

ARE UKRAINIAN BEES A SEPARATE RACE?

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Ukrainian bee

- Disposed in Ukraine and South–Western regions of Russia. They also were the main in the forming of so named Far East population of Russian bees as they were bring to these lands by migrants from Ukraine in far 19 century.
- Old scientific name of Ukrainian bees is *Apis mellifera acervorum* Scorikov
- M.Engel find in 1999 that this name is uncorrect and propose new one *Apis mellifera sossimai* Engel 1999

THE NEAREST RELATIVES

- It exists several hypothesis:
- 1) “the southern branch of dark forest Northern European bees *A.m. mellifera*”
- 2) “the eastern branch of Central European bees *A.m. carnica*”,
- 3) “result of long term mixing of Russian and Middle European bees”
- 4) they belong to Mediterranean race *Apis mellifera macedonica* Ruttner 1988.

F.Ruttner hypothesis (1988)



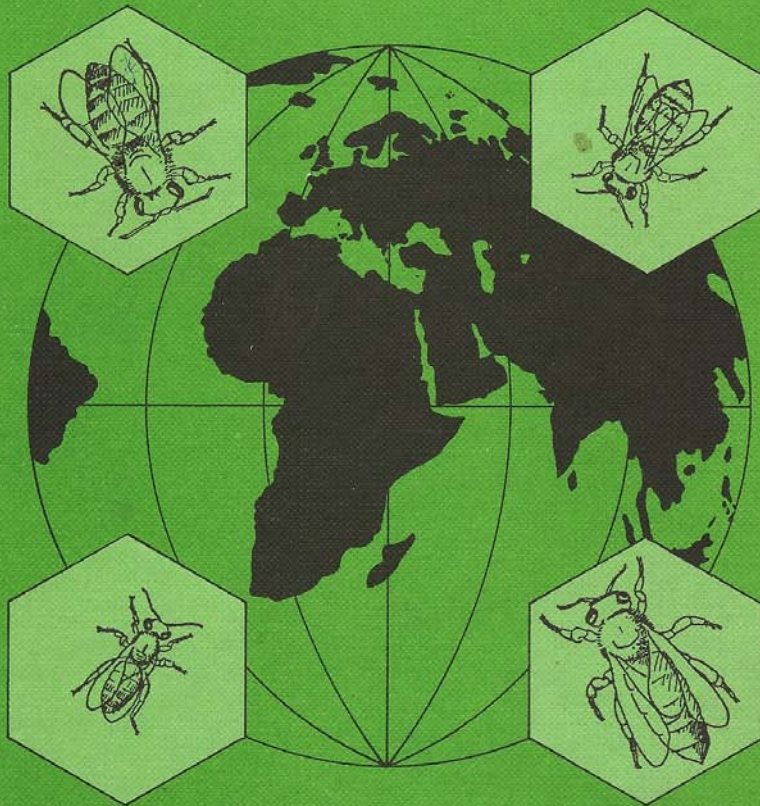
- *Picture 14.1 from the F. Ruttner book "Biogeography and taxonomy of honey bees", 1988, Springer-Verlag (Berlin, New York, London, Paris, Tokyo).*
- *Names of countries and Black sea are our.*
- *Apis mellifera macedonica are disposed in Northern Greece, Bulgaria, Southern Romania and ??? Ukraine.*

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Friedrich Ruttner

Biogeography and Taxonomy of Honeybees

Springer-Verlag



- Cover of F.Ruttner book, 1988

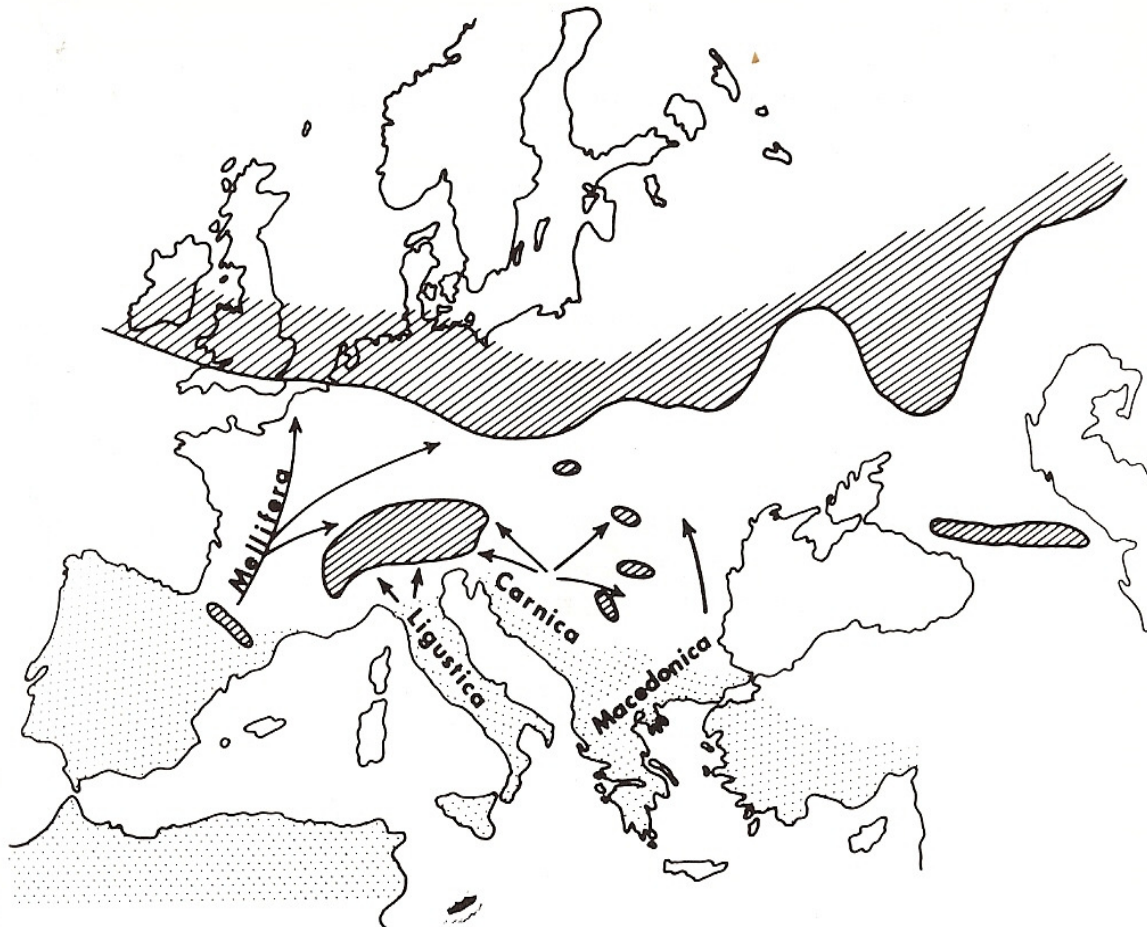


Fig. 3.14 Extension of maximum glaciation, and migration of *A. m. mellifera*, *carnica*, and *macedonica* to the north and east during the post-Pleistocene warm period (Atlanticum, 8-10,000 years B.P.)

Migration of bee races to the north and east in the post Pleistocene warm period 8-10 000 years ago. Arrow of migration Macedonica bees to modern territory of Ukraine is absent.

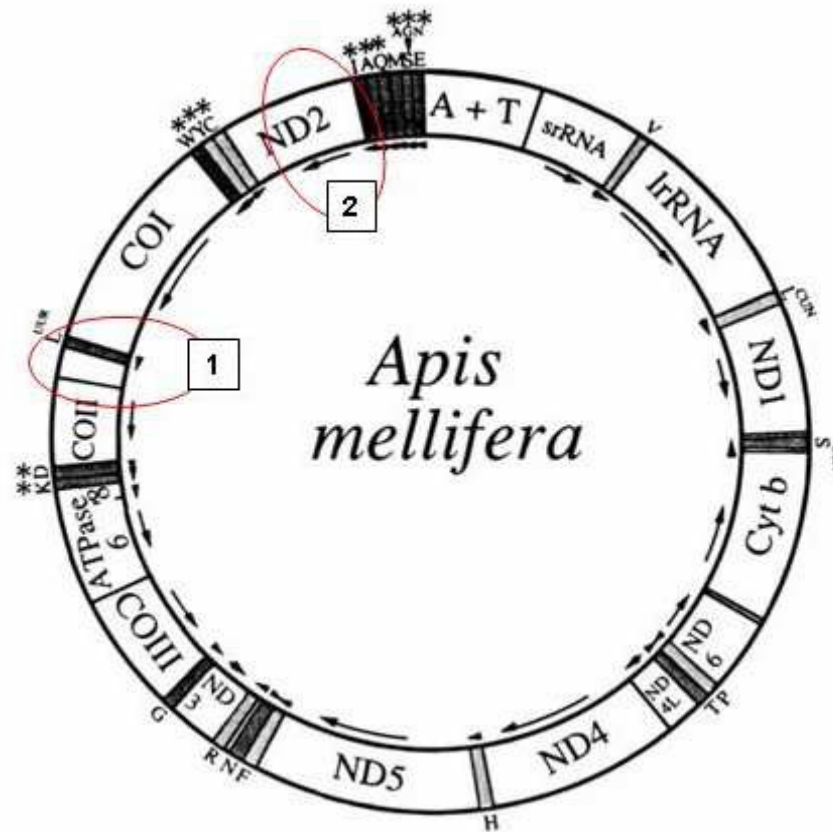
Information

- F.Ruttner hadn't enough material from Ukraine to say, that Ukrainian bees are macedonical ones.
- He give name **macedonica** not in the honour of small country Macedonia, but in the honour of famous Greece military leader Alexander Makedonian

Wings venation

- According DAMINO analyses, made in Czech Institute of apiculture in Dol by DR. Kvetoslav Chermak majority of samples of Ukrainian bees are the same as standard *A.m.macedonica*.
- The bees from the best of these colonies were investigated in Russian genetical centre (city Ufa in Central Russia) by DR. Ilyasov R., Poskryakov A. and Nikolenko A.

Fragment ND2 of mitochondrial DNK were investigated



Results were inserted in GenBank

- Ilyasov R.A., Komissar A.D., Baymiev A.K., Poskryakov A.V., Nikolenko A.G. Phylogenetics researches in *Apis mellifera macedonica* concluded from mitochondrial DNA sequence ,
- *GenBank*. 2006. - accession numbers DQ361088-DQ361090.

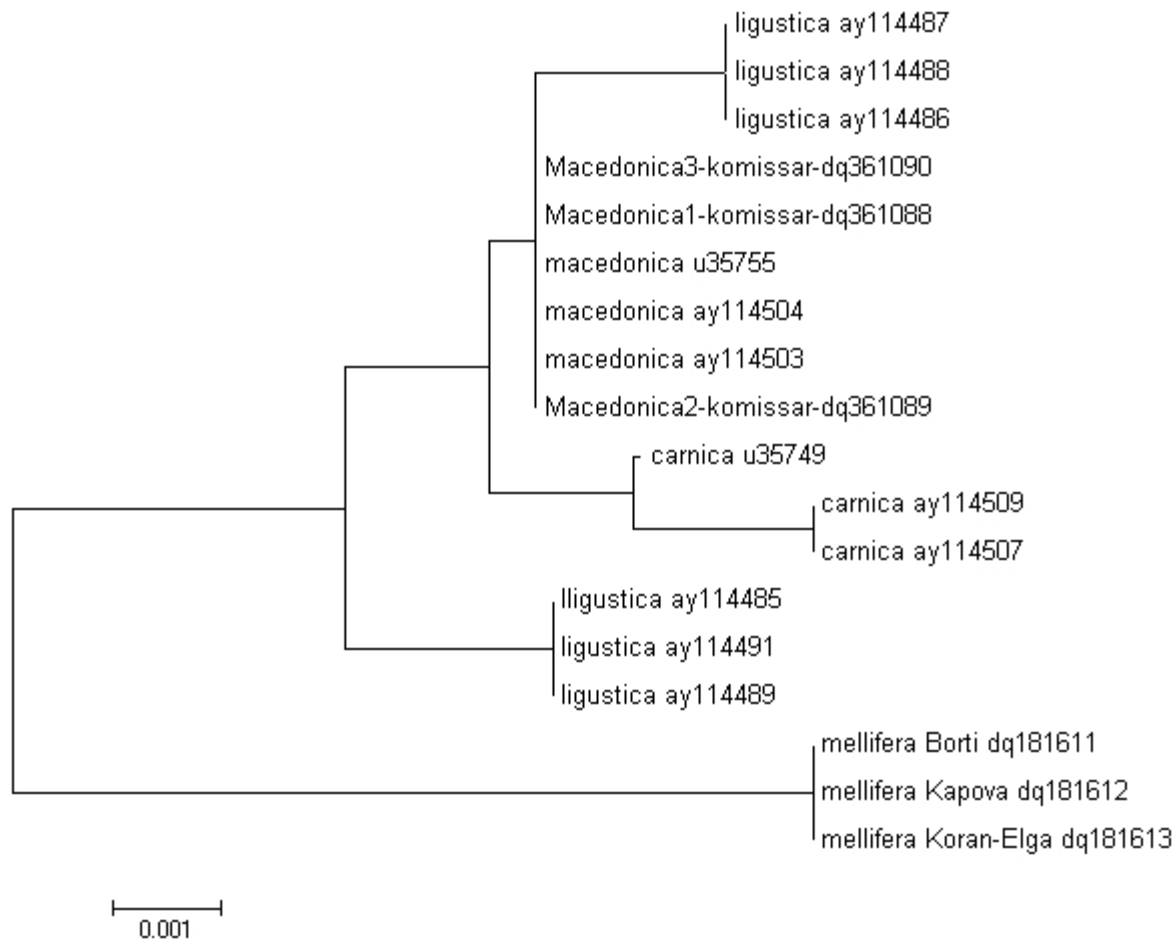
And compare with another results from GenBank

- Marino A., Mantovani B., Carpana E., Sabatini A.G., Lodesani M. ND2 and CO1 mitochondrial genes in *Apis mellifera* (введен курсив) L.: a molecular approach to Mediterranean populations monitoring // GenBank, submitted numbers AY114484 - AY136625. 2002.
- Arias M.C., Sheppard W.S. Molecular phylogenetics of honey bee subspecies (*Apis mellifera* L.) inferred from mitochondrial DNA sequence // Molecular phylogenetics and evolution. 1996. V. 5. - V. 3. P. - 557-566
- Franck P., Garnery L., Celebrano G., Solignac M. et al. Hybrid origins of the Italian honeybees, *Apis mellifera ligustica* and *A.m.sicula* // Mol. Ecol. 2000. V. 9. P. 907-923.

“Genetical distance” were
calculated

Подвид	Macedonica	Sossimai	Mellifera	Carnica	Ligustica
Macedonica	0,0000				
Sossimai	0,0000	0,0000			
Mellifera	0,0120	0,0120	0,0000		
Carnica	0,0026	0,0026	0,0126	0,0004	
Ligustica	0,0025	0,0025	0,0130	0,0053	0,0012

- Dendrogram of genetic relationship



This fact contributes to the opinion that:

- Ukrainian bees are not the separate race but they are Ukrainian population of Macedonian bees. So the F.Ruttner hypothesis is correct.
- Of course, long term adaptation in the climatic condition of Ukraine and selection by beekeepers at the last 200 years (one moment from the point of view of the race evolution) create the population with characteristics, which differ from the modern bees from the Northern Greece.
- We (A.Komissar, 2005) proposed name *Apis mellifera macedonica var. ukrainica* for the Ukrainian bees.
- The scientific name *Apis mellifera sossimai* Engel 1999 can be used for Ukrainian bees before new argument will be find.

VERY INTERESTING AND UBSOLUTELY UNSCIENTIFIC FACT without explanation

- Macedonian bees are disposed in Northern Greece, Bulgaria, Macedonia, Part of Serbia, Southern Romania, Ukraine and Western-Southern region of Russia.
- Namely these countries (and only these) have orthodox religion . But race of bees lived on the earth long before forming of different religion.
- So it is possible to create the unscientific hypothesis about mutual influence of aboriginal bees to the life of human population.
- This hypothesis is unscientific absolutely as well as any religion is unscientific also.
- Race of honeybees *Apis mellifera macedonica* can be named as race of bees for the peoples, who practice orthodox religion
- *See : Komissar A. Races of honey bees, human nations and religions. Proceeding of the 3-rd European Congress on Social Insects, St. Petersburg, Russia, 22-27 August 2005, P. 61.*