

NOTE ON THE COLORATION AND TAXONOMICAL STATUS OF THE BEAR (*URSUS ARCTOS* L.) IN BULGARIA

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The question of the subspecific status of the bear (*Ursus arctos* L.) in Bulgaria has so far been examined perfunctorily, in spite of the fact that from the point of view of geographical variability of the species the Balkan population, owing to its location is of particular interest. The only work dealing with the question (П у с к о в, М а р к о в, 1974) concludes, on the basis of the examination and comparison of a small number of skulls, that the bear in Bulgaria belongs to the nominate subspecies. This view supports the sufficiently justified opinion, according to which, regardless of the variations in form only one subspecies inhabits Europe — *U. a. arctos* L., 1758 (П о с о с к, 1932; Е l l e r m a n & M o r r i s o n - S c o t t, 1951; Г е п т н е р et al., 1967).

However, certain morphological features of bears in Bulgaria, together with the geographical situation of the Balkan population give ground to consider that the question of the formation of this population is not so simple. The study of the taxonomic status of the Bear was hampered both by the limited possibility of collecting and comparing skulls and skins of the species, and its considerable variability, in particular as far as coloration is concerned (C o u t u r i e r, 1954). That within one and the same bear population it is possible to come across both dark and light coloration (as is the case with the European subspecies) is well known (Г е п т н е р et al., 1967). Nevertheless coloration reflects geographical variability and to this day remains one of the principal criteria of the subspecific taxonomy of this carnivorous species.

The European subspecies (*U. a. arctos*) is characterized above all with a dark-brownish coloration, by various shades, regardless of the existence of various light individual (not rare for example in the Pyrenees), which are rusty-yellowish, yellowish-brown and sandy brown. Special attention to the coloration of the bear in Bulgaria and its variation appears in Г ъ н ч е в (1990). The author draws attention to the great variety of colouring of bears inhabiting one and the same region. (The Caucasuses provide a parallel in that respect — Г е п т н е р et al., 1967; Т и х о н о в, 1987.) What is striking in Gunchev's paper is the existence of specimens with a very light coloration. Other sources also refer to Bulgarian bears with light colouration (П о д г о р о в, 1942). Such bears, representing an extreme form of coloration for the European form, (like the Pyrenean bear) are comparatively frequent in Bulgaria. They are characterized by golden-yellow colour of the guard hairs of the skin. This colour is almost evenly spread all over the body including the area of the abdomen. The head, which with bears as a rule is the first to receive a lighter coloration, is particularly light yellow. The distal parts of the limbs, which with the dark bears are almost black, can be comparatively darker — light brown-rufous-yellowish. A darker yellow-brown spot may be seen at the shoulder. The fluffy hairs are darker — creamy-beige, however much lighter than the brown fluffy



Fig. 1. Cape Ground Pangoline (*Manis temmincki* Smuts) — locality: near the village of Mazeze, Cabo Delgado (North Mozambique)

To N. Spassov's article "On the presence and specific position of pangolins (Gen. *Manis* L.: Pholidota) in North Mozambique"

To N. Spassov's article "Note on the coloration and taxonomical status of the bear (*Ursus arctos* L.) in Bulgaria"



Fig. 1. Light type (gold-yellowish) coloration of adult female bear (Sofia Zoo; photo V. Hazan)

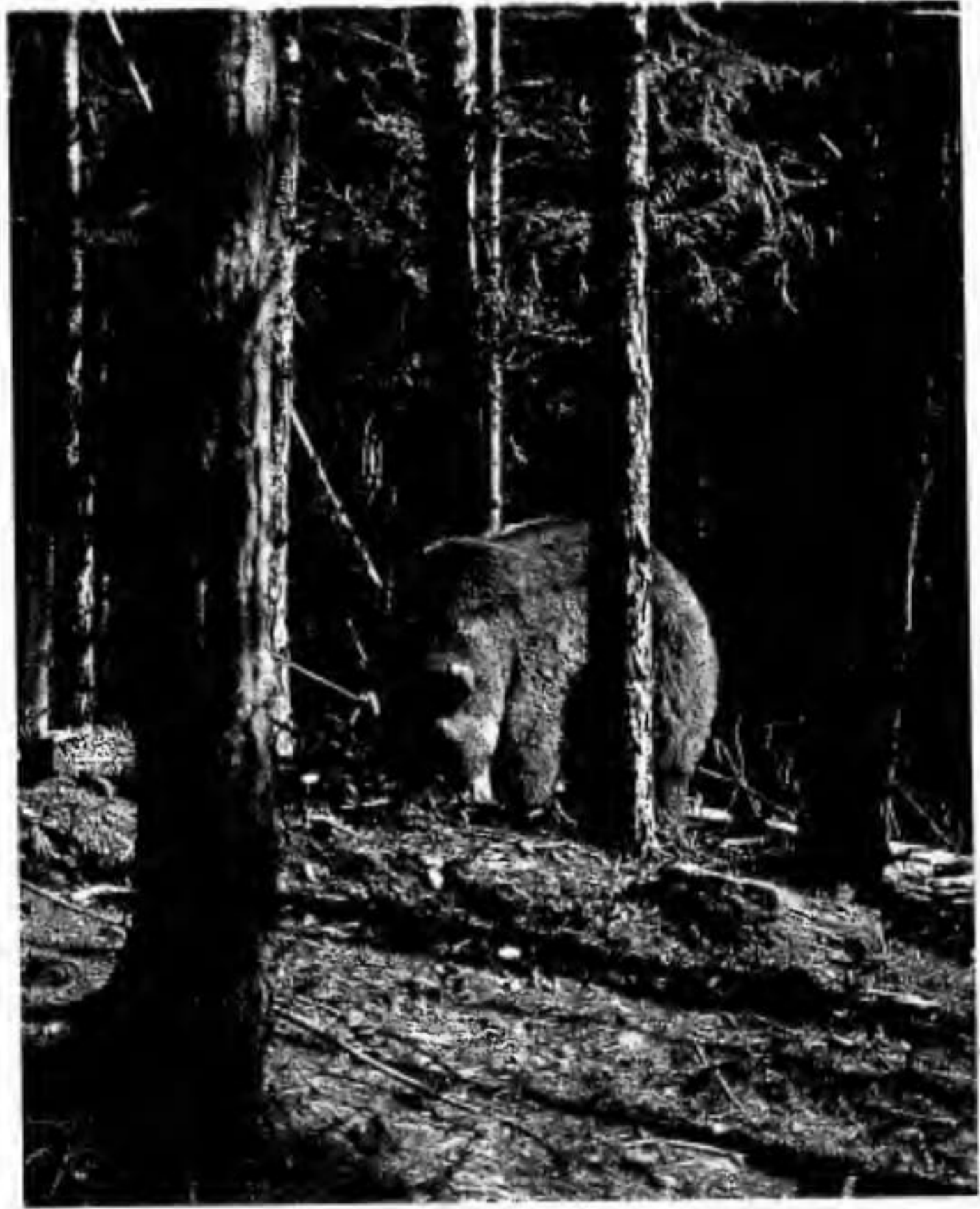


Fig. 2. Light type (gold-yellowish) coloration of 4-1 year old female bear from Verila Mountains (Sofia Zoo; photo V. Hazan)
Fig. 3. A bear in natural biotope from the Middle Balkan Mts' (photo R. Gunchev)



Fig. 4. Dark type coloration. Carpathian adult male (Sofia Zoo)

hairs of the dark type of bear. The sole and the nose are usually light, with the colour of flesh (contrary to the black nose and grey-black sole with dark bears). The nails are usually semi-translucent, light beige, contrary to the blackish or brownish nails of the dark type of bear. So far no relationship has been found between colour of the light bears in Bulgaria and their size, however the specimens the author is familiar with are not of important size. Dark bears in Bulgaria are less frequently very dark (blackish-brown), and often have a reddish shade (Fig. 3). Intermediary forms exist between the light and dark type, with a yellowish head and brown hairs on the body with lightly tipped hairs on the back, which give the skin a variegated appearance.

The Bulgarian light form (Figs. 1 and 2) very much is reminiscent of the light coloured form, from the Caucasus, which is still with a disputed taxonomic status (personal observations of skins from the collection of the Zoological Museum of Moscow University, National Natural History Museum, Sofia, The Hunters' Museum, Sofia, Sofia Zoo etc.). Such bears are close to the Syrian subspecies (*Ursus arctos syriacus* Hemprich et Ehrenberg, 1828). According to a number of authors this subspecies inhabits the Transcaucasia Region and Asia Minor (Ellerman & Morrison-Scott, 1951, Гептнер et al., 1967). Frequently the interpretation of the colours is subjective, however if we judge by the data supplied by Kumerlove (1967), the variations of coloration of bears in Asia Minor (Turkey) do not differ substantially from those in Bulgaria. A dark (brown) type of coloration also appears, alongside with a very lightshaded one, as well as the rare "reddish" coloured bears, also observed in Bulgaria. Some of our observations lead to the conclusion that contrary to bears in Turkey, those of the Carpathian are as a rule darker than bears in Bulgaria (Fig. 4) and the light coloured type is darker, not so prominent with them.

Петков (1960) notes an interesting fact that the three bears in British Museum (Natural History), coming from Bulgaria, have been attributed to the Syrian subspecies. Categorical taxonomic conclusions based solely on coloration is premature. In spite of the fact that coloration does not have a marked adaptive significance with bears, it is possible that the frequency of occurrences of light and dark forms in different regions may have only an ecological value. Regardless of that, taking into consideration the polymorphic coloration of the bear in Bulgaria and the similarity of coloration with the bear from Asia Minor and the South Caucasus forms (Spiridonov, Spassov, in press), we have ground to suppose that both our population and the entire Balkan population have a complex origin. It may have been formed through contact with the nominate European form with vagrants from the South, through Asia Minor before the end of the Pleistocene and may have a hybrid origin. A similar origin is expected now to be the case of the Caucasian population, with a similar polymorphism in the coloration (Гептнер et al., 1967; Тихонов, 1987). In fact it is noteworthy that Middendorf had observed a similarity between the Caucasian bear, the bear from Asia Minor and the South-European bear as far back as 1851.

The importation of bears from the Carpathian Mountains and apparently from the Komi ASSR, has been carried out over the recent years in Bulgaria (Central Balkan Range and the Rhodopes). This inappropriate step will hamper the study of the intraspecific status of the bear in Bulgaria.

Morphological similarity with a number of other carnivores from the Balkans and the Caucasus, such as the lynx, the wild cat, the jackal, the marbled polecat also point to similar origins and conditions of formation between the Balkan and Caucasian macromammalian fauna and their link through Asia

Minor. The elucidation of the origin of the Balkan (as well as West Asia Minor population) of the bear will contribute to the further clarification of the processes of migration and the formation of recent mammalian fauna on the Balkans.

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ОБ ОКРАСКЕ И ТАКСОНОМИЧЕСКОЙ ПРИНАДЛЕЖНОСТИ МЕДВЕДЯ В БОЛГАРИИ

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(Резюме)

Особенность медведя в Болгарии — сильный полиморфизм окраски и частая встречаемость очень светлых особей, подобно медведю на Кавказе. На основании этой особенности и особого географического положения Балкан в отношении ареала бурого медведя и его подвидов высказывается предположение, что балканская популяция образовалась в результате гибридизации номинативной европейской формы с пришельцами с юга через Малую Азию (сирийский подвид) в конце плейстоцена.