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A CONTRIBUTION TO THE HERPETOLOGY OF SINAI

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The distribution and taxonomic status of a considerable number of reptile species occurring in Sinai is not fully known yet, despite the extensive zoological coverage the peninsula has received over a long period of time. This is partly because of the rarity of some of the taxa concerned. On the other hand, large areas of less complex habitats have been marginally explored (particularly in northern and central Sinai), and the existing faunistic (herpetological) knowledge of these regions has been largely taken for granted. Moreover, much of the available knowledge is mostly based on museum materials, while very little is known about the ecology and behaviour of the species and communities involved.

The discovery of *Acanthodactylus longipes* in North Sinai, was largely due to close field observations of animals in the wild, which revealed distinctive characters and behaviour, otherwise undetectable in museum specimens. Similarly, differences between the sibling species *Tropiocolotes steudneri* and *T. nattereri* are particularly pronounced when the species are examined from an ecological and behavioural perspective. Most of the notes presented below are based on casual, subjective and short term observations. There is a need and great scope for more systematic ecological work, addressing the reptile communities of different habitats equally. This will not only provide basic (none existing) ecological knowledge of the region's herpetofauna, but probably clarify some faunistic questions as well.

Below I present a summary of recent observations made of species rarely or never recorded from Sinai, and of some which have debatable taxonomic status.

Cyrtodactylus scaber (Heyden 1827)

The distribution of *C. scaber* in Egypt is poorly known, and its contemporary status in the country has been doubted by some. Since the type was collected from El Tor, South Sinai, this species has been reported from Sinai only once by Werner (1973), who found it at three localities on the eastern shores of the Gulf of Suez. Furthermore, the species has been reported from only two localities outside Sinai (in Egypt), at Quseir (Anderson 1898) and the Suez Canal zone (British Museum [Natural History] catalogues). Flower (1933) and Marx (1968) never encountered the species in the country.

The author found this species at two localities in South Sinai, at Abu Zenima and most recently Sharm El Sheikh. A dense population was found at the latter locality in September 1993 inhabitating new tourist developments, alongside *Hemidactylus turcicus* and *Ptyodactylus hasselquistii*. Sizeable populations have also been found at Ras Gharib and Hurghada, two large urban settlements on the western side of the Gulf of Suez and the Red Sea, respectively. The origin of the population recently found at Sharm El Sheikh is not known, possibly introduced by man. The species has not, as yet, been reported from elsewhere in the Gulf of Aqaba, but will surely soon find its way to other suitable localities in the region. *Cyrtodactylus scaber* is a widespread inhabitant of coastal urban developments in the Arabian Gulf area, where it is very fast in colonising new suitable 'habitats'.

A

B

Plate 1. Adult female *Tropiocolotes nattereri* from Wadi Feiran, South Sinai.
A: Photographed during day time. Note barred distal portion of tail.
B: Same animal photographed at night. Note white unbarred distal portion of tail.

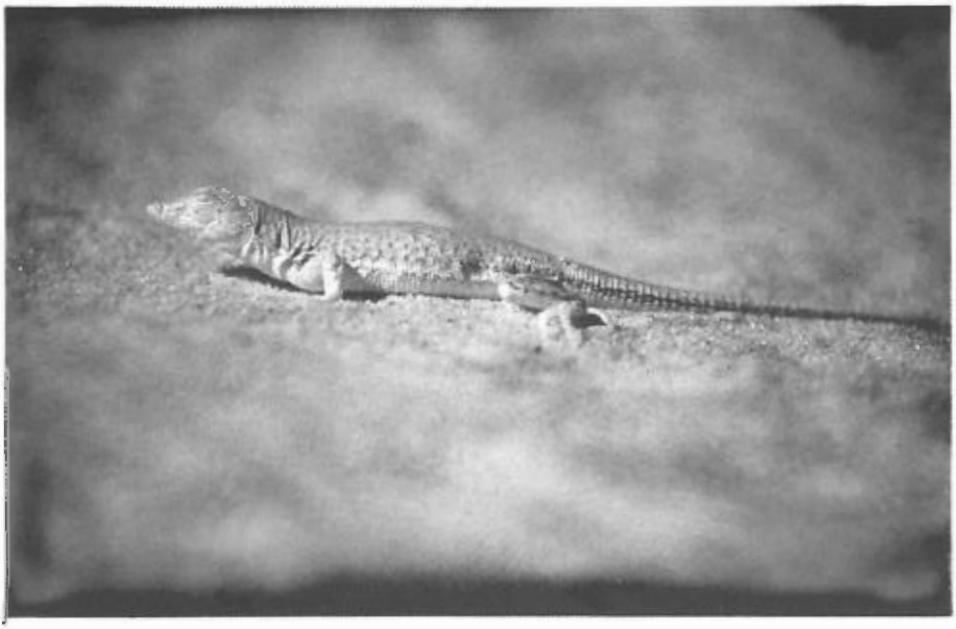

Plate 2. Adult female *Acanthodactylus longipes* from Negila, North Sinai. Note dark lateral line on tail.

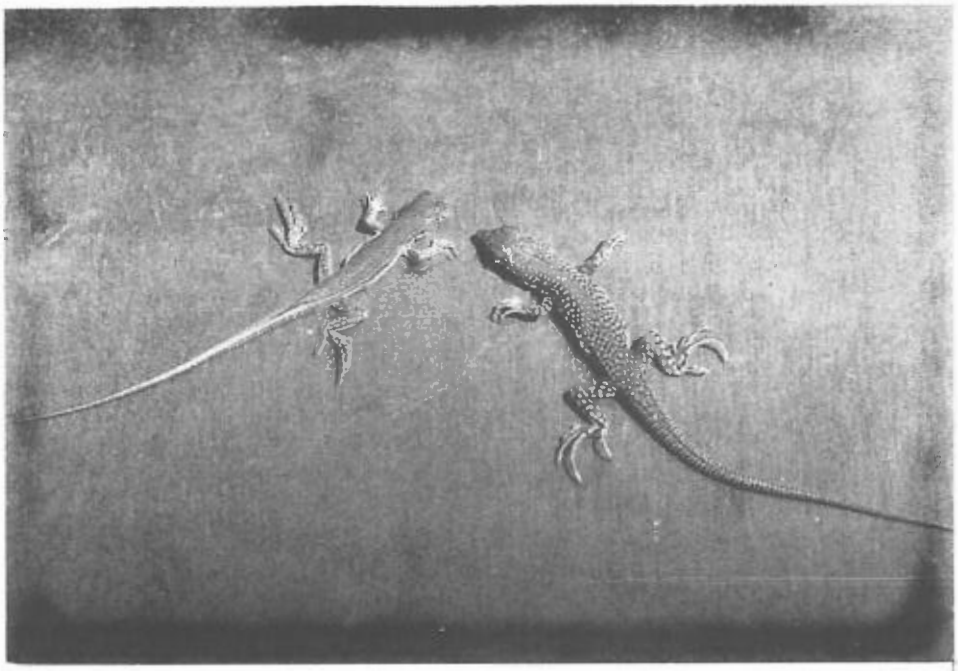

Plate 3. Juvenile *Acanthodactylus longipes* (left) and *A. scutellatus*. Both from a locality 35 km south west of El Arish, North Sinai.

Plate 4. *Coluber sinai* in defensive posture. From a small wadi about 20 km north west of Taba, South Sinai (photograph by Coney Pearson)

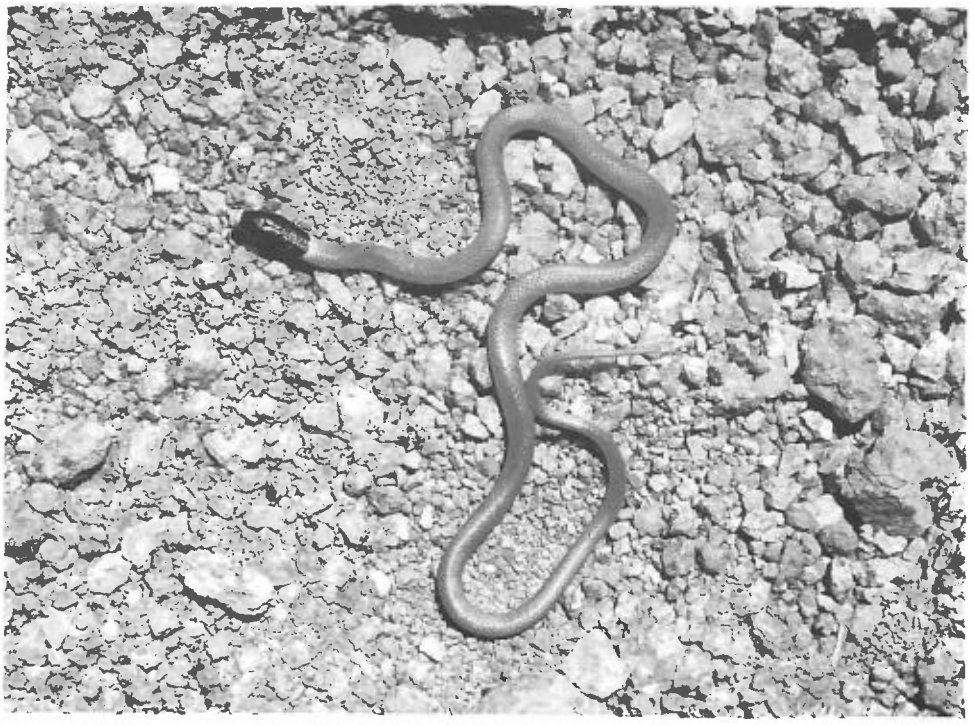

Plate 5. *Rhynchocalamus melanocephalus* from a locality 20 km north east of St. Katherine, South Sinai.

Tropiocolotes nattereri Steindachner 1901
Five examples of this species were collected by the author in June 1993 from Wadi Feiran, 20km north of St. Katherine (at an elevation of about 1500m) and along the road between the latter locality and Dahab. All the specimens found closely conform with the type description of *T. nattereri.* Since the types were collected from Nawibi (=Nuweiba) and Bir El Mashiya from opposite sides of the Gulf of Aqaba, the species has been reported only twice in the literature from Libya (Schnurrenberger 1962) and Gebel Attaqa near Suez (Werner 1983); however, the validity of these reports can not be verified hitherto.

The taxonomic status of *T. nattereri* has been questioned by many, primarily because of its superficial similarity to *T. steudneri* (Peters 1869). Both Flower (1933) and Loveridge (1949) doubted the validity of the species, and Arnold (1977, 1986) placed it in synonymy with *T. steudneri.* On the other hand, Pasture (1960) believed the species to be valid, and Werner (1982, 1983 and pers. comm. 1993) suggests that this is likely to be true. Marx (1968) and Leviton & Anderson (1972) list the species with no specific comment. Ecological and morphological observations made recently by the author, support the hypothesis that *T. nattereri* is a good species, with a range encompassing South Sinai, southern Israel (probably parts of Jordan), and much of north western Arabia.

Tropiocolotes nattereri differs consistently from *T. steudneri* in being overall distinctly more slender, with much longer limbs, distinct neck, larger more pointed dorsal and ventral scales, and posseses notably larger eyes and a striking dorsal pattern of 4-5 dark and light bands. Furthermore, and contrary to all previous works dealing with the taxonomy of *Tropiocolotes* (*e.g.* Minton *et al* [1970] and Leviton & Anderson [1972]), it diagnostically differs from *T. steudneri* in possessing unicarinate subdigital lamellae (*T. steudneri* has distinctive tricarinate subdigital lamellae). In captivity the long slender tail in all five specimens altered its colour, being barred during the day and plain white during the night (see Plate 1); a feature never observed in *T. steudneri.* Further differences are noted in the ecology and behaviour of the two species. While *T. steudneri* is a ground dwelling species found largely in sandy habitats, *T. nattereri* inhabits rocky terrain where it appears to regularly climb on low rocks and into vegetation. The latter species is generally far more active and agile than the former, moving in short rapid dashes with sudden stops. It traverses between rocks and bushes by means of long leaps (not unlike some *Pristurus* spp.). *T. steudneri* on the other hand moves slowly and seldomely makes very short hops. The two species also differ in the way they hold their tails when walking. *T. steudneri* waves its fairly thick tail in a slow serpentine motion; while *T. nattereri* holds its tail in a stiff strait posture, often curved upwards, but waves its tail rapidly when threatened, a behaviour observed in *T. scortecci* in Dhofar, Oman (Arnold 1980).

Preliminary examination of specimens of *T. steudneri* form northern Arabia and Israel housed in the British Museum (Natural History) and the California Academy of Sciences, suggests that these should all be referred to *T. nattereri.* In Sinai *T. steudneri* probably only exists in the north extending east as far as the Negev along with other Saharan herpetofauna. Werner's (1973) records of "*T. steudneri*" from South Sinai most probably refer to *T. nattereri.* The two species are likely to be largely parapatric.

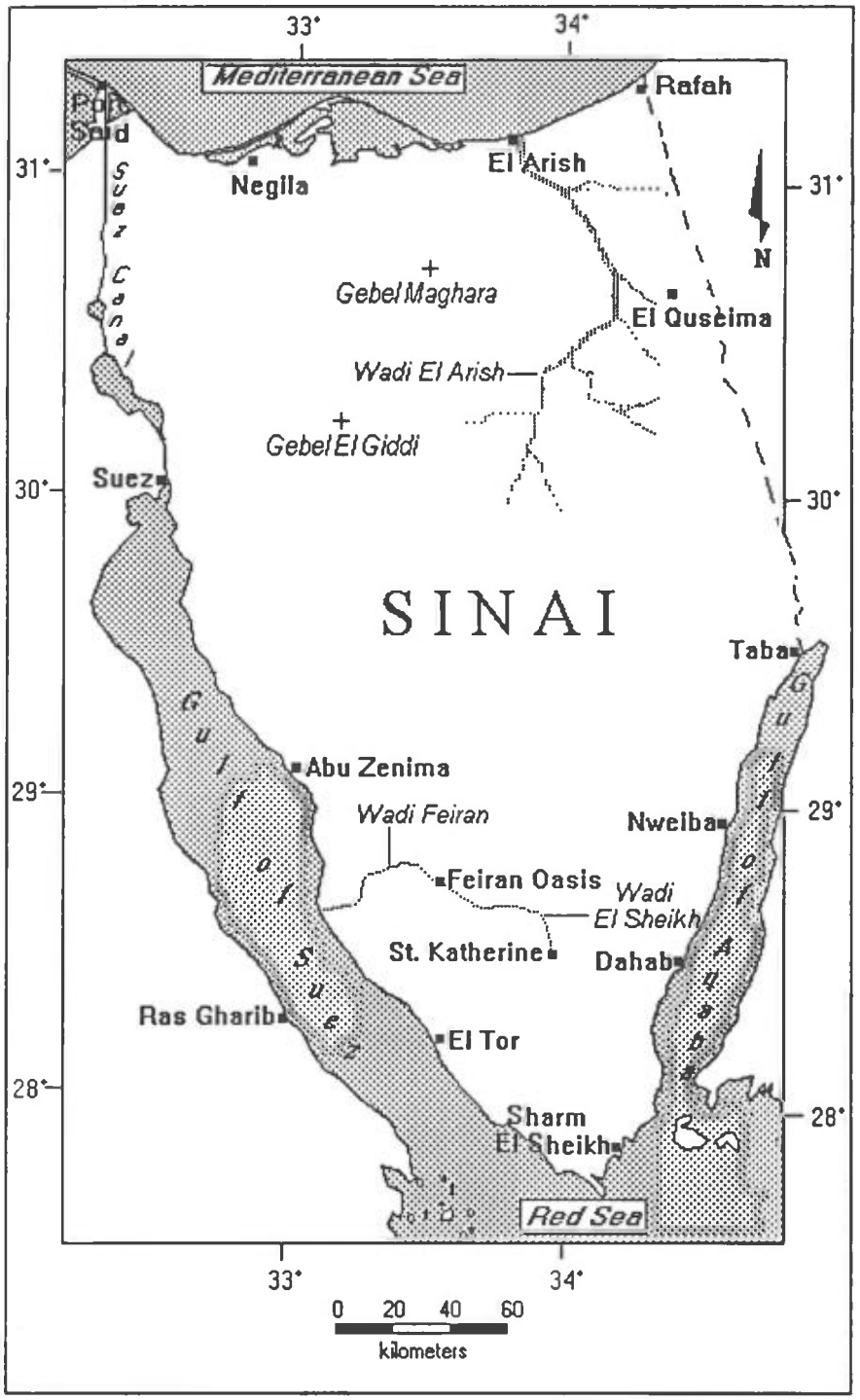

Figure 1. Map of Sinai showing main localities mentioned in the text.

Acanthodactylus longipes Boulenger 1918

This species has recently been found widely distributed in the sands of North Sinai, where it has been long overlooked, because of its close similarity to *A. scutellatus* (Audouin 1829). It is in fact a very prominent component of the local herpetofauna. *Acanthodactylus longipes* was described by Boulenger in 1918 as a variety of *A. scutellatus*, but first recognised as a full species by Bons & Girot (1962). Both Salvador (1982) and Arnold (1983) acknowledged the validity of this species. In North Sinai *A. longipes* was found in extensive sympatry with *A. scutellatus*, where the latter occupies areas of firm compacted sand and gravel plains, while the former occupies softer sand and dunes. Both Scortecci (1946) and Mellado (1993) noted similar habitat differentiation between the two species in Libya and Morocco respectively.

In Sinai, *A. longipes* can be fairly easily distinguished from *A. scutellatus*, by its smaller size, more slender build, much finer granular dorsal scales, general plain sandy colour, and the presence of enlarged keeled and pointed scales on the dorsal surface of the tibia and forelimb. Juvenile *A. longipes* have bright lemon yellow tails, while juvenile *A. scutellatus* have blue tails.

The finding of *A. longipes* in northern Sinai represents an extension in range of nearly 2000 km from the closest localities where the species has previously been recorded in northern Chad and central Libya (Arnold 1983). The species has also been found further west in northern Egypt (also in wide sympatry with *A. scutellatus*), near Suez, Giza, Fayoum, Wadi El Natrun and Siwa Oasis (based on Egyptian material in the British Museum [Natural History]). It is also probable that the species extends further east to the sands of the western Negev in Israel, where many Saharan faunal elements have their eastern limits. The apparent large gap in distribution between northern Egypt and central Libya and northern Chad, is probably an artefact of herpetological coverage and collection effort, rather than a true discontinuity in distribution. There are, however, some consistent morphological differences between Egyptian *A. longipes* and those from further west in the Sahara, which might grant sub-specific treatment. Further details on identification, ecology, and taxonomy of *A. longipes* in Egypt will be presented elsewhere.

Arnold (1983) speculated that areas of sympatry amongst species of the *A. scutellatus* group are uncommon, because of the stringent nature of the environments which these lizards usually inhabit. The evident extensive sympatry of *A. scutellatus* and *A. longipes* in Egypt indicates that even the most desolate of deserts might in fact be more complex than they appear. Minute differences in habitat preference (mainly ground softness and substrate mechanical composition) facilitate the coexistence of these two very similar species.

Coluber sinai (Schmidt and Marx 1956)
Since its description in 1956 this small handsome snake has been found or reported in literature only a few times. Its rarity and similarity to the Arabian *C. elegantissimus* (Günther 1878) has led some local workers to question the existence of the species altogether. Recently Werner & Sivan (1991) reported on the occurrence of the species in southern Israel and provided further evidence of its specific status, most significantly the sympatric occurrence with *C. elegantissimus*.

Four further records of this snake were made in South Sinai during May and June 1993. On 14 May two examples were found less than one kilometre to the east of the centre of Feiran Oasis in the general vicinity of the type locality. They were both found freshly dead; one killed by traffic on the main road, the other was found

on the soil surface less than 5 metres away, also dead but by no apparent cause. Both animals were found only minutes after their death. They were encountered about 30 minutes after sunset, indicating crepuscular activity by the species. A further example was found on the first of June only 100 metres futher east from where the earlier two were found. It was a completely desiccated traffic casualty. The fourth animal was found and photographed by Mrs Coney Pearson in a small wadi 20km north west of Taba on 6 June. All animals conform with the type description of *C. sinai*, and with further morphological data provided by Marx (1968) and Werner and Sivan (1991). They all had a reddish mid dorsal stripe.

Coluber sinai is known to local bedouins inhabiting the St. Katherine area, who call it *"Abu Merira"* ("Dr. Ahmed" local pers. comm.); in reference to the similarity between the colour pattern of *C. sinai* and the traditional Arab head dress, used widely by the native population. Zein El Din (1952) used this same Arabic name for *C. elegantissimus*, but in fact he was referring to a specimen of *C. sinai* collected from Sinai by General Negumi Pasha (housed in the Giza Zoological Museum) and erroneously identified as the former species.

Macroprotodon cucullatus (Geoffroy 1827)
The National Museum of Natural History (Washington D.C.) holds a single specimen of this species (USNM 134859), collected at El Quseima, on 18 October 1952 by Robert E. Kuntz and G.M. Malakatis. This is the only known record of the species from Sinai. Both Flower (1933) and Werner (1982) excluded this snake from the herpetofauna of Sinai, however the latter author predicted its occurrence in the peninsula. *M. cucullatus* is only known in Egypt from the Mediterranean littoral west of the Nile. Its apparent absence from most of Sinai, along with *Eryx jaculus*, *Malpolon monspessulanus* and *Acanthodactylus pardalis* (all of which occur east and west of Sinai), is probably due to the lack of suitable habitats.

Rhynchocalamus melanocephalus (Jan 1862)
One specimen was found on 3 June 1993 about 20 km north east of St. Katherine, South Sinai. The specimen was found at night moving slowly on an open gravel plain with scant cover of *Artemisia inculta* bordered by low sandstone boulders.

The status of this species in Egypt has been rather unclear. While Anderson (1898) lists a record from Cairo and stated that it occurred in Sinai (with no further detail), Flower (1933) doubted the Cairo record and its occurrence in Sinai. Marx (1968) omitted the species from his checklist of Egypt's reptiles and amphibians. The only recent indication of the occurrence of the species in Sinai is by Werner (1982), who referred to a recent record but provided no collection details. But apparently the Hebrew University Museum holds three specimens of the species from the vicinity of the St. Katherine Monastery (N. Sivan pers. comm.).

Telescopus dhara dhara (Forskål 1775)
This species has been recorded from three localities in Sinai, Wadi Feiran (Flower 1933), Gebel Maghara and Gebel El Giddi (Zinner 1974). Two further specimens (road kills) were collected from Wadi El Sheikh, just north of St. Katherine, at an altitude of about 1500m, on the first of June 1993.

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