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Pipistrellus pygmaeus and two more species of bats recorded on the Island of Kefalonia, Greece (Chiroptera: Vespertilionidae)

Zjištění *Pipistrellus pygmaeus* a dalších dvou druhů netopýrů na ostrově Kefalonie, Řecko (Chiroptera: Vespertilionidae)

Jiří GAISLER

Institute of Botany and Zoology, Faculty of Science, Masaryk University, Kotlářská 2, CZ–611 37 Brno, Czech Republic; gaisler@sci.muni.cz

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Abstract. At a small harbour town of Poros, SE Kefalonia, numerous foraging *Pipistrellus kuhlii* and *P. pygmaeus* were acoustically recorded (Petersson D200 bat detector) on 22 and 24 June, 2006. On 22 June, a high flying noctule, probably *Nyctalus lasiopterus*, was also heard. These records complete the list of bats, known to occur on the island, to a total of five.

INTRODUCTION AND METHODS

Kefalonia (also Cephalonia, Kefaloniá, Kefallinia) is the largest of Ionian Islands. Contrary to the more northerly Corfu (Kérkira), the bat fauna of the island has been little studied. In Argostoli, the capital of the island, 10 individuals of *Pipistrellus kuhlii* (Kuhl, 1817) (3 males and 1 female identified) were recorded in 1908. Fitídi Cave, Karavómilos, was the only other known locality where bats were observed. In 1970, one male of *Rhinolophus hipposideros* (Bechstein, 1800) and in 1971, two males and one female of *R. euryale* Blasius, 1853 were collected in the cave. For the localities and details of the records, see Hanák et al. (2001).

During a touristic sojourn at a small town of Poros in June 2006, the author and his wife recorded the echolocation signals of bats with the aid of a Petersson D200 heterodyne bat detector. Foraging bats were seen and heard under a canopy of trees in a dry bed of a brook. In addition to very numerous *P. kuhlii* (peak energy frequency 40 kHz), foraging individuals of *P. pygmaeus* (Leach, 1825) were also detected (53–55 kHz). The main goal of the paper is to contribute to the knowledge of the distribution of the latter species. The *raison d'etre* of this taxon, originally separated from *P. pipistrellus* on the basis of its relatively high echolocation signals, has been generally accepted (Simmons 2005). Its occurrence, however, is far from being sufficiently known.

RESULTS AND DISCUSSION

A locality where bats were expected to fly was discovered in the centre of Poros at a bridge over a brook which was dry at this time of year. The only water existing during our observation of bats was a small pool ca. 5 by 0.5–1.0 m, at the left bank upstream of the brook. The locality is situated only about 100 m away from the estuary, its elevation therefore is roughly 0 m. While the bed downstream of the bridge is bare, the banks of that lying upstream are grown with deciduous trees forming a dense canopy. On 26 June, we found that the bed was bulldozed and the pool destroyed, probably to prevent the development of mosquito larvae. This situation is shown in Fig. 1.

Acoustic bat detectoring was performed on 22 June from 21:20 to 21:45 hours and on 24 June from 21:00 to 21:30 hours local (eastern European summer) time. In both cases, the greatest activity was recorded at the beginning when the bats were also detected visually. No bats were detected during the last five minutes of each observation. The bats were foraging and their feeding buzzes were frequently heard. The greatest density of foraging bats was recorded above and close to the pool but commuting and foraging bats were also recorded upstream to about 50 m from the bridge. Within the same time span no activity was recorded downstream between

Fig. 1. Dry bed of a brook at Poros, Kefalonia, where foraging *Pipistrellus kuhlii* and *P. pygmaeus* were recorded by a bat detector on 22 and 24 June 2006. Photo by the author.
Obr. 1. Vyschlé řečiště potoka v městečku Poros na Kefalonii, kde byli 22. a 24. 6. 2006 detektorem ultrazvuku zjištěni lovící netopýři druhů *Pipistrellus kuhlii* a *P. pygmaeus*. Snímek autora.

the bridge and the estuary. It was difficult to estimate the number of flying bats but there were certainly more than 10 individuals flying at the pool at one time. Judging from the density of 40 kHz and 55 kHz signals, there were ca. three times more *P. kuhlii* than *P. pygmaeus*.

After the end of the first observation in the dry bed of the brook, we continued the bat detectoring walking slowly through Poros. At 21:50 h we recorded the typical loud, low frequency signals of a noctule. The bat (bats?) was heard for five seconds but was not seen, probably performing a commuting flight at a high elevation. Kefalonia is a green island and the slopes bordering Poros are grown by shrubs and some trees. Noctules, therefore, can be expected to occur in that habitat. Since the signals we recorded had the peak frequency of 18 kHz, *Nyctalus leisleri* (Kuhl, 1817) can be excluded and, of the two remaining species, *N. lasiopterus* (Schreber, 1780) is more likely than *N. noctula* (Schreber, 1774).

According to the present evidence, *P. pygmaeus* is distributed from British Isles, S Scandinavia, Ukraine and W Russia south to the Mediterranean (Mayer & von Helversen 2001, Hulva et al. 2004, Simmons 2005). Molecular and phylogeographic analysis demonstrated that the divergence of *P. pipistrellus* and *P. pygmaeus* probably took place in the Mediterranean region (Hulva et al. 2004). Mediterranean islands, therefore, can be expected to harbour one of the two or both *Pipistrellus* species, depending on habitats. While *P. pipistrellus* is rather a generalist, *P. pygmaeus* prefers lowland, in particular riparian habitats (Mayer & von Helversen 2001). In addition to Kefalonia, we recorded *P. pygmaeus* on Rhodes, Mallorca and Cyprus, of which the Rhodes and Cypriot records were published (Hanák et al. 2001). On Mallorca (Balearic Isles), *P. pygmaeus* was acoustically detected at Playa d'Alcúdia, between Port d'Alcúdia, the sea and the hills Puig de Sant Martí, on 3 and 5 September, 2002. As in Kefalonia, *P. kuhlii* were more frequently detected than *P. pygmaeus*. In the same habitat, *Eptesicus serotinus* was recorded on 4 September. The bats were only flying where there were trees growing (Gaisler, unpublished).

According to Hanák et al. (2001), the presence of *P. pygmaeus* has been demonstrated by genetical analyses from four localities in the mainland Greece and with the aid of bat detectors from another 11 localities in both the mainland and two Greek islands. Very likely, the species is more common than shown by the hitherto evidence. Concerning Kefalonia, our records increase the number of bat species known to live there to five but the species identity of the noctule remains uncertain. Considering that 12 species of bats have been known from Corfu (Hanák et al. 2001), the list of the Kefalonian species is certainly incomplete. There are various habitats, from lowlands up to 1620 m a. s. l., and the island is also rich in natural caves. The situation is promising for a more systematic study the Kefalonian bat fauna.

SOUHRN

Početně létající a lovící netopýři druhů *Pipistrellus kuhlii* a *P. pygmaeus* byli zjištěni ultrazvukovým detektorem (Petersson D200) ve dnech 22. a 24. 6. 2006 v přístavním městečku Poros na ostrově Kefalonia, Řecko. Dne 22. 6. byly zachyceny také signály vysoko letícího netopýra rodu *Nyctalus*, pravděpodobně *N. lasiopterus*. Včetně námi zjištěných je v současnosti z ostrova Kefalonia známo pět druhů netopýrů.

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