

# Kriptička raznolikost vodenih kukaca u Dinaridima: potporodica Drusinae (*Limnephilidae*, Trichoptera)

Ana Previšić

Zagreb, 20.02.2015.

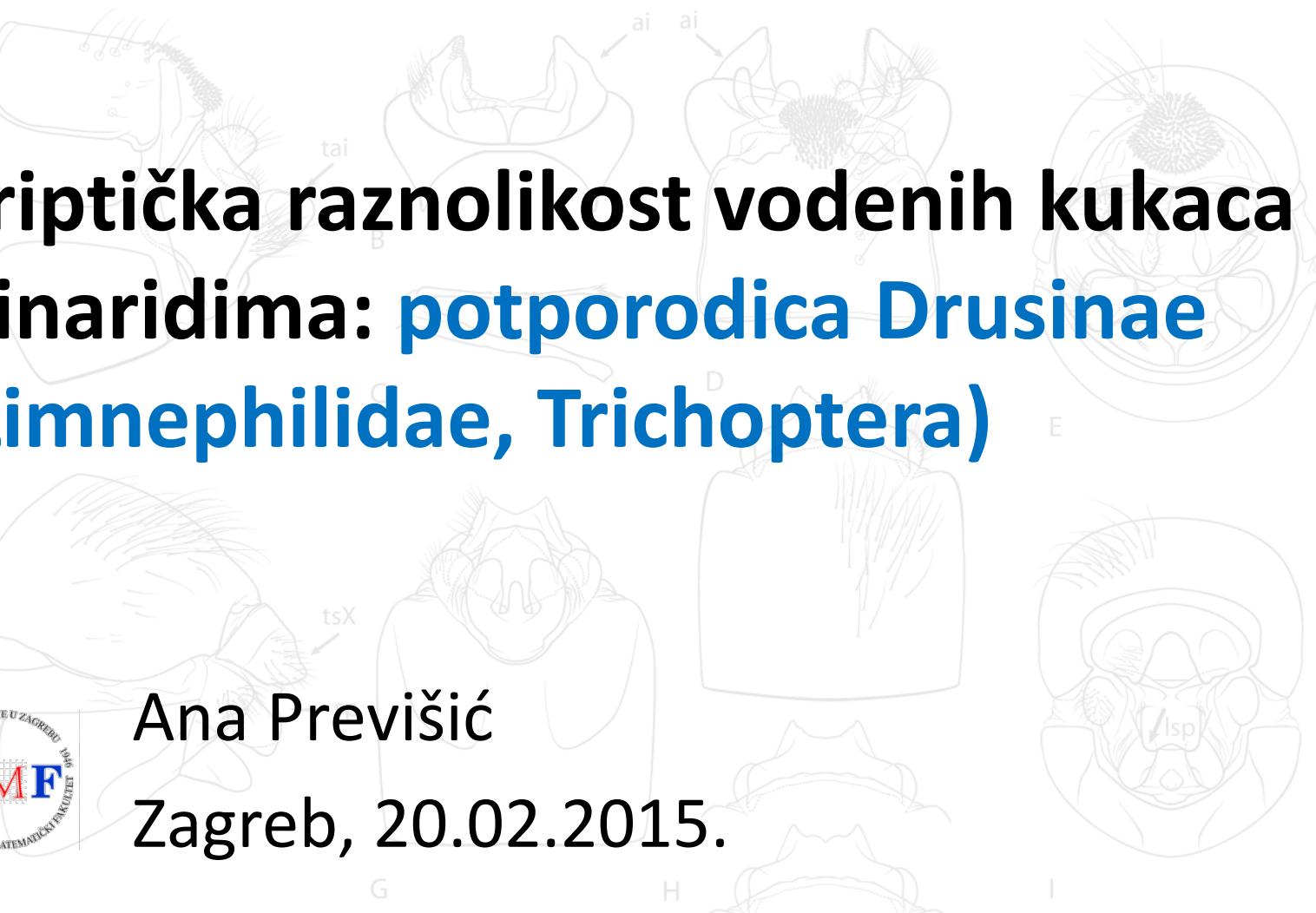


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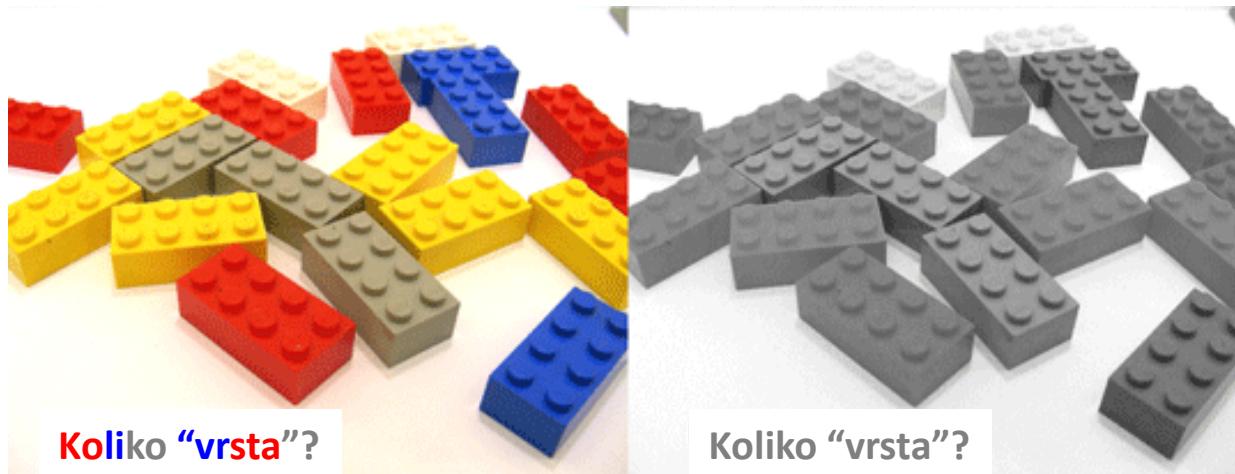
I



# Kriptičke vrste?

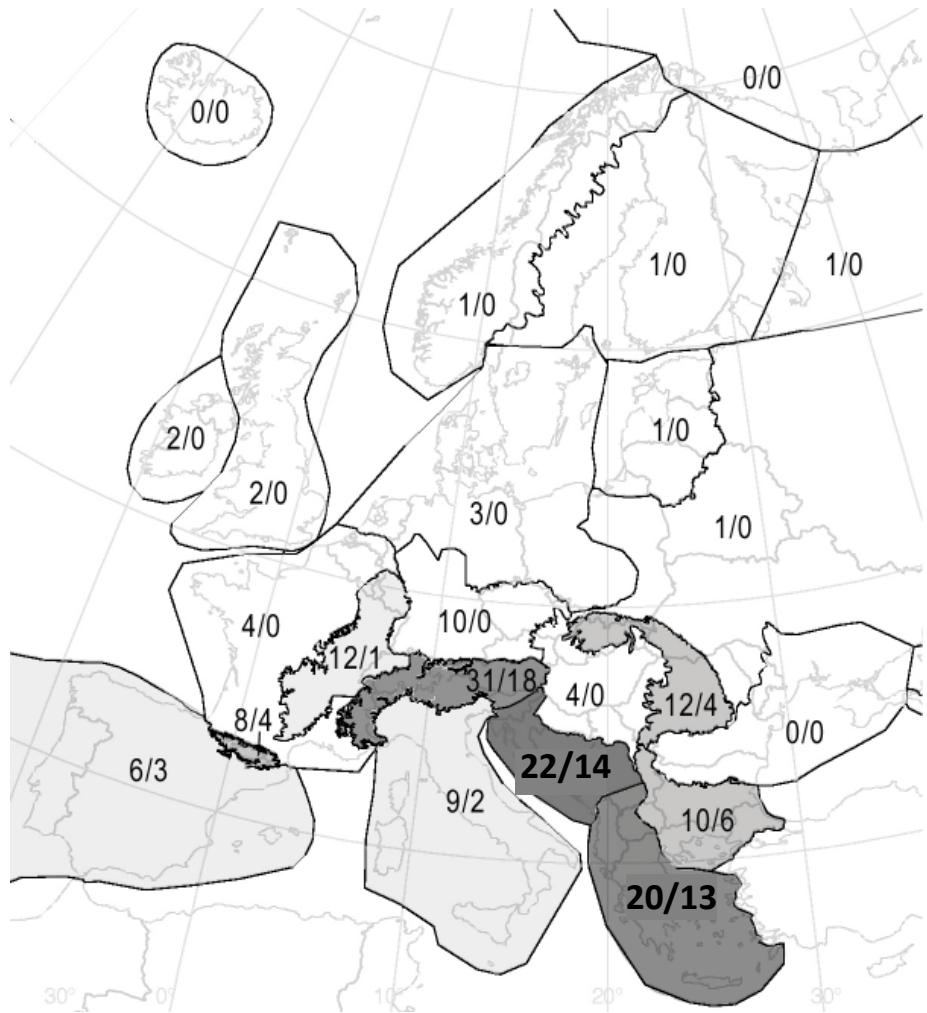
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- dvije ili više vrsta pod “jednim imenom” – nemogućnost razlikovanja morfoloških obilježja
- vrste koje ne možemo razlikovati “konvencionalnim metodama” (Ross 1974)
- područje Dinarida? Balkanski poluotok?



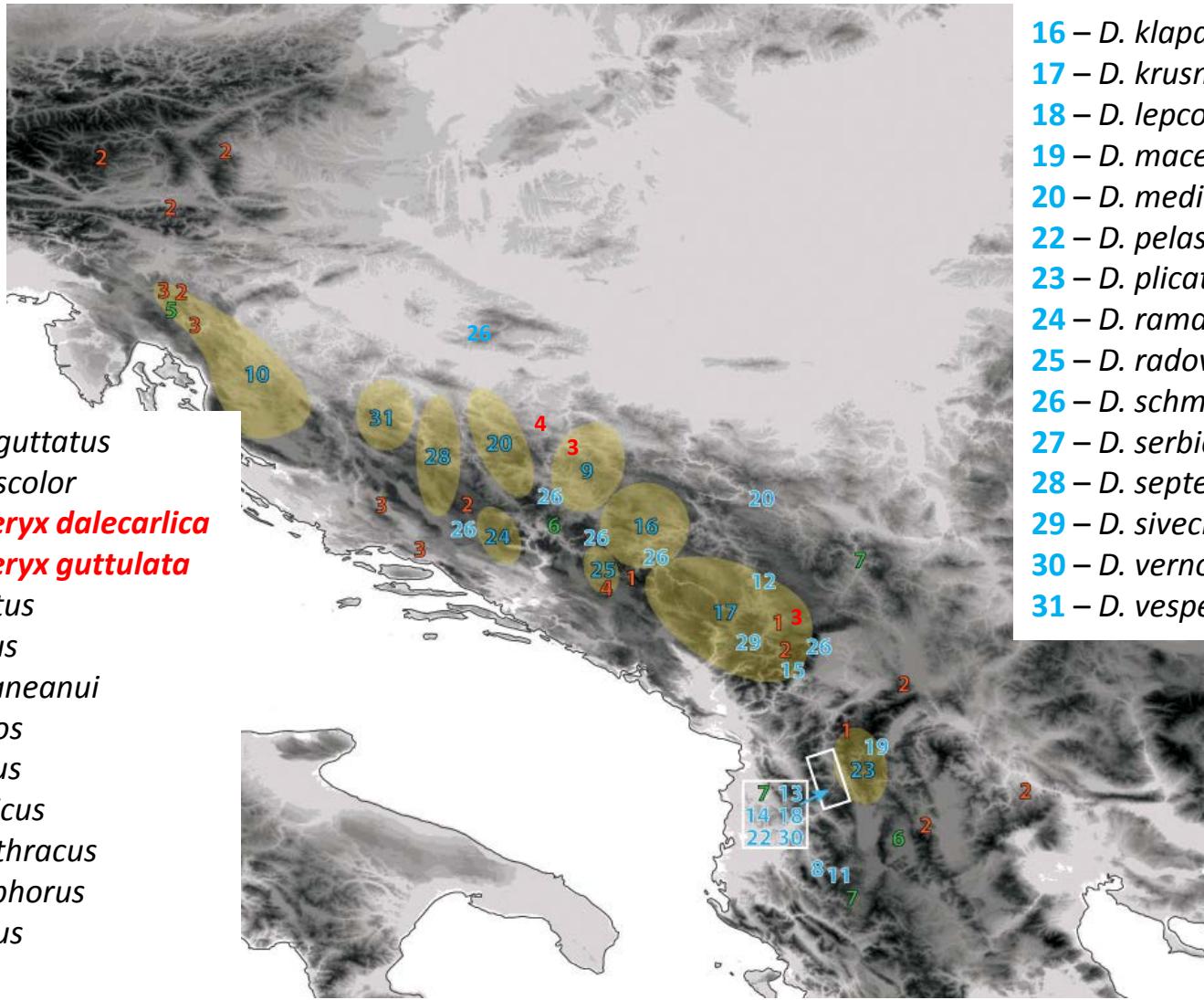
# Potporodica Drusinae (Limnephilidae)

- 8 rodova, ~100 vrsta
- planinska područja
- disjunktna rasprostranjenost
- velik broj endema malih areala
- **centri diferencijacije (Alpe, Zapadni Balkan, Karpati...)**



Broj vrsta/endema potporodice Drusinae u pojedinim limnoekoregijama (Graf et al. 2008; neobjavljeni podaci)

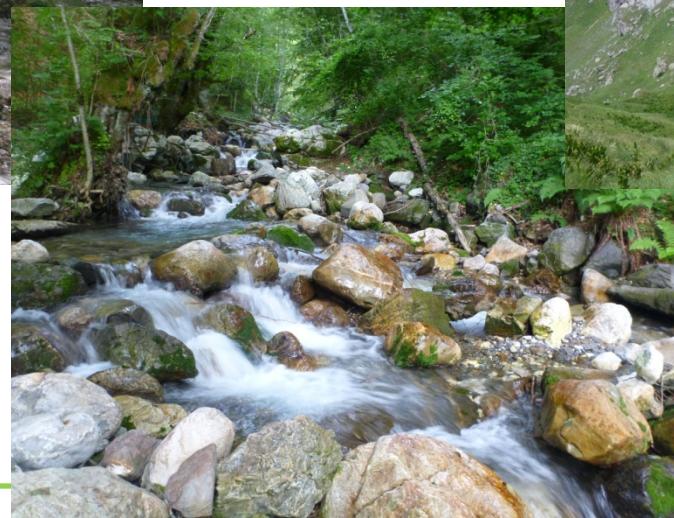
# Drusinae: rasprostranjenost na području zapadnog Balkana



# Drusinae: ekologija & genetička struktura populacija

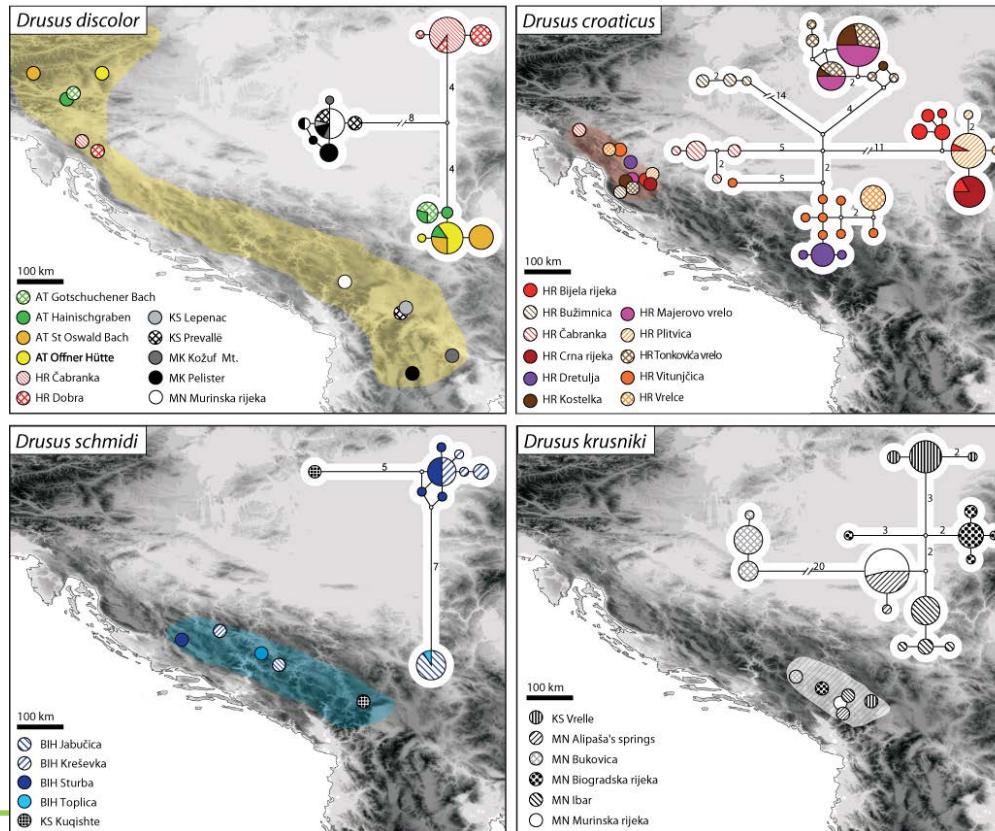
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- hladnovodni organizmi: tekućice (izvori, potoci)
- prehrana; strugači, karnivorni filtratori, usitnjivači
- diferencirana genetička struktura populacija



# Drusinae: ekologija & genetička struktura populacija

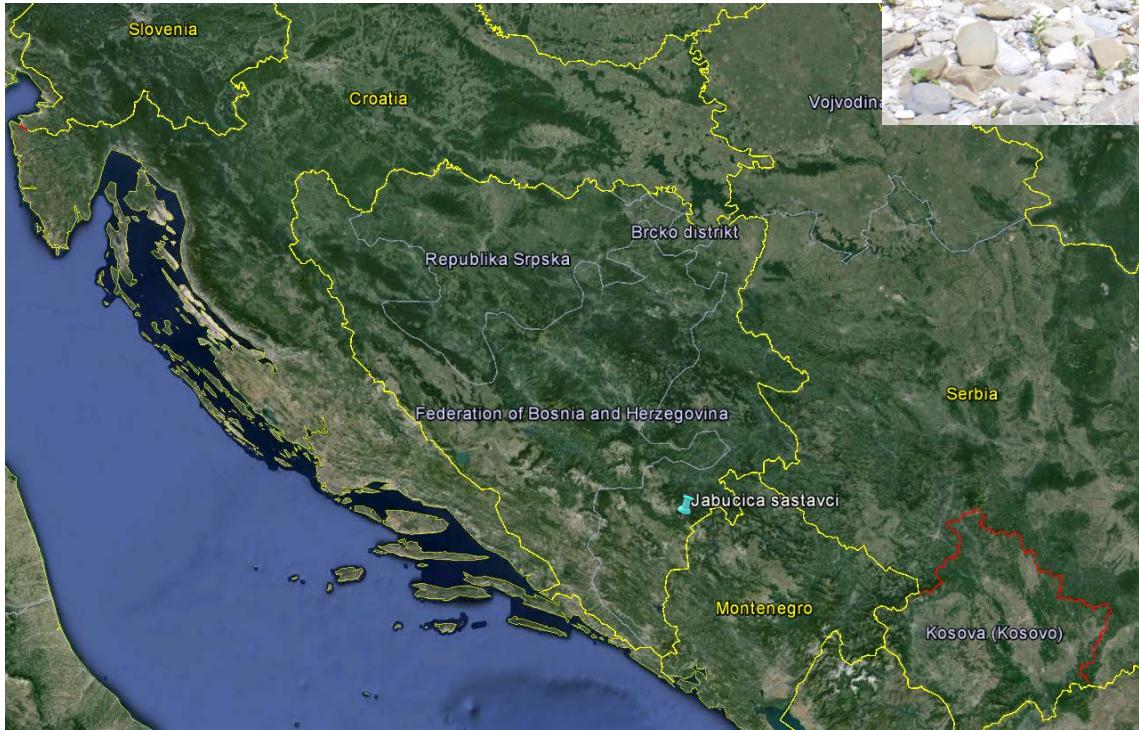
- hladnovodni organizmi: tekućice (izvori, potoci)
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- diferencirana genetička struktura populacija



541 bp (mtCOI)

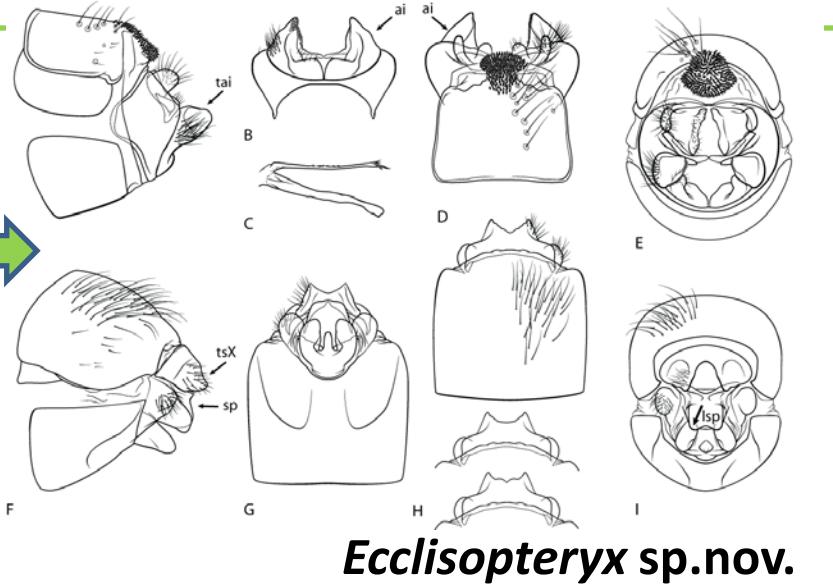
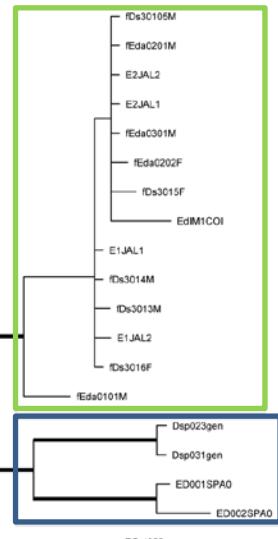
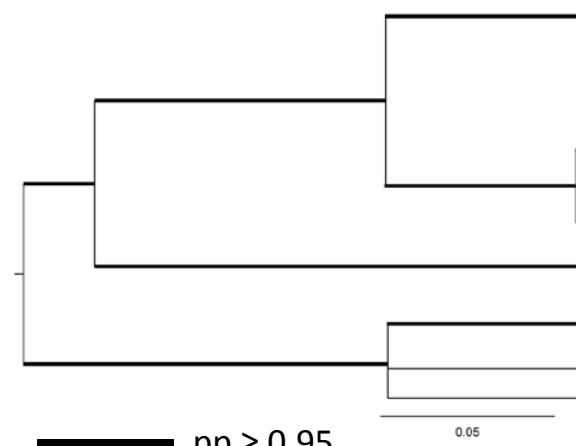
# Kriptičke vrste?

- Sutjeska NP, Jabučica sastavci
  - ličinke (2008., 2009.)
  - odrasli (2012.)

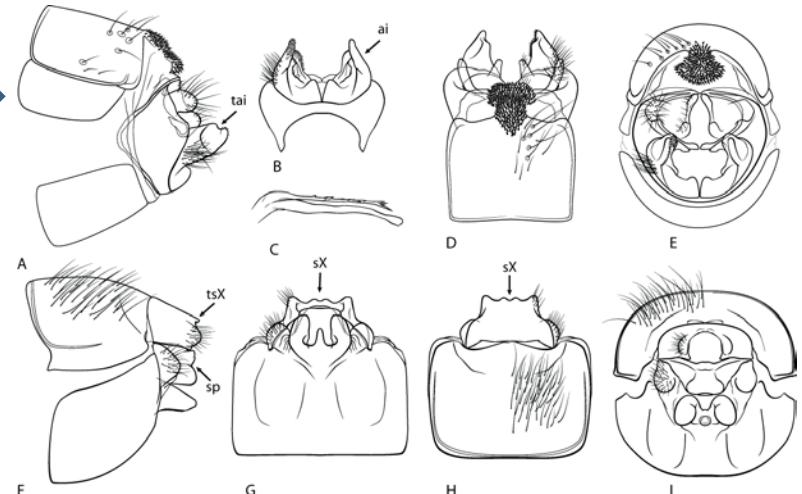


# Kriptičke vrste!

**541 bp (mtCOI)**  
Bayesian MCMCMC



***Ecclisopteryx* sp.nov.**



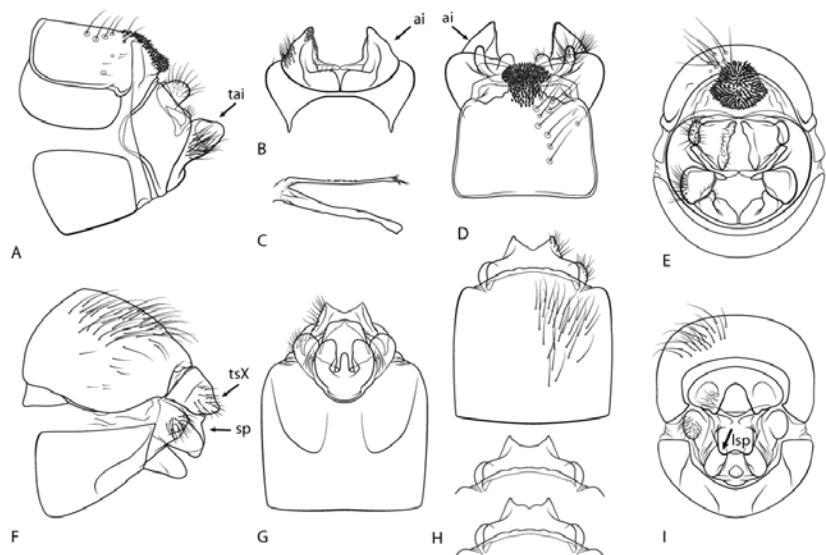
***Ecclisopteryx dalecarlica***

# Kriptičke vrste!

Sutjeska NP, Jabučica

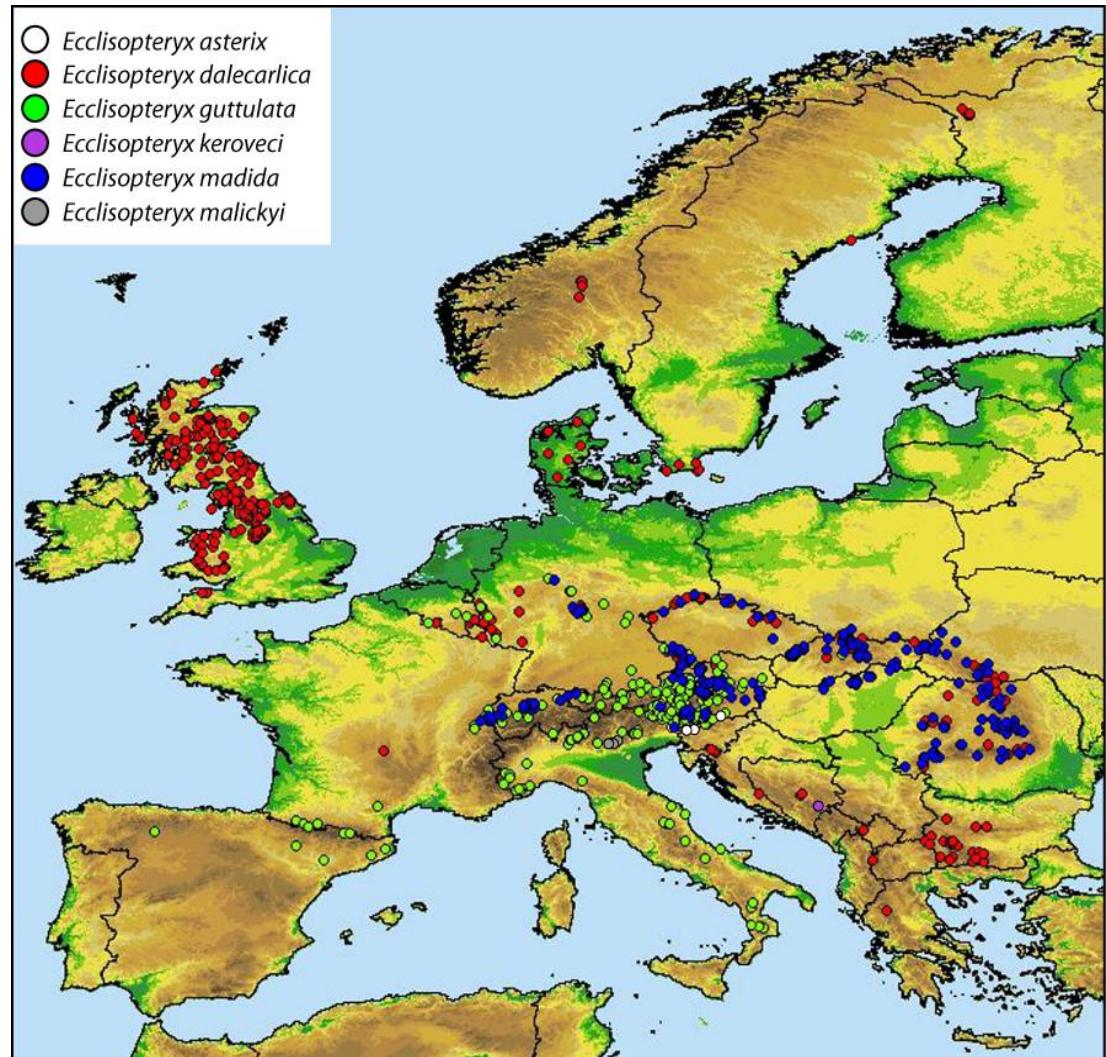
E.sp. nov.:

*Ecclisopteryx keroveci*



# Kriptičke vrste?

- *E. dalecarlica*  
vs  
*E. keroveci*  
na području zapadnog  
Balkana?
- Populacija s izvorišnog  
dijela rijeke Cetine,  
Gorskog kotara?



# Kriptičke vrste?

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Izvor Glavaš, Cetina  
jesen 2013. godine



Crveni most, Cetina

# Kriptičke vrste?

Populacija s izvora Cetine  
– *E. keroveci*?

Varijabilnost morfologije  
ličinki?



Jabučica (BIH)



Cetina (HR)



Jabučica (BIH)



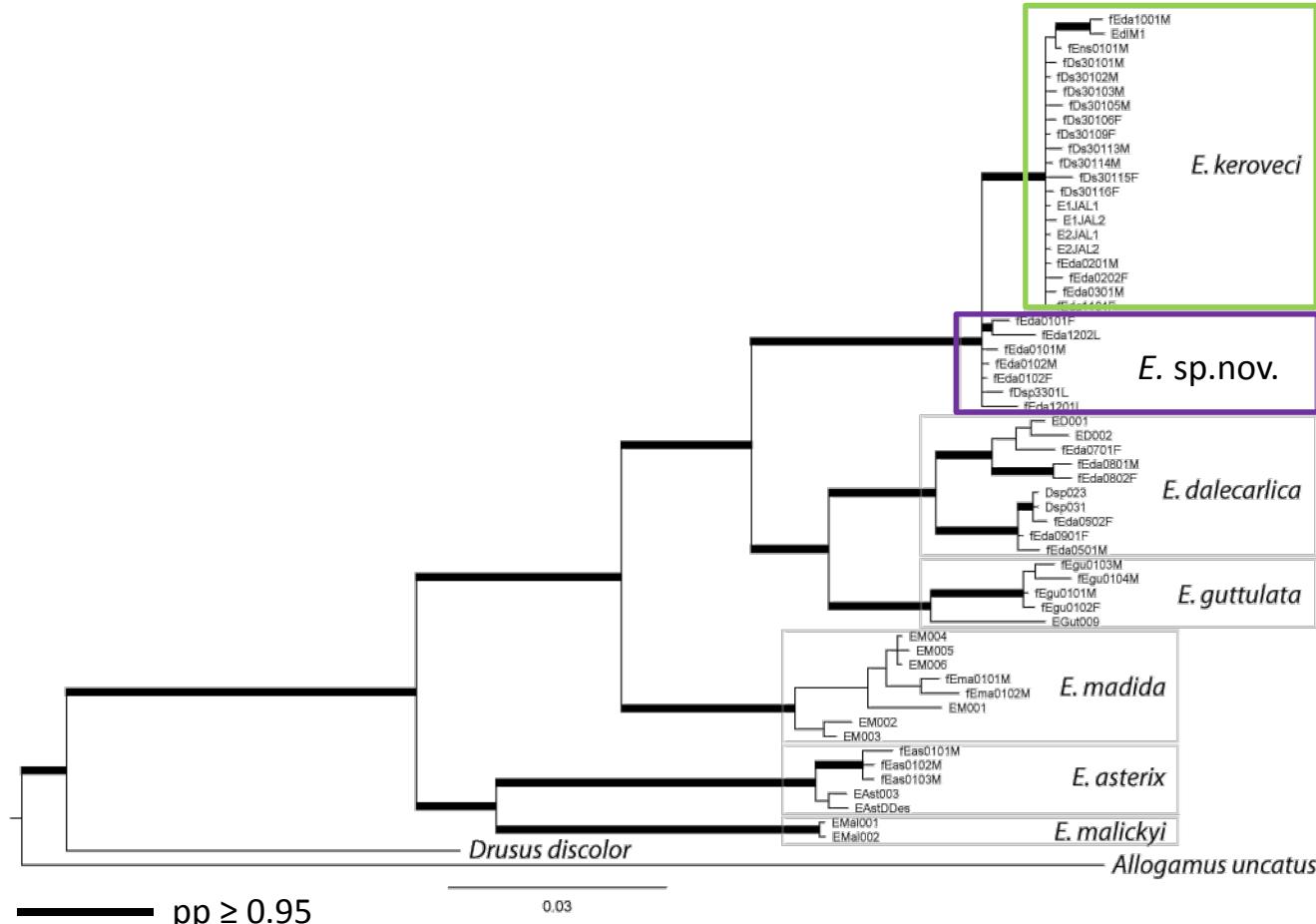
Cetina (HR)



# Kriptičke vrste!

~ 1250 bp (mtCOI+mtLSU+nWG)

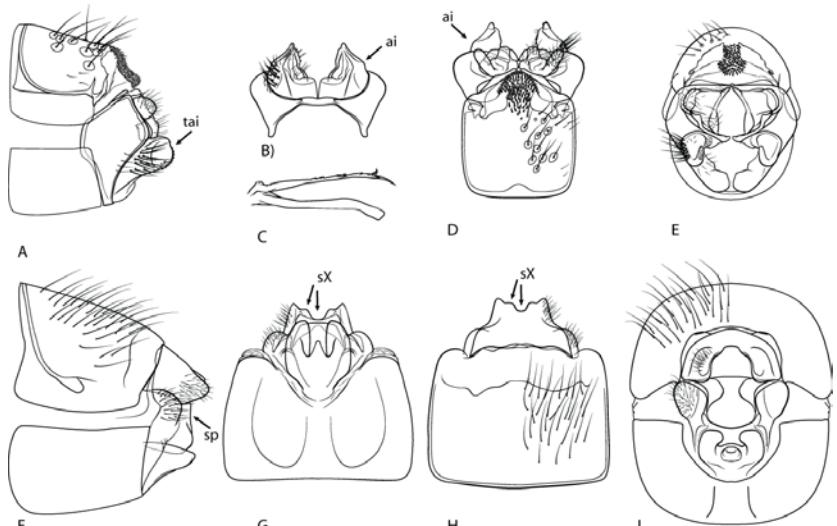
Bayesian MCMCMC



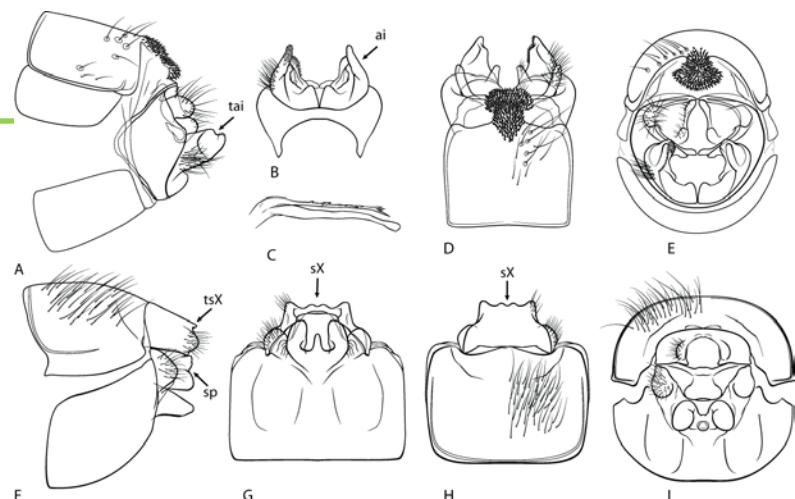
Cryptic diversity of caddisflies in the Balkans:  
the curious case of *Ecclisopteryx* species  
(Trichoptera: Limnephilidae)

ANA PREVIŠIĆ \*<sup>1, #</sup>, WOLFRAM GRAF <sup>2, #</sup>, SIMON VITECEK <sup>3, #</sup>, MLADEN KUČINIĆ <sup>1</sup>,  
MIKLÓS BÁLINT <sup>4</sup>, LUJZA KERESZTES <sup>5</sup>, STEFFEN U. PAULS <sup>4</sup> & JOHANN WARINGER <sup>3</sup>

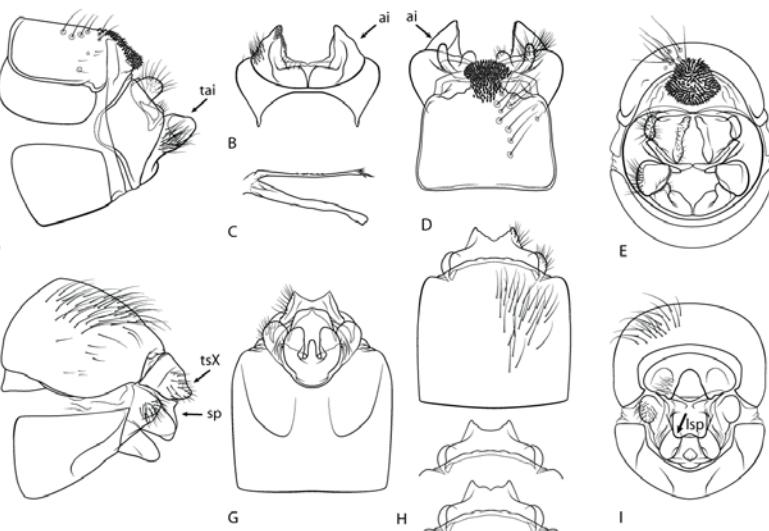
*E. dalecarlica*  
(N, A, D, RO, BG)



*Ecclisopteryx ivkae* sp.nov.  
(HR)

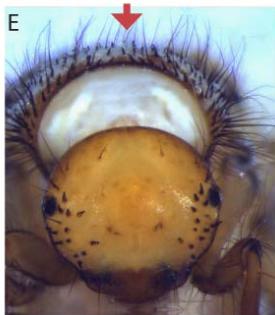
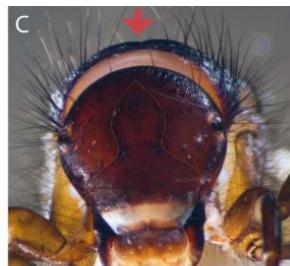
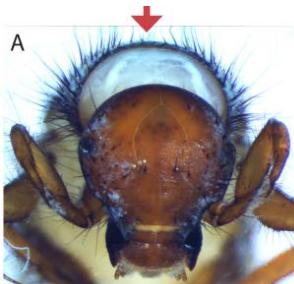


*Ecclisopteryx keroveci* sp.nov.  
(BH, HR, KS, MK, MN)



# Kriptičke vrste!

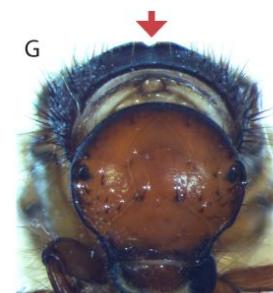
## ▪ Razlikovanje ličinki roda *Ecclisopteryx*



*E. keroveci*

*E. ivkae*

*E. dalecarlica*



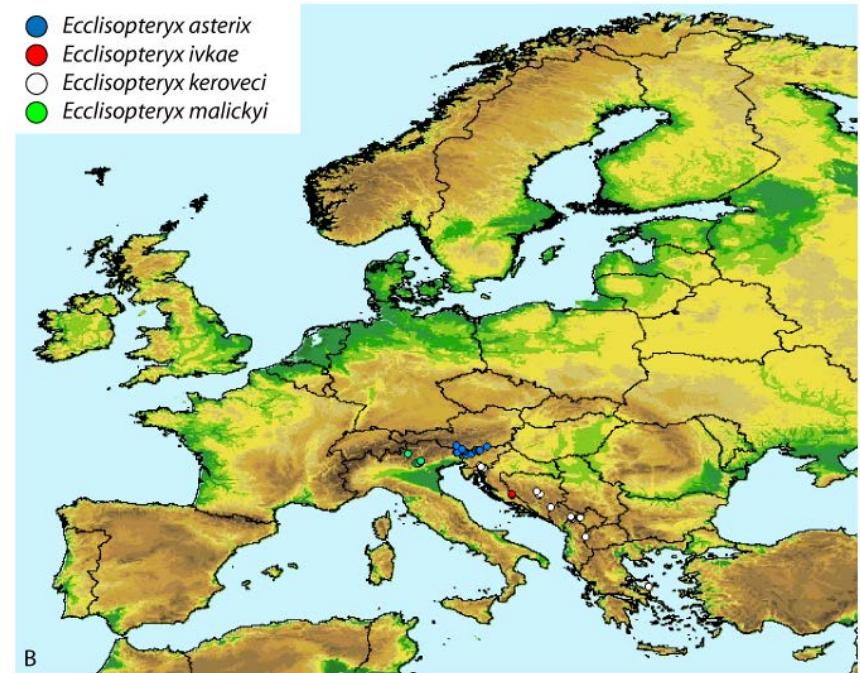
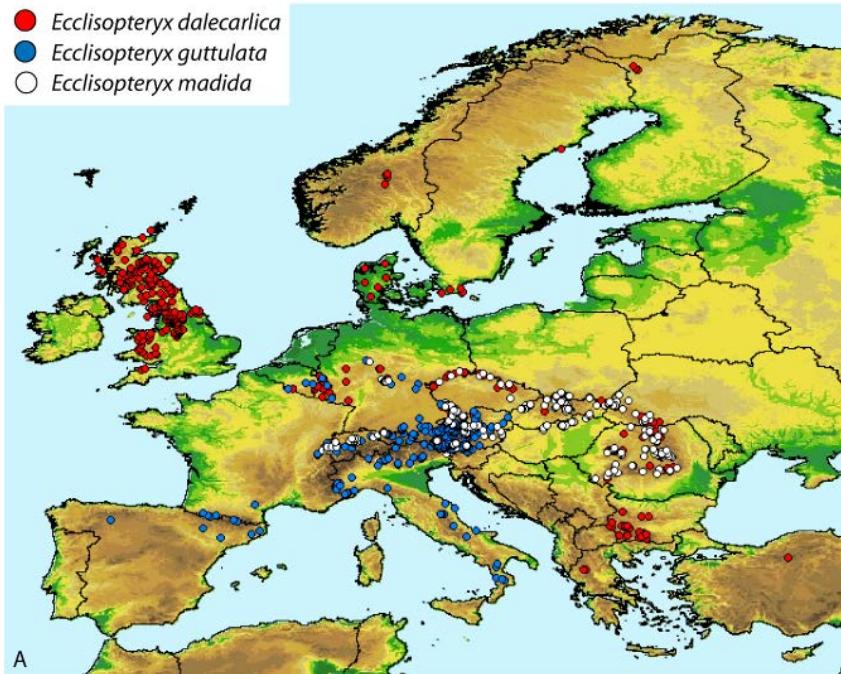
*E. guttulata*



*E. madida*

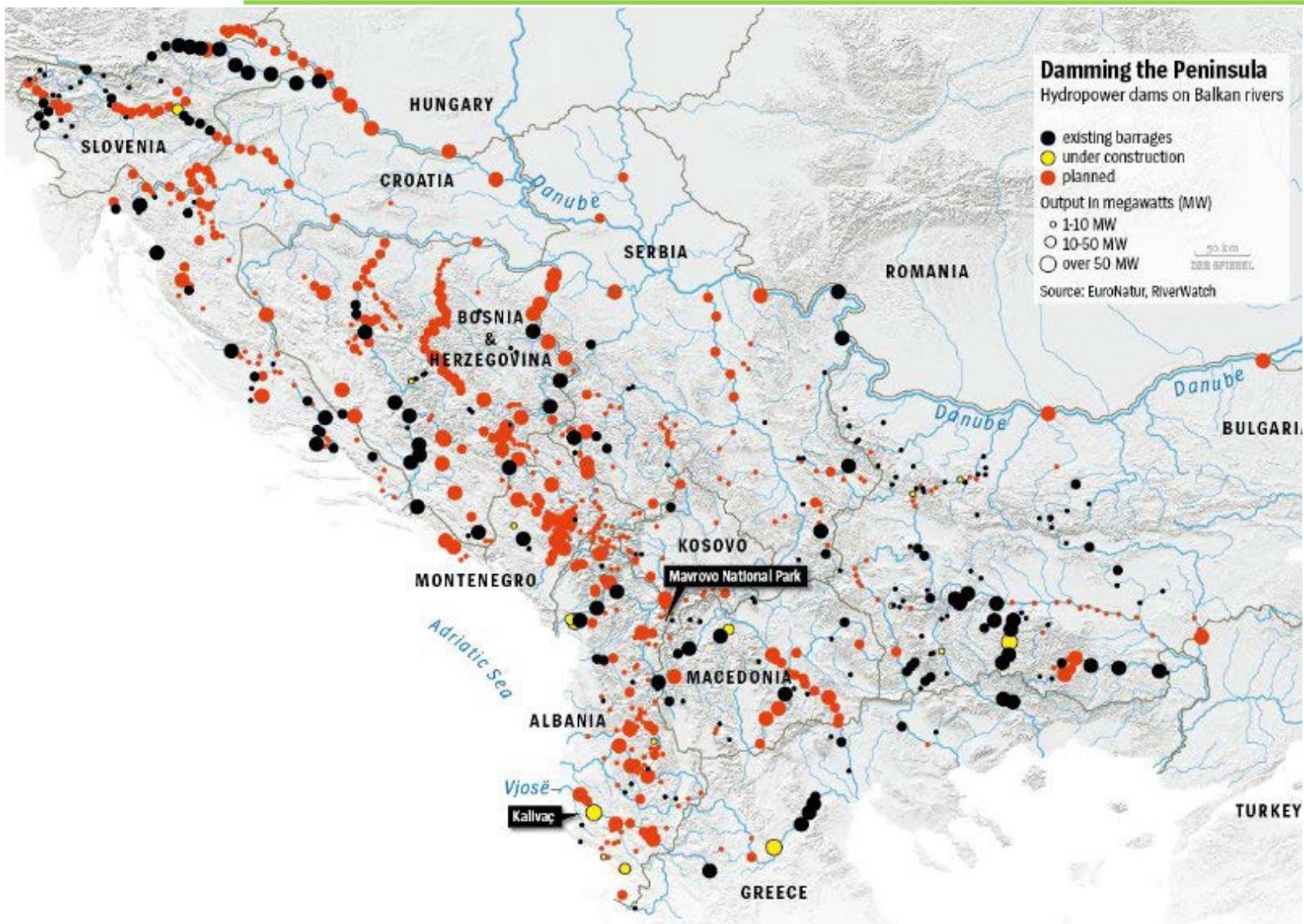
# Kriptičke vrste!

## ▪ Rasprostranjenost vrsta roda *Ecclisopteryx*



... to be continued...

# ...Ugroženost i zaštita



# Hvala....



Wolfram Graf, Simon Vitecek & Johann Waringer (Beč, A), Mladen Kučinić (Zagreb, HR), Steffen U. Pauls & Miklós Bálint (Frankfurt, D), Lujza Keresztes (Cluj, RO)



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Contributors to the Distribution Atlas of European Trichoptera (DAET; BioFresh)



**FWF** Der Wissenschaftsfonds.

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OF THE REPUBLIC OF CROATIA

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