

Environmental correlates of paedomorphosis and metamorphosis in palmate newts

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Paedomorphosis and metamorphosis are alternative developmental pathways expressed in populations of several caudate species. They result respectively in the development of individuals that mature in the larval stage (the paedomorphs) and of larvae that metamorphose into a terrestrial morph that acquire maturity later (the metamorphs). The ontogenetic trajectories rely on environmental cues but their effects across both space and time have not been examined yet. To determine the relationships between environmental variables and morph expression, we sampled more than 150 populations of palmate newts (*Lissotriton helveticus*) during a 10-yr study and we used an information-theoretic approach to test the likelihood of multiple ecological processes. All environmental processes influenced the relative abundance of both morphs. Paedomorphs were particularly advantaged in deep and oxygenated wetlands, without fish, and surrounded by vertical slopes. Higher forest and lower aquatic vegetation cover were also associated with a higher prevalence of paedomorphosis over metamorphosis. Analyses of paedomorph variation along time confirm these conclusions on the three variables that showed inter-annual variations (water depth, oxygen content, and aquatic vegetation). All together these results show that paedomorphosis and metamorphosis depend on multiple environmental factors and can evolve rapidly. This could explain the absence and extirpation of paedomorphosis in natural populations, particularly when affected by anthropogenic pressures. The degradation of habitats inhabited by paedomorphs and the rarity of these populations make them at a high risk of disappearance.

	Room 1	Room 2
8:30–9:15	Plenary Lecture: Z. Takács: The deadliest lifesavers: reptile venoms at the forefront of medicine Chair: R. Shine	
9:30–11:00	Session 1a: Behaviour of reptiles Chair: W. Hödl	Session 2a: Ecology of amphibians Chair: T. Harrel
9:30–9:45	A. Břáňez, P. López, J. Martín: Antipredatory behaviour of Spanish terrapins depends on reproductive state and individual conspicuousness	G. F. Ficetola, C. Rondinini, A. Bonardi, V. Kataríya, E. Padoa-Schioppa, A. Angulo: An evaluation of the robustness of global amphibian range maps
9:45–10:00	A. Golubović, M. Anđjelković, D. Ansovski, S. Djordjević, V. Iković, A. Vujović, X. Bonnet, L. Tomović: Tortoise's shell—a blessing and a curse. How tortoises cope with various obstacles	M. Denoël, G. F. Ficetola: Environmental correlates of paedomorphosis and metamorphosis in palmate newts
10:00–10:15	Ch. Broeckhoven: Influence of remitoxyphy on prehension mode in cordylid lizards: a morphological and kinematic analysis	S. Salvídio, F. Oneto, D. Otonello, M. V. Pastorino: Long-term dynamics of a Speleomantes strinatii population living underground
10:15–10:30	M. Barquero, M. Whiting, R. Peters: Geographic variation in the signalling behaviour of the Jacky dragon, Amphibolurus muricatus	N. Üztüm, Ç. Güntüç: Age and some growth parameters in two insular populations of Lyciasalamandra fazlae (Caudata: Salamandridae) from Southwestern Turkey
10:30–10:45	P. López, J. Ortega, J. Martín: Effects of climatic factors on the evolution of sexual chemical signals of the Iberian wall lizard, Podarcis hispanica	T. Reinhardt, S. Steinfarz, M. Weitzner: New home, new life: linking the evolution of salamander larval habitat choice to ecosystem processes
10:45–11:00	M. A. Carretero, E. Angaña, R. Duarte: Investigating the degree of behavioural plasticity in lacertids by comparing two populations of Podarcis carbonelli under different disturbance regimes	Ph. Werner: Determinants of parapatric range limits in contact zones of European salamanders
11:00–11:30	Coffee break	
11:30–12:30	Session 1b: Behaviour of reptiles Chair: W. Hödl	Session 2b: Ecology of amphibians Chair: T. Harrel
11:30–11:45	O. Molnár, K. Bajér, J. Török, G. Herczeg: Experimental evidence for environmental factors affecting colouration in the European green lizard (Lacerta viridis)	R. Ranaap, M. Markus, T. Kaart: Habitat use of the common spadefoot toad (Pelobates fuscus) in Estonia—is forest essential?
11:45–12:00	K. Bajér, O. Molnár, J. Török, G. Herczeg: Male throat UV colouration affects maternal investment in European green lizard	G. Ludwig, U. Sinsch, B. Pölsler: Fall migration behaviour and hibernation site selection in alpine common frogs (Rana temporaria)
12:00–12:15	K. Bajér, G. Horváth, O. Molnár, J. Török, G. Herczeg: Green lizard (Lacerta viridis) personalities: behaviour and individual quality at different ontogenetic stages	B. Vági, T. Kovács, P. Katona, J. Ujszegi, Á. Csillag, M. Szedekenyi, M. Griggió, H. Hoi, A. Hertyey: Reproductive interference between Rana dalmatina and R. temporaria affects reproductive success in natural populations
12:15–12:30	A. Cortada, E. García-Muñoz, M. A. Carretero: Predation pressure versus anipredator behaviour: a comparative study using a lacertid model	Zs. Mlíko, J. Ujszegi, Z. Gál, A. Hertyey: The impacts of glyphosate and predation threat on tadpoles of the agile frog (Rana dalmatina) in different experimental venues
12:30–14:00	Lunch break	



PROGRAMME & ABSTRACTS



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