

Distribution and connectivity of tree frogs, *Hyla orientalis*, in south Lithuania

Kåre Fog



Cryptic diversity among Western Palearctic tree frogs: Postglacial range expansion, range limits, and secondary contacts of three European tree frog lineages (*Hyla arborea* group)

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ARTICLE INFO

Article history:

Received 24 February 2012

Revised 9 May 2012

Accepted 14 May 2012

Available online xxxx

Keywords:

Contact zone

Divergence time

Diversity

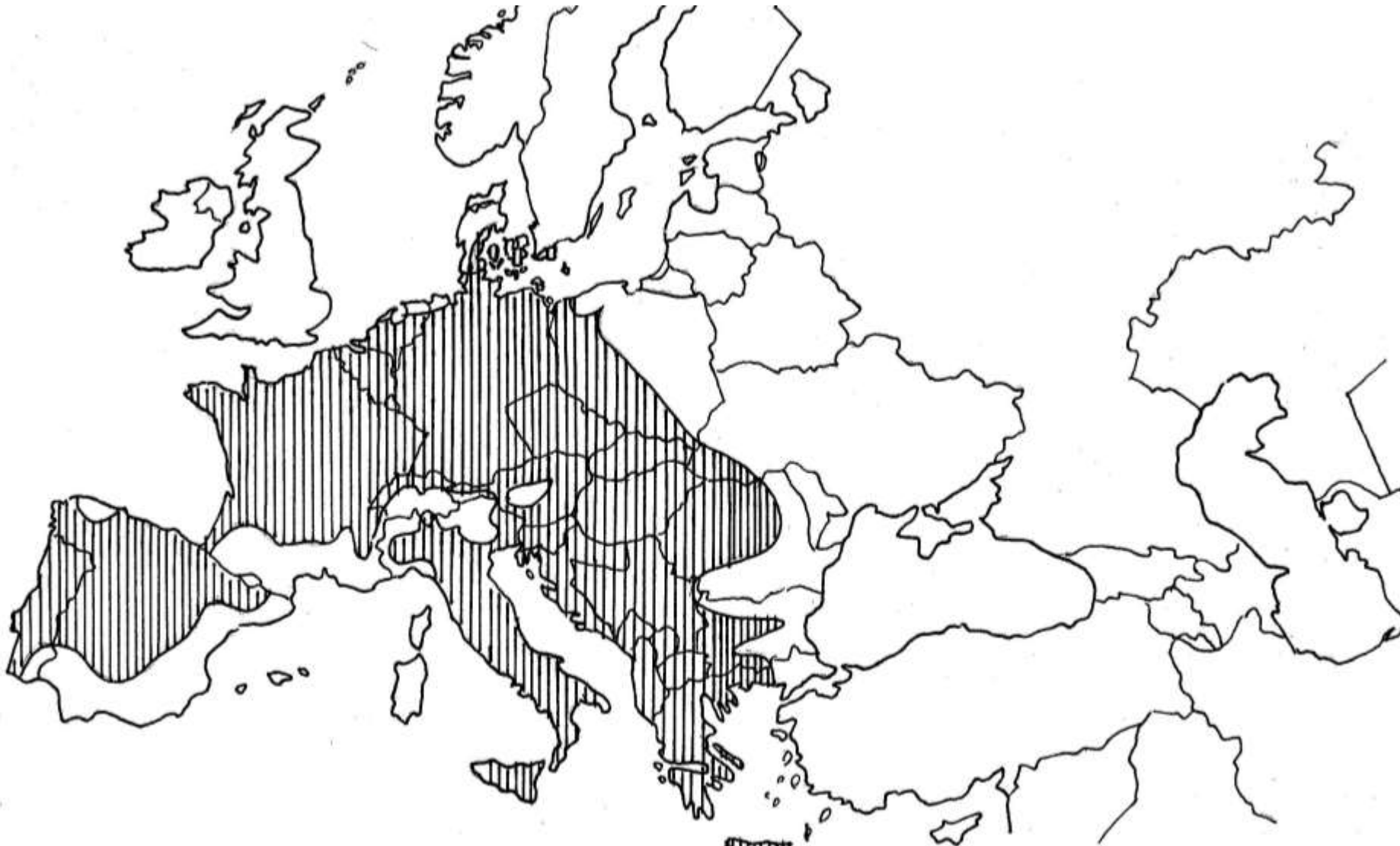
Phylogeography

Range expansion

ABSTRACT

We characterize divergence times, intraspecific diversity and distributions for recently recognized lineages within the *Hyla arborea* species group, based on mitochondrial and nuclear sequences from 160 localities spanning its whole distribution. Lineages of *H. arborea*, *H. orientalis*, *H. molleri* have at least Pliocene age, supporting species level divergence. The genetically uniform Iberian *H. molleri*, although largely isolated by the Pyrenees, is parapatric to *H. arborea*, with evidence for successful hybridization in a small Aquitanian corridor (southwestern France), where the distribution also overlaps with *H. meridionalis*. The genetically uniform *H. arborea*, spread from Crete to Brittany, exhibits molecular signatures of a postglacial range expansion. It meets different mtDNA clades of *H. orientalis* in NE-Greece, along the Carpathians, and in Poland along the Vistula River (there including hybridization). The East-European *H. orientalis* is strongly structured genetically. Five geographic mitochondrial clades are recognized, with a molecular signature of postglacial range expansions for the clade that reached the most northern latitudes. Hybridization with *H. savignyi* is suggested in southwestern Turkey. Thus, cryptic diversity in these Pliocene *Hyla* lineages covers three extremes: a genetically poor, quasi-Iberian endemic (*H. molleri*), a more uniform species distributed from the Balkans to Western Europe (*H. arborea*), and a well-structured Asia Minor-Eastern European species (*H. orientalis*).

Hyla arborea



Hyla orientalis



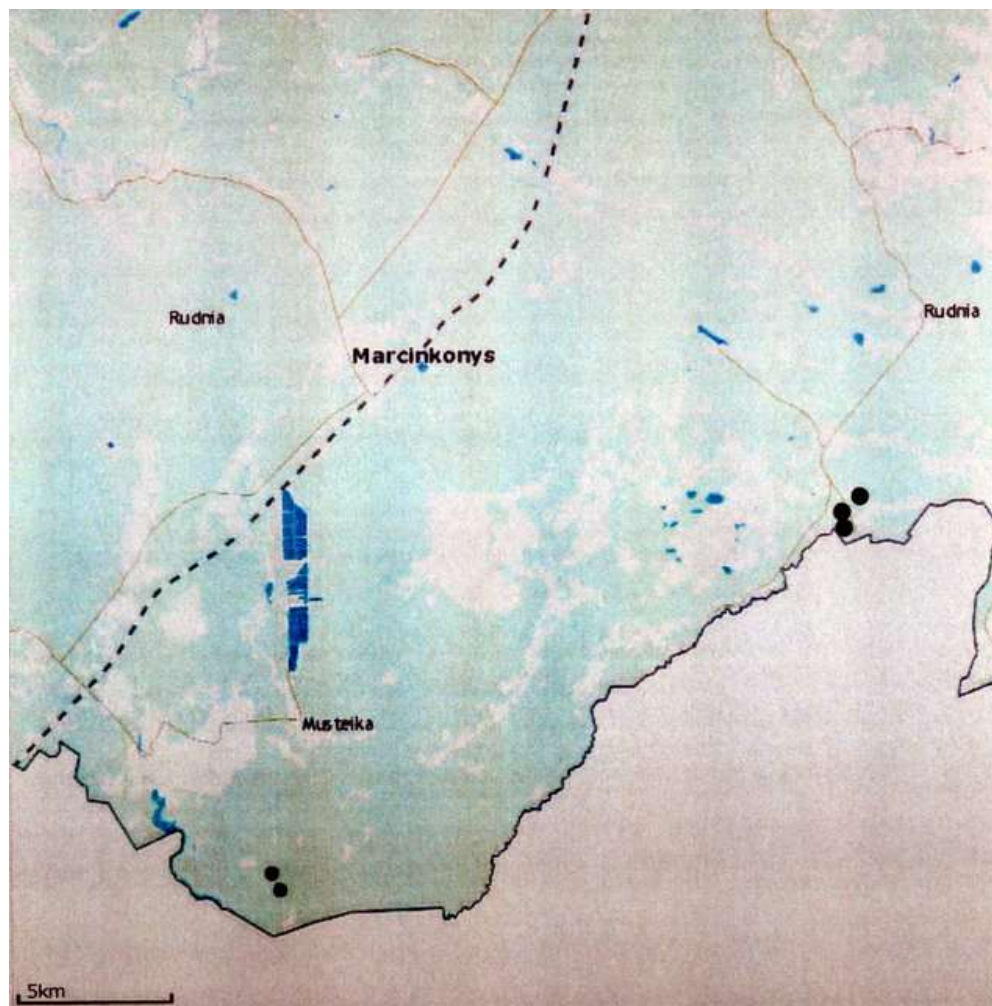
Bugieda, old site



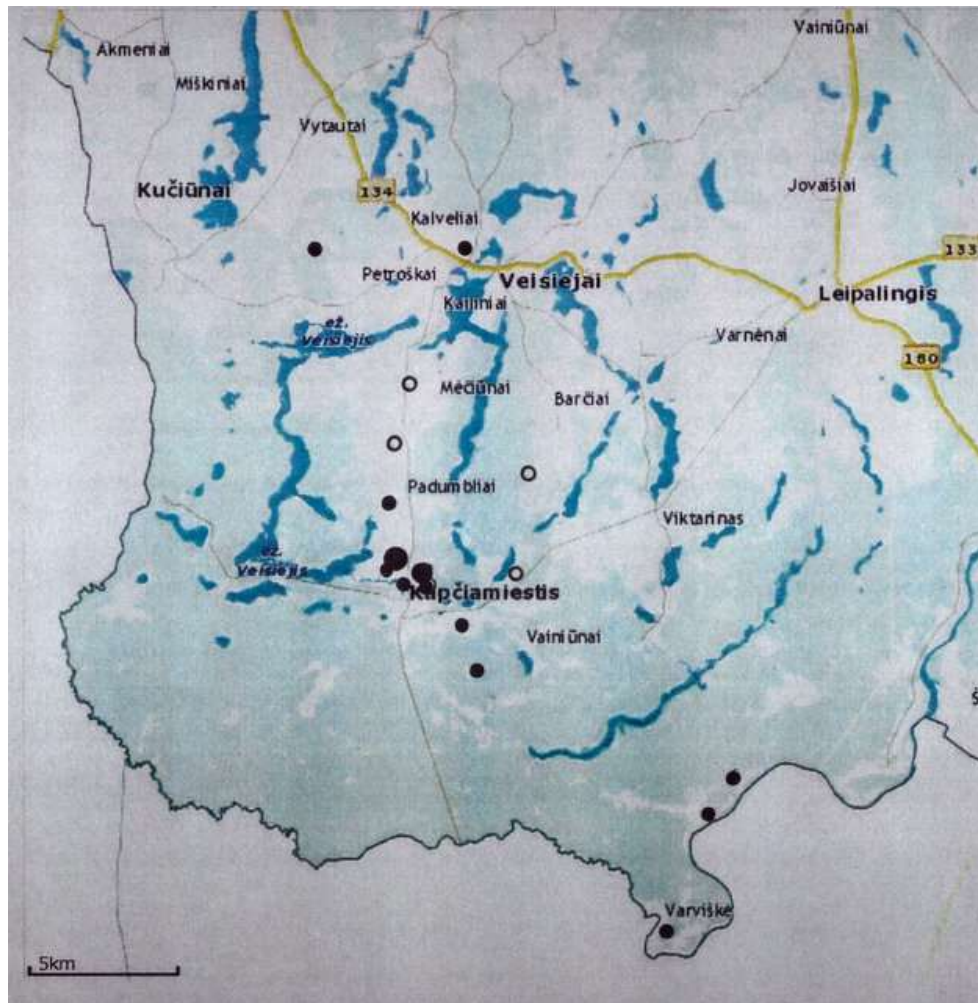
Bugieda, new pond



Čepkeliai reserve



Southwest Lithuania



Possible connections

