

POPULATION GENETIC STRUCTURE OF MEDITERRANEAN HORSESHOE BAT *RHINOLOPHUS EURYALE* IN SERBIA

Ivana Budinski^{1*}, Blagojević Jelena¹, Jovanović Vladimir¹, Pejić Branka¹, Rajičić Marija¹, Paunović Milan², Vujošević Mladen¹

¹Department of Genetic Research, Institute for Biological Research “Siniša Stanković”, University of Belgrade, Bulevar despota Stefana 142, 11060 Belgrade, Serbia

²Natural History Museum, Njegoševa 51, Belgrade, Serbia

*e-mail: ivana.budinski@ibiss.bg.ac.rs

INTRODUCTION

Mediterranean horseshoe bat is considered to be mostly sedentary species, with **seasonal movements usually shorter than 50 km**. Known roosts of *Rhinolophus euryale* in Serbia are distributed in western and eastern parts of the country, overlapping with karst distribution. All but one roosts recorded in last 50 years were caves.

The distance between caves in Western and Eastern Serbia is **greater than 150 km**, and the environment between them is devoid of caves. Furthermore, there were no recent records of this species from Central Serbia.

Bearing in mind the non-migratory nature of this species, our aim was to test for **population structuring** (isolation by distance pattern) among different geographic regions.

MATERIALS AND METHODS

- 241 sampled individuals
- 11 localities (6.4–305 km distance)
- 3 geographic regions: Western Serbia, Eastern Serbia, Montenegro
- 8 nuclear microsatellite loci
- F statistics
- AMOVA
- Mantel test (isolation by distance)



Figure 1. Map of sampling localities

RESULTS

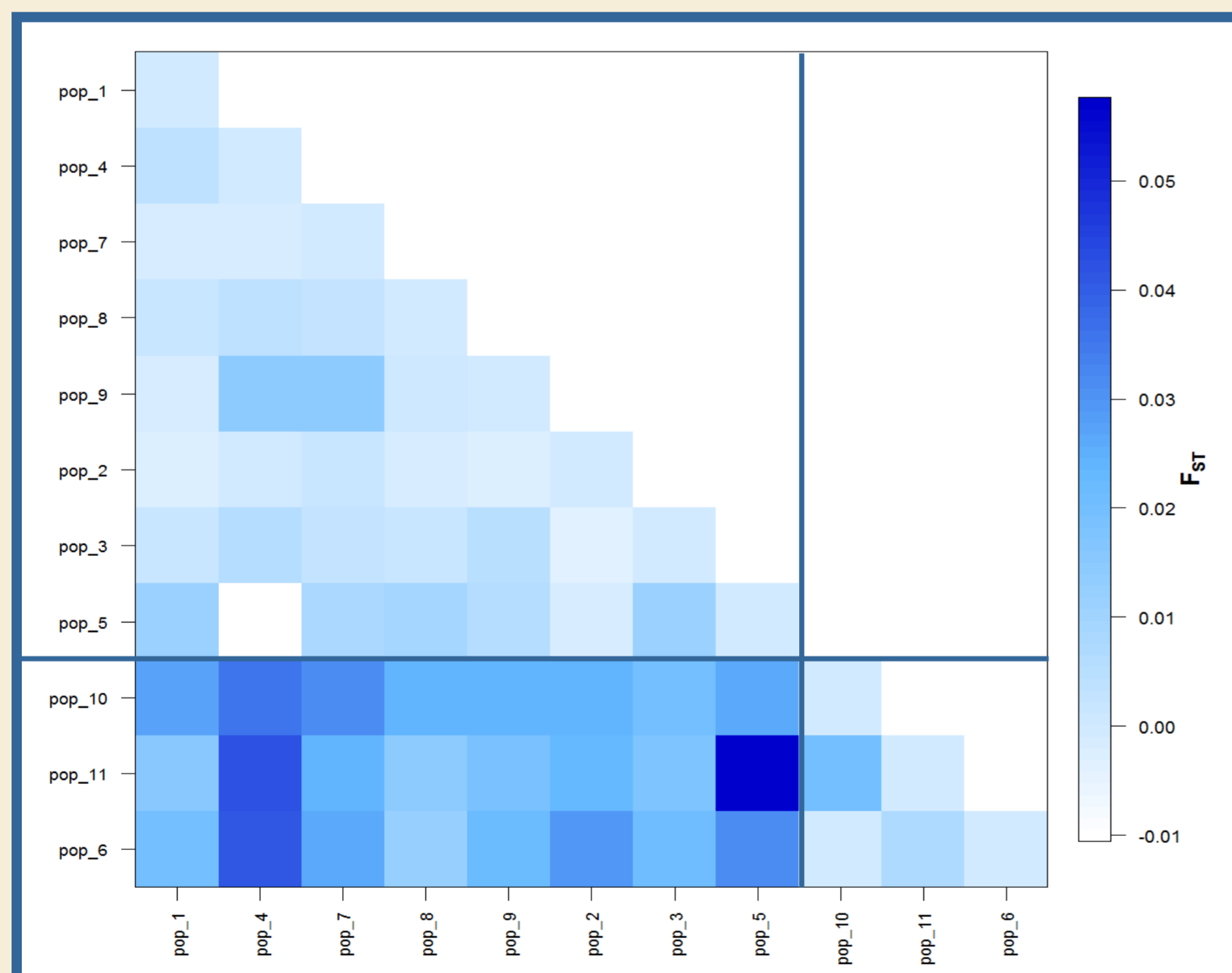


Figure 1. Pairwise F_{ST} matrix

- Pairwise F_{ST} values among colonies ranged from -0.004 (non-significant) to 0.058 ($p < 0.001$)

Table 1. Diversity statistics – number of alleles, allelic richness (Rich.) observed (H_0) and expected (H_E) heterozygosities and fixation index (F_{IS})

Locus	Alleles	Rich.	H_0	H_E	F_{IS}
RE007	9	5.760	0.803	0.782	0.004
RE017	8	4.055	0.736	0.683	-0.082
RM002	13	5.998	0.788	0.784	0.021
RM003	11	6.154	0.628	0.790	0.249
RM010	12	7.327	0.847	0.849	0.016
RM011	8	4.413	0.472	0.664	0.336
RM015	6	3.961	0.672	0.655	0.029
RM025	8	4.397	0.646	0.622	-0.028

- **AMOVA:** majority of genetic variation was at the individual level (91.46%), and differences among groups explained 1.7 % of genetic variation
- **Mantel test:** significant correlation between genetic and geographic distances ($R^2=0.1632$, $P=0.039$)

CONCLUSIONS

- All loci were polymorphic
- Significant differences between populations from Western and Eastern Serbia
- Population from Montenegro is genetically similar to populations from Eastern Serbia
- Significant isolation by distance pattern

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