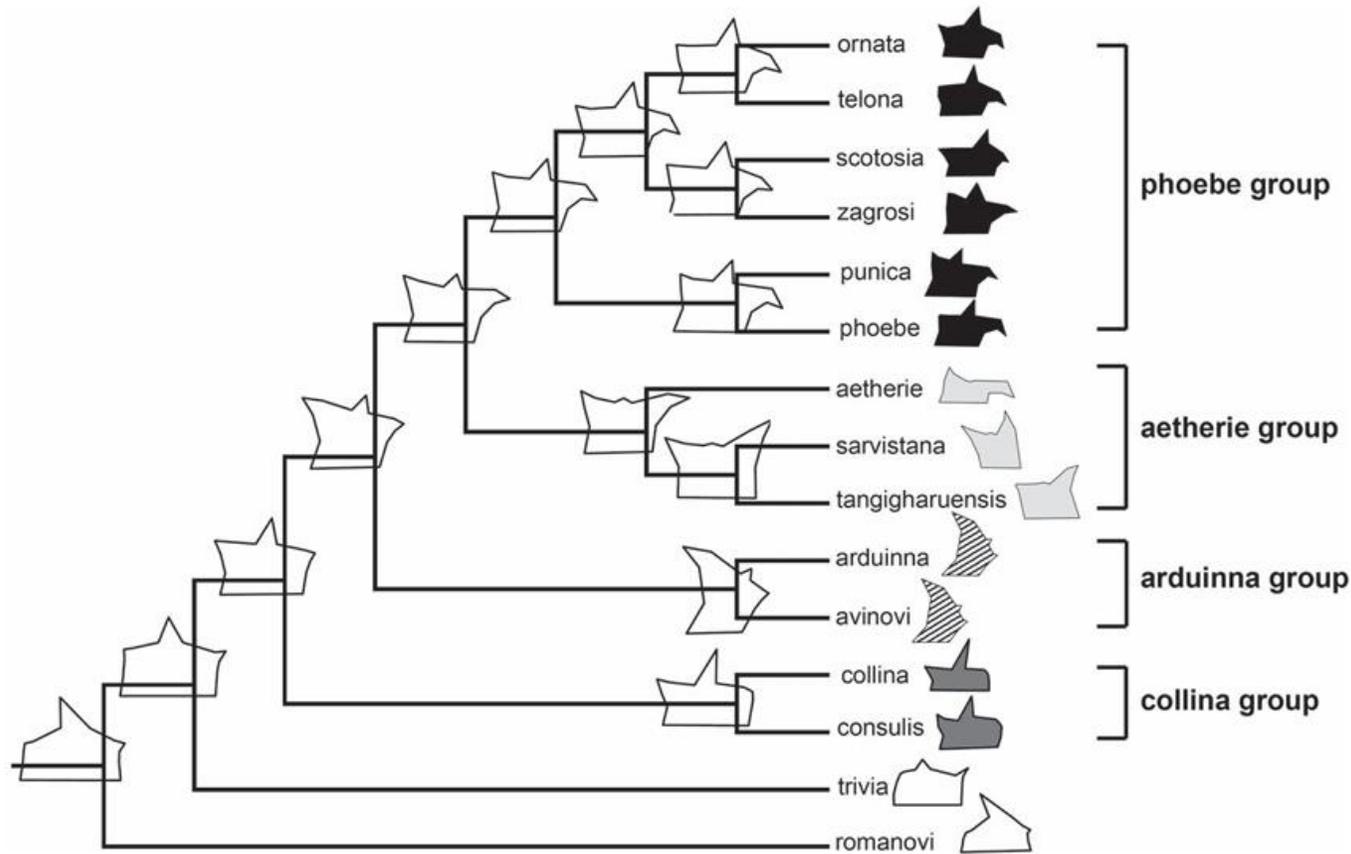
Molekulárne analýzy a bionómia vybraných druhov motýľov rodu *Melitaea*

Andrea Koblišková

Nymphalidae – skupina Melitaea



Nymphalidae – skupina Melitaea



- 1 **collina** group: *M. collina* and *M. consulis*, with the inner process missing on the processus posterior;
- 2 **arduinna** group: *M. arduinna* and *M. avinovi*, with the middle and inner process missing, and the outer process well developed;
- 3 **aetherie** group: *M. aetherie*, *M. tangigharuensis* and *M. sarvistana* with the middle process missing; and
- 4 **phoebe** group: *M. phoebe*, *M. punica*, *M. telona*, *M. zagrosi*, *M. scotosia* and *M. ornata*, with all the processi well developed.

Fig. 4. The combined Bayesian tree and the shape of the processus posterior of the male genitalia.

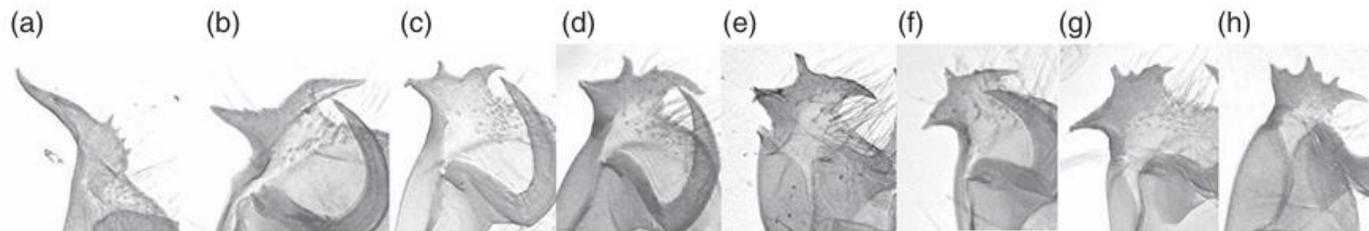


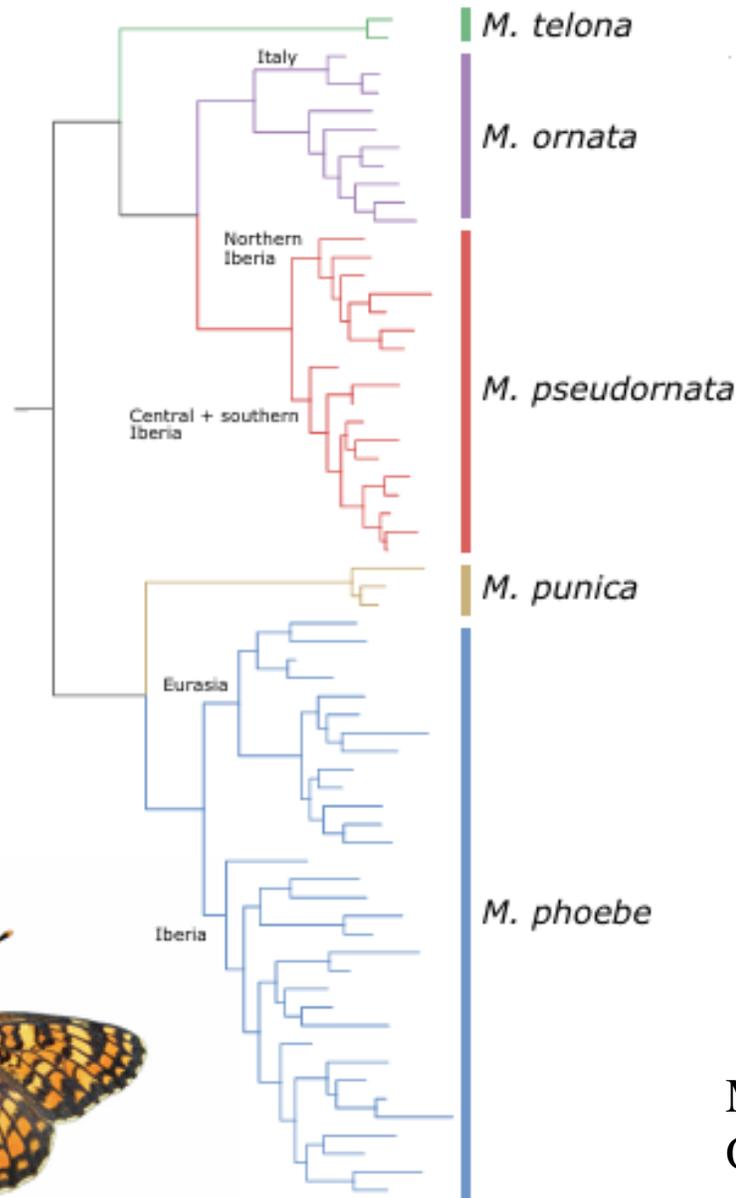
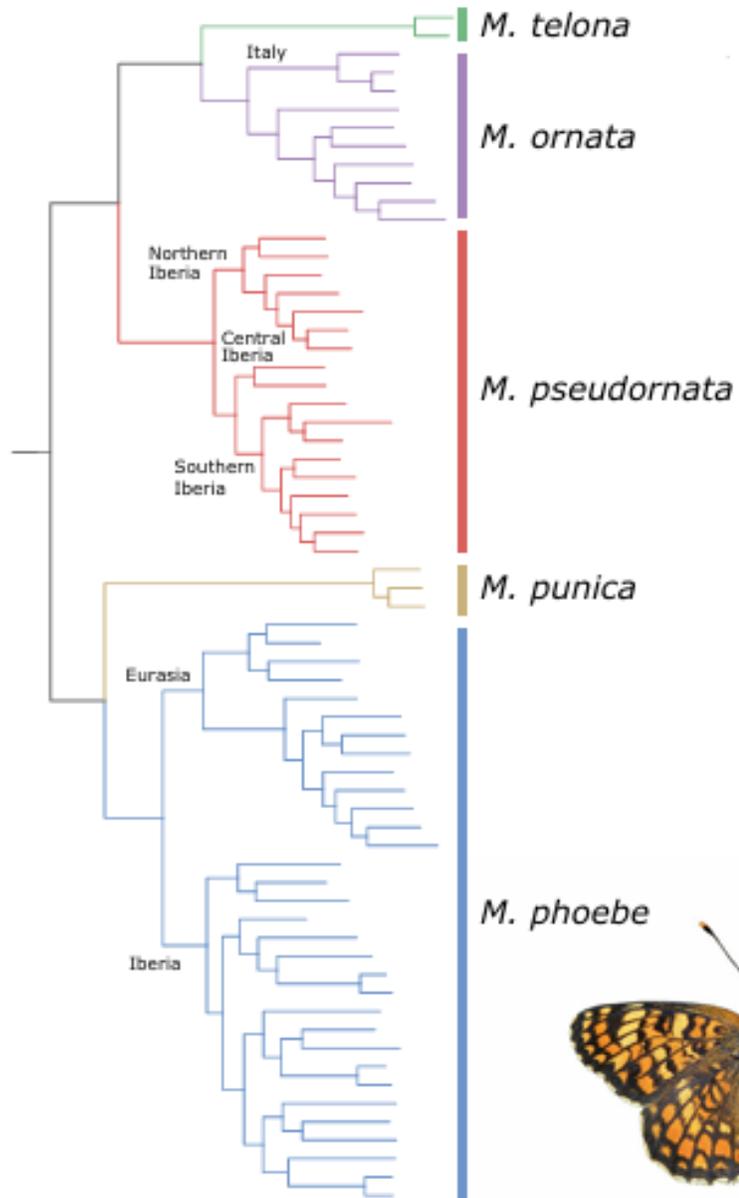
Fig. 5. Processus posterior of some *Melitaea* species. (a) *M. arduinna*, (b) *M. aetherie*, (c) *M. punica*, (d) *M. phoebe*, (e) *M. telona*, (f) *M. ornata*, (g) *M. scotosia*, (h) *M. zagrosi*.

Tvar samčích genitálií v skupine Melitaea.

Obr.: Tóth J. P., Bereczki J., Varga Z., Rota J., Sramko G. & Wahlberg N. 2014. Relationships within the *Melitaea* phoebe species group (Lepidoptera: Nymphalidae): new insights from molecular and morphometric information. *Systematic Entomology* 39: 749–757.

(a) Autosomes

(b) Z chromosome



- NGS – 2 hlavné vetvy
- Geografické rozdiely v rámci druhov
- Silná introgresia medzi *M. pseudooranta* a *M. phoebe*
- Priestor pre ďalší výskum

ML strom druhov zo skupiny *M. phoebe*.
Obr: Hinojosa 2024.

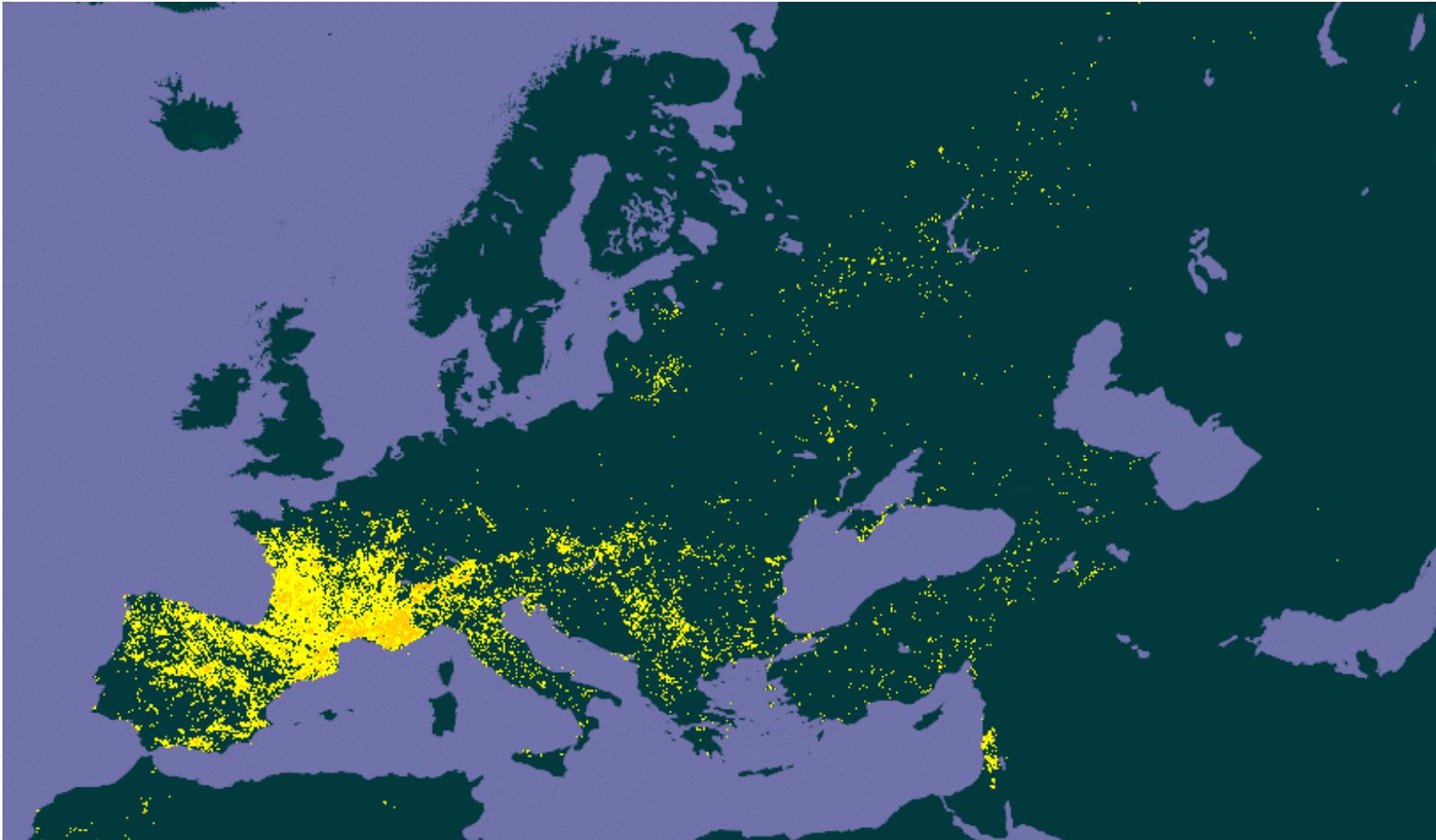
Melitaea – společné znaky



BIONÓMIA



Melitaea phoebe Denis & Schiffermuller, 1775



Gruzia

Melitaea phoebe



Chita, Transbaikalia



Slovakia



Gernany, Bayern



Romania



Schweiz



Schweiz



France



Slovenia



M. punica, Morocco



Východná vetva

Západná vetva

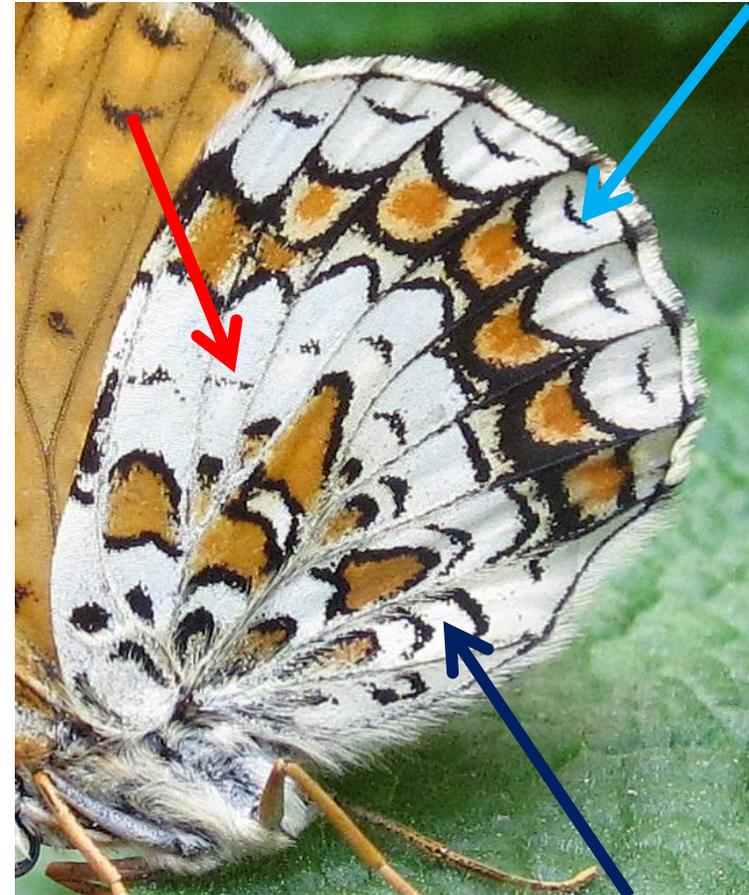
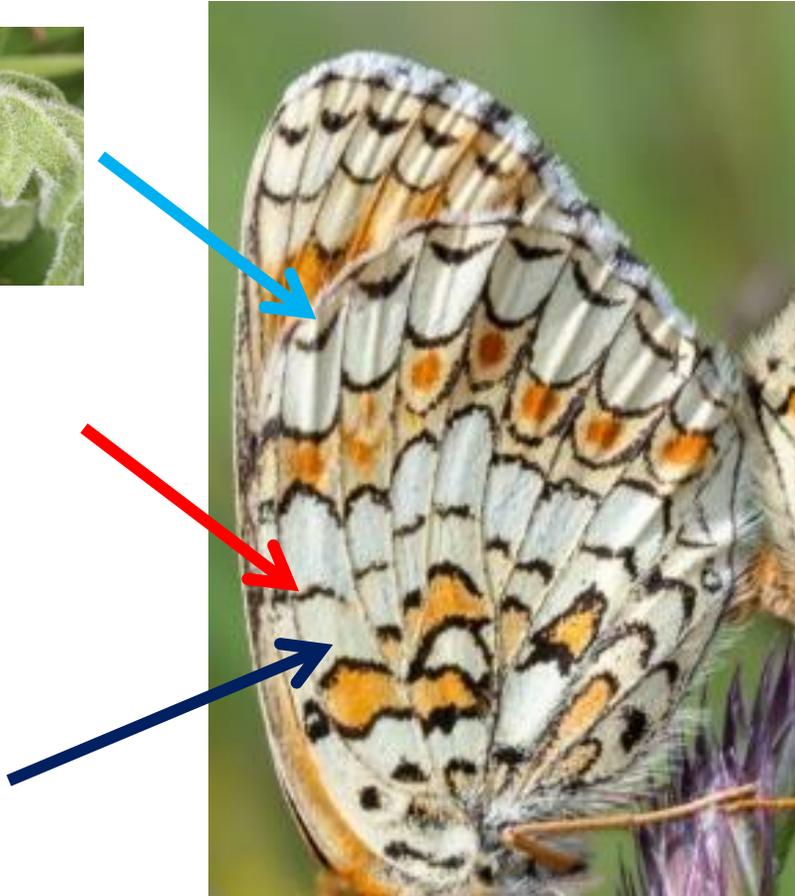
M. phoebe vs. *M. ornata* Christoph, 1893



Slovensko, Mađarsko, Slovinsko, Taliansko, Gruzínsko...



M. phoebe vs. *M. ornata*



Melitaea sibina [Alphéraky, 1882](#)



Tajikistan



Kirgizstan

Melitaea sibina



Melitaea telona Fruhstorfer, 1908

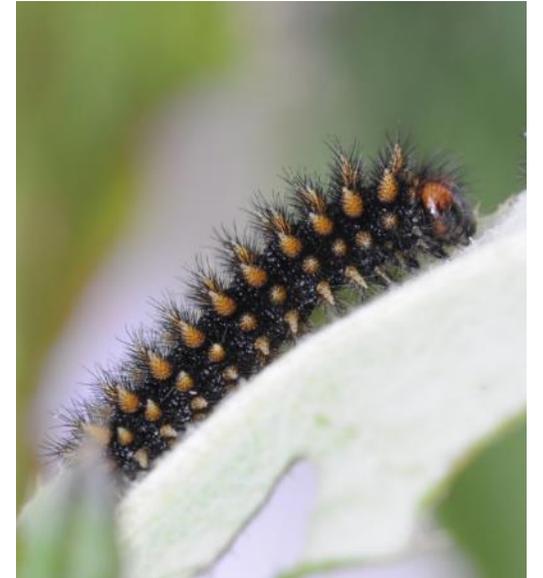




M. telona z Abr forest Iran



M. telona z Chorasán, Iran

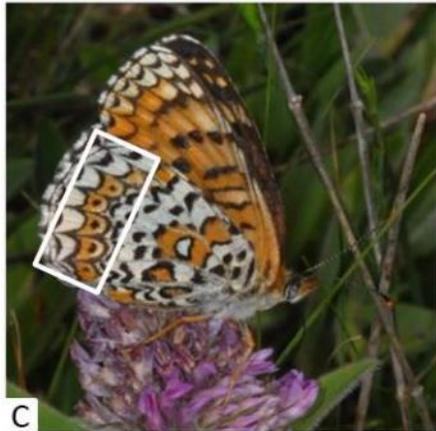


Kirgizia:

- *Melitaea* sp.?



Melitaea arduinna
Esper, 1783

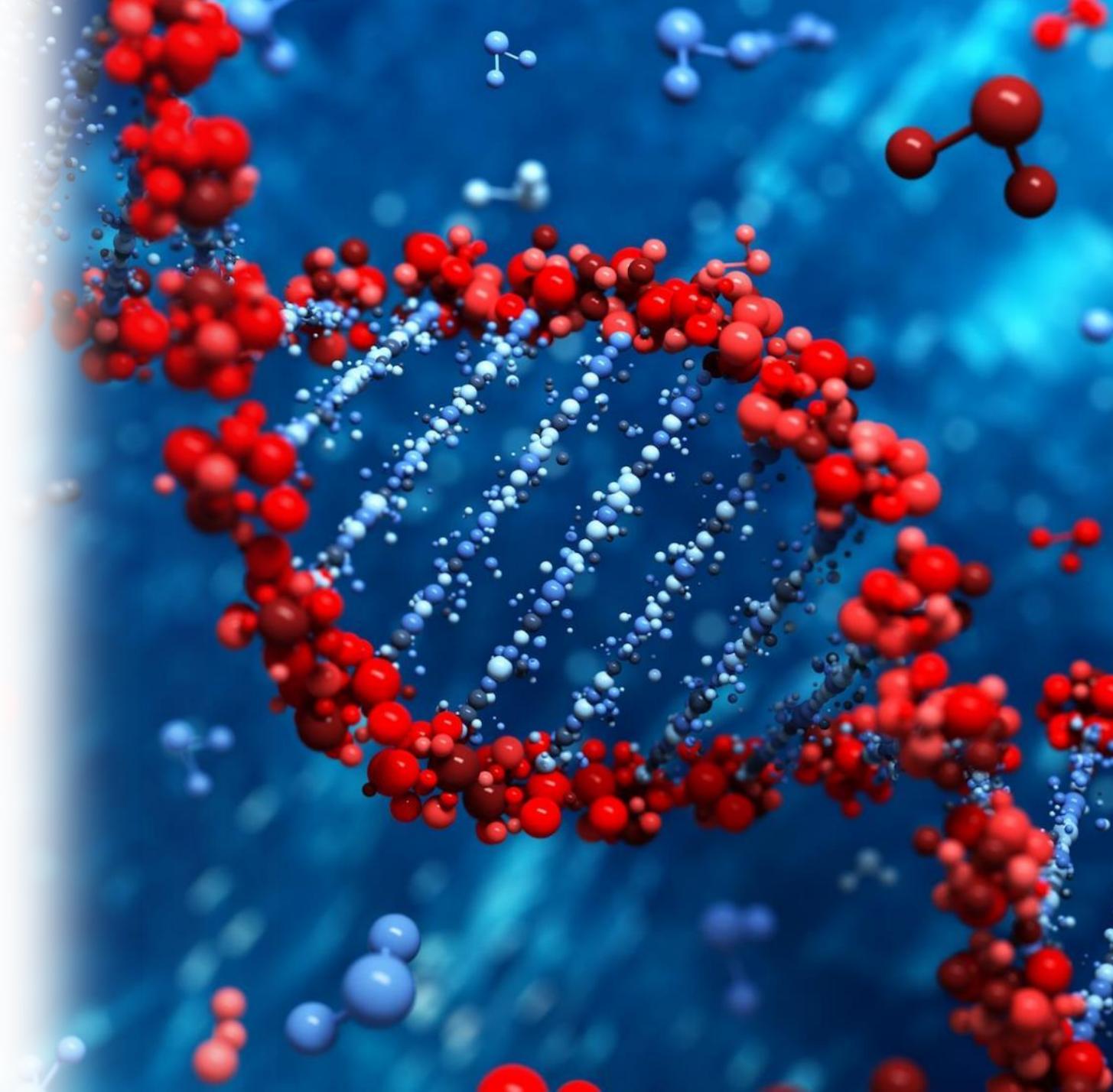


Melitaea cinxia Linnaeus, 1758



Melitaea aetherie Hübner, 1826

MOLEKULÁRNA ČASŤ



- 247 použitých vzoriek
- analýza mtch a nukleárných génov COI (243samples), EF(244samples), MDH(245samples), RPS5 (247samples), WG(247samples)

Fylogenetické analýzy:

- ML tree (IQ tree)
- NJ tree (MEGA-X)
- Mr. Bayes
- konsenzus tree of ML/Bayes/NJ

-analyzovaný každý gén osobitne, mtch + jadrové, iba jadrové spolu, jadrové každý osobitne

Ďalšie kroky- NGS

outgroup

M. phoebe + *M. sibina*

M. punica

M. ornata (EU)

M. aetherie

M. arduinna

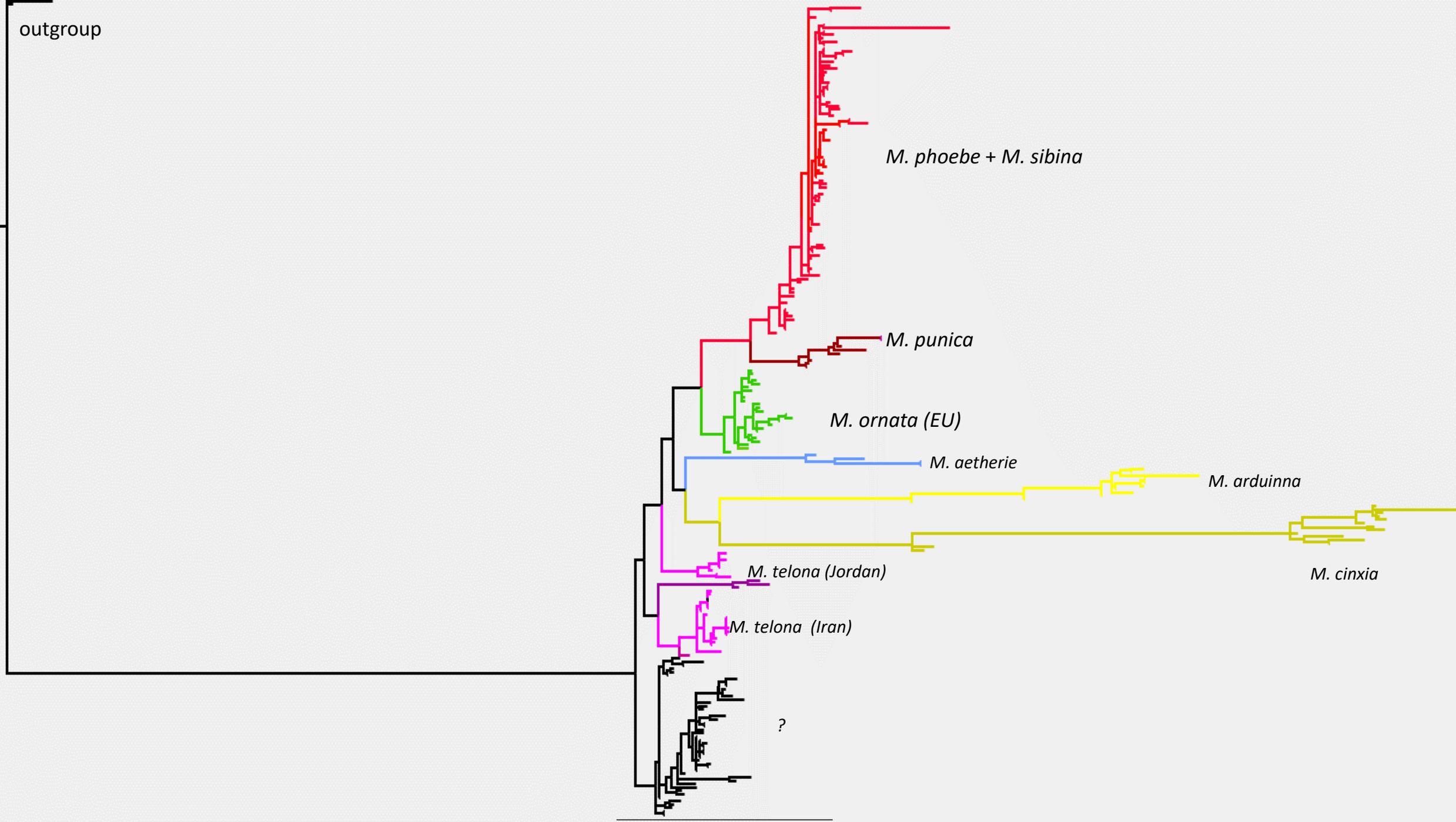
M. telona (Jordan)

M. cinxia

M. telona (Iran)

?

0.02



Tímová práca:

- hlava projektu: Dušan Žitňan (bionómia)
- fotky: Dušan Žitňan, Ľubomír Vidlička, Henrik Kalivoda
- laboratórium a terén: Dušan Žitňan, Tomáš Olšovský, Ivana Daubnerová



ĎAKUJEM ZA POZORNOST 😊