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The Crested Porcupine *Hystrix cristata* (Linnaeus, 1758) in Misurata, Libya

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Abstract: The crested porcupine *Hystrix cristata* is the biggest rodent in Libya. It has a high value from the faunistic point of view. It is known in Libya from only one specimen killed in a suburb of Tripoli in 1962. With aids of an animal dealer in Misurata, this work will provide information on the morphology, feeding habits, habitat, cranial and dental characters of this animal.

Key words: Crested portcupine · *Hystrix cristata* · Rodentia · Misurata · Libya

INTRODUCTION

The crested porcupine is native to regions of northern Africa as well as southern Europe and areas of the Mediterranean. There is only one species of the old world porcupine, the crested porcupine *Hystrix cristata* in Libya. Hufnagl [1] gave a brief description of this animal based on one killed specimen obtained from a suburb in Tripoli in 1962. He also provided his description with an illustrated sketch to the skull of the species with its lower jaw and the footprints of the animal. Santini [2] gave more intense data on its ecology and biology in Italy and North Africa. By using the linkage distance relationship for several cranial characters of *Hystrix cristata* and *H. indica*, Angelici *et al.* [3] found some similarities between Italian and African porcupines. Status, taxonomy, distribution and specific characters of the crested porcupine were discussed in many ways [4-10]. Five skulls (three males and two females) of this species were recently obtained in this work from an animal dealer in Misurata city in the northwestern Libya will add new data on morphology, feeding habits, habitat, cranial and dental characters of this animal in Libya.

MATERIALS AND METHODS

Study Site: Misurata city lies on the coast of the Mediterranean Sea 211 km East of Tripoli and 825 km west of Benghazi. The location of the city (32° 23′ N and 15° 6′ E) forms a mixture of a dualism of sea and sand for it is surrounded by the sea from the north and east and from the south it is surrounded by the golden sands

Fig. 1: Location of Misurata city.

combined with the long palm trees, the shady olives and the green plains which encircle the center of the town with its modern buildings, wide streets and large factories. Fig. 1 shows the location of the study area of Misurata city in northwestern Libya.

Misurata is separated from the Mediterranean Sea by a band of sand dunes and occupies a coastal oasis above an underground water table. By the 20th century, irrigation had greatly increased agricultural production and the town, on the federal coastal road, became a main market and administrative centre.

Collecting Specimens: Specimens of animals were hunted by an animal dealer using a snare at night during January 2008 to May 2009. Skulls and lower jaws were

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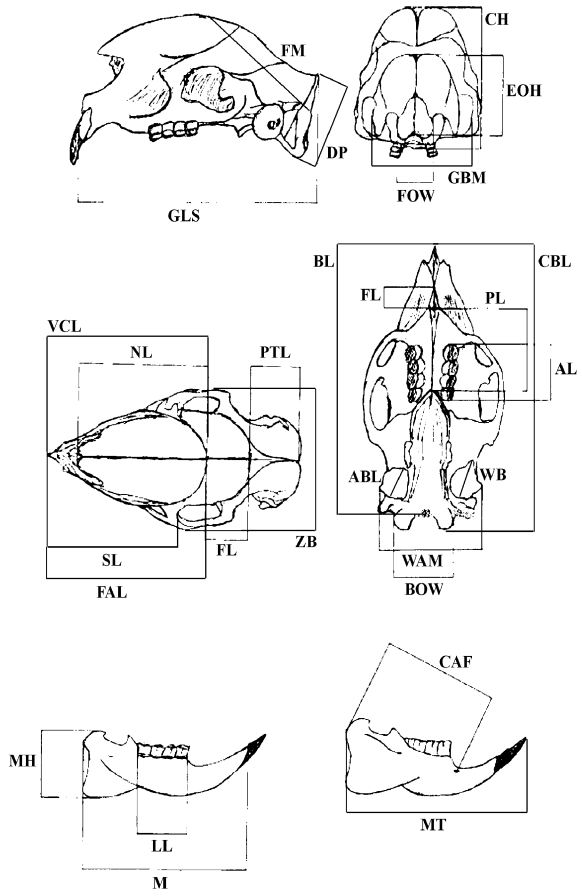

Fig. 2: Measurements of the skull and lower jaw. Modified after Angelici *et al*. [3]

obtained, bleached, measured thoroughly by using a sensitive caliper of 0.1 mm accuracy. The following 28 measurements were taken to the skulls and lower jaws: greatest length of the skull (GLS), condylobasal length (CBL), basal length (BL), viscerocranial length (VCL), facial length (FAL), greatest length of nasals (NL), snout length (SL), palatal length (PL), greatest length of the auditory bulla (ABL), greatest breadth across the mastoid processes (GBM), zygomatic width (ZB), depth of braincase (DP), maximum width of braincase (FM), width across auditory meatus (WAM), width of bulla (WB), cranial height (CH), exoccipitalis height (EOH), foramen occipitalis width (FOW), frontal length (FL) dorsally and ventrally, parietal length (PTL), basi-occipitalis width (BOW), maximum length of upper left alveolar line (AL), distance length of condylar process to dental foramen (CAF), maximum length of lower left alveolar line (LL), mandibular maximum height (MH), mandibular toothrow (MT) and mandible length (M).

Food Habits: Information about feeding habits of the crested porcupine *Hystrix cristata* in Misurata was collected intensively from the farmers and dwellers. Fields in Misurata are usually cultivated with watermelon, onion and various vegetables. A preliminary survey was constructed to collect data about the types of plants and the parts eaten by the animal.

RESULTS AND DISCUSSION

Morphology: Porcupine is the largest rodent in Libya at all. The hind part of its back is covered with long sharp spines white at their tips and banded with black colour. The adult animal can weight about 18 kg and has very few natural predators [1, 11, 12]. The structure of the rattle quills in its short tail is shaken to frighten enemies and may be in social communication, which produces a loud rattling sound so they strike against each other [2, 7].

Food Habits: African porcupines is strictly vegetarian and usually feed on all sorts of roots, bark, bulbs and fallen fruits [1]. According to the preliminary survey of feeding habits of the crested porcupine, Libyan dwellers in Misurata mentioned that porcupines feed on the cultivated crops such as: maize, watermelon, cucumber,

Table 1: Cultivated plants, families of plants and parts eaten from the plants by the crested porcupine (*Hystrix cristata*) in Misurata city

Common name	Scientific name	Family	Parts eaten
Maize	*Zea mays*	Poaceae	Seeds
Watermelon	*Citrullus lanatus*	Cucurbitacae	Fruit and seeds
Cucumber	*Cucumis sativus*	Cucurbitacae	Fruit
Green pepper	*Capsicum annuum*	Solanacae	Fruit and seeds
Pumpkin	*Cucurbita pepo*	Cucurbitacae	Fruit and seeds
Potato	*Solanum tuberosum*	Solanacae	Tuber
Tomato	*Solanum lycopersicum*	Solanacae	Fruit and seed
Onion	*Allium cepa*	Alliaceae	Bulb
Date	*Phoenix dactylifera*	Arecaceae	Fruit

Table 2: Means and standard deviations (SD) of the lengths of skulls of the crested porcupine, *Hystrix cristata* from Misurata city. For abbreviations see Materials and Methods

Characters	Means (cm)	SD ±
GLS	12.19	0.45
CBL	12.18	0.49
BL	11.29	0.23
VCL	8.40	0.08
FAL	8.25	0.40
NL	6.94	0.03
SL	6.35	0.04
PL	6.38	0.06
ABL	1.57	0.08
GBM	4.34	0.23
ZB	6.44	0.17
DP	3.49	0.17
FM	4.38	0.11
WAM	4.75	0.20
WB	1.68	0.11
CH	5.12	0.69
EOH	2.54	0.19
FOW	1.54	0.10
FL (dorsally)	1.92	0.19
FL (ventrally)	0.74	0.06
PTL	2.88	0.04
BOW	2.68	0.06
AL	2.90	0.03
CAF	6.17	0.30
LL	3.20	0.08
MH	3.19	0.13
MT	5.30	0.14
M	8.04	0.59

green pepper, pumpkin, potato, tomato, onion and date that found on the ground. They cause a great damage to the crops in the cultivated areas. Table 1 shows types of cultivated plants, its families and its parts eaten by crested porcupine in Misurata city; scientific names and families of the plants were provided according to Leadlay and Jury [13]. Paci *et al.* [14] recorded tobacco (*Nicotiana tabacum*) as a new trophic resource for the crested porcupine in Italy.

Habitat: Hufnagl [1] mentioned that the crested porcupine preferred hilly ground and they wander into cultivated ground at night. Libyan dwellers in Misurata noticed that they build its burrows along the banks of canals in the cultivated fields where the vegetation make a good cover for it.

Cranial and Dental Characters: Table 2 shows all measurements taken to the skulls and lower jaws of the collected animals.

CONCLUSION

The major target of this work is to study the existence of the crested porcupine (*Hystrix cristata*) in Libyan Arab Jamahiryia and to make an overview on its morphology, feeding habits, habitat and cranial and dental measurements. Crested porcupine was being known in Libya from only one killed animal in Tripoli forty eight years ago without any references to its feeding habits and habitat. This work introduces some comprehensive data on the crested porcupine in Misurata city in the northwestern Libya.

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