

On the current status and distribution of the Jungle Cat, *Felis chaus*, in Jordan (Mammalia: Carnivora)

by Mohammad Abu Baker, Khalid Nassar, Lina Rifai, Mayas Qarqaz,
Walid Al-Melhim, and Zuhair Amr

Abstract. The current status and distribution of the Jungle cat, *Felis chaus*, in Jordan is reviewed based on recent field observations and specimen collections. In 1998, two specimens were found poisoned in the upper reaches of Jordan River. Skull illustrations and cranial morphometric data are given on the basis of these specimens.

Kurzfassung. Auf der Basis von neueren Beobachtungen und Aufsammlungen wird der Status und die Verbreitung der Rohrkatze, *Felis chaus*, in Jordanien dargestellt. 1998 wurden im Oberlauf des Jordan zwei vergiftete Tiere gefunden. Sie wurden für Schädeldarstellungen und morphologische Angaben verwendet.

Key words. Felidae, morphology, Palestine, Middle East, conservation.

Introduction

The occurrence of the Jungle Cat, *Felis chaus* GÜLDENSTÄDT, 1776, in Jordan was a matter for debate until recently. KOCK et al. (1993) reported on a specimen collected from the Jordan Valley near the Jordan River. Since then, very little has been known about its status and current distribution in Jordan.

The Jungle Cat is one of the rare wild cats in southwest Asia. Its known distribution extends from Vietnam, Thailand, China, Nepal and India to the Eastern Mediterranean region and Egypt (LAY 1967, HASSINGER 1973, CORBET 1978, OSBORN & HELMEY 1980, HARRISON & BATES 1991, QUMSIYEH 1996, AMR 2000). In the Levant, its distribution extends from Palestine, Jordan, southern Lebanon and western Syria to Turkey and around the Tigris and the Euphrates (KOCK et al. 1993). The Jungle Cat is a riparian feline, and is mostly associated with dense vegetation around river beds. Regionally, very little information is known on the biology of this wild cat. SCHAUBENBERG (1978) reported on its reproduction, DAL (1954) and RATHORE & THAPAR (1984) gave notes on its feeding behaviour. Habitat selection and seasonal changes in body weight were outlined by HAPTENR & SLUDSKII (1972) and ROBERTS (1977).

On 10.2.1998, two dead specimens of the Jungle Cat that had been poisoned were found at Al Baqurah, northwestern Jordan. In this account, we communicate this record and review the current distribution, morphology, habitat description and conservation issues on this rare feline in Jordan.

Material

JUSTM 0191 (♂): Greatest skull length (GSL): 126.1 mm; Condylbasal length (CBL): 114.4 mm; Zygomatic breadth (ZB): 82.3 mm; Brain case breadth (BB): 49.4 mm, C-M¹: 36.04, Maxillary tooth row length (C-M₁): 43.1 mm; Mandible length (M): 84.1 mm.

JUSTM 0192 (♀): GSL: 128.5 mm; CBL: 116.4 mm; ZB: 81.1 mm, BB: 50.4 mm; C-M¹: 38.9 mm; C-M₁: 43.3 mm; M: 86.4 mm.

Results

Description

External morphology: Fur colour generally sandy brown or grizzled grey, ventral side pale buffy-white. Ears large with a black hair tuft that reaches up to 15 mm in length. Back of ears dark brown. Thin black stripe runs from anterior of eye towards the nasal. The tail is relatively short, less than ½ of head + body length, with three black rings and a black tip. Limbs long and slender. Upper part of hind limbs with five or six dark bands, fore limbs with three black stripes on the inner side, and several black bands on the outer side.

Cranial morphology: Large and elongated skull, with a long rostrum. Tympanic bullae moderately inflated. Postorbital swollen. Nasal branch of premaxilla broad. Upper canine with an antero external groove (Figs. 1–2).

Distribution in Jordan

The distribution area of *F. chaus* is confined to the northwestern parts of Jordan along the Jordan River basin. So far, it is known only from two localities: Damyeh and Al-Baqurah. Both areas are located on the eastern side of the Jordan River. It is possible that its distribution extends to the lower reaches of Jordan River and its main tributaries. Over 30 years ago the upper reaches of the Jordan River were declared to be a military zone, with only limited access for local people.

On 10.2.1998, two specimens were found poisoned near Al-Baqurah, a small village located on the upper reaches of the Jordan River. The area is about 5 km south of Lake Tiberias, with thick vegetation of *Typha* sp. and *Phragmites* sp. Around the vicinity of Al-Baqurah, citrus groves are abundant, where Wild Boars, *Sus scrofa*, frequently cause severe damage to orange trees which affects the subsistence of the local farmers. Baited poisoned carcasses and other vegetable material have become a habit among the farmers, to eradicate the wild boars.

Ecological observations

The Jungle Cat is associated with thick vegetation close to permanent water bodies. It takes refuge in thick vegetation of Tamarisk, *Typha* sp. and *Phragmites* sp. along the Jordan and Yarmouk Rivers. Jungle Cats prefer areas of low water vegetation especially around reed beds and marsh habitats. These river banks consist of dense vegetation of *Typha domingensis*, *Phragmites australis* and *Nerium oleander*. Many parts of both the Jordan and Yarmouk are not accessible and thus offer a refuge for this cat. Also, many enclaves along the river basin may shelter the animal.

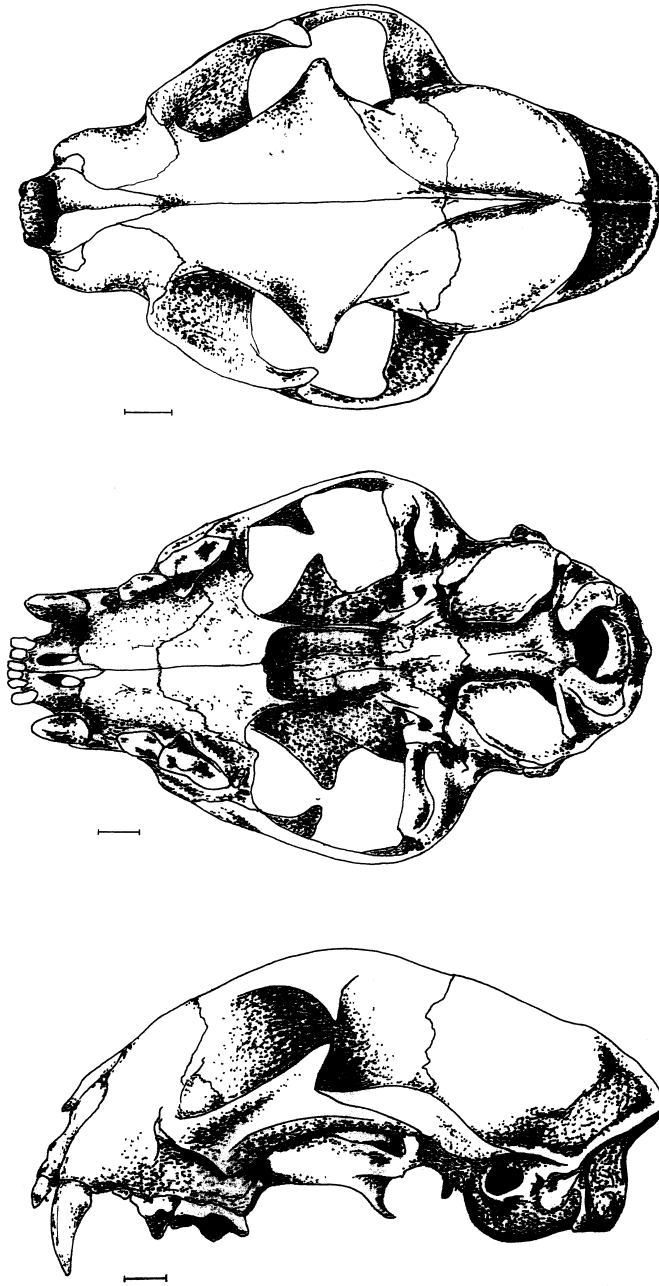


Fig. 1. Dorsal, ventral and lateral views of the skull of *Felis chaus*. Scale bar 10 mm.

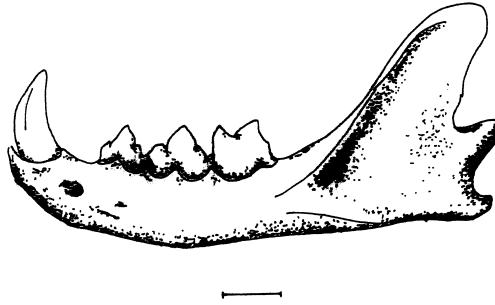


Fig. 2. Lateral view of the lower jaw of *Felis chaus*. Scale bar 10 mm.

In the study area, the Coypu, *Myocastor coypus*, is quite common and may form part of its diet. Additionally, fish farms along the Jordan and Yarmouk Rivers may attract the Jungle Cat. About 16 species of freshwater fishes are known to occur in the Jordan River. Other carnivores recorded in the same area include the Golden Jackal, *Canis aureus*, the Red Fox, *Vulpes vulpes*, the Egyptian Mongoose, *Herpestes ichneumon*, the Wild Cat, *Felis silvestris*, and the Caracal, *Caracal caracal*. The area is also inhabited by the Wild Boar, *Sus scrofa*.

The Jungle Cat is primarily a diurnal animal, feeding mainly on rodents including the large introduced Coypu, hares, birds, reptiles and amphibians (LAY 1967, HASSINGER 1973, KRISTIN & JACKSON 1996). In Egypt, it was reported to feed on fish and reptiles, especially snakes (OSBORN & HELMY 1980), and HARRISON & BATES (1991) reported it occasionally hunting on agricultural land. LAY (1967) and HASSINGER (1973) reported that it feeds on rodents and birds in Iran and Afghanistan.

Conservation and discussion

Because local people do not differentiate between the different species of wild cats, they are all treated here as pests (and are included in the damage caused by foxes). Jungle Cats are hunted and poisoned by farmers for attacking poultry. Many Red Foxes were found poisoned by villagers targeting the carnivores that attack their livestock and fruit trees. Jungle Cats may be indirectly killed through carcass poisoning of other target species such as hyenas and wolves. The consumption of Jungle Cat meat for medicinal use was never recorded in the areas where it occurs.

The Jungle Cat is not listed in one of the IUCN conservation categories (Red Data Book), whereas it is listed in Appendix II in CITES. On a national level, it is considered as threatened due to the declining number of individuals within the past 30 years.

In Jordan, the Jungle Cat is highly affected by the expansion of agricultural areas around the river beds of Yarmouk and Jordan rivers. Habitat destruction and human persecution are the main threats that affect its population densities. The proposed Nature Reserve at the Yarmouk River by the Royal Society for the Conservation of Nature (RSCN) may be a key area for protecting this carnivore in Jordan. Fortunately, the surviving populations of this rare species are mostly within the political borders between Jordan and Israel; these areas are

already under some kind of protection. However, more effort should be directed towards establishing base-line data on the current population status and related ecological needs for this species.

The Jungle Cat is strongly associated with dense water vegetation, especially reed swamps and marshes. It was recorded near riverbeds and around oases (OSBORN & HELMY 1980; HARRISON & BATES 1991; KRISTIN & JACKSON 1996). Jungle cats were reported to adapt to irrigated cultivation and planted forests, mainly because of the subsequent increase in rodents with cultivation, and it was frequently seen around cultivated areas (MENDELSSOHN 1989, KRISTIN & JACKSON 1996).

In the Middle East, the Jungle Cat is confined to the eastern parts of Iraq along the Tigris and Euphrates rivers, northwards to the northern and western parts of Syria and to Turkey. It occurs also in the Levant (Lebanon, Jordan, Palestine) (HATT 1959, MENDELSSOHN 1989, HARRISON & BATES 1991, TOHMÉ & TOHMÉ 2000), Egypt (OSBORN & HELMY 1980), and Iran (LAY 1967).

Acknowledgements. This work was supported by a grant from the UNDP/World Bank (Global Environment Facility) for the conservation of the Dana Wild Lands. We are grateful to KHALID EIRANI (Director General, RSCN) and YAHIA KHALID (Conservation Director, RSCN) for their continuous support and encouragement. Thanks are also extended to the Higher Council of Science & Technology/Badia Development and Research Project (Animal Biodiversity) and MOHAMED SHAHBAZ, Director of the Badia project.

References

- AMR, Z. S. (2000): Jordan Country Study on Biological Diversity: Mammals of Jordan. – United Nations Environment Programme (UNEP), Amman, 100 pp.
- AMR, Z. S., G. KALISHAW, M. YOSEF, B. J. CHILCOT & A. AL-BUDARI (1996): Carnivores of Dana Nature Reserve (Carnivora: Canidae, Hyaenidae and Felidae), Jordan. – *Zoology in the Middle East* 13: 5–16, Heidelberg.
- AMR, Z.S. & A. DISI (1988): Jordanian Mammals acquired by Jordan University Natural History Museum. – Publications of the University of Jordan, Amman, 32 pp.
- CORBET, G. B. (1978): The Mammals of the Palaearctic Region: a Taxonomic Review. – British Museum of Natural History, London, 314 pp.
- DAL, S. K. (1954): Animal World of the Armenian Soviet Socialist Republic. Vol. 1: Vertebrate animals. – Academy of Sciences of the Armenian SSR, Yerevan.
- HARRISON, D. & P. J. BATES (1991): The Mammals of Arabia. – Sevenoaks (Kent), 354 pp.
- HASSINGER, J. D. (1973): A survey of the mammals of Afghanistan resulting from the 1965 Street Expedition. – *Fieldiana Zoology* 60: 1–195, Chicago.
- HATT, R. T. (1959): The Mammals of Iraq. – Miscellaneous Publications of the Museum of Zoology University of Michigan 106: 1–113, Ann Arbor.
- HEPTNER, V. H. & A. A. SLUDSKII (1972): Mammals of the Soviet Union. Vol III: Carnivores (Feloidea). – Vyssha Shkola, Moscow.
- KOCK, D., D. M. SHAFIE & Z. S. AMR (1993): The Jungle Cat, *Felis chaus* Gldenstaedt, 1776, in Jordan. – *Zeitschrift fr Sugetierkunde* 58: 313–315, Berlin.
- KRISTIN, N. & P. JACKSON (1996): Wild Cats. Status Survey and Conservation Action Plan. – IUCN/SSC Cat Specialist Group. 382pp + 12 plates.
- LAY, D. M. (1967): A study of the mammals of Iran, resulting from the Street Expedition 1962-63. – *Fieldiana Zoology* 54: 1–282, Chicago.
- MENDELSSOHN, H. (1989): Wild Cats in Israel. – *Cat News* 10: 2–4, Muri.

- OSBORN, D. J. & I. HELMY (1980): The contemporary land mammals of Egypt (including Sinai). – Fieldiana Zoology 5: 1–579, Chicago.
- QUMSIYEH, M. B., Z. S. AMR, & D. SHAFEE (1993): Status and conservation of carnivores in Jordan. – Mammalia 57: 55–62, Paris.
- QUMSIYEH, M. B. (1996): Mammals of the Holy Land. – Lubbock, 389 pp.
- RATHOR, F. S. & V. THAPAR (1984): Behavioral observations of the leopard and jungle cat in Ranthambhor national park and tiger reserve, Rajasthan. In: The Plight of the Cats: Proceedings of the IUCN/SSC Cat Specialist Group meeting in Kanha National Park, India.
- ROBERTS, T. J. (1977): The Mammals of Pakistan. – London.
- SCHAUENBERG, P. (1978): Reproduction in the Jungle Cat *Felis chaus*. – Mammalia 42: 355–358, Paris.
- TOHMÉ, G. & H. TOHMÉ (2000): Quelques nouvelles données sur le statut actuel des Felidae au Liban et plus particulièrement du chat des marais *Felis chaus* Gldenstdt, 1776. – Mammalia 64: 247–249, Paris.

Authors' addresses: Mohammad Abu Baker, Lina Rifai, Walid Al-Melhim and Dr. Zuhair Amr, Department of Biology, Jordan University of Science & Technology. P. O. Box 3030. Irbid 22110, Jordan. – Khalid Nassar and Mayas Qarqaz, Royal Society for the Conservation of Nature, Amman, Jordan. – Email-contact: amrz@just.edu.jo.