

## Short Note

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# First record of the Egyptian fruit bat, *Rousettus aegyptiacus* (Pteropodidae), from Kastellorizo island, Greece

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**Abstract:** The Egyptian fruit bat (*Rousettus aegyptiacus*) is a pteropodid species with a large part of its range in the Palearctic region. It has a quite discontinuous range from sub-Saharan Africa to NW India, including SW Turkey. In this note we present the first record of the Egyptian fruit bat in Greek territory, observed during a zoological expedition on the island of Kastellorizo (Dodecanese, Greece). At least three specimens were observed foraging a white mulberry in the town of Megisti on May 4 2017, but no individual was spotted during a summer expedition in August 2017.

**Keywords:** distribution; fruit bat; Pteropodidae; range; *Rousettus aegyptiacus*.

The Egyptian fruit bat, *Rousettus aegyptiacus* (Geoffroy 1810) belongs to the family Pteropodidae and is the only fruit bat that can be found in the European Union (Cyprus; Hadjisterkotis 2006, Nicolaou 2009, Del Vaglio et al. 2011). Mostly Afro-tropical, the Egyptian fruit bat reaches the southwestern part of the Palearctic in Egypt, the Middle East, the Arabian peninsula and east to NW India (Bergmans 1994, Kwiecinski and Griffiths 1999, Benda et al. 2011, 2012, Hulva et al. 2012). The northern edge of the species' range lies in SW Turkey (Harrison and Bates 1991, Bergmans 1994, Benda et al. 2006) in the provinces of Antalya, Mersin, Adana and Hatay (Benda and Horáček 1998, Karataş et al. 2003, Albayrak et al. 2008, Aşan Baydemir

et al. 2015). The Egyptian fruit bat has also been introduced in Tenerife (Canary Islands; Nogales et al. 2006).

*Rousettus aegyptiacus* is a highly social species that forms colonies (Benda et al. 2016) and roosts mainly in caves (Del Vaglio et al. 2011) although it can also use abandoned buildings and hangars or even trees (Albayrak et al. 2008, Del Vaglio et al. 2011). Group sizes may vary from a few individuals up to several thousands (Hadjisterkotis 2006). The species uses echolocation to navigate in complete darkness (Hadjisterkotis 2006). *Rousettus aegyptiacus* is homeothermic, unable to hibernate (Lučan et al. 2016) and hitherto no seasonal migrations have been reported (Kwiecinski and Griffiths 1999, Lučan et al. 2016). Egyptian fruit bats are known to cover significant distances of several kilometers in order to forage, in some cases up to 24 km far from their roosts (Thomas and Fenton 1978, Jacobsen et al. 1986, Nicolaou 2009, Del Vaglio et al. 2011, Tsoar et al. 2011, Lučan et al. 2016).

Egyptian fruit bat's diet consists mostly of fruit, whereas leaves, flowers and even pollen are reported to be rarely consumed (Korine et al. 1999, Del Vaglio et al. 2011, Lučan et al. 2014, 2016). In the Mediterranean area diet is based mostly on commercial/introduced plant species rather than native ones (Korine et al. 1999, Albayrak et al. 2008, Del Vaglio et al. 2011, Lučan et al. 2016). *Rousettus aegyptiacus* is classified as "Least Concern" in IUCN Red List of Threatened Species (Korine 2016) and "Near Threatened" in IUCN Red List for Mediterranean mammals (Temple and Cuttelod 2009). It is also protected under EUROBATS Agreement (Battersby 2010). In this note we present the first record of the Egyptian fruit bat for Greece, namely from Kastellorizo island.

Kastellorizo (Megisti) is a small Greek island of the Dodecanese belonging to the Rhodes regional unit. It is located approximately 125 km east of Rhodes island and about 2 km south of the nearest Turkish coast (coastal town of Kaş), and together with the nearby islet Strongyli, it constitutes the easternmost point of Greece. With an area of 12 km<sup>2</sup> and a highest elevation of 273 m above sea level (Vigla), Kastellorizo has a population of 492

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residents according to the 2011 census (Hellenic Statistical Authority 2011). There is only one town on the island, namely Megisti. It is a limestone island composed of typical forms of karst and mostly covered with phryganic vegetation which surrounds the few cultivated areas (Paysant 2005).

On May 4, 2017 at 22:10 in the town of Megisti (36.148° N, 29.589° E) during a zoological survey, we observed at least three individuals of Egyptian fruit bats, one male and one female currying a juvenile, foraging on a white mulberry (*Morus alba*) for about 1 h. The bats were flying around the block periodically and sporadically picking unripe mulberries from the tree, making noticeable noise on the leaves when grabbing the fruits. The bats were repeatedly photographed with a DSLR camera with a 100 mm lens and an external flash (Figure 1; photographic voucher codes: Natural History Museum of Crete, FC 23773 16V17 Kastellorizo, NHMC80.5.122.15, NHMC80.5.122.16 and NHMC80.5.122.17). A few meters away there were also a few fig trees with unripe figs on, but we could not verify if figs were also consumed by the animals. However, it is already well known and documented that fruits of both plants (figs and mulberries) are included in the species' diet when available (Korine et al. 1999, Albayrak et al. 2008, Del Vaglio et al. 2011, Lučan et al. 2016).

This is the first record of the Egyptian fruit bat on Kastellorizo and on Greek territory. The nearest areas where the species has been reported so far are on the Turkish coast, at Demra (Demre) and Fethiye (Benda et al. 2011), about 38 km NE and 67 km NW of Kastellorizo, respectively. During our short visit (4 days) on Kastellorizo in May we only spotted one cave up on the cliff south of Megisti town where Egyptian fruit bats could potentially roost, but we could not visit it.

A second expedition that took place between August 8 and 16, 2017 in order to search for the species was unsuccessful. We searched by night for active individuals with a strong flashlight checking on and around trees. During daytime we could visit artificial tunnels where only *Rhinolophus ferrumequinum* was spotted. The island's surface consists mainly of limestone and it seems caves are numerous but inaccessible, on vertical cliffs.

A more thorough survey is necessary to be conducted in order to check whether the observed bats roost on the island of Kastellorizo, or they only visit it to forage from Turkish roosts, given the long distances that the species covers to gain food (Thomas and Fenton 1978, Jacobsen et al. 1986, Nicolaou 2009, Del Vaglio et al. 2011, Tsoar et al. 2011, Lučan et al. 2016).



**Figure 1:** Photographic evidence of Egyptian fruit bat (*Rousettus aegyptiacus*) on Kastellorizo island (Megisti), Greece, observed on May 4, 2017. At least two adult individuals (male and female) and one juvenile carried by its mother are shown. Photographic voucher codes: Natural History Museum of Crete, FC 23773 16V17 Kastellorizo, NHMC80.5.122.15, NHMC80.5.122.16 and NHMC80.5.122.17.

## References

- Albayrak, I., N. Aşan and T. Yorulmaz. 2008. The natural history of the Egyptian fruit bat, *Rousettus aegyptiacus*, in Turkey (Mammalia: Chiroptera). *Turk. J. Zool.* 32: 11–18.
- Aşan Baydemir, N., D. Atasoy, M. Şimşek Gur, A. Suplun and M. Genc. 2015. Effects of the anthropogenic threats to the Egyptian fruit bat in the Mediterranean Region, Turkey. *J. Appl. Biol. Sci.* 9: 58–63.
- Battersby, J. (comp.). 2010. Guidelines for surveillance and monitoring of European bats. EUROBATS Publ. Series 5: 1–95.
- Benda, P. and I. Horáček. 1998. Bats (Mammalia: Chiroptera) of the Eastern Mediterranean. Part 1. Review of distribution and taxonomy of bats in Turkey. *Acta Soc. Zool. Bohem.* 62: 255–313.
- Benda, P., M. Andreas, D. Kock, R.K. Lučan, P. Munclinger, P. Nová, J. Obuch, K. Ochman, A. Reiter, M. Uhrin and D. Weinfurtová. 2006. Bats (Mammalia: Chiroptera) of the Eastern Mediterranean. Part 4. Bat fauna of Syria: distribution, systematics, ecology. *Acta Soc. Zool. Bohem.* 70: 1–329.
- Benda, P., M. Abi-Said, T. Bartonička, R. Bilgin, K. Faizolahi, R.K. Lučan, H. Nicolaou, A. Reiter, W.M. Shohdi, M. Uhrin and I. Horáček. 2011. *Rousettus aegyptiacus* (Pteropodidae) in the Palaearctic list of records and revision of the distribution range. *Vespertilio* 15: 3–36.
- Benda, P., P. Vallo, P. Hulva and I. Horáček. 2012. The Egyptian fruit bat *Rousettus aegyptiacus* (Chiroptera: Pteropodidae) in the Palaearctic: geographical variation and taxonomic status. *Biologia (Bratislava)* 67: 1230–1244.
- Benda, P., M.R. Abi Said, I. Bou Jaoude, R. Karanouh, R.K. Lučan, R. Sadek, M. Ševčík, M. Uhrin and I. Horáček. 2016. Bats (Mammalia: Chiroptera) of the Eastern Mediterranean and Middle East. Part 13. Review of distribution and ectoparasites of bats in Lebanon. *Acta Soc. Zool. Bohem.* 80: 207–316.
- Bergmans, W. 1994. Taxonomy and biogeography of African fruit bats (Mammalia, Megachiroptera). 4. The genus *Rousettus* Gray, 1821. *Beaufortia* 44: 79–126.
- Del Vaglio, M.A., H. Nicolaou, L. Bosso and D. Russo. 2011. Feeding habits of the Egyptian fruit bat *Rousettus aegyptiacus* on Cyprus island: a first assessment. *Hystrix* 22: 281–289.
- Hadjisterkotis, E. 2006. The destruction and conservation of the Egyptian fruit bat *Rousettus aegyptiacus* in Cyprus: a historic review. *Eur. J. Wildl. Res.* 52: 282–287.
- Harrison, D.L. and P.J.J. Bates. 1991. The mammals of Arabia. Second edition. Harrison Zoological Museum, Sevenoaks, pp. 354.
- Hellenic Statistical Authority 2011. 2011 Population-housing census. Available from <http://www.statistics.gr>. [22 May 2017].
- Hulva, P., T. Marešova, H. Dundarova, R. Bilgin, P. Benda, T. Bartonička and I. Horáček. 2012. Environmental margin and island evolution in Middle Eastern populations of the Egyptian fruit bat. *Mol. Ecol.* 21: 6104–6116.
- Jacobsen, N.H.G., P.C. Viljoen and W. Ferguson. 1986. Radio tracking of problem fruit bats (*Rousettus aegyptiacus*) in the Transvaal with notes on flight and energetics. *Z. Säugetierkd.* 51: 205–208.
- Karataş, A., N. Yiğit, E. Çolak and T. Kankılıç. 2003. Contribution to *Rousettus aegyptiacus* (Mammalia: Chiroptera) from Turkey. *Folia Zool.* 52: 137–142.
- Korine, C. 2016. *Rousettus aegyptiacus*. The IUCN Red List of Threatened Species 2016: e.T29730A22043105. <http://dx.doi.org/10.2305/IUCN.UK.2016-2.RLTS.T29730A22043105.en>. Downloaded on 22 May 2017.
- Korine, C., I. Izhaki and Z. Arad. 1999. Is the Egyptian fruit bat *Rousettus aegyptiacus* a pest in Israel? An analysis of the bat's diet and implications for its conservation. *Biol. Conserv.* 88: 301–306.
- Kwiecinski, G.G. and T.A. Griffiths. 1999. *Rousettus aegyptiacus*. *Mammal. Species.* 611: 1–9.
- Lučan, R., T. Bartonička, P. Benda, R. Bilgin, P. Jedlička, H. Nicolaou, A. Reiter, W.M. Shohdi, M. Šálek, Š. Řeřucha, M. Uhrin, M. Abi-Said and I. Horáček. 2014. Reproductive seasonality of the European fruit bat (*Rousettus aegyptiacus*) at the northern limits of its distribution. *J. Mammal.* 95: 1036–1042.
- Lučan, R.K., T. Bartonička, P. Jedlička, Š. Řeřucha, M. Šálek, M. Čížek, H. Nicolaou and I. Horáček. 2016. Spatial activity and feeding ecology of the endangered northern population of the Egyptian fruit bat (*Rousettus aegyptiacus*). *J. Mammal.* 97: 815–822.
- Nicolaou, H. 2009. The Egyptian fruit bat *Rousettus aegyptiacus*. Geographical distribution, biology and conservation in Cyprus. MSc. Thesis, Department of Biological Sciences, University of Cyprus, Lefkosia, Cyprus.
- Nogales, M., J.L. Rodriguez-Luengo and P. Marrero. 2006. Ecological effects and distribution of invasive non-native mammals on the Canary Islands. *Mammal. Rev.* 36: 49–65.
- Paysant, F. 2005. Herpetological notes on the Island of Kastellorizo (South-east Aegean, Greece). *Herpetozoa.* 18: 80–83.
- Temple, H.J. and A. Cuttelod (comp.). 2009. The status and distribution of Mediterranean Mammals. I.U.C.N., Gland, pp. 32.
- Thomas, D.W. and M.B. Fenton. 1978. Notes on the dry season roosting and foraging behavior of *Epomophorus gambianus* and *Rousettus aegyptiacus* (Chiroptera: Pteropodidae). *J. Zool. (Lond.)* 186: 403–406.
- Tsoar, A., R. Nathan, Y. Bartan, A. Vyssotski, G. Dell'Omo and N. Ulanovsky. 2011. Large-scale navigational map in a mammal. *Proc. Natl. Acad. Sci.* 108: 718–724.