

# Breeding of the Booted Eagle *Hieraaetus pennatus* in North-Western Croatia

## Zwergadler-Brutvorkommen in Nordwest-Kroatien

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### 1. Introduction

Although the Booted Eagle, *Hieraaetus pennatus*, is a Mediterranean species (RUCNER 1968) it occurs as a breeding bird more frequently in the southern and eastern parts of the Balkan Peninsula than in Croatia (MATVEJEV et al. 1973). In Croatia the Booted Eagle is considered to be a breeding species only in Slavonia (= Slavonija, north-eastern Croatia) (MATVEJEV et al. 1973; VASIĆ et al.

1985). However, these data may insufficient to characterize the real state of the species' distribution.

A young Booted Eagle was found in the Bilogora Mountain in Northwestern Croatia at the utmost western fringe of its main breeding range in the East (Vooos, 1960). The data concerning this record are presented in this paper.

### 2. Area and Circumstances

Bilogora is an elongated, wooded mountain range in the north-western part of Croatia (Fig. 1). It stretches from Koprivnica on the west to Miokovicevo in the east. The highest peak of Bilogora is Rijeka, 307 m above sea level.

A Booted Eagle nestling was found in the Veliki Rastovac Forest on the eastern slopes of Bilogora at 232 m above sea level. The forest is comprised of Durmast Oak and Hornbeam, *Quercus-carpinetum illyricum* Horv. 1938, and about 80 years old. In places there are groups of Beech, *Fagus sylvatica*, and Lime, *Tilia sp.*, as well as some single Common Maple, *Acer campestre*, and Bird Cherry, *Prunus avium*, trees; in the lower parts there are also Common Oak, *Quercus robur*, trees. Gornje Poilovlje, the area towards which the eastern slopes of Bilogora gravitate, is a rich habitat for birds (DELIĆ, 1988).

The area where the bird was found is not settled by people, and the nearest village is Turcevic Polje, about 2 km away in the bee line.

The young Booted Eagle was found on 25th September 1992 by a forester. It was a sunny and quiet day (the summer of 1992 is considered the hottest summer in the past six years). The bird was kept alive for 45 days. It did not take food, and was therefore crammed. The first days it was on fish, later on house mice and house sparrows. Some biometric data were taken.

The Booted Eagle nests in trees (PERRINS, 1987), and they eyrie should have been placed in a treetop nearby. The area was examined on 16th January 1993 in order to find the nest.

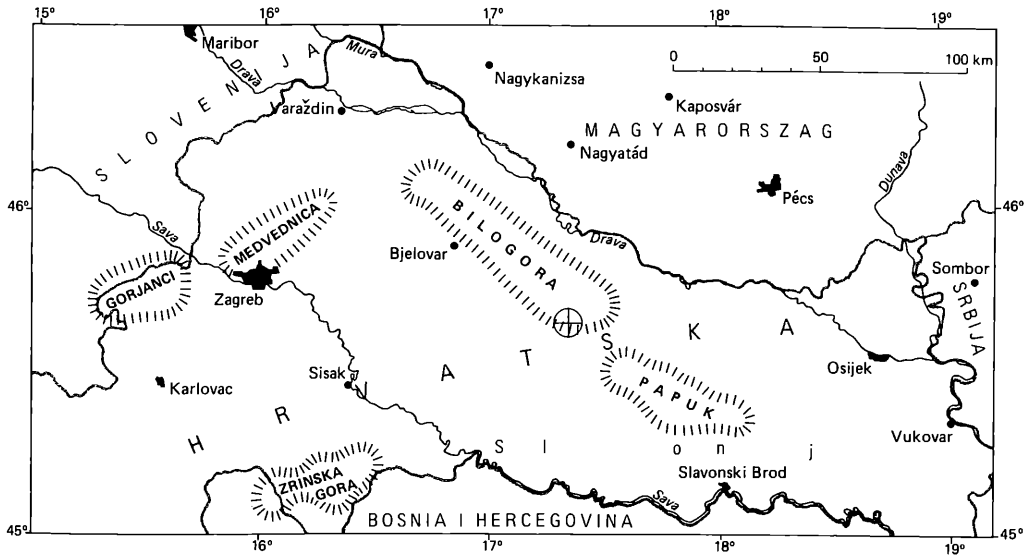


Fig. 1:

Breeding locality (cross-marked circle) of the Booted Eagle in Bilogora Mountain in north-western Croatia. – Fundort (Kreis mit Kreuz) des Zwergadlers im Bilogora-Gebirge in Nordwest-Kroatien.

### 3. Results

The Booted Eagle was found on the forest ground. Obviously it was in a good condition when it was found. It tried to fly off, but it was unable to rise in to the air. The bird was just acquiring its juvenile plumage. It was identified as a Booted Eagle, *Hieraaetus pennatus*, and its age was established as a two-month-old nestling according to PORTER et al. (1981). Its length was 520 mm and its weight 710 g; the length of its wings was 394 mm.

During its stay in captivity the bird acquired its full juvenile plumage. Cheek and throat were yellowish-white; the nape was yellowish-white with dark brown feathers in places; the breast, belly and flanks were yellowish-white with sparsely elongated streaks; the upper wing-coverts

were dark brown with white tips appearing as white spots; the under wing-coverts were white, while the primaries were black-brown with a narrow white edge at the tips; the forehead was white and the crown streaked with brown; the supercilium and the lore were blackish, surrounding the eye; the iris was dark grey; the bill was black, while the cere and the gape were yellow; the foot was yellow and the claws black.

On 16th January 1993 the bird's nest was found at a distance of about 300 m from the place where the young had been found. It had a diameter of about 1 m, and it was placed on the forked branch of a beech tree at a height of about 20 m. The circumference of the tree trunk was 28 cm.

### 4. Discussion

MATVEJEV et al. (1973) mention the Booted Eagle as a breeding bird in the Slavonian part of Croatia, but they do not provide any

data on nesting locations, breeding season, or the number of pairs. VASIĆ et al. (1985) mention only (probably to protect the nest)

that nesting of the Booted Eagle was recorded in Slavonia in 1981. The finding of a young in the north-western part of Croatia is the first proof in this area. MUZINIĆ et al. (1922) consider the Booted Eagle to be a rare breeding bird in Croatia.

The young found on Bilogora was reared by its parents, but for unknown reasons it found itself outside the nest on the ground, before becoming fully fledged. In the case of the Booted Eagle two chicks often hatch, but it is rare for both to be reared since the brood is often reduced to one. One chick survives in the nest and stay in it (CRAMP & SIMMONS, 1979). Since the specimen was found as a two-month-old nestling, it may be concluded that it was hatched around 25th July 1992.

Incubation lasts 35 (36)–38 days (BOUCHER, 1978; PERRINS, 1987), so it may be presumed that the eggs were laid around June 20th. 1992, indicating late breeding.

The Booted Eagle populations of the countries of the former USSR are late breeders (CRAMP & SIMMONS, 1979) but there are no exact data on when the Booted Eagle starts breeding in the Eastern Medi-

terranean area. There are no data in general on the biology and ecology of populations in the eastern/Mediterranean part of Europe.

The Booted Eagle is known to be dimorphic with regard to plumage and occurs as a pale morph or a dark morph. The morphological description of the juvenile bird that was found conforms to the description of the pale morph given by CRAMP & SIMMONS (1979) und PORTER et. al. (1981).

The Booted Eagle, as a bird of prey, builds a relatively small nest on tall deciduous trees (VOOUS, 1960), but often uses the nests of other birds. It may, therefore, be concluded that the nest with a diameter of 1 m which was found in a beech tree about 300 m away from the place where the young Booted Eagle was found on the ground was its nest. The finding of the nest makes breeding of this species in the eastern Bilogora area even more likely.

Veliki Rastovac Forest on Bilogora is a typical habitat of the Booted Eagle which, according to VOOUS (1960) looks for deciduous and mixed woodlands in valleys and on low mountains.

### Summary

Breeding of the Booted Eagle, *Hieraetus pennatus*, was proved for the Veliki Rastovac forest on the eastern slopes of Bilogora Mountain in north-western Croatia in 1992. This is the first record for the nesting of this species in this part

of Croatia. The specimen was a pale morph. The bird was found as a two-month-old nestling fallen to the ground. This age indicates the beginning of breeding around the 20th June, 1992, which is quite typical for late breeders.

### Zusammenfassung

Brut des Zwergadlers, *Hieraetus pennatus* (Gmelin) 1788, in Nordwest-Kroatien

Im Jahre 1992 wurde der Zwergadler im Waldgebiet von Veliki Rastovac im Ostteil des Bilogora-Gebirges in Nordwest-Kroatien als Brutvogel angetroffen. Dieses ist der erste Nachweis der Art in diesem Teil Kroatiens. Es handelt sich um den Fund eines nichtflüggen Jungvogels

im Alter von etwa zwei Monaten. Das geschätzte Alter läßt auf einen Brutbeginn um den 20. Juni schließen, einem relativ späten Datum. Bisher galt der Zwergadler nur als Brutvogel im östlicher gelegenen Slawonien.

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