KRETAUmweltInfo
CRETEEnvironmentInfo
Info-bulletin-No. 045 • 04/E
2nd Edition

ISSN-Nr. 1614-5178

NATURWISSENSCHAFTLICHE ARBEITSGEMEINSCHAFT OBERTSHAUSEN - MOSBACH e.V.
NATIONAL COMMITTEE ENVIRONMENT CRETE
(Ecological awardees 1984 of county Offenbach a.M.; certified with European Ecological Award 1987)

Publisher: NAOM eV● Public relation, H. EIKAMP / U. KLUGE ☎ +49 (0)6104 - 490614 Alexanderstraße 42
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Informationen zur Umwelt und für Naturreisende auf Kreta:
Information about the Environment and for travellers in Crete:

Excursion to the shaft cave of Keramoto / Prefecture Rethymnon
Small Horseshoe Bat (*Rhinolophus sp.*) / fossil Bats

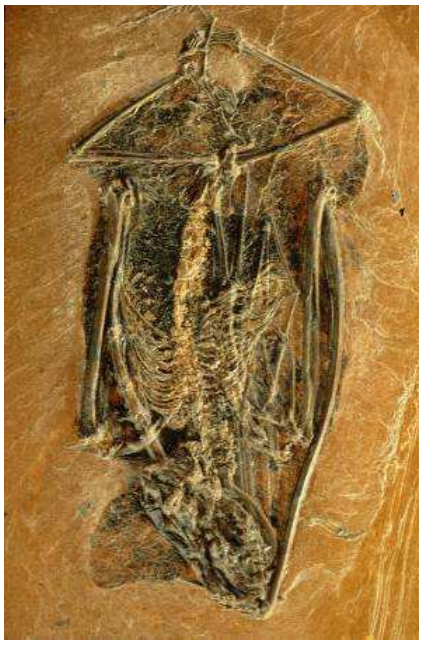
With regards to the leaflet No. 024-04/E of the CreteEcologicalforum: “Excursion to the shaft cave at *Lakonia*” which is located in the north-east (close to *Agios Nikolaos*), the **shaft cave of *Keramoto*** is to be find in the north-west of Crete. Therefore, leave the national road Heraklion-Rethymnon at *Panormo* (about 20 km from *Rethymnon*) and drive towards *Perama*. The road leads via *Houmeri* and *Krassounas* to the destination *Keramoto* (and further on to *Livadia*, *Axos* or *Anogia*). The shaft cave is located at the village entrance, left of the road. It is not to miss; right is a cistern building where spring water from the mountain (and the shaft cave) is preluded through a feeder. The entrance of the shaft is right of the feeder, which leads 111 ft (almost) horizontal into the mountain. The ground is very slippery and a drain leads the spring water out of the mountain. The shaft tunnel was probably created to find the source and still serves as a water reservoir. Water occurs not only in the source area at the end of the shaft from the mountain; it also drops from the ceiling and larger stalactite formations inside indicate that this shaft cave has a "biblical age".

The pictures are showing the cave entrance from outside (topleft) and inside (top right); stalactite formations (button right) and the shaft (button left) with a bat at the cave ceiling (also as detailed view). **Pictures**: H. Eikamp (2004)

Small Horseshoe Bat (*Rhinolophus sp.*)

The shaft cave also serves as winter habitat for bats[1], where they hibernate from September/October until April, at an ambient temperature of 6-9 ° C and high humidity. The shaft cave of Keramoto is the winter habitat of the small horseshoe bat, where they freely hang from the ceiling (separated from other individuals), wrapped completely in their patagium (flying membrane). Besides the horseshoe-shaped nose this species indents the grey-brown ridge coat, the belly is grey-white, ears and patagium is brown. The call amplitude maximum is 102-111 kHz. Head body ratio: 38-45 mm, Arm length: 36-42 mm. The wing span: 190-250 mm. Tail length: 22-33 mm; Weight 4-9 g. Exact determination was not carried out, we would need to disturb the animals in their winter rest to what we did not. Certainly it is the small Horseshoe bat (*Rhinolophus hipposiderus*); the Mediterranean-Horseshoe (*Rh. euryale*), the Blasius-Horseshoe (*Rh. blasii*) as well as the Meheley-Horseshoe (*Rh. mehelyi*) would be in question as well but may be excluded by the current knowledge (on their regional presence and distribution in Crete).

[1] Bats have hardly changed looking over the last 50 million years. The anatomical characteristics of fossil ancestors are similar to those of their (extant) today's descendants; see also the following paragraph "Fossil bats"



Fossil bats

The picture is showing a 49 million years old fossil bat from "Grube Messel" by Darmstadt / Hessen (Germany). The publisher (H. Eikamp) led the scientific excavations for and on behalf of the national collections of natural sciences Karlsruhe, Museum at Friedrichsplatz, at "Grube Messel" for 15 years. Doing so a cross-section of fossil fauna and flora from the age of the Middle Eocene (Lutetium, Messeler layers) has been recovered and the research results published in numerous individual publications, and announced in a book to the general public [BEHNKE, C., **H. EIKAMP** & M. ZOLLWEG (1986): Die Grube Messel. Paläontologische Schatzkammer und unersetzliches Archiv für die Geschichte des Lebens, Geologie, Bergbaugeschichte, Fossilien. – Goldschneck-Verlag, Korb]. A variety of special exhibitions (from NAOM e.V.; see www.naom.de) and numerous guided tours on site and through the Messel Museum also contributed to make this location from the age of the "dawn of mammalian development" world-famous. The "Grube Messel" is a world heritage site since 1995 (UNESCO appointment) and is considered as a irreplaceable archive for palaeontology; it provides a "view through a window into the past of Earth's history", around 50 million years before today. From all the mammalian finds the "Messeler Urpferdchen" [ancient horsy] is probably the most famous. However fossil bats are most numerous in the mammalian finds in Messel. Their good states of preservation even allow the scientific evidence of the fossilized sonar system. In addition, statements can be made to the diet because of fossil traditional gastric contents For detailed information see our palaeontology document 12●88 of the NAOM e.V.: "Fossilien der Grube Messel": [http://www.kreta-umweltforum.de/Merkblaetter/Faltblatt%2012-88%20Grube%20Messel.pdf].

At this point, the author thanks ***Dr. G. Stork*** (Research Institute and nature museum Senckenberg, Frankfurt) in deep solidarity for hiring the fossil bats pictures and reprints of his findings about the Grube Messel fossil bats.

"Messel bat" on a stamp from the German Federal Post Office and literature (from author H. Eikamp) about the fossils of Grube Messel at Darmstadt