

Fossil findings of legless lizards (Anguinae, Squamata) in Pleistocene sites of Serbia

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FOSILNI NALAZI BEZNOGIH GUŠTERA (ANGUINAE, SQUAMATA) U PLEISTOCENSKIM LOKALITETIMA SRBIJE

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Ključne reči: pleistocen, *Anguis*, *Pseudopus*, *Ophisaurus*, Venčac

Redukcija ekstremiteta ili njihovo potpuno odsustvo poznato je u većem broju klada guštera (Anguinae, Scincoidea, Gekkota, Amphisbaenia). Proučavanu podfamiliju Anguinae (Anguimorpha, Squamata) čine beznogi gušteri iz tri savremena roda *Anguis*, *Pseudopus* i *Ophisaurus*. Njihovo današnje geografsko rasprostranjenje odraz je geoloških promena tokom kenozoika. Najstariji poznati nalazi angvina u Evropi potiču iz gornjeg oligocena, MP25 (Čerňanský i dr., 2017). Ostaci ovih guštera nalaze se najčešće kao pojedinačne izolovane kosti, što otežava preciznu taksonomsku identifikaciju. Tek su novije morfoanatomske studije savremenih rodova pokazale postojanje značajnih osteoloških razlika na pojedinim kostima između ova tri roda (Čerňanský i dr., 2019). Nalazi fosilnih ostataka beznogih guštera u lokalitetima pleistocenske starosti na teritoriji Srbije su česti. Skeletni ostaci su uvek pojedinačne kosti, najčešće pršljenovi i osteodermi, uz mali broj ostataka kranijalnih elemenata i viličnih kostiju. U do sada proučavanim pleistocenskim sedimentima ostaci beznogih guštera su skoro obavezni. Učešće njihovih ostataka u fosilnim asocijacijama je različito, ponekad sporadično. No, bez obzira na količinu prisutnih ostataka, u zavisnosti od mogućnosti identifikovanja, angvini uvek mogu doprineti proceni uslova paleosredina. Svaki od tri poznata roda preferira specifične uslove sredine i zauzima posebne ekološke niše. U pleistocenskim lokalitetima Srbije identifikovana su sva tri roda angvina (*Anguis*, *Pseudopus* i *Ophisaurus*). U pećinskim sedimentima dominira prisustvo *Anguis fragilis*, koji je vezan za otvorena, vlažna i umereno hladna staništa. Jedini nalaz *Pseudopus*-a iz pleistocena je u sedimentu „sremske serije“ iz Beočina (Đurić i dr., 2016). *Pseudopus* preferira stepska suva staništa mediteranskog i submediteranskog tipa. *Ophisaurus* je prvi put identifikovan u pleistocenskim sedimentima tek naknadnom revizijom ostataka sa lokaliteta Kamenjak na Venčacu 2021. godine. Ovaj rad finansiran je po „Ugovoru o realizaciji i finansiranju naučnoistraživačkog rada NIO u 2022. godini“, br. 451-03-68/2022-14/ 200126

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Čerňanský A., Yaryhin O., Ciceková J., Werneburg I., Hain M., Klembara J. 2019. Vertebral comparative anatomy and morphological differences in anguine lizards with a special reference to *Pseudopus apodus*. *Anat R.* 302(2): 232-257.

FOSSIL FINDINGS OF LEGLESS LIZARDS (ANGUINAE, SQUAMATA) IN PLEISTOCENE SITES OF SERBIA

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Keywords: Pleistocene, *Anguis*, *Pseudopus*, *Ophisaurus*, Venčac

Reduction of extremities or their complete absence exists in different lizard clades (Anguinae, Scincoidea, Geckota, Amphisbaenia). The studied subfamily Anguinae (Anguimorpha, Squamata) consists of three modern genera of legless lizards - *Anguis*, *Pseudopus*, and *Ophisaurus*. Their current geographical distribution is a reflection of geological changes during the Cenozoic. The oldest known anguine remains in Europe comes from the upper Oligocene, MP25 (Čerňanský et al., 2017). The remains of these lizards are mostly found as individual isolated bones, which makes accurate taxonomic identification difficult. Only recent morphoanatomical studies of extant genera have ascertained the existence of significant osteological differences in individual bones between these genera (Čerňanský et al., 2019).

Fossil remains of legless lizards in Pleistocene sites on the territory of Serbia are frequently found. Skeletal remains are always individual bones, most often vertebrae and osteoderms, with a small number of cranial elements and jawbones. In the Pleistocene sediments, the remains of legless lizards are almost unavoidable. In the fossil associations, participation of their remains is disparate, sometimes sporadic. But, regardless of the number of residues present, depending on the possibility of identification, anguines can always contribute to the assessment of palaeoenvironmental conditions. Each of the three known genera prefers specific environmental conditions and occupies special ecological niches.

All three genera of anguines (*Anguis*, *Pseudopus* and *Ophisaurus*) have been identified in the Pleistocene sites of Serbia. The cave sediments are dominated by the *Anguis fragilis*, which is associated with open, wet, and moderate to cold habitats. The only find of *Pseudopus* from the Pleistocene is in the sediments of the "Srem series" from Beočin (Đurić et al., 2016). *Pseudopus* prefers steppe dry habitats of Mediterranean and sub-Mediterranean type. *Ophisaurus* was first identified in Pleistocene sediments only by a subsequent revision of the remains from the Kamenjak site at Venčac in 2021.

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