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NOTES ON THE ALTITUDINAL DISTRIBUTION OF LIZARDS AND SOME OTHER REPTILES ON MOUNT BIOKOVO (CROATIA) AND ITS IMMEDIATE SURROUNDINGS

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During nine stays on Mount Biokovo (1762 m) / Central Dalmatia (Croatia), and the adjacent parts of the Cetina valley in the years 1979–1990, 16 reptile species were observed. Together with previous data from literature the list now comprises 21 species. New or more detailed data are given, particularly on the following lizard species: *Lacerta trilineata, L. viridis, L. mosorensis, L. oxycephala, Podarcis muralis* and *P. sicula.*

Key words: altitudinal distribution, reptiles, Mount Biokovo, Croatia

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Tijekom devet boravaka na Biokovu (1762 m) / središnja Dalmacija (Hrvatska) i u susjednim krajevima doline Cetine u razdoblju od 1979. do 1990. zabilježeno je 16 vrsta gmazova. Zajedno s poznatim podacima iz literature taj popis sada obuhvaća 21 vrstu. Rad donosi nove i detaljnije podatke, posebno o sljedećim vrstama guštera: *Lacerta trilineata, L. viridis, L. mosorensis, L. oxycephala, Podarcis muralis* i *P. sicula.*

Ključne riječi: visinska rasprostranjenost, gmazovi, Biokovo, Hrvatska

INTRODUCTION

The mainly Mesozoic Mount Biokovo is the highest mountain of Dalmatia (Sveti Jure, 1762 m) and is near to the Adriatic coast. It is part of the Dinaric mountain chain reaching the coast in the central Dalmatian province of Makarska and comprising here several climatic zones from the Mediterranean to the montane region (see Fig. 1 and footnotes). Further substantial data on climate, vegetation and distribution of altitudinal zones are given by HORVAT *et al*. (1974) and TVRTKOVIĆ &

Croatian Natural History Museum, Demetrova 1, Zagreb, Croatia

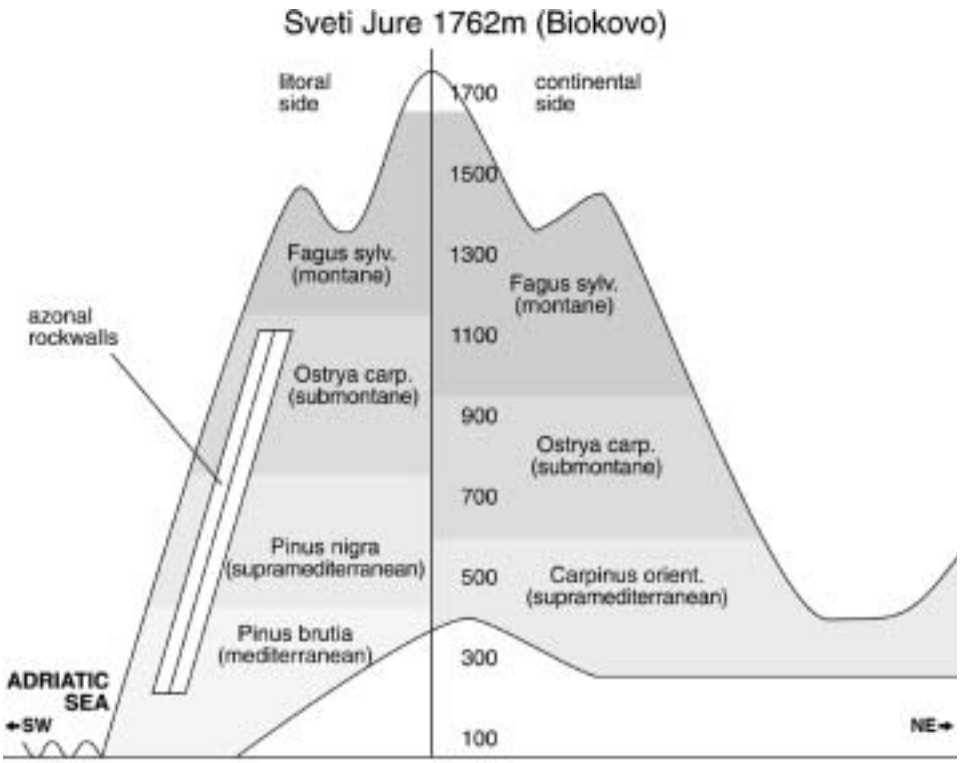

Fig. 1. A sketch of the vegetation zones on Biokovo with the differences on the littoral and continental slopes. In each zone the characteristic forest trees of the potentially natural vegetation zones are given.[1]

KLETEČKI (1998). Some data on vegetation and distribution of altitudinal zones are also based upon own findings.

The following data on reptile fauna are derived from nine stays on Mt. Biokovo and its immediate surroundings (especially parts of the Cetina valley): April 15, 1979; April 7, 1980; April 19–27, 1984; August 15–31, 1985; May 22–28, 1986; June 9–16, 1987; April 2–6, 1988; May 15–21, 1989; September 1–4, 1990. The results complete the works of MRŠIĆ (1987) and TVRTKOVIĆ & KLETEČKI (1993). Publications on the reptile fauna before these papers are very scarce. With this third work, the basic knowledge on the geographical and ecological distribution of the lizards seems suf-

[1]The »montane zone« comprises here parts of the weakly developed »upper montane zone« (= sub alpine zone according to some authors). 2. The natural presence of *Pinus brutia* on Biokovo is questionable; besides, this pine tree was formerly often confused with *Pinus halepensis* (cf. HORVAT *et al.*, 1974 and FARJON, 1984). Further data result from own findings.

ficient, though the apparent absence *of Anguis fragilis* is surprising. The list of snakes, however, may be incomplete; some species are documented only by a few specimens or even by one finding.

RESULTS AND DISCUSSION

Testudines

Testudo hermanni boettgeri Mojsisovics, 1889 – Figs. 2,3

The presence of Hermann's tortoise near the coast (Makarska, Bast) was mentioned by MRŠIĆ (1987).

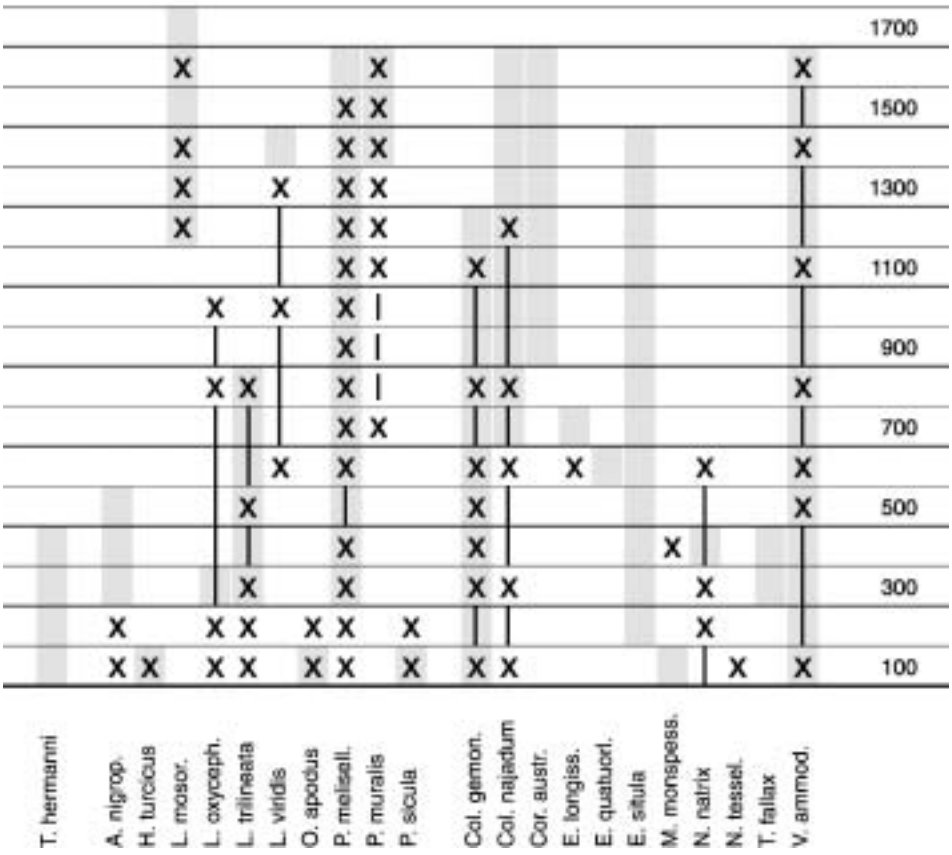

Fig. 2. Altitudinal distribution of the reptiles on the littoral and continental sides of Mt. Biokovo. Shaded zones within the columns: distribution from literature; crosses: own findings.

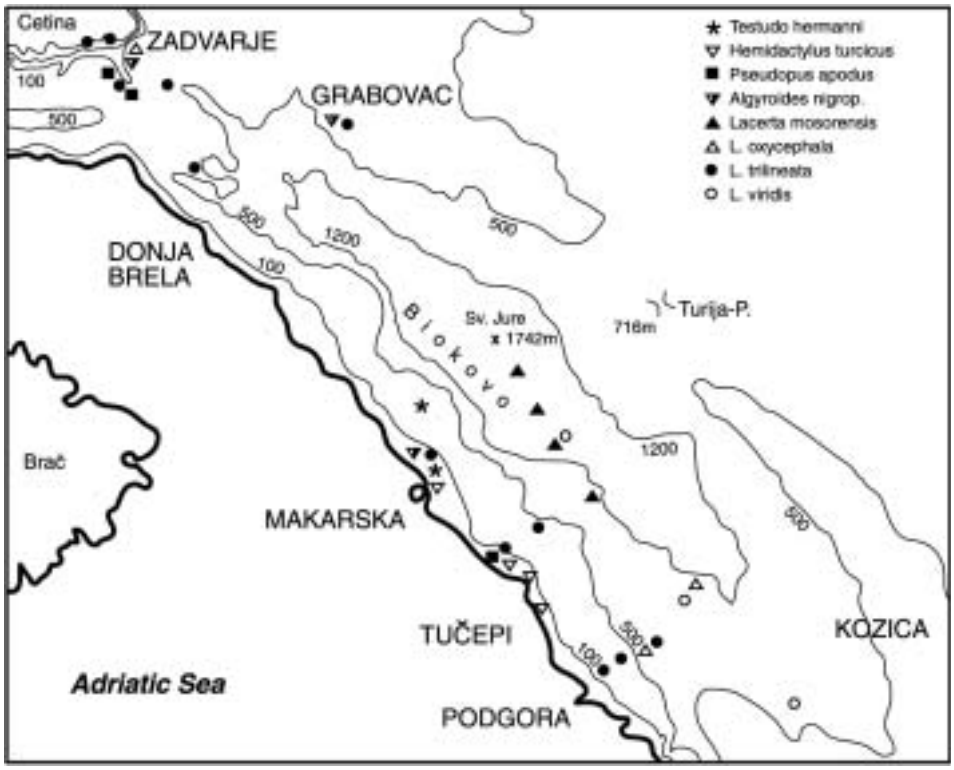

Fig. 3. Distribution map of the tortoise *Testudo* and the lizard – genera *Hemidactylus*, *Pseudopus*, *Algyroides*, *Lacerta* on Biokovo.

According to BOUR (1997) it may be absent in large parts of central and southern Dalmatia, though it is widely distributed along the Mediterranean part of the Adriatic coast.

Emys orbicularis hellenica (Valenciennes, 1832) ?

A carapax of this turtle was found on September 4, 1990 about 2 km above Omiš in the Cetina valley outside the zone of investigation. The species' presence in the Cetina River near Zadvarje is uncertain because of the less suitable habitats there.

The European pond terrapin is known from some places along the Adriatic coast in Dalmatia. Its distribution and systematics in the Balkan Peninsula were revised recently (FRITZ, 1992).

Sauria

Hemidactylus turcicus turcicus (Linnaeus, 1758) – Figs. 2,3

The Turkish gecko with its circum-Mediterranean distribution is strictly limited to the Mediterranean zone along a small coastal strip. In some evenings in June

1987 several specimens were observed in or at houses in Makarska (cf. MRŠIĆ, 1987) and Tučepi.

The species has a wide range around the Mediterranean Sea. The distribution maps concerning the Eastern Adriatic coast given by SALVADOR (1981: Abb.15) and GRUBER (1997) do not agree with each other in some parts.

Pseudopus apodus thracius (Obst, 1978) – Figs. 2,3

The sheltopusik seems to be restricted to the Mediterranean zone of Mount Biokovo. It is abundant in the Cetina valley, where it was encountered several times. On June 15, 1987 within ten minutes between Zadvarje and the bottom of the valley five specimens were found dead on road. Outside the Cetina valley the species is known from one locality near the coast (Tučepi; MRŠIĆ, 1987).

The species reaches Istria along the Adriatic coast, where it seems to be rare in many places (OBST, 1997).

Algyroides nigropunctatus nigropunctatus (Duméril & Bibron, 1839) – Figs. 2,3,6

The Dalmatian algiroides was first mentioned from some localities around Makarska (300–600 m) by MRŠIĆ (1987). My own observations refer to the Cetina valley (May 25, 1986 and June 15, 1987) and to Cikeši on the continental side of Mount

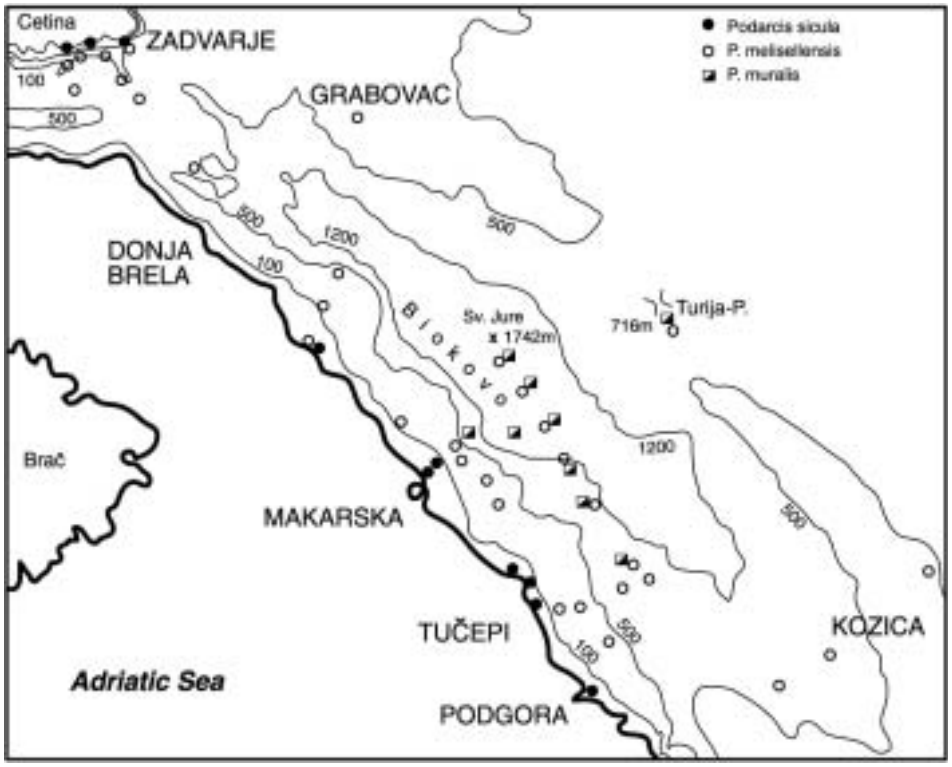

Fig. 4. Distribution map of the lizard, genus *Podarcis*, on Biokovo.

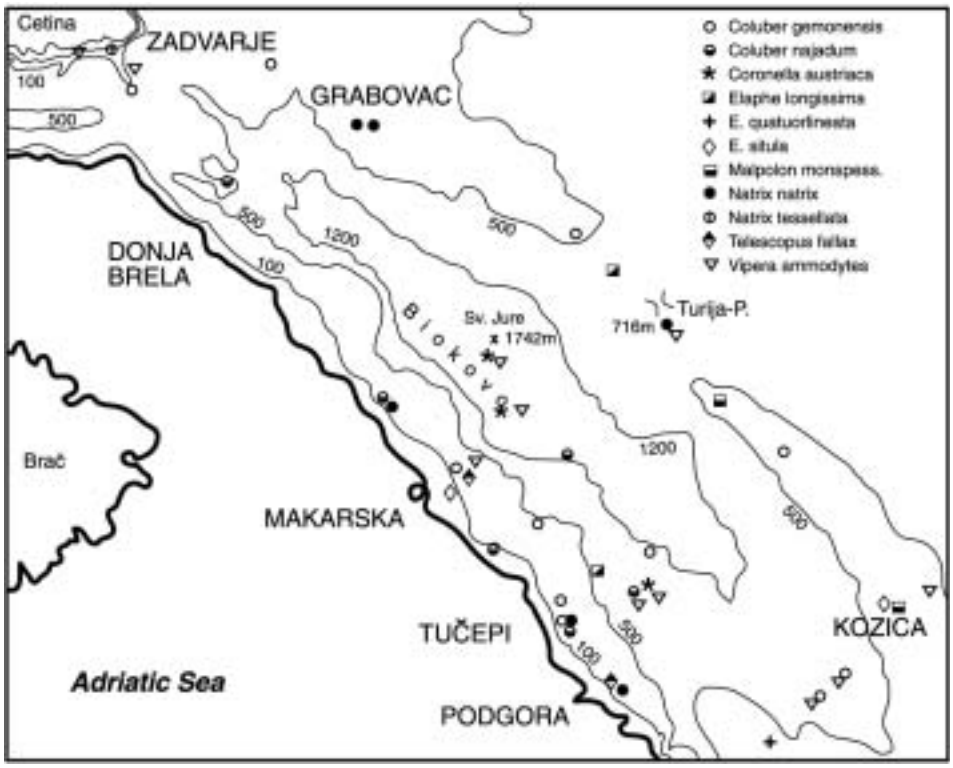

Fig. 5. Distribution map of the snake genera *Coluber, Coronella, Elaphe, Malpolon, Natrix, Telescopus, Vipera*, on Biokovo.

Biokovo, 100–600 m. Both localities are situated in the well-wooded Supramediterranean zone.

Along the Adriatic coast it has a broad range and reaches Italy in the north (BISCHOFF, 1981).

Lacerta trilineata major Boulenger, 1887 – Figs. 2,3,6

The three-lined lizard was well known from the littoral side of Biokovo (HOUBA, 1957; MRŠIĆ, 1987). According to my own findings it is abundant in the Cetina valley and reaches 800 m above Tučepi. On a possible hybrid see under *L. viridis*.

Along the Adriatic coast in southern and central Dalmatia it has a relatively small range in the Mediterranean and Supramediterranean zones, except the Neretva valley; its presence in Istria is questionable (see NETTMANN & RYKENA, 1984 and SCHMIDTLER, 1997).

Lacerta viridis viridis (Laurenti, 1768) – Figs. 2,3,7,8

The Green lizard was known from »Okolina šumarskog doma« on Biokovo (1400 m; MRŠIĆ, 1987). HOUBA (1957) mentions it from the foothills of Biokovo

Fig. 6. Cetina valley below Zadvarje (50 m), habitat of a rich Mediterranean assemblage of reptiles: *Pseudopus apodus*, *Algyroides nigropunctatus*, *Lacerta trilineata*, *Lacerta oxycephala* (in the rocky gorge in the background), *Lacerta trilineata*, *Podarcis melisellensis* (see text), *Podarcis sicula* (on the sunny and cultivated left side of the river; see text), *Natrix tessellata*, *Vipera ammodytes.* – Characteristic vegetation on the Mediterranean, sunny side of the valley outside the cultivated area: *Cytisus* sp., *Quercus pubescens*, *Carpinus orientalis*, *Cupressus sempervirens*, *Juniperus oxycedrus* – on the smaller and shadier, Supramediterranean side: *Pinus nigra*, *Quercus pubescens*, *Carpinus orientalis.*

(»mehr an den Talwänden der Schluchten«). The latter observations do not agree with my own investigations and might be due to some confusion with *L. trilineata*. I examined *L. v. viridis* from Supramediterranean to montane zones between 600 and 1300 m. Both *Lacerta* species are usually well differentiated on Biokovo in colour (throats of adult males and even most females), dorsal pattern (juveniles) and scalation, which is much coarser in many features in all *L. viridis* according to my own counting. Nevertheless it is not possible to discriminate 100 % of the specimens by

Fig. 7. Ovčje staje SW Sveti Jure on Biokovo (1050 m), an abandoned alpine village, habitat of a submontane assemblage of reptiles: *Lacerta oxycephala*, *Lacerta viridis*, *Podarcis melisellensis*, *Podarcis muralis*. The vegetation: *Acer monspessulanus*, *A. pseudoplatanus*, *Juglans regia*, *Pyrus* sp., *Sorbus aria*, *Pinus nigra*.

mere observation in the field. The more interesting is a possible hybrid single specimen from Ovčje staje (1000 m) displaying an intermediate pholidosis between *L. viridis* and *L. trilineata*. On Mount Mosor, NW of Mt. Biokovo, both Green lizards were found syntopically (Dom na Mosoru, 850m; May 22, 1988).

L. v. viridis is a typical element of the moderate zones in south-eastern Europe. Like *Podarcis muralis*, it probably does not live in the Mediterranean coastal zones of southern and central Dalmatia (NAULLEAU, 1997). The possible zones of contact with the closely related western European *Lacerta bilineata* in Istria need intensive investigations.

Lacerta mosorensis Kolombatović, 1886 – Figs. 2,3,8

The Mosor rock lizard is well known from Mt. Biokovo (see BISCHOFF, 1984a and MRŠIĆ, 1987). I found it relatively abundant in the montane region between 1200 m (a place named Ladena) and 1700 m (a place named Pođurje) in the montane region. Characteristically it first turns up at the lowest localities of beech–forest (*Fagus sylvatica*), here associated with *Ostrya carpinifolia*, *Rhamnus* sp., *Pinus nigra*, *Juniperus nana*. At my highest locality, a dolina, it lived in a forest composed of *Fagus sylvatica*, *Abies alba* (= »*A. pardei*« = »*A. biokovoensis*«) and *Populus tremula*. In the lower parts of the distribution area *L. mosorensis* was found in a reptile assemblage together with *Podarcis melisellensis*, *P. muralis*, *Lacerta viridis*, *Coluber najadum* and *Vi-*

pera ammodytes. In the highest localities the assemblage was composed of fewer species (*P. melisellensis*, *P. muralis*, *Vipera ammodytes*). Besides, the possible assemblages may be seen from Fig. 2. In the distribution area a more or less clear niche-segregation with other small lacertids was observed, as described in Fig. 8. *L. mosorensis* inhabits the same type of rocky places as *L. oxycephala*, but seems to be separated altitudinally.

The species is one of the typical steno-endemic reptiles of the Balkan Peninsula restricted to the south-western Dinaric mountain chains. At its type locality, the low Mount Mosor (1340 m), it is probably limited to a very small range; apparently there are no recent findings published in the literature. HUNT's (1957) reference to the Mosor rock lizard in Kaštela, NW of Split, (Mount Kozjak, with a maximal elevation of 780 m!), cited often in the literature, seems highly improbable, merely from the ecological point of view. The doubts as to his correct determination of some *Lacerta* species increase when studying his data from Kaštela in detail and as a whole: *Lacerta oxycephala* (»...no preference for any particular habitat... not to be found further than six kilometres from the coast...«), *L. mosorensis* (»... variations in the colour of the dorsal surface from a dark grey to a dark green...«), *L. muralis mu-*

Fig. 8. A dolina, south of Sveti Jure on Biokovo (Bukovac, 1300 m), habitat of an assemblage of reptiles in the karst at the lower end of the montane zone: *Lacerta mosorensis* (in the crevices of the large rocks), *Lacerta viridis* (in the bushes and meadows), *Podarcis melisellensis* (in the meadows), *P. muralis* (in the meadows and on the rocks), *Vipera ammodytes*. The vegetation: *Fagus sylvatica*, *Ostrya carpinifolia*, *Pinus nigra*, *Rhamnus fallax*, *Sorbus aria*, *Juniperus nana*.

ralis (»... three specimens... in the coastal strip...«), *L. melisellensis fiumana*, *L. melisellensis gracilis* (»... three miles north of Trogir ... from snout to vent 97 mm and 100 mm...«), *L. viridis viridis*(!).

Lacerta oxycephala (Duméril & Bibron, 1839) – Figs. 2,3,7

The Sharp-snouted rock lizard was known from the Cetina gorge near Zadvarje (TVRTKOVIĆ & KLETEČKI, 1993), where it is abundant according to my own findings. In the centre of Mount Biokovo the species is rare. I know only two localities: in Ovčje staje in 1000 m (May 13, 1987) and above Tučepi in 800 m. During 10 stays at 800 m above Tučepi I saw the species only three times, each time a single specimen (April 26, 1984; April 6, 1988 and May 21, 1988).

Along the Eastern Adriatic coast the species is restricted to the region between the Krka River and Lake Skutari. It enters deeply into the interior of Dalmatia, Herzegovina and Montenegro (BISCHOFF, 1984 b: Abb. 33). On Mt. Biokovo it is restricted to large rocky places; there is a clear niche-segregation to *P. melisellensis*. Therefore the competition between the two species, as described by PITTIONI (1932): 100) from some small, more or less rocky islands near Orebić (Pelješac), is rather surprising. On Mt. Biokovo *L. oxycephala* inhabits the same rocky structures as *L. mosorensis*, but seems to be segregated altitudinally.

Podarcis melisellensis fiumana (Werner, 1891) – Figs. 2,4,6,7,8

The Dalmatian wall lizard is the best-known lizard on Mount Biokovo, living from sea – level up nearly to the top of Sveti Jure. According to my own observations it becomes rarer below 100 m (where *P. sicula* occurs) and in zones above 1000 m (where *P. muralis* turns up).

The niche-segregations with *P.sicula* on the bottom of the Cetina–valley (see Fig. 6) and with *P. muralis* below Sveti Jure (see Fig. 8) will be described under those species.

Podarcis muralis muralis (Laurenti, 1768) – Figs. 2,4,7,8

At the littoral slope of Mount Biokovo the common wall lizard first turns up in the submontane *Ostrya carpinifolia* forests above Makarska (1000 m; observation June 12, 1987). It attains almost the top of Sveti Jure and reaches downwards 600 m at the continental slope near Turija Pass (1 juv, September 2, 1990). Here a connection with the populations in the interior of Dalmatia seems possible. The populations on Mount Biokovo actually are probably the nearest to the Dalmatian coast. In the dolinas below Sveti Jure *P. muralis* lives in almost all habitats: meadows (here together with the rarer *P. melisellensis*), forests of *Pinus nigra*, *Fagus sylvatica*, *Abies alba* (»*Abies biokovoensis*«), *Populus tremula* – if not too densely wooded – and rocks (here syntopic with *Lacerta mosorensis*).

The species is apparently absent on Mount Mosor and HUNT'S (1957) observations near Kaštela seem problematic according to my own investigations (see the remarks under *L. mosorensis*).

Podarcis sicula campestris De Betta, 1857 – Figs. 2,4,6

The Italian wall lizard is strictly limited to the Mediterranean zone in the Cetina valley and along the coastline, where it was encountered abundantly in some

places southward up to Podgora. The highest locality refers to Makar above Makarska (250 m; May 23, 1986). On Mount Mosor one specimen was surprisingly collected at 800 m (April 13, 1979). HENLE (1986: map 47 and text) displays interesting distribution and northern immigration-lines south of Split along the coast up to Ruskamen.

In the Cetina valley there exists a clear niche – segregation between *P. sicula* and *P. melisellensis*, probably based upon competition: *P. sicula* is abundant in the well cultivated northern side of the valley bottom, exposed to the sun (see Fig. 6), while *P. melisellensis* seems to be rarer and restricted to the narrower and shadier southern parts, covered with Mediterranean scrub and trees (April 5, 1988).

Serpentes

Coluber gemonensis (Laurenti, 1768) – Figs. 2,5

The Balkan whip snake is the most common colubrid snake on Mt. Biokovo, where it attains montane zones (HENLE, 1993: map 20; TVRTKOVIĆ & KLETEČKI, 1993: 1220 m). Most juvenile snakes found dead on the road in summer in the littoral part of Biokovo belong to this species.

The distribution along the Adriatic coast attains Istria in the north. No presence is apparently known in the interior parts of central Dalmatia east of Biokovo (HENLE l.c.).

Coluber najadum dahli (Schinz, 1826) – Figs. 2,5

Dahl's whip snake is among the three most common snakes on Mt. Biokovo, where it attains 1550 m (TVRTKOVIĆ & KLETEČKI, 1993: table 3). I have some observations almost up to the same altitude. Most observations are from young specimens found in August dead on the road near Tučepi.

The species is distributed along the Adriatic coast almost up to Istria (DAREVSKY, 1997). It reaches the interior parts of central Dalmatia, where I observed a juvenile above Crveno jezero (»Red lake«) / Imotski (April 5, 1988).

Coluber sp.

On May 17, 1989, I observed an entirely black *Coluber* sp. with smooth dorsals (cca. 80 cm snout – vent – length) near Planina Kuća, an almost abandoned alpine village in 900 m. Since melanotic specimens in *C. gemonensis* and *C. najadum* are not known or very rare respectively, I think it possible, that this specimen belonged to *C. viridiflavus carbonarius* Bonaparte, 1833 occurring next on the Velebit chain in north-western Croatia (MRŠIĆ, 1978). At present, this species should not yet be regarded as a member of the herpetofauna of Biokovo.

Coronella austriaca austriaca (Laurenti, 1768) – Figs. 2,5

The Smooth snake was detected on Biokovo by TVRTKOVIĆ & KLETEČKI (1993) in some submontane and montane places between 820 and 1540 m. I have no information of my own concerning this species on Biokovo.

The species, widely distributed in the temperate regions of Europe, is also known from Mount Mosor (KARAMAN, 1939), but seems to be absent from most

Mediterranean and Supramediterranean parts of Central Dalmatia (see STRIJBOSCH, 1997: Fig.)

Elaphe longissima longissima (Laurenti, 1768) – Figs. 2,5

I collected one juvenile specimen SW of Turija pass (May, 18, 1989) at 570 m. MRŠIĆ (1987) mentions another locality above Tučepi in 700 m. The Aesculapian snake, widely distributed also in more temperate regions of Europe, is apparently rare on Mt. Biokovo but widespread in Croatia and the adjacent countries (SCHULZ, 1996: Map 19).

Elaphe quatuorlineata quatuorlineata (Lacépède, 1789) – Figs. 2,5

The Four-lined snake is known from one locality in the southernmost part of Biokovo (MRŠIĆ 1987: Brikva – Sosići, 600 m).

Along the Adriatic coast it is mostly restricted to the Mediterranean zone and NW of the Neretva valley it no longer enters the interior parts of Central Dalmatia (SCHULZ, 1996: Map 29).

Elaphe situla (Linnaeus, 1758) – Figs. 2,5

The Leopard snake is known from some localities on Mt. Biokovo (MRŠIĆ, 1987). According to TVRTKOVIĆ & KLETEČKI (1993) it reaches up to 1350 m.

The Mediterranean distribution along the Adriatic coast is almost identical to that of *E. quatuorlineata*. (SCHULZ, 1996: Map 36).

Malpolon monspessulanus insignitus (Geoffroy, 1827) – Figs. 2,5

The Montpellier snake is known from some localities on Mt. Biokovo (MRŠIĆ, 1987). I found a juvenile specimen near Župa SW Turija pass (450 m; September 2, 1990).

The species is widespread along the Adriatic coast (KARAMAN, 1939; DE HAAN 1997).

Natrix natrix persa (Pallas, 1814) – Figs. 2,5

Almost a dozen specimens of the Grass snake were found in Mediterranean and Supramediterranean zones up to 600 m, exclusively near water: temporary or perennial brooks, pools or ponds (cf. also MRŠIĆ, 1987).

The infraspecific situation of this snake, widespread in Europe and the Balkans, is not clear.

Natrix tessellata (Laurenti, 1768) – Figs. 2,5,6

I have only one observation of a diving Dice snake in the Cetina River below Zadvarje (August 26, 1985). The Cetina River is the only large perennial body of water in the area of investigation. The species is widespread over the waters of the Balkan Peninsula.

Telescopus fallax fallax (Fleischmann, 1831) – Figs. 2,5

The Cat snake is known from the littoral part of Biokovo between 250 and 400 m (Makarska and Podgora: MRŠIĆ, 1987). I have no observations of my own.

Along the Adriatic coast it reaches Istria in the north (GRILLITSCH & GRILLITSCH, 1997).

Vipera ammodytes ammodytes (Linnaeus, 1758) – Figs. 2,5,6

The Horn-nosed viper is very abundant on Biokovo, where it attains the top of Sveti Jure (MRŠIĆ, 1987; TVRTKOVIĆ & KLETEČKI, 1993; own findings). Specimens dead on the road are often found, especially in summer.

This viper is not restricted to the Mediterranean Adriatic coastline and reaches the Italian and Austrian Alps in the north (CRNOBRNJA – ISAILOVIĆ & HAXHIU 1997). The subspecific situation on the Balkan Peninsula is not clear.

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SUMMARY

Notes on the altitudinal distribution of lizards and some other reptiles on Mount Biokovo (Croatia) and its immediate surroundings

J. F. Schmidtler

During nine stays on Mount Biokovo (1762 m) / Central Dalmatia (Croatia) and the adjacent parts of the Cetina valley in the years 1979–1990, 16 reptile species were observed. Together with previous data from literature the list now comprises

21 species: *Testudo hermanni, Hemidactylus turcicus, Pseudopus apodus, Algyroides nigropunctatus, Lacerta trilineata, Lacerta viridis, Lacerta mosorensis, Lacerta oxycephala, Podarcis melisellensis, Podarcis muralis, Podarcis sicula, Coluber gemonensis, Coluber najadum, Coronella austriaca, Elaphe quatuorlineata, Elaphe situla, Malpolon monspessulanus, Natrix natrix, Natrix tessellata* (Cetina valley), *Telescopus fallax, Vipera ammodytes*. The possible presence of *Emys orbicularis* (Cetina valley) and *Coluber viridiflavus* needs confirmation. New or more detailed data are given, particularly on the following lizard species: *Podarcis sicula* is restricted to the Mediterranean or supramediterranean parts of the coast and the Cetina valley. *Lacerta trilineata* and *Lacerta oxycephala* reach Supramediterranean to submontane zones (800 m / 1050 m respectively). *Podarcis muralis* usually lives at 1000 m–1600 m (down to 600 m on the inland side), *Lacerta viridis* (600 m–1400 m) is mainly distributed in submontane to montane regions. The rock lizards *Lacerta oxycephala* (up to 1050 m) and *Lacerta mosorensis* (above 1200 m) are separated altitudinally.

SAŽETAK

Podaci o visinskoj rasprostranjenosti guštera i nekih drugih gmazova na Biokovu (Hrvatska) i njegovoj neposrednoj okolici

J. F. Schmidtler

Tijekom devet boravaka na Biokovu (1762 m) / središnja Dalmacija (Hrvatska) i u susjednim krajevima doline Cetine u razdoblju od 1979. do 1990. zabilježeno je 16 vrsta gmazova. Zajedno s poznatim podacima iz literature taj popis sada obuhvaća 21 vrstu: *Testudo hermanni, Hemidactylus turcicus, Pseudopus apodus, Algyroides nigropunctatus, Lacerta trilineata, Lacerta viridis, Lacerta mosorensis, Lacerta oxycephala, Podarcis melisellensis, Podarcis muralis, Podarcis sicula, Coluber gemonensis, Coluber najadum, Coronella austriaca, Elaphe quatuorlineata, Elaphe situla, Malpolon monspessulanus, Natrix natrix, Natrix tessellata* (dolina Cetine), *Telescopus fallax, Vipera ammodytes*. Moguću prisutnost *Emys orbicularis* (dolina Cetine) i *Coluber viridiflavus* treba tek potvrditi. Rad donosi nove i detaljnije podatke, posebno o sljedećim vrstama guštera: *Podarcis sicula* je ograničena na sredozemne ili supra-sredozemne dijelove obale i doline Cetine. *Lacerta trilineata* i *L. oxycephala* dosežu preko supra-sredozemne do submontane zone (800 m, odnosno 1050 m). *Podarcis muralis* obično živi na 1000 m–1600 m (spušta se do 600 m u unutrašnjosti), *L. viridis* (600 m–1400 m) je većinom rasprostranjena u sumontanim do u montanim područjima. Oštroglava gušterica *L. oxycephala* (do 1050 m) i *L. mosorensis* (iznad 1200 m) su visinski odijeljene.