



**Genetische Analysen und Klimanischenmodelle
entschlüsseln
die Vergangenheit und Zukunft
des Mohrenfalters *Erebia manto***

**Thomas Schmitt,
Senckenberg Deutsches Entomologisches Institut Müncheberg**

Leipzig, 27. Februar 2015

SENCKENBERG

Erebia manto

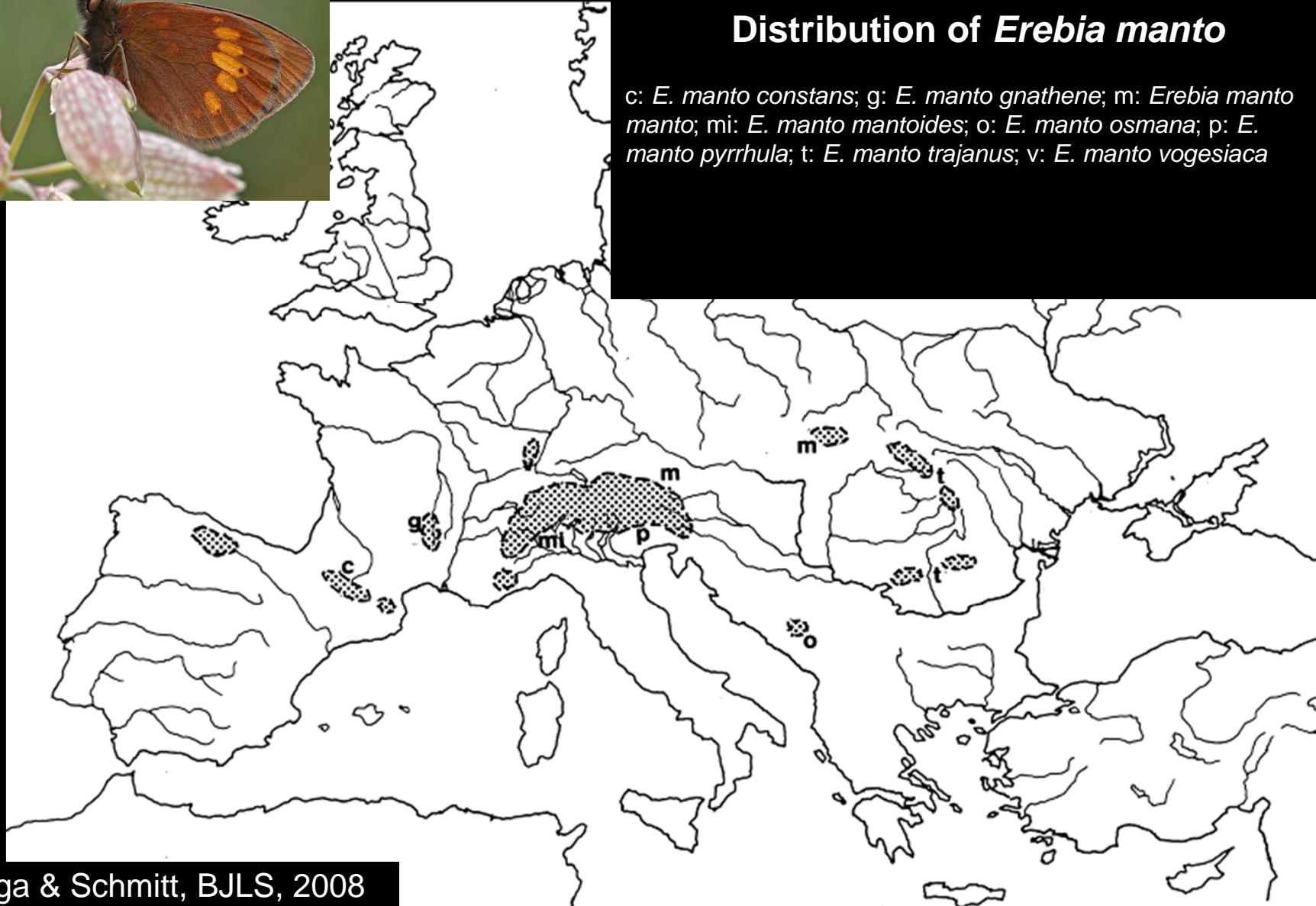


Alpine archipelago disjunction



Distribution of *Erebia manto*

c: *E. manto constans*; g: *E. manto gnathene*; m: *Erebia manto manto*; mi: *E. manto mantoides*; o: *E. manto osmana*; p: *E. manto pyrrhula*; t: *E. manto trajanus*; v: *E. manto vogesiaca*



SENCKENBERG



Halltal, Nordtirol

SENCKENBERG



Pass Thurn, Salzburg

SENCKENBERG



Julische Alpen, Slowenien

SENCKENBERG



Julische Alpen, Slowenien

SENCKENBERG



Col de Pause, Pyrenäen

SENCKENBERG



Col de Pause, Pyrenäen

SENCKENBERG



Mont Dore, Zentralmassiv

SENCKENBERG



Mont Dore, Zentralmassiv

SENCKENBERG



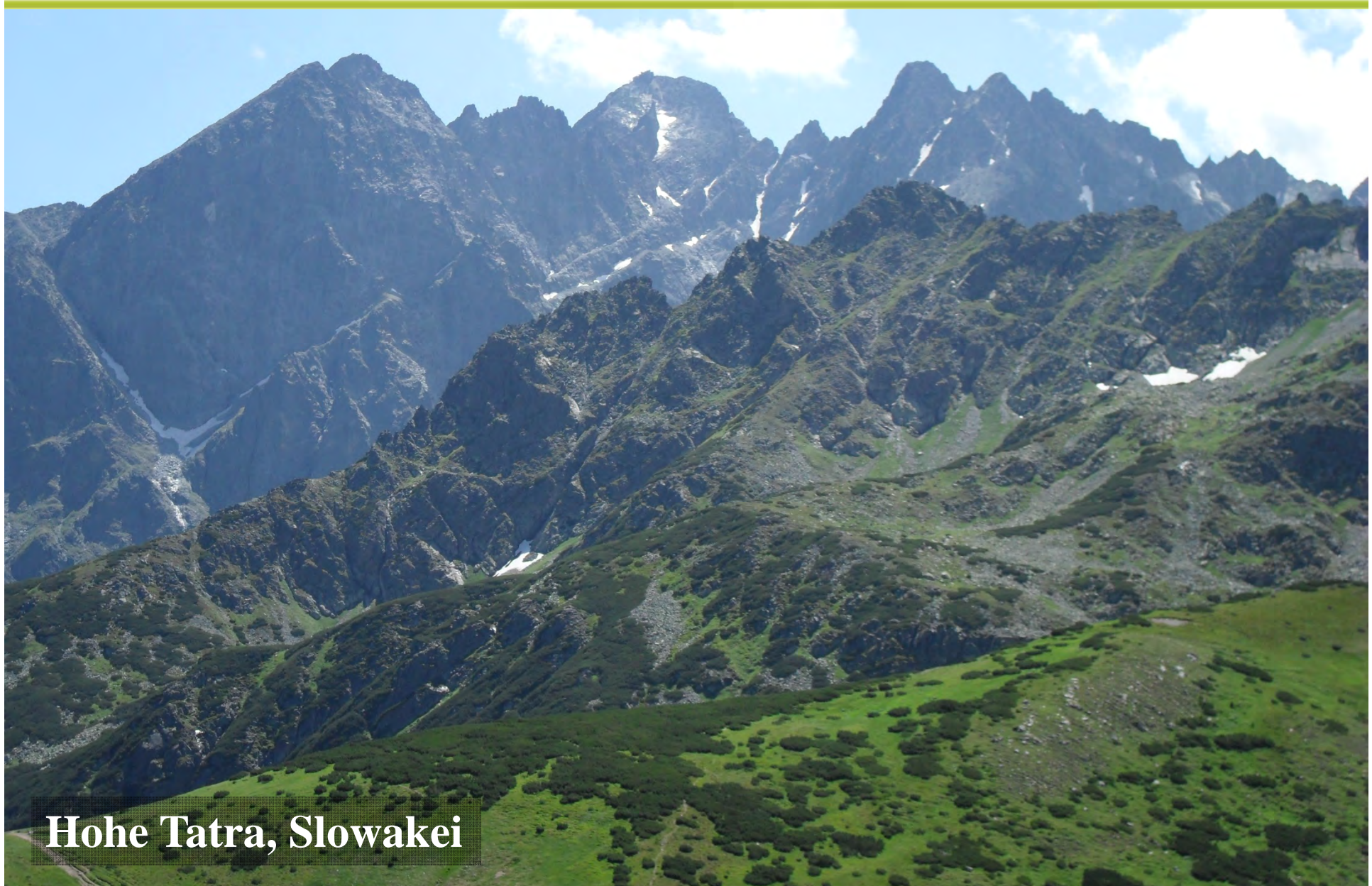
Puy Marie, Zentralmassiv

SENCKENBERG



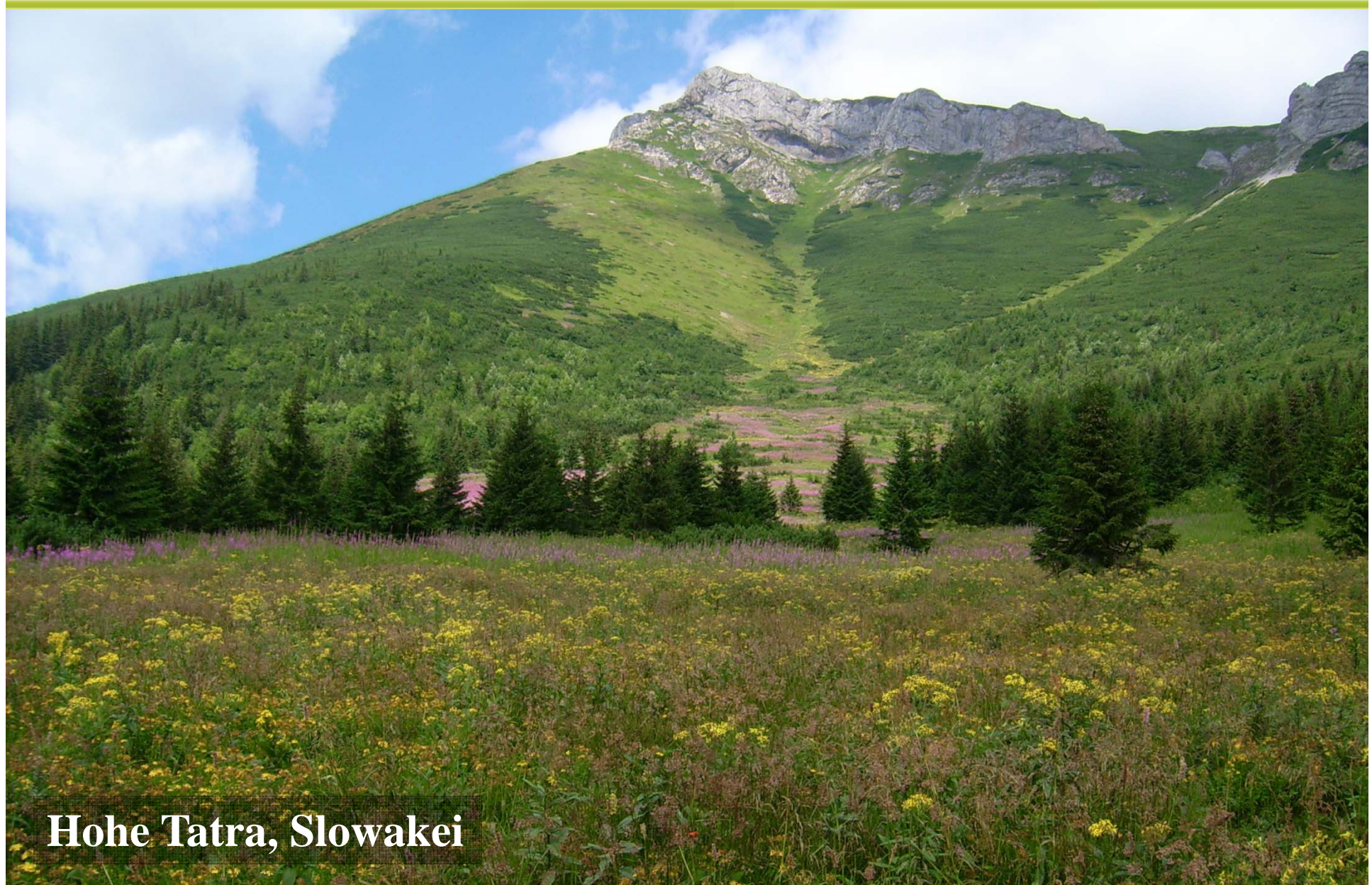
Hochvogesen

SENCKENBERG



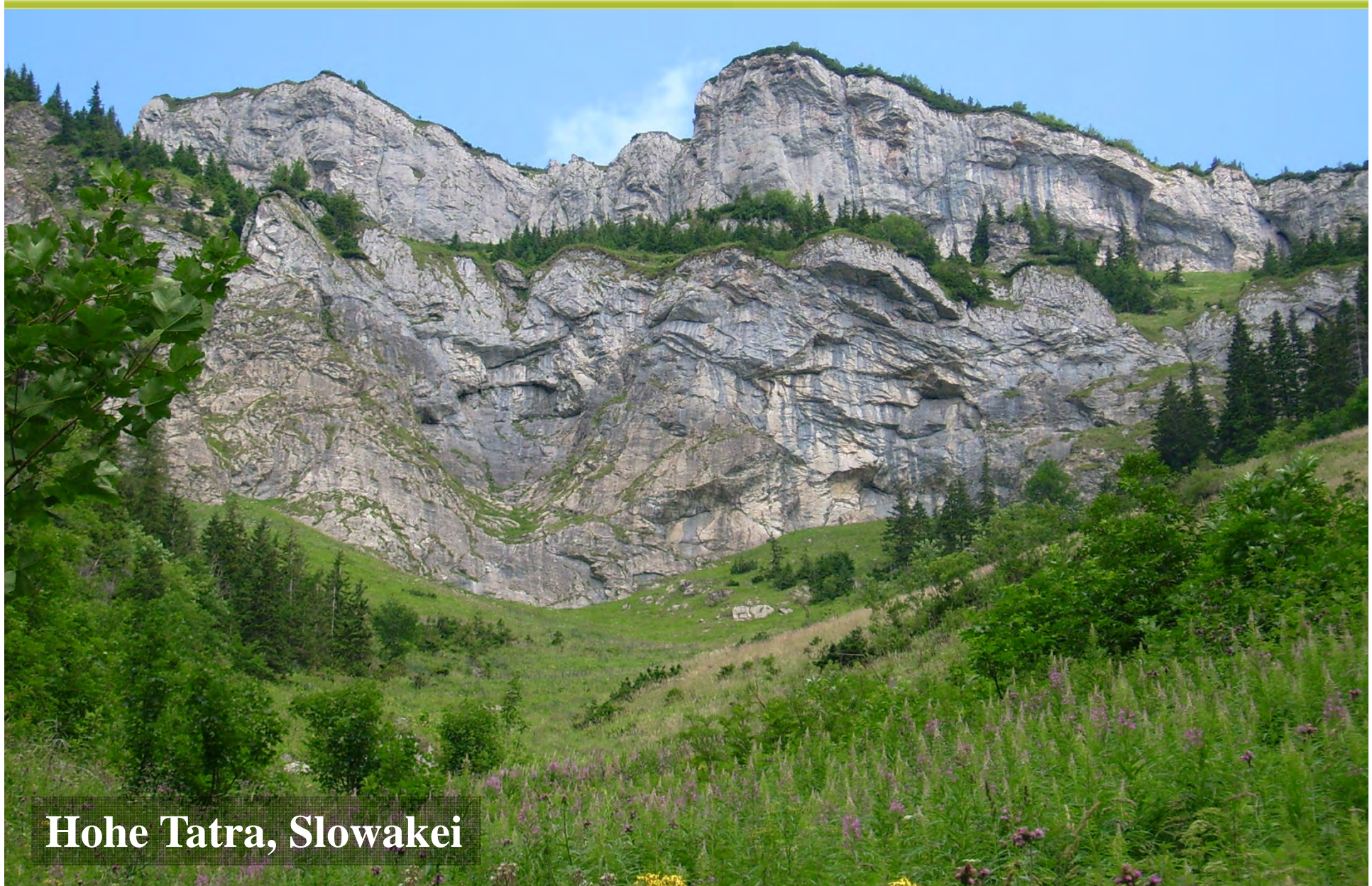
Hohe Tatra, Slowakei

SENCKENBERG



Hohe Tatra, Slowakei

SENCKENBERG



Hohe Tatra, Slowakei

SENCKENBERG



Fagaras, Südkarpaten

SENCKENBERG



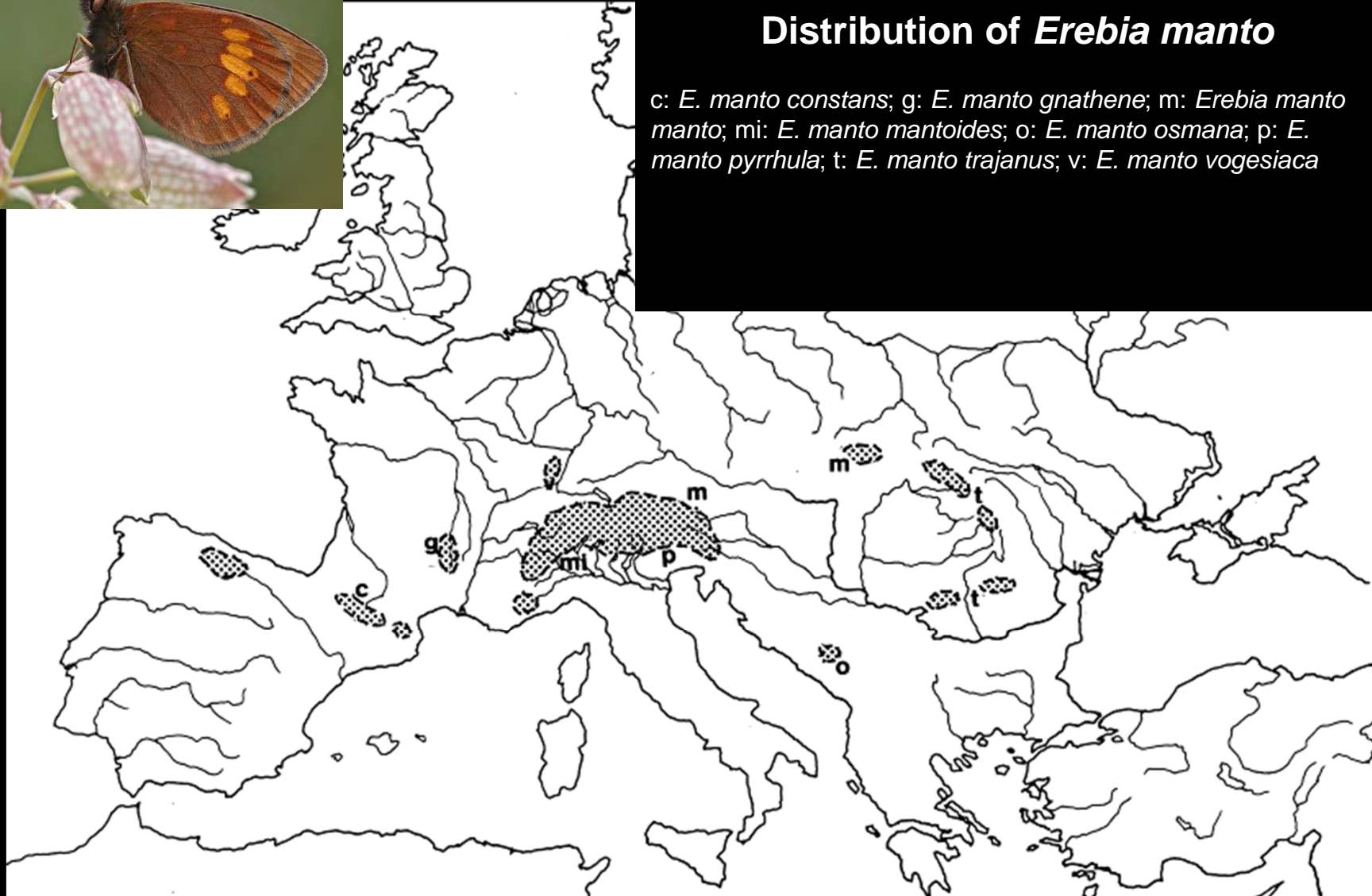
Fagaras, Südkarpaten

Alpine archipelago disjunction

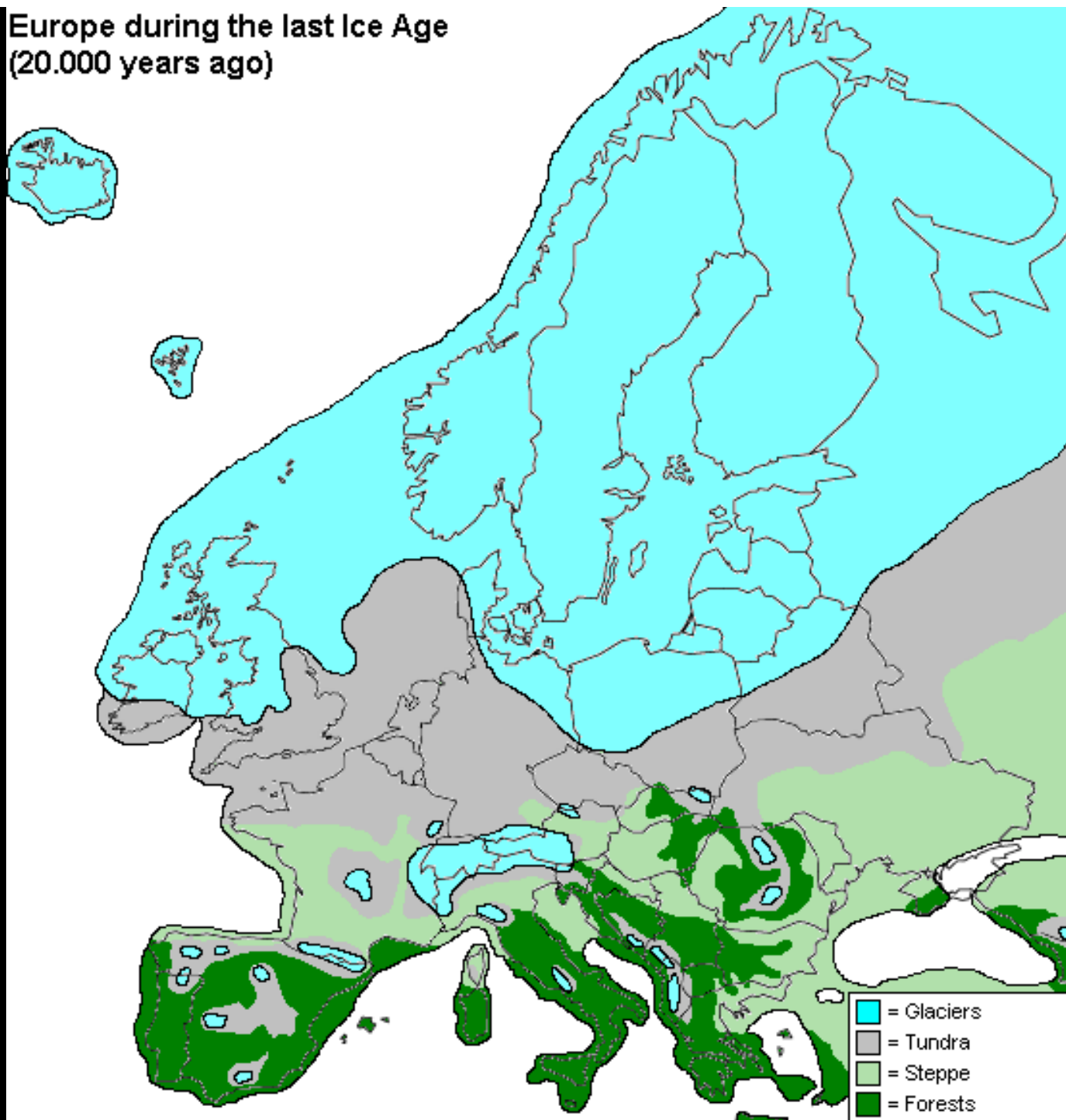


Distribution of *Erebia manto*

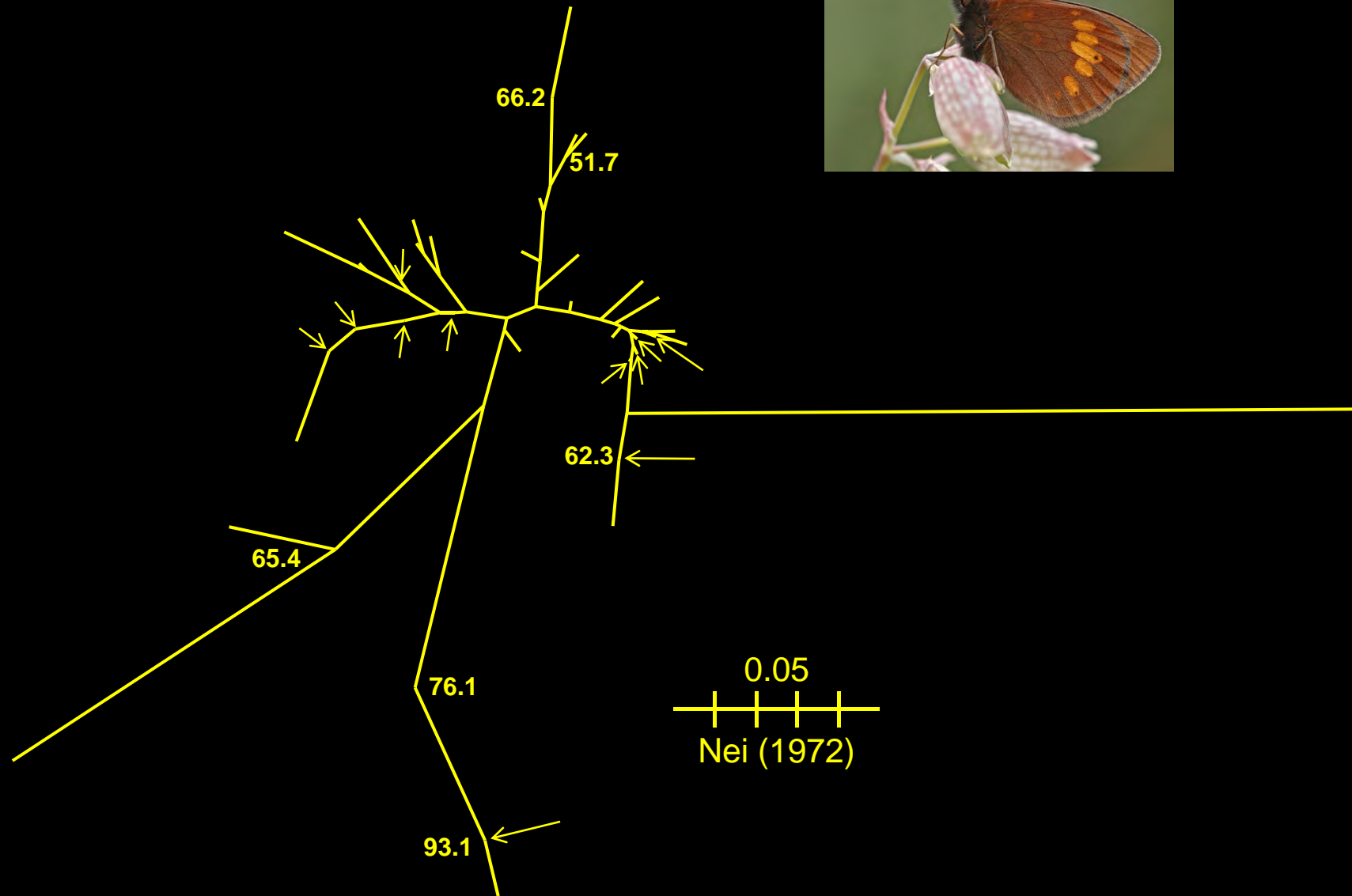
c: *E. manto constans*; g: *E. manto gnathene*; m: *Erebia manto manto*; mi: *E. manto mantoides*; o: *E. manto osmana*; p: *E. manto pyrrhula*; t: *E. manto trajanus*; v: *E. manto vogesiaca*



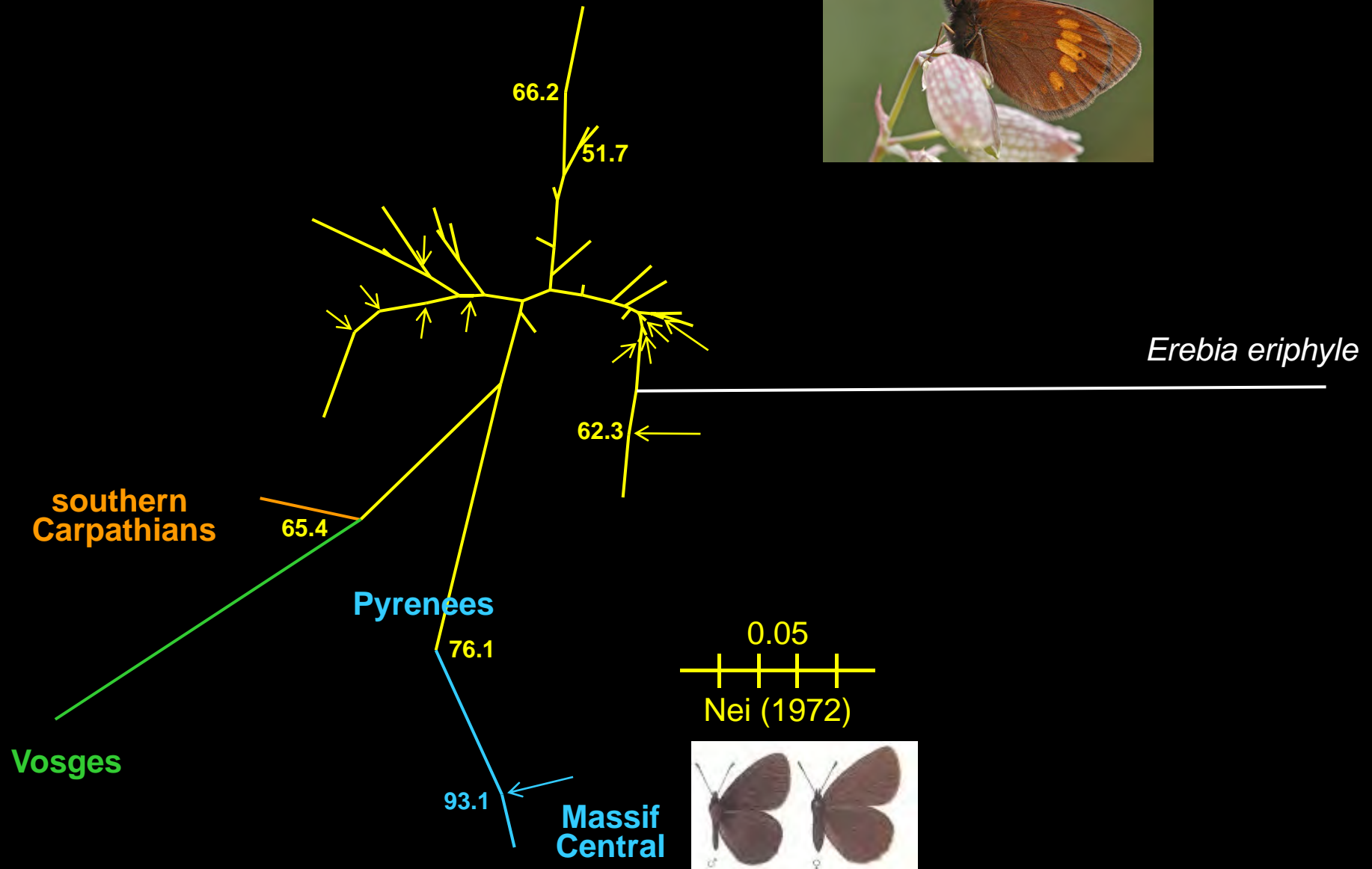
Europe during the last Ice Age
(20.000 years ago)



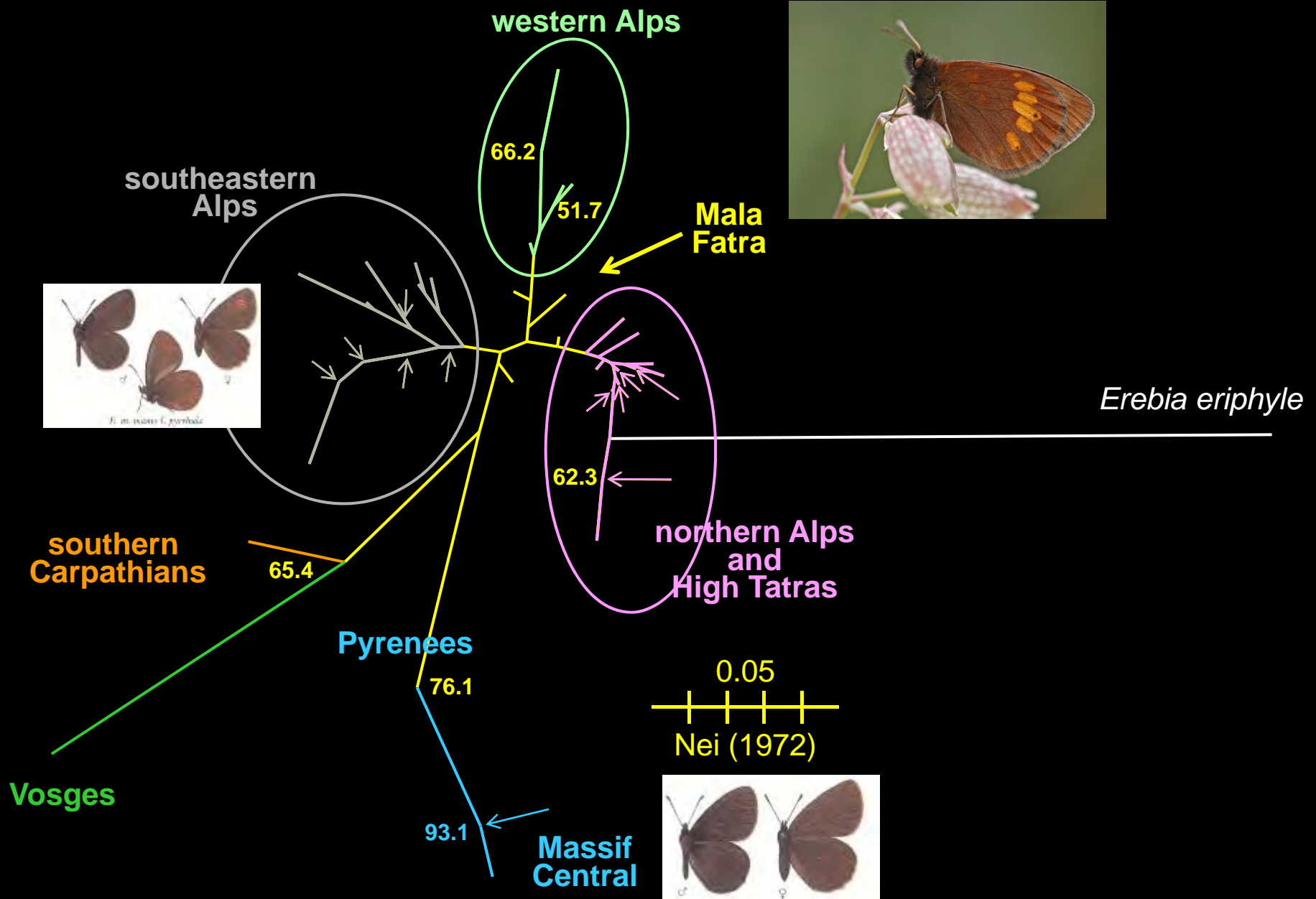
Neighbor joining diagram of *Erebia manto*



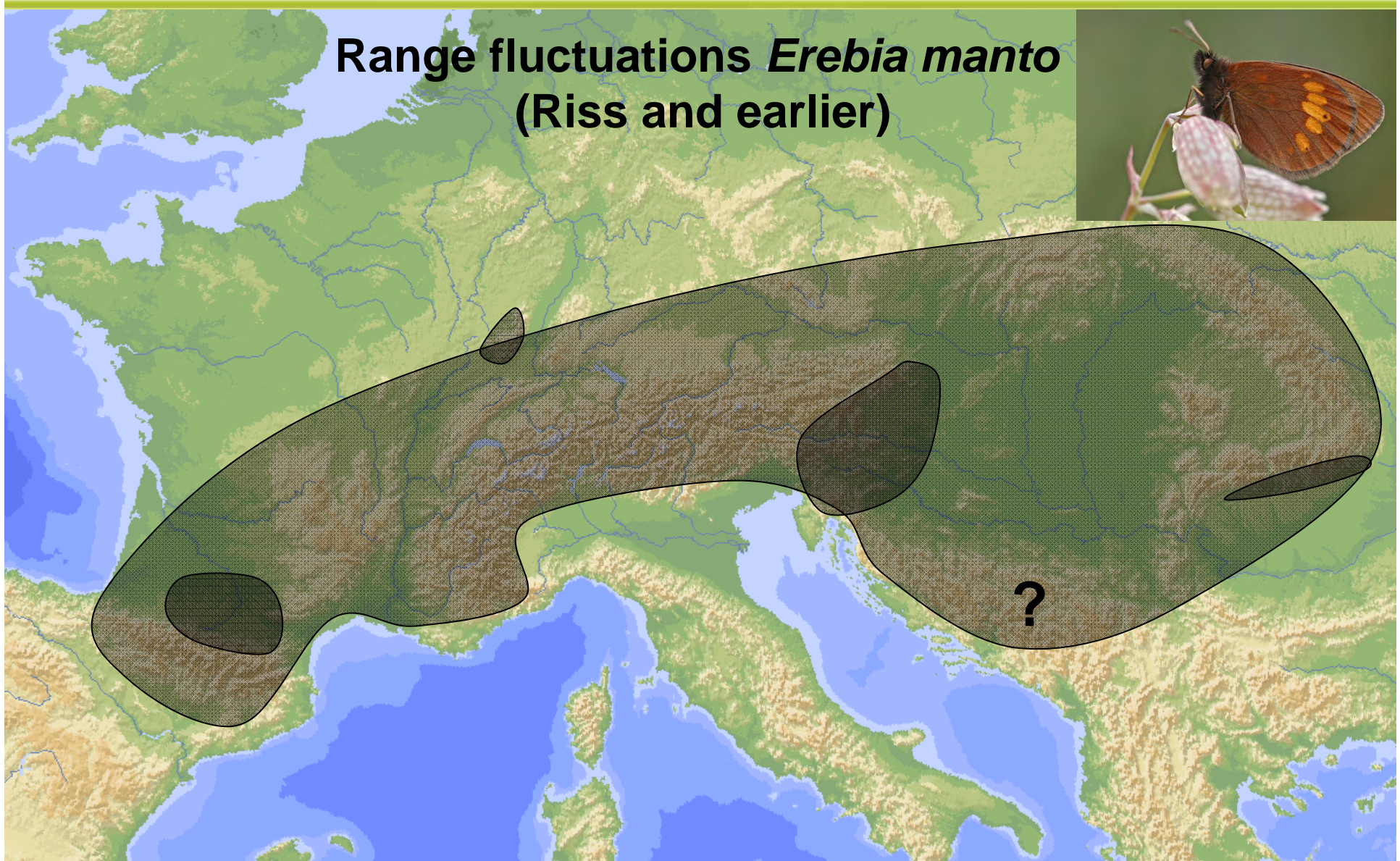
Neighbor joining diagram of *Erebia manto*



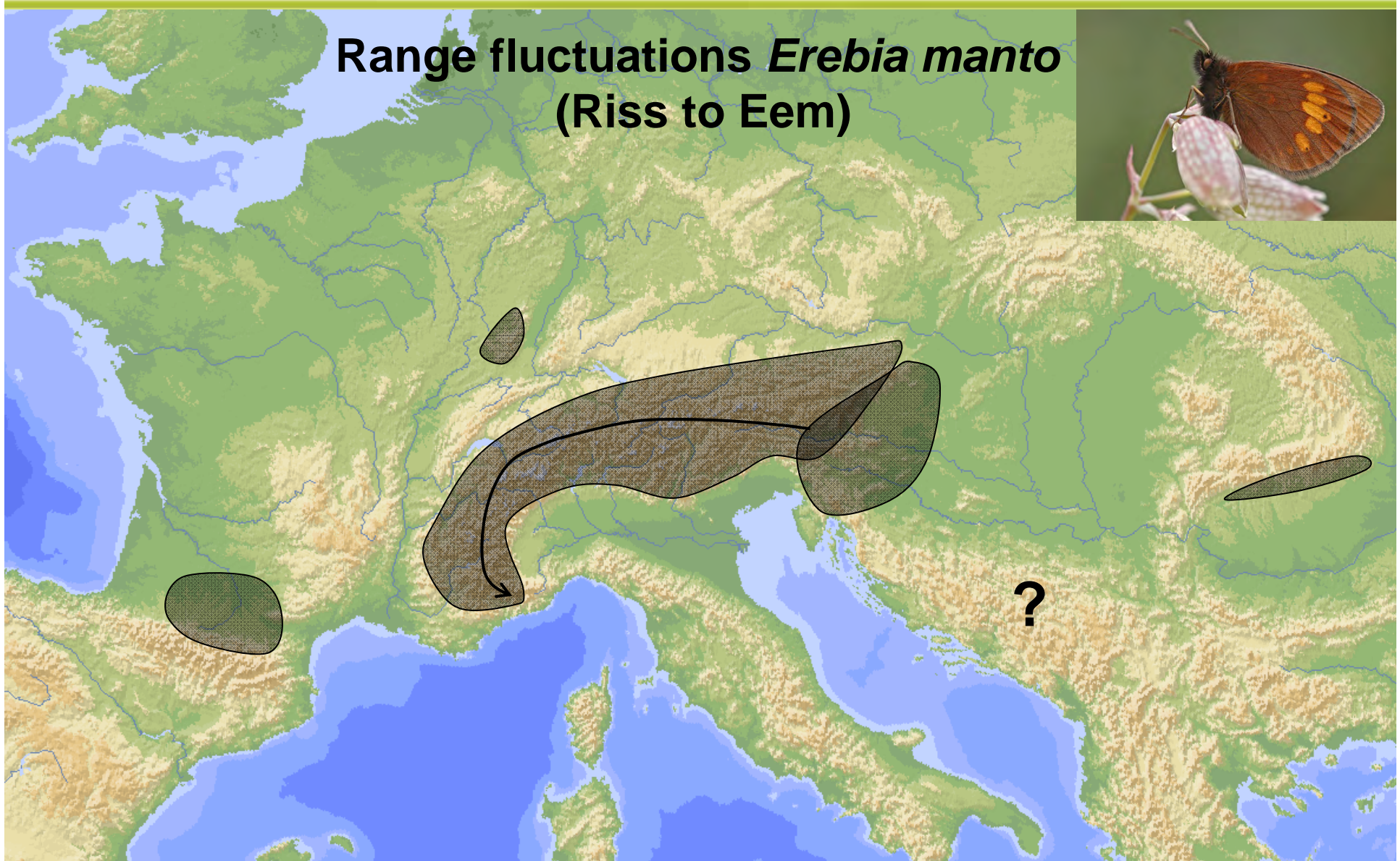
Neighbor joining diagram of *Erebia manto*



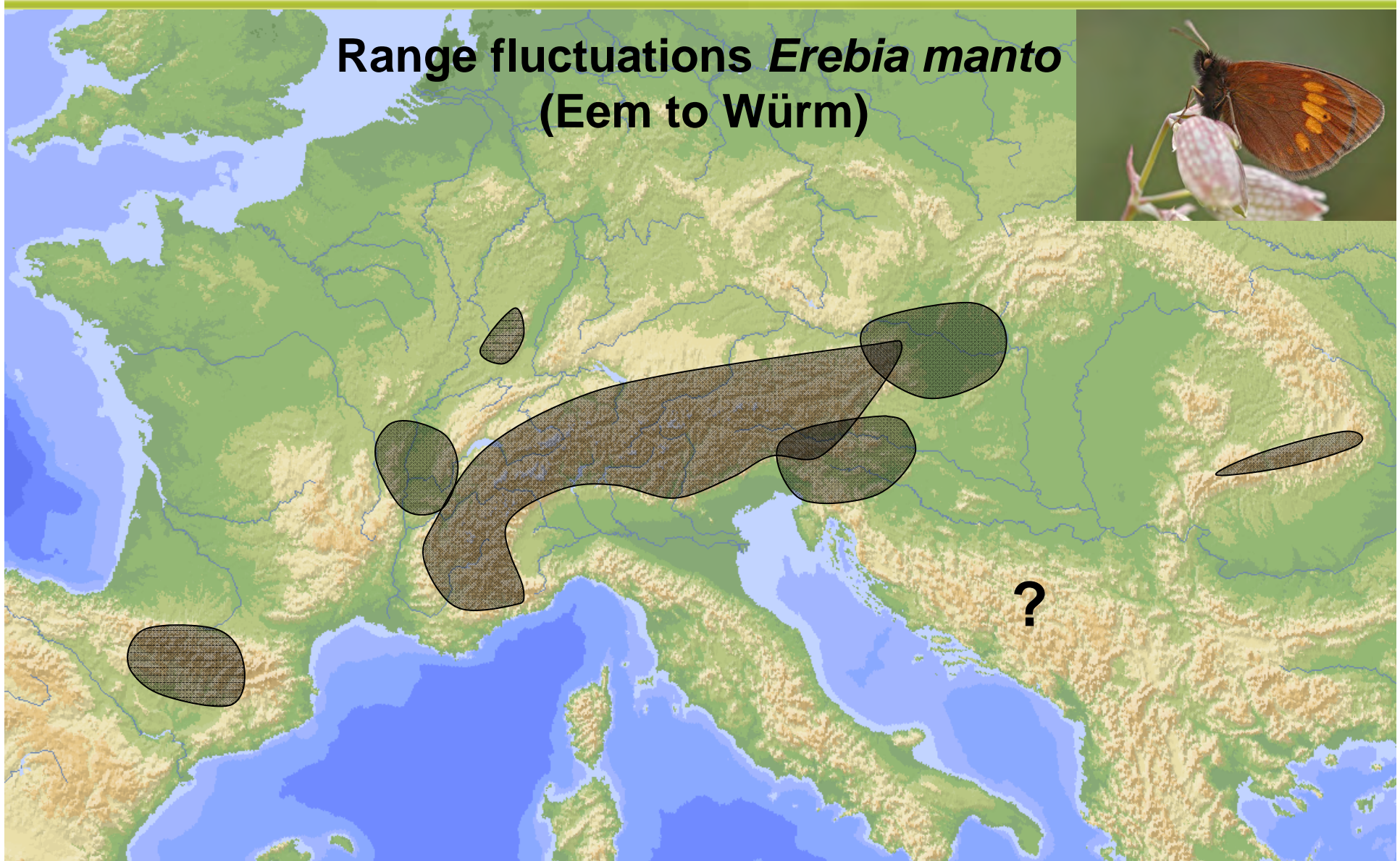
Range fluctuations *Erebia manto*
(Riss and earlier)



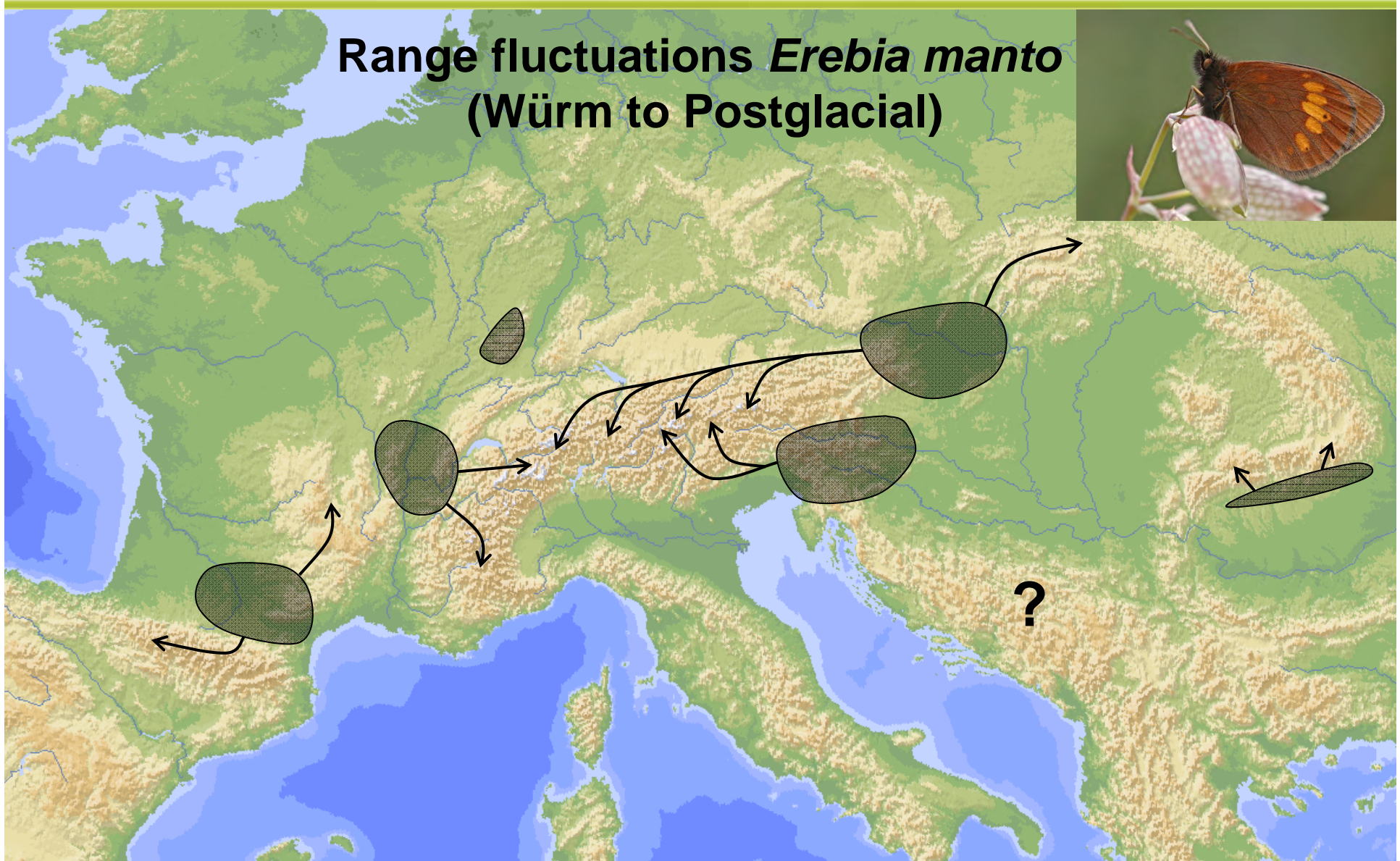
Range fluctuations *Erebia manto*
(Riss to Eem)



Range fluctuations *Erebia manto*
(Eem to Würm)

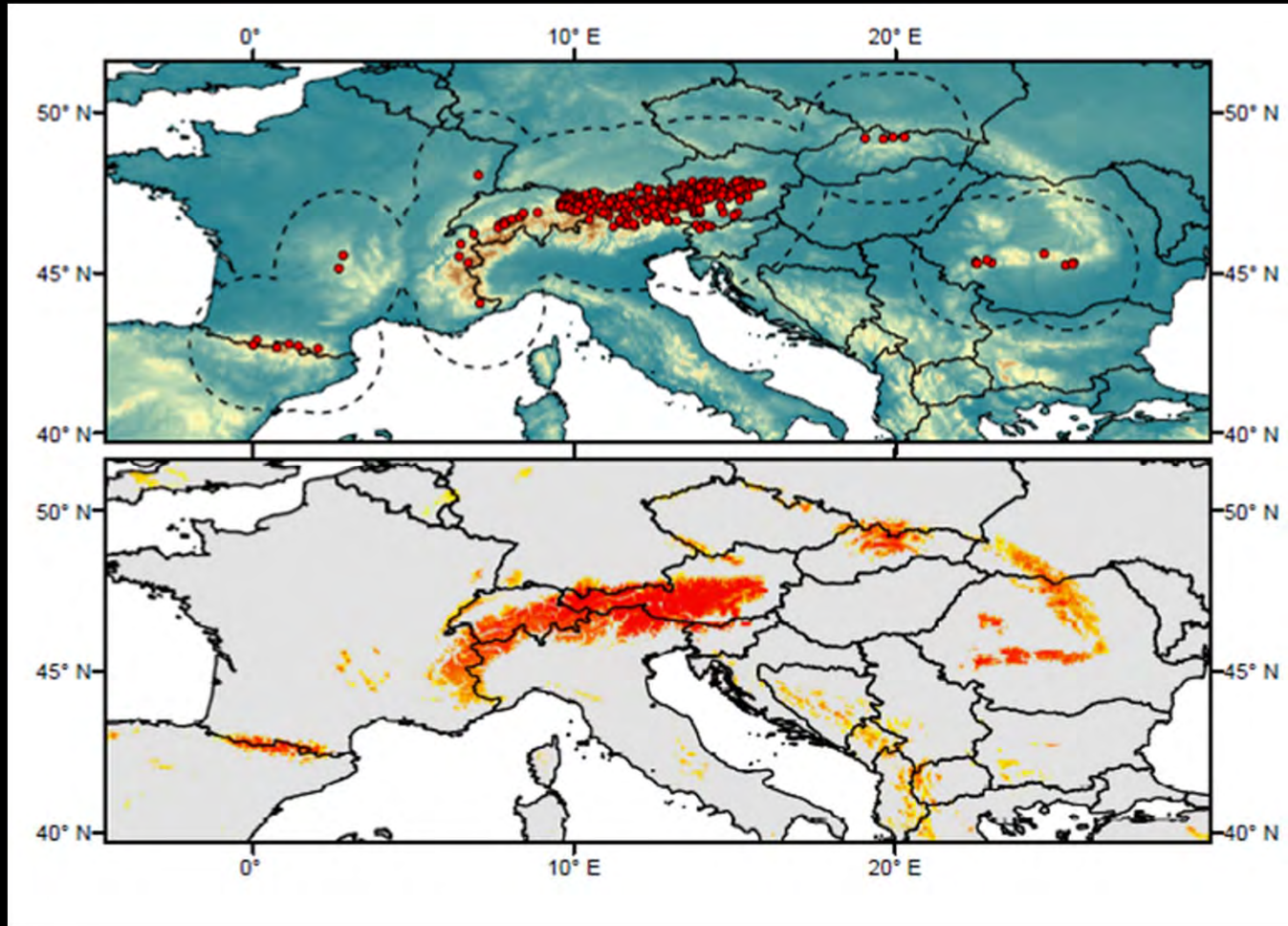


Range fluctuations *Erebia manto*
(Würm to Postglacial)



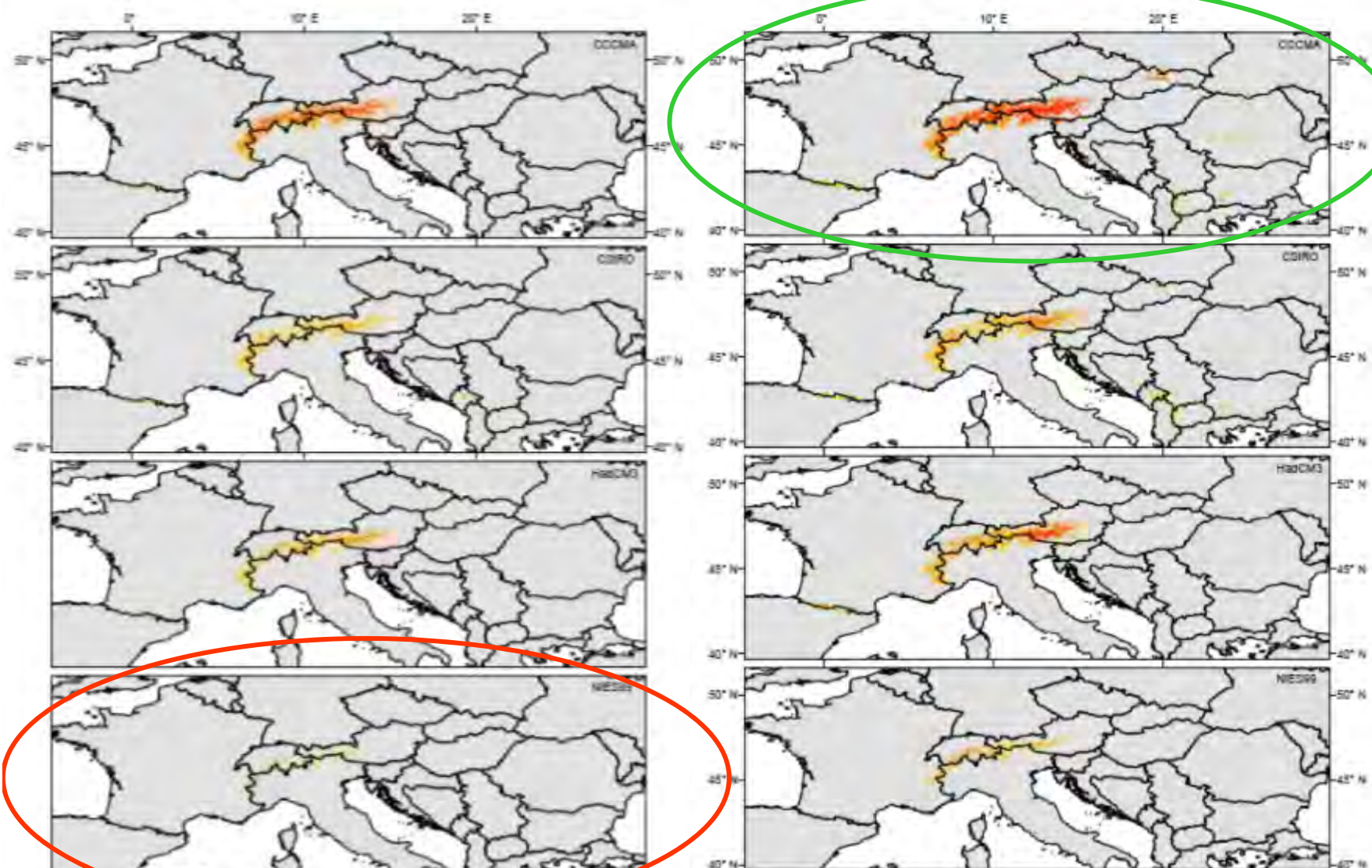


Recent climatic niche of *Erebia manto*



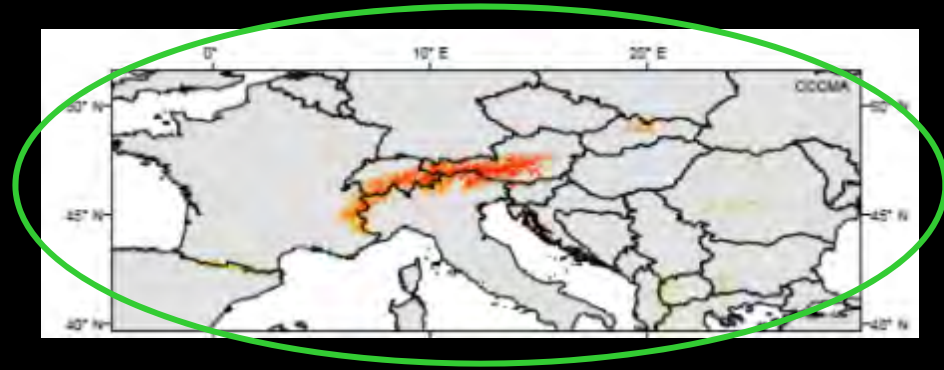


Future climatic niche of *Erebia manto*



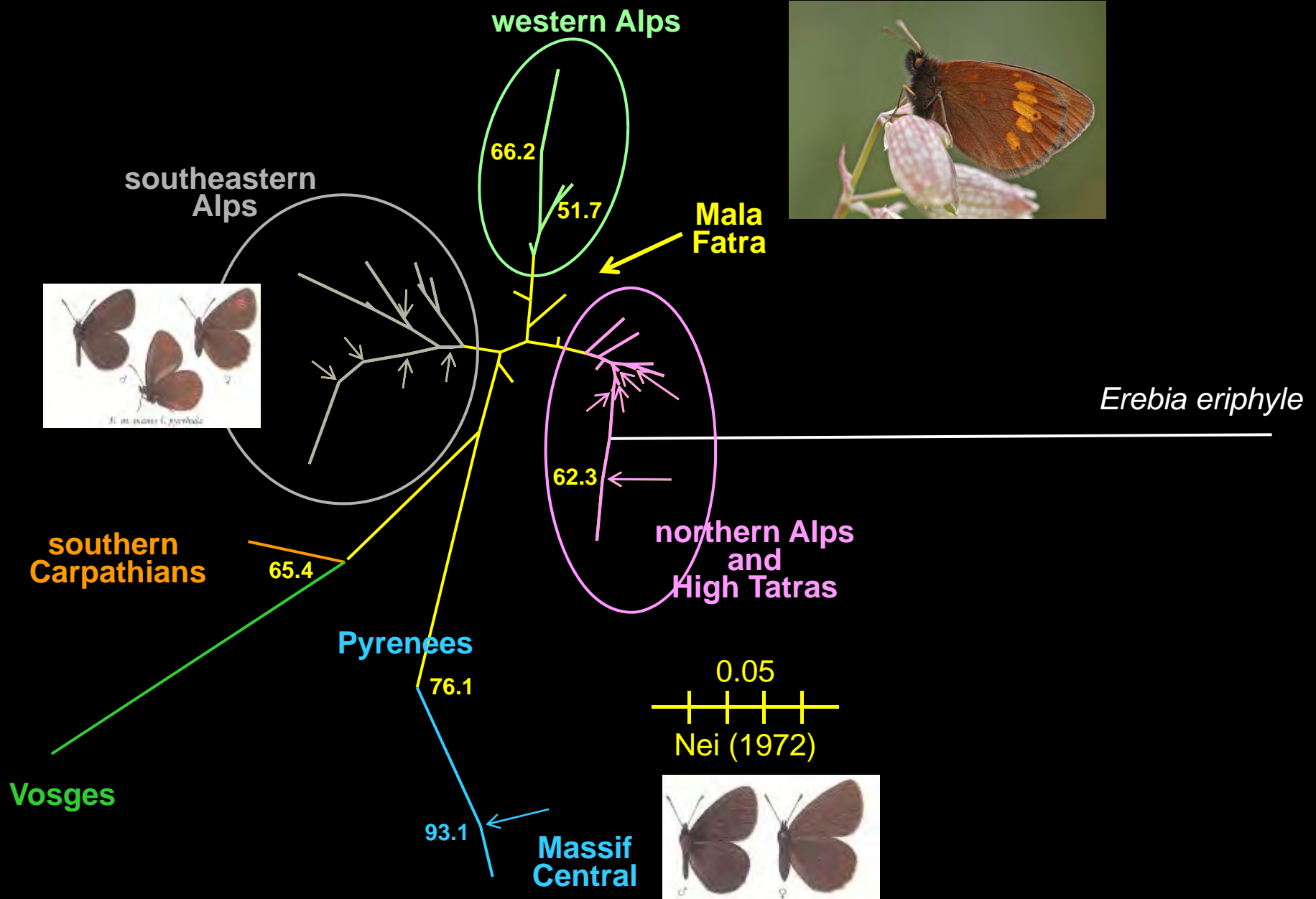


Future climatic niche of *Erebia manto*



Schmitt et al., Global Change Biol., 2014

Neighbor joining diagram of *Erebia manto*



SENCKENBERG

Danke für die Aufmerksamkeit

Hohe Tatra, Slowakei

