

## **A record of Horned viper *Vipera ammodytes* (L.) in the diet of the Stone marten *Martes foina* (Erxl.) (Mammalia: Mustelidae) in Bulgaria**

DILIAN GEORGIEV

University of Plovdiv, Faculty of Biology, Department of Ecology and Environmental Conservation, 24 Tzar Assen Str., BG-4000 Plovdiv, Bulgaria  
diliangeorgiev@abv.bg

EVGENII RAICHEV

Trakiiski University, Faculty of Agriculture, Department of Nonruminant and Other Animals, , BG-6000 Stara Zagora, Bulgaria  
eraichev@uni-sz.bg

**Abstract.** Among undigested prey remains in Stone marten's *Martes foina* (Erxl.) faeces (n=47), collected in Sakar Mountain (near Sladun Village) a single lower jaw from a Horned viper (*Vipera ammodytes*) was found. The rest of taxa registered in the Rock marten's diet among the faeces were: Insecta indet., *Lacerta* sp., *Pseudopus apodus*, Aves indet., *Dryomis nitedula*, *Sylvaemus* sp., *Arvicola terrestris*, *Microtus* sp., and fruits of *Rosa* sp., *Rubus* sp., and *Pyrus* sp. The percent frequency of the main prey groups in the faeces were as follows: Mammalia (n=35, 74.5%), Aves (n=16, 34.0%), Reptilia (n=4, 8.5%), Insecta (n=4, 8.5%), and fruits (n=5, 10.6%).

**Key words:** venomous snake, mustelid, trophic spectrum.

**Introduction.** The trophic spectrum of the mustelids (Mammalia: Mustelidae) includes a variety of animal and plant species (Macdonald & Barret, 1993). Being very fast and agile animals it is not unusual that some of the species catch and eat highly venomous preys as spiders, scorpions, insects and snakes. Even though such prey is typical for some carnivores from this family like the African honey badgers (Begg, 2006) it is not often recorded in the diets of the European mustelids (Macdonald & Barret, 1993).

As a whole the reptiles lack or take a little part of the Stone marten's *Martes foina* (Erxleben, 1777) diet in various regions of Europe (Lode, 1994) and Bulgaria (Popov & Sedefchev, 2003, Vasileva *et al.*, 2005). Here we report an interesting case of remains of one of the few venomous snakes in Bulgaria found in its diet.

**Material and methods.** Faeces of Stone marten (*Martes foina*) deposited in a small limestone cave hole (total number = 47) were collected in Sakar Mountain (Bulgaria) near Sladun Village (UTM MG 53) on 30.04.2006. They were stored in plastic bags for further investigation in the laboratory. The prey items were separated by softening of the faeces with 70% ethanol. The material was identified using comparative collections of bones, hairs and fruit seeds. The minimal number of specimens and the percent frequency of each given prey group in the faeces was considered for this study.

**Results and Discussion.** Among all prey items a single lower left jaw with teeth from a Horned viper *Vipera ammodytes* (Linnaeus, 1758) was found. Knowing that the Stone marten sometimes uses carcass as a food source (Posluszny *et al.*, 2007), it is not sure if the venomous snake really was killed and eaten. But considering the season of the faeces collection, when the weather is still relatively cold and the reptiles are not very active being slow and becoming an easy prey for the predators, it is possible that the Horned viper was actually killed and eaten.

The rest of the prey taxa found in the Stone marten's diet among the faeces were (minimal number of individuals/fruits is represented in brackets): Insecta indet. (4), *Lacerta* sp. (1), *Pseudopus apodus* (Pallas, 1775) (1), Aves indet. (2), *Dryomis nitedula* (Pallas, 1778) (1), *Sylvaemus* sp. (1), *Arvicola terrestris* (Linnaeus, 1758) (1), *Microtus* sp. (5), fruits of *Rosa* sp. (2), *Rubus* sp. (1) and *Pyrus* sp. (1). The species *P. apodus*, *V. ammodytes*, *D. nitedula* and *A. terrestris* were new records for the food spectrum of the Stone marten in Bulgaria.

The percent frequency of the main prey groups in the faeces were as follows: Mammalia (n=35, 74.5%), Aves (n=16, 34.0%), Reptilia (n=4, 8.5%), Insecta (n=4, 8.5%), and fruits (n=5, 10.6%).

**Acknowledgements.** We thank to Dr. Vassil Popov (Institute of Zoology, BAS) for identification of *Dryomis nitedula*, and to Nedko Nedyalkov for the support.

## References

- Begg, C. (2006) *Feeding ecology and social organization of honey badgers (Mellivora capensis) in Southern Kalahari*. University of Pretoria, 24 pp.
- Lode, T. (1994) Feeding habits of the Stone marten *Martes foina* and environmental factors in Western France. *Z. Säugetierkunde*, 59: 189-191.
- Macdonald, D. & Barret, P. (1993) *Mammals of Britain & Europe*. Harper Collins Publishing, 312 pp.
- Posluszny M., Pilot M., Goszczynsky J. & Gralak B. (2007) Diet of sympatric pine marten (*Martes martes*) and stone marten (*Martes foina*) identified by genotyping DNA from faeces. *Ann. Zool. Fennici*, 44: 269-284.
- Vasileva, S., Zlatanova, D. & Racheva V. (2005) The food of the Red fox (*Vulpes vulpes* L.) and the Marten (*Martes foina*, Erxl) in the spring-summer period in Osogovo mountain. In: Gruev, B., M. Nikolova and A. Donev (Eds.), *Proceedings of the Balkan Scientific Conference of Biology in Plovdiv* (Bulgaria) from 19th till 21st of May 2005, pp. 481-488.
- Popov, V. & Sedefchev, A. (2003) *The Mammals of Bulgaria*. Vitosha Publishing, Sofia, 291 pp. (In Bulgarian).