

Breeding biology of the Long-legged Buzzard *Buteo rufinus* in SE Bulgaria, nesting also in quarries

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Abstract – Long-legged Buzzard *Buteo rufinus* breeding numbers have not undergone any significant changes in four gorges in SE Bulgaria during the time period 1994-2007. Between 12 and 16 pairs have nested there, which makes one pair per 0.8 - 2.8 km gorge length, with minimum 0.9 km distance between neighbouring nests. In the absence of natural rocks the birds prefer rock quarries to trees. They build their nests on massive rocks (min 15 m length; min 10 m height), predominantly with southern and western exposition (78 %, n = 32). Nests are usually located on rock terraces, without any prominent shelter (87 %, n = 21). The nests vary between 0.5 - 1.1 m (mean 0.71, sd 0.18) in diameter and 0.15 - 0.25 m (mean 0.20, sd 0.04) in height (n = 21 nests on rocks). The clutch size has been 2 - 3 eggs (1 - 4; n = 12 nests) and the brood size has ranged between 1 - 3 young, mostly 2 (50 %, n = 16 nests). The pairs nesting in the quarries feed mainly on small and average-sized mammals and lizards from the open areas, the voles *Microtus* spp. and European souslik *Spermophilus citellus* constituting 41 % of the prey. No significant changes have been observed in their diet throughout years, but differences between different nests are significant ($\chi^2_{[32]} = 67.58, P < 0.001$). In five locations they bred jointly with the Eagle Owl *Bubo bubo*, with a distance of 60 - 650 m from their nests. The Eagle Owl seems not to challenge the breeding of the Long-legged Buzzard in quarries and natural rocks.

Riassunto – *Biologia riproduttiva della poiana codabianca B. rufinus nel SE della Bulgaria, nidificante anche in cave.* Nel periodo 1994-2007 la consistenza della popolazione di poiana codabianca nidificante nel SE della Bulgaria non ha subito cambiamenti significativi, con 12-16 coppie, corrispondenti ad una coppia ogni 0.8 - 2.8 km di lunghezza della gola rocciosa, con distanza minima di 0.9 km tra nidi vicini. In assenza di rocce naturali la specie preferisce nidificare nelle cave rocciose, anziché sugli alberi. I nidi sono costruiti su rocce (lunghezza min = 15 m; altezza min = 10 m), con esposizione dominante S o W (78%, n = 32). I nidi sono usualmente posti su gradini rocciosi (87%, n = 21), e non in nicchie. Le dimensioni del nido variano tra 0.5 e 1.1 m di diametro (media 0.71 ds 0.18), e tra 0.15 e 0.25 m di altezza (media 0.20 ds 0.04). Le dimensioni della covata sono state 2-3 uova (1-4; n = 14 nidi), mentre la nidata è variata tra 1 e 3 pulli, soprattutto 2 (50%, n = 16 nidi). Le coppie nidificanti nelle cave si nutrono soprattutto di mammiferi e lacertidi di piccole e medie dimensioni, *Microtus* spp. e *Spermophilus citellus* costituiscono il 41% delle prede. Durante il periodo di studio non si sono avuti cambiamenti nella dieta, mentre vi sono differenze significative tra siti ($\chi^2_{[32]} = 67.58, P < 0.001$). In cinque siti le poiane codabianca hanno nidificato insieme al gufo reale, con distanza reciproca tra i nidi compresa tra 60 e 650 m. Il gufo reale non sembra né un competitore, né un predatore della poiana codabianca.

INTRODUCTION

The expansion of the range of the Long-legged Buzzard *Buteo rufinus* in Southeast and Central Europe in the second half of the 20th century is well documented: it has reached up to Hungary in the west (Hagemeijer and Blair 1997, Mebs and Schmidt 2006). The distribution of this species seems to correspond to that of the European Souslik *Spermophilus citellus* (Tucker and Heath 1994). Most of its European population is on the Balkan Peninsula. It

is most numerous in Bulgaria: about 700 pairs (Nankinov 2004). In fact, no special studies about the status of the species and its breeding biology have been carried out after Michev *et al.* (1984) and Vatev (1987).

In this study I report data on the breeding biology of this bird of prey in four gorges in Southeast Bulgaria.

STUDY AREA AND METHODS

The study area covers 10000 km² along the border with Turkey to the south, and the Black Sea to the east, south of Burgas town (N 42° 26' E 27° 27', Fig. 1). The town of Nova Zagora is the north-westernmost point of the area (N

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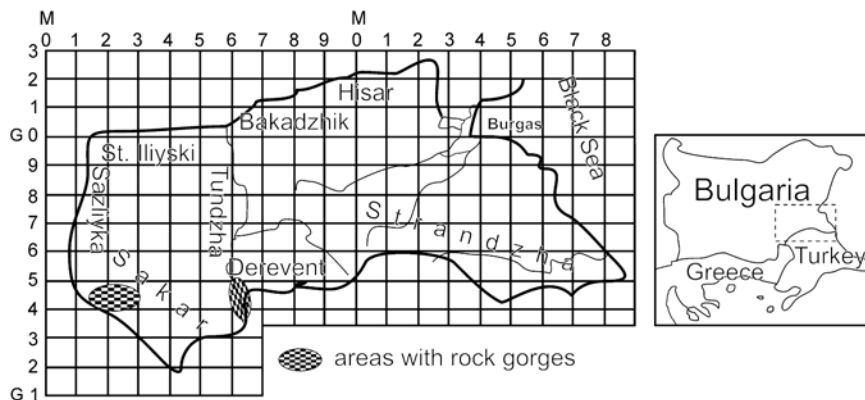


Figure 1. Localization of the study area – *Localizzazione dell'area di studio*.

42° 29' E 26° 01', see also Milchev and Kovachev 2000). Along the border with Turkey, in westward direction from the Black Sea lie in succession the low mountain chains of Mt Strandzha, Derevent Hills and Mt Sakar, with 300-400 m a.s.l. high ridges. Oak-dominated forests prevail in the landscape of Mt Strandzha, which gradually shrink in their area in westward direction, occupying only the crests and the steeper slopes of Mt Sakar. Northwards of them the relief is characterized by hills and lowlands, with prevalence of open areas (arable land and pastures). Several elevations diversify the scene, of which the St Iliyski Hills (416 m), Bakadzhik Hills (403 m) and Hisar Hills (515 m) outline the northern border of the region. Deciduous forests still grow on some of their slopes and along river valleys. The region falls into the Transitory Mediterranean Climatic Zone (Galabov 1982).

Data on the distribution of breeding numbers of the Long-legged Buzzard have been collected during: (a) a target mapping of the potential breeding habitats; and (b) a subsequent long-time study of the Eagle Owl *Bubo bubo* started in 1994. Both species are strongly linked to rock habitats for their breeding.

The numbers of breeding pairs were recorded in four rock gorges, located in a prevalently open landscape, mainly in May: (1) Gorge of Tundzha River between Mt Sakar and Derevent Hills (UTM squares MG 54, 63, 64, annual surveys in 1995, 2000 and 2004); (2) Gorge of Golyama River in Mt Sakar (MG 24-34, annual surveys in 1995, 1999, 2001 and 2007); (3) Gorge of Bakarliya River in Mt Sakar (MG 24, annual surveys as in 2; Fig. 2); (4) Gorge of Dositevska River in Mt Sakar (MG 14, annual surveys in the period 1994-2007).

The food remains (pellets, skin, feathers, and bones) have been collected during three breeding seasons from two nests, and from the resting places of the birds and the

places for their observation in the rocky quarries, and only from the resting place of the adult birds in the third quarry in 2007. The mammals have been determined after Popov (2003) and the author's comparative collection. The species difficult for distinguishing, *Sylvaemus sylvaticus* and *S. flavicollis*, *Microtus arvalis* and *M. rossiaemeridionalis*, *Mus macedonicus* and *M. musculus*, have been identified to the genus level, which includes only the respective pair of species. The feathers have been determined by J. Menzel, and the bird bones according to the osteological collection of the National Museum of Natural History, in consultancy with Z. Boev. Amphibians and reptiles have been determined from bones and scales by N. Tzankov, the fish from pharyngeal teeth by Y. Sivkov, and the invertebrates by D. Chobanov.

The overlap of the food spectrum among the localities and samples was calculated according to Pianka (1973). For this analysis, lizards were categorized by genus, snakes by family, birds by class and arthropods by type. Overlap values have been reported as percentages.

Statistical differences in the types of rocks and nests, as well as in diet composition, were calculated by chi-square tests. A log-transformation of data was done before calculating Pearson correlation coefficients. All data are given as arithmetic mean \pm standard deviation.

RESULTS

Distribution of the breeding pairs and nest-site characteristics

The largest part of the breeding pairs in the study area place their nest on massive rocks, only in two instances the nest was built on trees (*Salix* or *Populus*). Among the mas-



Figure 2. The rocky slopes of the gorges in Mt Sakar offer some suitable nesting places to the Long-legged Buzzard, while its hunting grounds extend to the adjacent open habitats (the Bakarliya gorge, SE Bulgaria) – *I versanti rocciosi delle gole del M.te Sakar offrono idonei siti di nidificazione per la poiana codabianca, mentre i territori di caccia si estendono negli ambienti aperti circostanti (gola di Bakarliya, SE Bulgaria).*



Figure 3. In the absence of natural rocks, in SE Bulgaria the Long-legged Buzzard favours the quarries within the open areas for breeding – *In assenza di pareti naturali, la poiana codabianca seleziona per nidificare, nel SE della Bulgaria, le cave inserite in paesaggi aperti.*

sive-rock sites, in four instances the birds have selected quarries. These four quarries lie among the open habitats of arable and abandoned fields, pastures and forest patches in a hilly landscape. There are also scattered trees but no natural rocks in the vicinity on which the Long-legged Buzzards can nest (Fig. 3). Interestingly, two quarries are

still active, and detonating works are 250-300 m close to the occupied nests.

The numbers and density of breeding pairs in the studied gorges are presented in Tab. 1.

The massive rocks (including quarries) selected for breeding are quite variable, either in size, in vegetation

Table 1. Some characteristics of the breeding population of Long-legged Buzzard *Buteo rufinus* breeding in four gorges, SE Bulgaria (one nest in Tundzha gorge is situated on the Turkish bank) – *Alcune caratteristiche della popolazione di poiana codabianca nidificante in tre gole del SE della Bulgaria (un nido nella gola del f. Tundzha si trova in Turchia).*

Gorge of river (length km)	annual surveys	number of pairs	distance between neighbour nests (km)	1 pair/km gorge
Tundzha (17)	3	6 - 7 (6.3 ± 0.6)	1.8 - 4.5 (2.5 ± 0.9)	2.4 - 2.8 (2.7 ± 0.2)
Golyama (5)	4	3 - 4 (3.3 ± 0.5)	0.9 - 3 (1.8 ± 0.8)	1.3 - 1.7 (1.6 ± 0.2)
Bakarliya (5)	4	2 - 3 (2.8 ± 0.5)	1.8 - 2 (1.9 ± 0.2)	1.7 - 2.5 (1.9 ± 0.4)
Dositevska (1.5)	14	1 - 2 (1.1 ± 0.3)	0.9	0.8 - 1.5 (1.4 ± 0.2)

cover (Tab. 2); and in exposure, though rocks with southern and western exposition prevail (78%, n = 32). The only two massive rocks with northern exposition are set within quarries.

The nests are built mainly on rock terraces, without prominent shelter to protect them from bad weather (87 %, n = 32). Only four nests are in rock niches. Southern exposition (71 %) of the nests is significantly more frequent in respect to the general exposition of the rock massifs ($\chi^2_6 = 18.68$, $P < 0.01$). The only nest with northern exposition is in a quarry (Fig. 4).

Location of the nests on the massive rocks varies in height from the base (15.9±11.3 m; range 2.5-48.0). The two nests built on trees were 7 and 15 m above the ground. The nests vary between 0.5 - 1.1 m (mean 0.71, sd 0.18) in diameter and 0.15 - 0.25 m (mean 0.20, sd 0.04) in height (n = 21 nests on rocks).

Every year the nests in the quarries were lined inside with plastic bags, fibre, rope, and metal wire (Fig. 4). The nest in the St Iliyski Hills was lined inside with a whole knitted plastic sack in 2000, which did not prevent the pair from raising successfully three young. Only four nests on the natural rocks (24 %, n = 17) were lined with plastic bags and ropes.

Clutch and brood size

Clutch frequencies were: 2 clutches with 1 egg, 3 with 2 eggs, 6 with 3 eggs and 1 with 4 eggs, according to a sur-

vey made in the period 19-27 April, together with 1 delayed clutch found on 25 May. The nests with 1 egg were visited again in May to be sure of the clutch size: an adde egg in one of the nests and one young in the other. The brood size varies between 1 and 3 young: 2 nests with 1 young, 8 with 2, and 6 with 3, after investigations in the period 13-28 May, and recently hatched young on 27 April.

Diet

Mammals and birds prevail (Tab. 3), but the latter are more varied (12 species). Young birds constitute 30 % of them. We also identified the remains of a one-year old Carp *Cyprinus carpio*, 155-160 mm long, weighing 65-70 g. The prey-size varies from small Invertebrates to 1-1.5 kg Muskrat *Ondatra zibethicus* and young Brown Hares *Lepus capensis*.

Four mammal species and large lizards *Lacerta viridis/trilineata* dominate by the number of individuals in all seven samples. They account somewhere between 56 % and 90 % of the prey. Voles *Microtus* spp. and European Souselik seem the most frequent catch, constituting 41 % of all prey.

Comparing between years the diet in the same location we found no significant differences, on the contrary, The differences between the three locations were highly significant ($\chi^2_{132} = 67.58$, $P < 0.001$), this was mainly due to the higher consumption of voles in St Iliyski Hills, of the Water Voles *Arvicola terrestris* in Bakadzhik Hills and of lizards in Hisar Hills.

Table 2. Characterizations of the massive rocks (n = 32) with Long-legged Buzzard *Buteo rufinus* nests, SE Bulgaria. Each asterisk refers to a nest in a quarry (n = 4) – *Caratterizzazione delle pareti rocciose (n = 32) con nidi di poiana codabianca nel SE della Bulgaria. Ogni asterisco indica un nido in una cava (n = 4).*

length (m)	height (m)	vegetation on them
< 50 m - 13%	< 20 m - 22% *	without - 9% *
50 - 100 m - 34% *	20 - 40 m - 53% **	grass - 31% *
101 - 300 m - 19% **	> 40 m - 25% *	grass and bushes - 25% *
> 300 m - 34% *		grass, bushes and trees - 35% *



Figure 4. The Long-legged Buzzard nests in the quarries are often lined by various plastic waste materials. The slanting slope above the nest opens it to the sun, irrespective of the fact that the rock is with northern exposition. The pile of dry grass at its edge is part of a Spanish Sparrow *Passer hispaniolensis* nest (chicks at approximately 26–30-d-old, 29.05.2007, SE Bulgaria) – *I nidi di poiana codabianca nelle cave sono spesso imbottiti anche da vari materiali plastici. L'inclinazione della parete sopra il nido permette l'esposizione dello stesso al sole, sebbene la parete sia esposta a N (pulli di ca. 26-30 giorni, 29.05.2007, SE della Bulgaria). Il mucchio di erba secca ai margini del nido è parte di un nido di passera sarda P. h.*

The Long-legged Buzzard catches mainly inhabitants of the open habitats. The Bakadzhik Hills pair has shown a significant difference in the habitat distribution of prey throughout the years ($\chi^2_{(6)} = 15.68$, $P < 0.05$). This was explained by the significantly shrinking catch of inhabitants of the urban settled territories during the investigated period, predominantly of Common Rats *Rattus norvegicus* near the livestock farms. The diet in that location differs significantly from that in the other two quarries by the higher catch of prey outside the open areas ($\chi^2_{(6)} = 29.71$, $P < 0.001$).

The pellets usually contain the remains of two preys (mean 1.8 ± 0.9 , range 1-4), often from different species (1.6 ± 0.8 taxa, 1-3). One-species pellets are usually of voles (23 %), European souslik (11 %) and Brown hare (11 %). Four pellets (11 %, $n = 35$) collected in or under the nests, contained plastic fibres and fragments. One of these was entirely of plastic fibres mixed with the fur of Brown Hare.

The following prey species have been also identified in the pellets and food remains in Mt Sakar: Black-crowned Night Heron *Nycticorax nycticorax* - 1 Ind., Grey Partridge *Perdix perdix* - 1 Ind., Common Turtle Dove *Streptopelia turtur* - 1 Ind., Calandra Lark *Melanocorypha calandria* - 1 ad. and 1 juv., Barred Warbler *Sylvia nisoria* - 1 Ind., Montpellier snake *Malpolon monspessulanus* - 1 Ind., Sand viper *Vipera ammodytes* - 1 Ind. and White-faced Bush Cricket *Decticus albifrons* - 2 Ind.

Coexistence with the Eagle Owl in the quarries

In two of the quarries, the Long-legged Buzzard nests jointly with the Eagle Owl. Their nests are at a distance of 70 m and 650 m, respectively. There have been analogous cases in three massive rocks in Mt Sakar, where the minimum distance between their nests was 60 m, 100 m and 500 m. Long-legged Buzzard has always bred later than the Eagle Owl. While in the second half of April the former just brooded, the latter already has hatched its young (author's unpubl. data). A flying Long-legged Buzzard would always attack at close range an Eagle Owl on the takeoff, but never engaging into a long chase.

No remains of adult or young Long-legged Buzzards have been found in the Eagle Owl's diet from these nests. The mammal diet of the two species overlapped in the St.

Table 3. Diet of the breeding Long-legged Buzzard *Buteo rufinus* in 3 quarries, SE Bulgaria. *- dominant prey – *Dieta della poiana codabianca nidificante in tre gole del SE della Bulgaria; gli asterischi indicano le prede dominanti.*

Prey species	St Ilijski Hills			Bakadzhik Hills			Hisar Hills	Total	% by number
	1998	2002	2007	1998	2002	2007	2007		
<i>Erinaceus concolor</i>				1				1	0.53
<i>Talpa europaea</i>				1		1		2	1.06
<i>Lepus capensis</i> (juv.)	1			1		2		4	2.12
<i>Spermophilus citellus</i> *	7	5	5	2	5	3	8	35	18.52
<i>Glis glis</i>				1				1	0.53
<i>Microtus</i> spp. *	5	4	17	2	2	8	4	42	22.22
<i>Arvicola terrestris</i> *		1		8	3	4		16	8.47
<i>Ondatra zibethicus</i>						1		1	0.53
<i>Sylvaemus</i> spp.						1		1	0.53
<i>Rattus norvegicus</i> *	3	1		13	2	1		20	10.58
<i>Mus</i> spp.	1		1					2	1.06
<i>Nannospalax leucodon</i>	2	1	1	1				5	2.65
Mammalia (subtotal)	19	12	24	30	11	21	12	130	68.78
<i>Alectoris chukar</i>	1							1	0.53
<i>Gallinula chloropus</i>				2				2	1.06
<i>Burhinus oedicnemus</i>						1		1	0.53
<i>Columba livia f. dom.</i>					1			1	0.53
<i>Columba palumbus</i>				1				1	0.53
<i>Athene noctua</i> (juv.)		1						1	0.53
<i>Galerida cristata</i>						1		1	0.53
<i>Alauda arvensis</i>			1					1	0.53
<i>Turdus</i> sp. (juv.)						1		1	0.53
<i>Garrulus glandarius</i>				1				1	0.53
<i>Corvus corone</i>				1				1	0.53
<i>Sturnus vulgaris</i> (juv.)			1					1	0.53
Passeriformes indet.		1	1 juv.			1	1 juv.	4	2.12
Aves (subtotal)	1	2	3	5	1	4	1	17	8.99
<i>Coluber caspius</i>	1				1			2	1.06
<i>Natrix</i> sp.		1	3	1		1		6	3.17
<i>Lacerta viridis/trilineata</i> *			5	1	1	1		8	4.23
<i>Lacerta trilineata</i> *			1			1	7	9	4.76
Reptilia (subtotal)	1	1	9	2	2	3	7	25	13.23
<i>Rana ridibunda</i>			1		1			2	1.06
Amphibia (subtotal)			1		1			2	1.06
<i>Cyprinus carpio</i>						1		1	0.53
Pisces (subtotal)						1		1	0.53
<i>Scolopendra cingulata</i>			2	1	1	3		7	3.70
<i>Decticus</i> sp.				3	2			5	2.65
Orthoptera indet.				1				1	0.53
<i>Gryllus campestris</i>							1	1	0.53
Arthropoda (subtotal)			2	5	3	3	1	14	7.41
Total	21	15	39	42	19	32	21	189	100.00

Iliyski Hills by 40.4 % in 2002 and 53.8 % in 2007 and in the Hisar Hills by 43.8 % in 2007. The European Soudlik, which is the main prey of these Long-legged Buzzard pairs, was identified with only one individual (0.25 % of the mammals, $n = 396$) in the diet of the Eagle Owl in St Iliyski Hills in 2002. Reptiles have not been caught by Eagle Owls (author's unpubl. data).

DISCUSSION

Distribution of the breeding pairs and nest-site characteristics

Southeast Bulgaria lies in the zone of initial penetration of the Long-legged Buzzard into the country until 1950, but its breeding here was proved only in 1979 in Mt Sakar (Michev *et al.* 1984). Five years later Borisov (1988) found seven pairs in a region where Michev *et al.* (1984) had reported one individual. These pairs had nested there in the period 1984-1986, while during the present study there have been six to eight pairs. Stable breeding numbers of six-seven pairs were registered in the river Tundzha gorge in 1995-2004, where Michev *et al.* (1984) had observed one pair. The differences in the breeding numbers prior and after 1979 are rather due to the lack of a precise earlier study in Mt Sakar, where Michev *et al.* (1984) spent only one day.

The Long-legged Buzzard uses gorges mainly because of the rocks suitable for its nests, and feeds predominantly in the neighbouring open habitats.

Nesting on trees or power-transmission poles (Makatsch 1976, Tucker and Heath 1994, Hagemeyer and Blair 1997, Mebs and Schmidt 2006) is rather rare in Bulgaria. In the last 50 years only one nest has been reported on a tree (Boev 1962, Karaivanov 2000). This study does not record precisely the pairs nesting on trees, but apparently such nests are less preferred to those in the rocks. The birds probably resort to them only after the suitable massive rocks have been occupied. For instance, the numbers of Long-legged Buzzard in the Central Danubian Plain have gradually increased up to 60 pairs since 1981, but no tree nest has been found (Shurulnikov *et al.* 2005).

One nest in a quarry was reported by Karaivanov (2000) in Bulgaria and a similar case is known in neighbouring Greece (Hölzinger 1992). The four new nests found in quarries present a good opportunity for the Long-legged Buzzard to nest in suitable hunting grounds, without natural massive rocks. Inhabiting active quarries with detonating activity and enhanced human presence confirms the species' greater tolerance to human activities

(Hagemeyer and Blair 1997). Contrary to the Eagle Owl, the other big bird of prey which inhabits the quarries in the region, the Long-legged Buzzard is easy to spot out, owing to its daytime activities, a visible nest made of branches, and its shrill cries at human approach. All this presumes a more intensive direct human disturbance and is probably the reason for more seldom nesting in the quarries as compared to the Eagle Owl found in nine active quarries in SE Bulgaria (Miltshew 1999, author's unpubl. data).

The Long-legged Buzzard is quite adaptable to the characteristics of the massive rocks, when choosing a place for its nest in SE Bulgaria. It occupies even rocks that are easily accessible to man, thus deviating from the former reports of Michev *et al.* (1984), Vatev (1987). These nests, however, are located in seldom visited or not visited by men areas. The birds favour rocks that do not face to the north.

The Long-legged Buzzard increasingly uses more artificial materials for nest lining, contrary to the former reports from Bulgaria (Vatev 1987, Simeonov *et al.* 1991). On the one hand, this fact relates to the generally greater burdening of the environment with plastic waste and, on the other, to the situation of nests in quarries, which are in close proximity to farm complexes and settlements.

Clutch and brood size

The clutch size is 3-4 (2-5) eggs (Glutz von Blotzheim *et al.* 1971, Cramp and Simmons 1980), but data include more often 2-3 eggs, as reported by Mebs and Schmidt (2006). For the first time two clutches of 1 egg were reported. The periods of registered nests with eggs and chicks comply with the strongly extended in time period of egg-laying from the end of March to mid-May reported for this species in Bulgaria (Michev *et al.* 1984, Karaivanov 2000).

Diet

The diet of the Long-legged Buzzard with prevalence of small and average-sized mammals and lizards is similar to that described for West Palearctic (Cramp and Simmons 1980, Mebs and Schmidt 2006). The novel thing in the food was the first findings of fish. The more ample material and the analysis of the food remains from the resting places of the adult birds contributed some first-time reports of invertebrates and several new species of birds and mammals in its diet in Bulgaria (Simmons *et al.* 1991, Alivizatos and Gouthner 1997). Muskrat was discovered for the first time in the diet of the Long-legged Buzzard in South Bulgaria (Milchev 2007). Quite possibly, some of the larger prey, such as Muskrat, Eastern hedgehog, Black-crowned Night Heron, Carrion Crow, and Carp, found as

single individuals, were wounded or dead animals. Carrion diet reports, however, refer only to the winter period (Glutz von Blotzheim *et al.* 1971, Cramp and Simmons 1980). For the first time plastic fibres and fragments have been found in the pellets, which corresponds to nest lining with artificial materials.

The diet range of the studied pairs did not show any significant difference throughout the years. Although there has been no data available about their prey populations, the results have shown that their numbers in the hunting grounds have been relatively stable. The differences in the diet of the three pairs are significant. This probably corresponds to the different supply and accessibility of the potential prey in their hunting grounds. Vatev (1987) noted that the European Souselik was absent in the diet of the pair studied by him, contrary to the data supplied by Michev *et al.* (1984).

The Long-legged Buzzard mainly feeds on the inhabitants of open areas, according to its preference for such habitats as hunting grounds (Glutz von Blotzheim *et al.* 1971, Cramp and Simmons 1980, Simeonov *et al.* 1991, Alivizatos and Gouthner 1997). The pair in the Bakadzhik Hills manifested its adaptability to accessible food sources living in other habitat types. Inhabitants of the wetland and urban settled territories constitute 43.5 % of its prey. The opportunity of expanding the diet range also explains to a great extent the expansion of the species, along with its adaptability to the characteristics of the rocks suitable for nesting and its tolerance for human activities.

Coexistence with the Eagle Owl in the quarries

These two big birds of prey have shown tolerance to each other in the quarries and in the natural rock habitats. There was a case when an Eagle Owl, which as a rule lays earlier its eggs, had successfully hatched and raised its young in a Long-legged Buzzard's nest, used by the latter during the previous year (Miltshev 2003). The European Souselik and lizards, which are the main prey of the Long-legged Buzzard, are caught by the Eagle Owl as an exception. Therefore, the Eagle Owl cannot be regarded as a food competitor.

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