

A record of probable cannibalism in *Darevskia nairensis* (Darevsky, 1967) from Gyumri, Armenia

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Cannibalism, defined as intraspecific predation, is a widespread phenomenon across vertebrates including birds (Allen et al., 2020), mammals (Polis et al., 2008), amphibians (Pfennig, 1993), fishes (Strictar et al., 2017) and has been also documented in some reptile species (Polis, 1981; Polis and Myers, 1985; Cooper et al., 2015; Falcão et al., 2025). Among reptiles, the occurrence of cannibalism in lacertids has been associated with ecological and behavioural factors such as high population density, limited resource availability, and increased encounter rates among individuals (Arnold, 1987; Pérez-Mellado and Corti, 1993; Capula and Aloise, 2011; Cooper et al., 2015). In most documented cases, predation is directed from larger adults towards smaller conspecifics, particularly juveniles, which represent relatively easy and energetically profitable prey and called infanticide.

This behaviour has been documented in various lacertid species, including *Podarcis muralis* (Žagar and Carretero, 2012; Simović and Marković, 2013; Ineich et al., 2022; Lam and Rosa, 2022), *P. erhardii* (Madden and Brock, 2018), *P. siculus* (Capula and Aloise, 2011; Grano et al., 2011), *P. liolepis* (Castilla and van Damme, 1996), *P. virescens* (Dias et al., 2016), *P. pityusensis* (Dappen, 2011), *Lacerta bilineata* (Angelici et al., 1997), and *Algyroides hidalgoi* (Rubio and Alonso-Alumbreros, 2021). It is suggested that adults prey upon juveniles under conditions of high population density and strong intraspecific competition (Polis, 1981; Cooper et al., 2015), although adult-on-adult predation cases have also been reported for *Podarcis erhardii* (e.g., Madden and Brock, 2018).

Within the genus *Darevskia*, which comprises approximately 40 species distributed across the Caucasus and adjacent regions, published accounts

of cannibalism are particularly scarce. To date, such behaviour has been documented in only a few species, suggesting that it may be underreported rather than truly rare. To my knowledge, the clearest documented case involves *D. valentini*, in which adults were observed consuming juveniles and conspecific remains were found in faeces (Galoyan et al., 2019). Rare events of adults preying on juveniles have also been described for *D. brauneri* (Tsellarius et al., 2008). One more case of infanticide in *D. raddei* has been reported by M. Arakelyan (personal observation). No comparable published records are currently known from Türkiye, and the nearest documented cases originate from the Caucasus and adjacent regions. Additional anecdotal observations, including photographic records available on citizen science platforms, suggest that similar interactions may occur in other species of the genus, but these remain largely undocumented in the formal literature. Herein, I report a detailed observation of predatory behaviour directed at a juvenile conspecific by an adult male *D. nairensis* (Darevsky, 1967) from Gyumri, Armenia.

D. nairensis is widespread in Armenia and its range extends into parts of Georgia and Türkiye (Arakelyan et al., 2011). It commonly inhabits rocky environments and anthropogenic structures such as stone walls, where local population densities may be very high (Prondzynska, 2025). Like most lacertids, it is primarily insectivorous, feeding mainly on arthropods, although it may occasionally exploit other prey items opportunistically, such as soft-bodied invertebrates and plants (Darevsky, 1968).

The observation was made on 28 April 2026 at approximately 14:00 h in the Central Park of Gyumri, Armenia (40.7851°N, 43.8349°E, elevation 1530 m). The site consists of a sun-exposed stone wall with numerous crevices, supporting a relatively dense population of *D. nairensis*. An adult male was observed chasing a juvenile conspecific on the surface of the wall. The adult captured the juvenile while it was still alive and actively moving, and subdued it using

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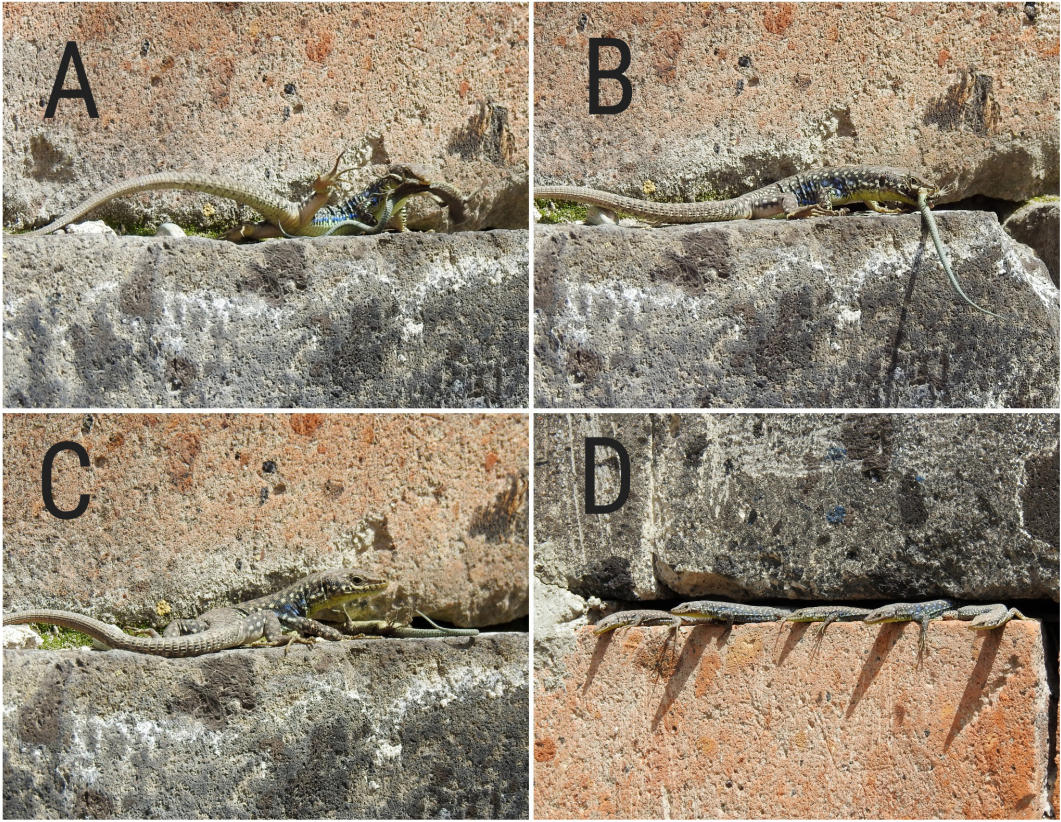


Figure 1. Predatory interaction between an adult male and a juvenile *D. narensis* in Gyumri, Armenia. (A) Adult male seizing and subduing the juvenile conspecific through forceful lateral head movements. (B) Immobilised juvenile held in the jaws of the adult. (C) Adult male with the subdued juvenile after release and re-seizure prior to transport. (D) High density of *D. narensis* within the same stone wall. Photos by the author.

repeated forceful lateral movements of the head, during which the juvenile exhibited vigorous struggling. After the juvenile ceased movement, the adult released it briefly before re-capturing it with its jaws. The male subsequently transported the juvenile to a crevice within the wall, presumably used as a refuge, carrying it firmly in its jaws. Consumption of the prey was not directly observed. No direct interactions with other individuals were observed during the event, although several conspecifics were present in close proximity (within approximately 1 m).

The observed interaction is consistent with previously documented cases of cannibalism in lacertids, in which larger individuals prey upon smaller conspecifics, particularly juveniles. Such behaviour may be associated with high population density and increased encounter rates, which may promote opportunistic predation on readily available prey. In the present

case, the high lizard density at the study site, combined with the structural complexity of the stone wall, may increase both the likelihood of encounters between individuals and the need to rapidly secure prey within refuges, possibly to avoid kleptoparasitism. Although direct consumption was not observed, the sequence of capture, subjugation, and transport of the juvenile to a refuge strongly suggests cannibalistic behaviour.

The ecological significance of cannibalism in lizards remains debated, with some authors emphasising its role in population regulation and life-history strategies, while others interpret it as an opportunistic and relatively rare behaviour (Polis, 1981; Capula and Aloise, 2011; Rubio and Alonso-Alumbreros, 2021). Given that the genus *Darevskia* comprises many species but includes only a few documented cases of cannibalism in the literature. We must admit, that infanticide occurs not only in males, but also in females (Galoyan et al., 2019) and

might be a foraging strategy for particular individuals in the population. Juveniles may be more nutritious in comparison with chitin-covered insects representing optimal foraging strategy under certain conditions. The present observation supports the view that such behaviour may be more widespread but underreported. Further observations are needed to assess the frequency and ecological significance of such behaviour within lizards and among the *Darevskia* genus.

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References

- Allen, M., Inagaki, A., Ward, M. (2020). Cannibalism in Raptors: A Review. *Journal of Raptor Research* **54**(4): 424–430.
- Angelici, F. M., Luiselli, L., Rugiero, L. (1997): Food habits of the green lizard, *Lacerta bilineata*, in central Italy and a reliability test of faecal pellet analysis. *Italian Journal of Zoology* **64**: 267–272.
- Arakelyan, M., Danielyan, F.D., Corti, C., Sindaco, R., Leviton, A. (2011): Herpetofauna of Armenia and Nagorno-Karabakh. Salt Lake City, Utah, USA, Society for the Study of Amphibians and Reptiles.
- Arnold, E.N. (1987): Resource partition among lacertid lizards in southern Europe. *Journal of Zoology* **1**: 739–782.
- Capula, M., Aloise, G. (2011): Extreme feeding behaviours in the Italian wall lizard, *Podarcis siculus*. *Acta Herpetologica* **6**: 11–14.
- Castilla, A.M., van Damme, R. (1996): Cannibalistic propensities in the lizard *Podarcis hispanica atrata*. *Copeia* **1996**: 991–994.
- Cooper, W.E. Jr., Dimopoulos, I., Pafilis, P. (2015): Sex, Age, and Population Density Affect Aggressive Behaviors in Island Lizards Promoting Cannibalism. *Ethology* **121**(3): 260–269.
- Dappen, N. (2011). Cold-blooded Cannibals. Observations on cannibalistic egg eating and predation on juveniles within *Podarcis pityusensis*. *Lacertidae* (Eidechsen Online) **2011**: 113.
- Darevsky, I.S. (1967). Skal'nye yashcheritsy Kavkaza (sistematika, ekologiya i filogeniya polimorfnoi gruppy kavkazskikh yashcherits podroda *Archaeolacerta*) (Rock Lizards of the Caucasus (Systematics, Ecology, and Phylogeny of the Polymorphic Group of Caucasian Lizards of the Subgenus *Archaeolacerta*)). Leningrad, USSR, Nauka [in Russian]
- Dias, G., Luis, C., Pinho, C., Kaliontzopoulou, A. (2016): A case of *Podarcis carbonelli* intake by *Podarcis virescens*. *Herpetology Notes* **9**: 105–108.
- Falcão, B.B., São Pedro, V.A., Entiauspe-Neto, O.M. (2025). Occurrence and evolution of cannibal behaviour in extant snakes. *Biological reviews of the Cambridge Philosophical Society* **101**(2): 644–664.
- Galoyan, E., Bolshakova, A., Abrahamyan, M., Petrosyan, R., Komarova, V., Spangenberg, V., Arakelyan, M. (2019). Natural history of Valentin's rock lizard (*Darevskia valentini*) in Armenia. *Zoological Research*. **40**(4): 277–292.
- Grano, M., Cattaneo, C., Cattaneo A. (2011): A case of cannibalism in *Podarcis siculus campestris* De Betta, 1857 (Reptilia, Lacertidae). *Biodiversity Journal* **2**: 151–152.
- Ineich, I., Chenevier, R., Chenevier, P., Magnouloux, M. (2022): Observation filmée d'une séquence de cannibalisme chez le lézard des murailles. *Bulletin de la Société Herpétologique de France* **180**: 54–56.
- Lam, B., Rosa, G. (2022): A case of cannibalism in *Podarcis muralis* from Dorset, England. *British Herpetological Society Bulletin*. **159**: 46–47.
- Madden, I., Brock, K. M. (2018): An extreme record of cannibalism in *Podarcis erhardii mykonensis* (Reptilia: Lacertidae) from Siros island, Cyclades, Greece. *Herpetology Notes* **11**: 291–292.
- Pérez-Mellado, V., Corti, C. (1993): Dietary adaptations and herbivory in lacertid lizards of the genus *Podarcis* from western Mediterranean islands (Reptilia: Sauria). *Bonner Zoologische Beiträge* **44**(3-4): 193–220.
- Pfennig, D. (1993): Kin recognition and cannibalism in spadefoot toad tadpoles. *Animal Behaviour*, **46**: 87–94.
- Polis, G.A. (1981): The evolution and dynamics of intraspecific predation. *Annual Review of Ecology and Systematics* **12**: 225–251.
- Polis, G.A., Myers, C.A. (1985): A survey of intraspecific predation among reptiles and amphibians. *Journal of Herpetology* **19**(1): 99–107.
- Polis, G., Myers, C., Hess, W. (2008). A survey of intraspecific predation within the class Mammalia. *Mammal Review* **14**: 187–198.
- Prondzynska, K.M. (2025): Winteraktivität von *Darevskia nairensis* (Nairi-Felseidechse) in Armenien: Wie kalt ist zu kalt für diese robusten Eidechsen?. *Eidechse* **36**(1): 26–30.
- Rubio, J., Alonso-Alumbreros, A. (2021): Cannibalism in the Spanish *Algyroides* (*Algyroides hidalgoi*, Lacertidae): eco-evolutionary implications?. *Herpetological Conservation and Biology*, **16**: 386–393.
- Simović, A., Marković, A. (2013): A case of cannibalism in the common wall lizard, *Podarcis muralis*, in Serbia. *Hyla* **1**: 48–49.
- Strictar, L., Agostinho, A., Winemiller, K. (2017): Revisiting cannibalism in fishes. *Reviews in Fish Biology and Fisheries* **27**: 1–15.
- Tsellarius, A.Y., Tsellarius, E.Y., Galoyan, E.A. (2008): Vzaimootnosheniya vzroslykh i yuvenilnykh osobei skalnoy yashcheritsy *Darevskia braueri* (Reptilia, Sauria) s khrebtu Navagir [Interrelation of adults and juveniles of rock lizards *Darevskia braueri* (Reptilia, Sauria) in the Navagir mountain ridge]. *Journal of Modern Herpetology* **8**: 170–186. (in Russian)
- Žagar, A., Carretero, M. A. (2012): A record of cannibalism in *Podarcis muralis* (Laurenti, 1768) (Reptilia, Lacertidae) from Slovenia. *Herpetology Notes* **5**: 211–213.

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