

Herpetofauna on the crossroads: diversity of amphibians and reptiles of Hashemite Kingdom of Jordan

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Jordan, with a surface area of about 89,210 km² lies at the junction of the Levantine and Arabian regions of the Near East. Generally, from the physiographic angle of view, four main regions are usually recognised: 1) Rift Valley, 2) Mountain ranges, 3) Eastern desert and 4) Marine environment of the Gulf of Aqabah. This gives Jordan rather diversified morphology, reflected also in the diversity of its herpetofauna.

Jordanian territory forms, due to its geographical position, a crossroad of different zoogeographic realms (Afrotropical, Saharo-Sindian, Oriental, Palearctic), which influences the composition of the Jordanian herpetofauna. Distribution of individual types of biogeographical regions in Jordan is, mainly in the west,

influenced by the altitude. The complicated mosaic of high mountains, steep slopes and deep wadis leads to the formation of extremely narrow borders between individual ecozones, or to their overlapping, and causes mixing of floral and faunal elements with different biogeographical affinities in individual localities.

Mediterranean ecozone - generally confined to the western highlands, typical by highest rainfall in the region. The vegetation used to be dominated mostly by pine forests in higher altitudes and oak forests at lower elevation. Grazing of numerous herds of domestic animals leads to forming secondary, heavily disturbed and rather dry steppes. Notably, isolated relict ecosystems with faunal and floral elements, which can be confined to this ecozone, are found in the eastern desert in Azraq and also in high elevations and deep valleys of the Ramm Mountains. The majority of species of the herpetofauna in the Mediterranean ecozone are of Palearctic origin. Most of species of amphibians and reptiles that inhabit this ecozone are widely distributed in the eastern Mediterranean region, namely *Rana bedriagae*, *Hyla savignyi*, *Testudo graeca*, *Hemidactylus turcicus*, *Lacerta laevis*, *Typhlops vermicularis*, *Eryx jaculus*, *Malpolon monspessulanus* and several others. However, some of the local reptile species can be considered as Levant endemics, namely *Chalcides guentheri*, *Rhinotyphlops simoni* and *Micrelaps muelleri*.

Irano-Turanian ecozone, an ecozone defined mainly phytogeographically, forms a strip of mostly steppe habitats surrounding the Mediterranean. It is often considered to be only a transitional zone between drier parts of the Mediterranean and surrounding ecozones.

Regardless the poor definition, this ecozone is typical by prevailing steppe habitats with some typical herpetofaunal elements, e.g. *Trapelus ruderatus* and *Acanthodactylus tristrami*. **Saharo-Arabian ecozone** - also called the Badyiah, covers the major part of the Jordanian inland. Depending on the geology, geomorphology and latitude and altitude, this region is formed by the various types of arid semidesert and desert habitats. Permanent natural water resources are extremely rare, the most important is the Azraq oasis and Ghadir Burqu'. Various reptile taxa are typical for this ecozone, i.a. *Trapelus pallidus agnetae*, *Acanthodactylus robustus*, *A. grandis*, *Malpolon moilensis*, *Pseudocerastes persicus* and numerous others. **Afrotropical (or Sudanian) ecozone** - often called the Afrotropical penetration, extends from Al Karama region in the north through the Rift Valley to Aqabah and also to the east, including the sea shore. This zone is typical by the presence of various African elements and by extensive penetration of Arabian herpetofaunal elements. *Phrynocephalus arabicus*, *Coluber elegantissimus*, *Atractaspis engaddensis* and some other reptile species are typically confined to this ecozone.

Relatively humid regions of NW Jordanian highlands represent the centre of amphibian diversity in Jordan. Unfortunately, this region is, logically, also widely influenced by urbanisation, agriculture and industry. The distribution of some amphibian species, namely *Pelobates syriacus* and *Triturus vittatus* is limited only to this region and the current occurrence of these species is questionable. *P. syriacus* has not been reported since

1973 and the occurrence of *T. vittatus* needs confirmation as well.

Thanks to the above-mentioned overlap of biogeographical realms, the Jordanian territory hosts surprisingly rich reptile fauna. So far, more than 90 species are known to occur in Jordan. Interestingly, the occurrence several reptilian species was proved very recently. Among the most recent additions, the presence of *Phrynocephalus maculatus* in vicinity of Abar al Hazim and discovery of new form of *Laceta* in Wadi Ramm should be noted. Thus, it is still probable that list of Jordanian reptiles, as given bellow, is incomplete, awaiting further additions. Regardless completeness or incompleteness of the list of Jordanian species, it is evident, that our knowledge about the distribution and biology of several species is only anecdotal, requiring further intense field research. To give a complete commented checklist of all Jordanian reptiles is behind the frame of present lecture. Thus, I give a overview of typical habitats with their remarkable herpetofaunal elements and notes on the conservation.