



CROATIA DISSERTATION/THESIS PROJECT

CR03 Microhabitat and population ecology of Dalmatian Algyroides lizards

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The Dalmatian Algyroides (*Algyroides nigropunctatus*), also known as the Blue-throated Keeled Lizard, is a medium-sized Lacertid Lizard endemic to the Balkans region of south-eastern Europe, with most of the population being concentrated along the Adriatic coastline. It is scarce away from Croatia outside of coastal regions. However, an isolated population has recently been found in an area of rocky crags within Krka National Park. The presence of this population provides an excellent opportunity to examine the ecology of this otherwise fairly poorly-studied species.

The key elements of this project will involve a combination of mark-release recapture analysis observational surveys, and measurement of habitat variables. The mark-release recapture element of the project will involve catching individuals at the Algyroides colony using a pole and noose, marking the exact point of capture, and bringing the captured lizards back to the project's lab for detailed morphometric measurements and sex determination, as well as for marking by scale clipping in an agreed combination pattern on the belly and sides to enable individual markings. The measured and marked animals will then be returned to the exact place of capture. Any recaptures can then be identified due to the scale-clippings, and the mark-release-recapture analysis can then be used to estimate the population size of the colony based on the ratio of recaptures.

Observational surveys of Krka's Algyroides colony will allow students to obtain data on the species activity budgets, and measurements of environmental variables, such as temperature, light levels, humidity at ground-level, and humidity as 60cm above ground level, will be obtained to put these activity budgets into context. Measurements of further habitat structure variables will also be used to determine habitat selection and use in the species. These measurements will include macro-scale habitat variables (aspect and slope). Meso-scale variables (canopy cover, extent of rock cover, extent of understorey density) and micro-scale variables (e.g. availability of fissures in the rock surface). Principal Component Analysis, or other multivariate analyses, can then be used to identify the factors affecting the distribution of this species. Such habitat measurements can potentially be used to model habitat suitability for the species elsewhere in Krka National Park.

Students can examine all three key components of this project, or concentrate on particular elements of it. Whatever they decide to focus on, students taking this option will have a fascinating opportunity to study the ecology of a little-known European Lizard species.

Recommended Reading

Santos J.L., A. Žagar, K. Drašler, C. Rato, C. Ayres, D.J. Harris, M.A. Carretero & D. Salvi (2019) Phylogeographic evidence for multiple long-distance introductions of the common wall lizard associated with human trade and transport. *Amphibia-Reptilia* 40 : 121-127.

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- Ćorović J., M. Popović, D. Cogălniceanu, M.A. Carretero & J. Crnobrnja-Isailović (2018) Distribution of the meadow lizard in Europe and its realized ecological niche model. *Journal of Natural History*, 52:29-30.
- Badiane A., P. Carazo & E. Font (2018) Colouration in male blue-throated keeled lizards (*Algyroides nigropunctatus*): Evidence for ultraviolet reflectance of throat and lateral patches. *Herpetological Journal* 28 : 39-42.
- Andriopoulos P. (2016) First record of *Algyroides nigropunctatus* east of the Pindos mountain chain, Greece. *Herpetozoa* 29(1/2) : 83-84.
- Tomović L., R. Ajtić, K. Ljubisavljević, A. Urošević, D. Jović, I. Krizmanić, N. Labus, S. Dorđević, M.L. Kalezić, T. Vukov & G. Džukić (2014) Reptiles in Serbia - distribution and diversity patterns. *Bulletin of the Natural History Museum*, 2014, 7: 129-158.
- Polovic L., V. Pesic, K. Ljubisavljevic & N. Cađenović (2013) Preliminary data on the reproductive characteristics and diet in an insular population of the lacertid lizard *Algyroides nigropunctatus* North-Western Journal of Zoology 9 (1): 201-205.
- Zakkak S., J.M. Halley, T. Akriotis & V. Kati (2015) Lizards along an agricultural land abandonment gradient in Pindos Mountains, Greece. *Amphibia-Reptilia* 36 : 253-264.