# A REPORT ON HERPETOLOGICAL OBSERVATIONS IN AFGHANISTAN

# RICHARD CLARK

# Haugnesveien 6, 8480 Andenes, Norway

A herpetological expedition to Afghanistan in the early part of 1968 resulted in a collection of more than 1,000 specimens belonging to 58 taxa: 4 amphibians, 1 tortoise, 41 lizards and 12 snakes. In addition two species were collected and subsequently released after identification: Varanus bengalensis and Varanus griseus. The bulk of the collection is accessioned at the California Academy of Sciences for safe-keeping and study and a smaller part is on deposit at the Senckenberg Museum, Frankfurt-am-Main. Of the 57 species and 1 subspecies many were either first time records for the country or positive documentation of finds made at the end of the last century by the various Boundary Commissions working on frontier delimitations along the Afghan/Baluch borders. Many of these species were not known with any certainty from Afghanistan itself. As a result of more detailed studies made on the gecko genera by the staff at the CAS and from various institutions in the USSR three new taxa have been described in which material collected both in 1968 and in 1964 played a significant part. These are: Tropicolotes levitoni Golubev and Scherbak 1979, Tenuidactylus longipes voraginosus (Leviton & Anderson 1984) and Tenuidactylus turcmenicus (Scherbak 1978). The former existence of *Tenuidactylus fedtschenkoi* in Afghanistan is disallowed. Most of the work was carried out in the southern desert (Registan region) and the steppe country to the north of the Hindu Kush where weather conditions were at their optimum, resulting in the entire spectrum of *Phrynocephalus* and *Eremias* being collected. Two visits to the Jalalabad region resulted in two new records: Ophisops jerdoni and Xenochrophis piscator. In the same area were found further specimens of the rare and endemic Eremias aria as well as the little known and territorially restricted *Eremias regeli*. It needs to be stressed that the systematics of many Afghan reptiles is unresolved, notably the genera Agama, Eremias and Coluber and it is understood that work is currently on hand on these. Because of this I do not deal with taxonomic problems in this report since these can only be dealt with by museum researchers who have comparative material available.

# INTRODUCTION

In this report is presented an account of a herpetological expedition to Afghanistan made between the 23rd February and the 12th May 1968. It is unfortunate that publication of the results should have been so long delayed but the reasons are many and varied. Despite the fact that 20 years have elapsed this collection is probably one of the last to have been made before increasing political problems caused the borders of Afghanistan being closed to the ordinary traveller in 1978. Despite the Soviet withdrawal Afghanistan remains in a state of political and national crisis and it seems unlikely that the country will once again become accessible for some time into the future. Not only is the 1968 expedition certainly the most recent with herpetology as its primary objective, it is the most significant with regard to the number of species contained and the total quantity of specimens assembled at any one time.

Certain aspects of the expedition were more successful than others. It was the intention to visit the country as early in the year as possible to work on the herpetofauna of the southern and northern lowlands. This went more or less according to plan except that a proposed visit to the swamps of the Seistan Basin south of Juwain had to be abandoned because the route was unnegotiable even by Land Rover due to badly drifted sand and boggy conditions. It was also a disappointment not to be able to travel to the remote tongue of territory that extends far into the Pamirs in the north east of the country. Heavy rains and floods resulted in the unmacadamised roads being rendered impassable. The expiry of visas and financial considerations did not permit a later attempt. We were also denied travel permission to the province of Nuristan north of Jalalabad, one of the few forested and heavily vegetated parts of the country. This area was visited in 1965 by Mr. and Mrs. William Street who found a new species of Agama at Kamdesh (Anderson & Leviton 1965). Doubtless this region holds much of herpetological interest.

Because of the large number of species to be described and the desirability to give some background information on the Afghan herpetofauna as well as physiographical accounts, a detailed itinerary has not been attempted. Several localities were visited on more than one occasion and main collecting locations with dates visited are given in tabular form. In the Map all localities referred to in the text are shown, both those actually visited and others which are mentioned in references. Place names on different maps are not always in agreement. I have indicated these where relevant.

## HISTORICAL PERSPECTIVES

Prior to 1950 references to the Afghan herpetofauna were to be found in a number of standard publications: Boulenger (1921) 'Monograph of the Lacertidae', Smith (1945) 'Fauna of British India' and Terentev & Chernov (1949) 'Key to Amphibians and Reptiles'. The Boulenger and Smith publications contain the results of the findings of the Persian Boundary Commission of 1870-1872 (Blandford 1876), the Afghan Delimitation Commission (Boulenger 1889) and the Afghan-Baluch Boundary Commission of 1896 (Alcock & Finn 1897). The majority of listings refer to animals found along the southern border of Afghanistan and the extent of penetration of these into the country was mostly unknown.

An awakening of interest in the reptile fauna of Afghanistan began in 1950 when the California Academy of Sciences (CAS) San Francisco received a small collection of reptiles from Chahi-Angir in the Dasht-i-Margo desert collected by John Gasparetti. This was reported on by Leviton in 1959. Two subsequent collections by Gasparetti followed in 1961 made in the spring and autumn further east in Afghanistan, from north of Kandahar and south of Kabul. These were discussed also by Leviton & Anderson (1961, 1963). Encouraged by positive contacts with the CAS via the British Museum (Natural History) I undertook an expedition in July and August 1964, the first to Afghanistan with herpetology as its main aim. This resulted in an assembly of 236 specimens representing 26 species and was the largest collection to date containing two new lizard species and four first time records (Clark, Clark, Anderson & Leviton 1969). In the following year, 1965, the Street expedition visited the country to survey the mammalian fauna and collected an even more significant assignment of 247 specimens comprising 43 species. Amongst this were two new Agama species and seven new records. Despite the large number of species found only four were lacertids. This collection, reported on in 1969 by Anderson & Leviton, is of special value since a lot of work was done north of the Hindu Kush, a region hitherto virtually unknown herpetologically. In 1968 I revisited Afghanistan and made a sizeable collection of amphibians and reptiles which is here reported on. A paper published in 1969 by Dr. B. Kral lists three more valuable first records: the first documented find of Psammophis leithi, formerly suspected but not proven, Oligodon arnensis and Bungarus caeruleus. The total number of taxa now documented from Afghanistan stands at over 100. Several of these are known from very little material and from few localities and it is clear that our present knowledge of the reptile life of the country is far from complete. The central mountain massif across from Herat to Kabul is virtually unexplored and the north eastern provinces present a great challenge to the herpetologist should Afghanistan once again become accessible in the future.

# PHYSIOGRAPHY

In reporting on the expedition made in 1964 (Clark et al. 1969) a detailed physiographical account was given of the areas visited. To some extent the 1968 trip was a re-run of this since residence and travel permits could only be obtained in Kabul, which meant journeying along the only practicable route to the capital, a distance of rather over 1,000 kilometres. I am therefore not attempting a description of this. The Jalalabad and Nimla areas were also revisited. I will gladly provide on request information on these regions to interested readers. An account of the Lashkargah/Darweshan localities is here given as well as the northern steppe and desert zones since these were not travelled to in 1964.

South of a line roughly from Farah to Kandahar the landscape is a virtually featureless desert, sloping from about 1000 metres down to 500 metres in the Seistan Basin. Along the northern edge the bare and rough alluvial semi-desert plains are studded with isolated rocky peaks through a process of erosion that has levelled the land. Here and there can be found spiny

bushes and sparse patches of vegetation as well as shallow drainage channels formed during occasional flash storms. In the spring groups of nomadic tribesmen graze their flocks of goats. camels and fat-tailed sheep on the scanty pastures. The gathering of spiny bushes for fuel helps to destroy what little growth there is. Along the line of the Helmand river, from the confluence with the Argandab at Lashkargah, is a road that passes through an area undergoing development: an irrigation system that attempts to reclaim the salty desert soil for cultivation. The Helmand swings westward south of Darweshan to terminate in the swamps south of Juwain. To the north and west of the Argandab/Helmand systems lies the bare stony desert, to the south sand desert forming the area known as Registan. The rivers play a major part in limiting and retaining the sand which extends south to the Afghan/Baluch border and eastwards to just south of Kandahar. At Darweshan, a small village that provided essential supplies, the river can be crossed and from here it was possible to drive southwards along a track that skirts the margins of the sand-desert and from this considerable distances over the firm sand and gravel-strewn plain to different centres of dune activity. The sand desert is not without relief and different ecological zones could be recognised: the broad, firm sandplains overlain with fine gravel were interrupted by encroaching tongues of active dune hills. These in turn, as they rose higher in the distance, were broken by basins of mud and saltcrust or by smaller pockets and hollows of firm-based sand with an occasional naked clay hillock. Vegetation was very sporadic but present: spiny bushes in the indefinite drainage courses and on the active dunes tough and stunted trees and shrubs. In March and early April the weather was unsettled with considerable temperature fluctuations with maxima up to 32°C and minima around 21°C. Some days were clear but others more cloudy with strong winds that lifted the sand and obscured all visibility. Along the line of the Helmand there were occasional thunderstorms, short but violent with just a sprinkling of rain on the desert sands. Heavy rain and hail showers occurred along the route from Lashkargah to Kandahar in March producing a brief flowering of annual plants and prominent patches of greenery on the bare earthy soil. These had all but disappeared a fortnight later. Climatological data is scarcely available but that for the Seistan basin region indicates summer mean temperatures of 31°C for the hottest month (July) with extremes of 46.2°C. Winter means (December/January) are around 6°C with extremes of -11°C. Annual precipitation is 47.5 mm, 68% falling in winter. In 1964 45°C was recorded at Farah in July implying that the thermometer can on occasion exceed 50°C. In 1968 in the Herat region freezing temperatures and snow showers with some snow cover was experienced at the end of March. There is therefore a marked climatic contrast between the southern deserts at this season and the higher lying regions further north. The rise in temperature in spring is very rapid.

The northern steppe region north of the Hindu Kush lies under 500 metres altitude and there is little variation in altitude along the stretch of country from approximately Khanabad in the east to the Afghan/Iranian/Soviet boundary in the west. East of Khanabad the altitude increases dramatically towards Faizabad and the approach to the Pamirs. Descending from the Salang Pass at over 3500 metres the terrain falls away steeply. The northern foothills are well-watered with a lot of cultivation but away from here arid steppe, mostly clay and loess, extends far into Central Asia. Sand desert is encountered west of Mazar-i-Sharif mostly in the form of erratic though quite extensive wind-blown drifts. There is not the same sharp division of sand desert/steppe desert as in the south due to the lack of a river system to act as a retaining agent. However in the extreme north western corner the dune hills are larger and more continuous. Another feature in the north is the much greater amount of vegetation on the sand which helps to stabilise the dunes, and also provides essential shelter and protection to many reptile species. The weather in the northern steppe was more settled than in the south though windy at times causing some movement of sand dunes and spits. These migrating dunes resulted in some sand-dependant species altering their positions appreciably in the course of a few days. Temperatures by late April were rising to maxima values of close on 35°C. The fall of temperature after sunset was quite sharp. Nevertheless a lot of nocturnal activity was noted in the first two or three hours after dusk. No rainfall occurred in this region though a marked change in weather was experienced later in April east of Taligan - see under Introduction.

#### SPECIES ACCOUNT

This is presented alphabetically. The numbers in brackets refer to specimens accessioned at the CAS.

Class AMPHIBIA Order SALIENTIA Family BUFONIDAE Genus BUFO

Bufo stomaticus Lütken (4) 20/30 Km. SW Jalalabad 940/730 m. Originally this small series, together with one example from Khost taken in 1964, as well as specimens caught by the Streets from Jalalabad in 1965, were identified as *B. andersoni* Boulenger which is also known from the Seistan Basin. Eiselt & Schmidtler (1973) regard *B. andersoni* and *B. stomaticus* as synonymous. Mating was observed on 21st May.

Bufo viridis Laurenti (59) 40 Km.S Herat 1500m., Juwain 575m., 35 Km.NW Lashkargah 820m., 12 Km.S Lashkargah 820m., Kabul 1820m., 70 Km.S Kabul 2100m., 15 Km. N Ghazni 2500m., 24 Km.NE Taliqan 1000m.

At the site south of Herat swarms of newly metamorphosed juveniles were seen in and around a small stream. At Juwain this toad was observed early in the day both in and close to holes in earth banks in a poorly cultivated area. On a distributional basis populations from the west of the country belong to the subspecies *oblongus*, those from the Hindu Kush and N.E. Afghanistan to *pseudoraddei* (Eiselt and Schmidtler 1973).

Family RANIDAE Genus Rana

Three species of *Rana* are documented. *R. sternosignata* was found by us in 1964 in Khost province. It is also known from Kabul (Leviton & Anderson 1963) as well as Kandahar and Paghmann (Anderson & Leviton 1969).

Rana cyanophlyctis Schneider (12) 15-45 Km.W Jalalabad., Lashkargah 730 m.

The Helmand river provides a corridor for the penetration of this frog deep into the southern deserts. The series from Lashkargah were taken from irrigation channels and in steep-sided pools. It is also known from the Seistan Basin close to the Afghan/Iranian border (Leviton & Anderson 1984). The other site west of Jalalabad is near where we found this species in 1964 (Clark et al. 1969). *R.cyanophlyctis* is a thoroughly aquatic frog and was always found in water or on banks and rocks nearby from which it would dive when alarmed.

Rana ridibunda ridibunda Pallas (30) Khenjan 1110m., 24 Km.E Khanabad 610m., 24 Km.E Taliqan 610m., 65 Km.NE Taliqan 1110m.

This frog was extremely abundant at the Khenjan site from which most of the specimens were caught. This is a well-watered region and *R. ridibunda* occurred in streams, ponds and irrigation ditches. The Street expedition collected it in the Herat area and Paghmann as well as in the extreme NE corner east of Faizabad. There are no records for southern Afghanistan where it seems to be replaced by *R. cyanophlyctis*.

Class REPTILIA Order Chelonia Family Testudinidae Genus TESTUDO

Testudo horsfieldi Gray (2) 25 Km.SW Aqcha 365m., 70 Km.W Mazar-i-Sharif 350m.

This is the only tortoise in central Asia. It was found plentifully throughout the northern steppe occupying both sandy tracts, where its twin tracks could be seen scarring the sand surface, as well as firmer ground, clay and loess. Also known from Paghmann (Anderson & Leviton 1969) south of Kabul by Gasparetti (Leviton & Anderson 1961) and Herat (Král 1969). No specimens were found by us south of the Hindu Kush.

Order SQUAMATA Suborder SAURIA Family AGAMIDAE

Five genera are found in Afghanistan. Uromastyx, with two species, U. asmussi and U.hardwickii, is poorly known. Neither of these was collected.

Agama caucasica (Eihwald) (17) Pul-i-Khumri 730 m., 10 Km.W Tashkurgan 560m., 24 Km.E Taliqan 1000 m., 80 Km.S Kabul 2333 m., 15 Km. N Ghazni 2500 m., 40 Km. S Herat 1425 m.

The identification of specimens collected north of the Hindu Kush is open to some doubt (see below). A. caucasica was found sporadically and unpredictably over a wide area and seems to keep close to the peripheries of the central massif reaching a height of at least 3100m (Clark et al. 1969). This is a typical rock dwelling agamid living in colonies of several animals, sheltering in narrow crevices and amongst tumbled boulders. We found it active south of Herat in late February under chilly conditions, air temperature 6.5°C (ground 17.5°C), basking on sunny rock faces and ledges protected from the penetrating wind.

# Agama lehmanni (Nikolsky) (2) 50 Km.NE Taliqan 1636 m.

The range of this species is inadequately known in Afghanistan. The Street expedition collected but a single example from Mazar-i-Sharif, which was the first record for the country. Our specimens come from considerably further east at a much higher altitude. At this site it was observed sparsely, living amongst rocks and boulders in a river valley, air temperature 17.5°C.

Agama nupta De Filippi (10) 45/30 Km. SW Jalalabad 820/1045m., 55 Km. W Girishk 1045m., 20 Km. E Farah., 833m., 65/40 Km. NW Delaram 1410/970m.

This large and striking lizard can be recognised in the field by the silhouette it presents in its rocky habitat, very often being seen against the skyline from a considerable distance. It was always observed on high vantage points and was very difficult to approach. Its long tail, black on the latter half, is a prominent feature. This characteristic is also shared by *A.agrorensis* and it is possible in the Jalalabad region that this species was sight misidentified as *A.nupta* on occasion. Although found in some numbers at all the above localities *A.nupta* was noted to be less colonial and more solitary than *A.caucasica*. *A.nupta* reaches a total length of at least 40 cms., the tail being one-and-a-half to twice the body length. Occurring mostly below 1200 metres it is known to reach at least 2000 metres in the Kabul area (Clark et al. 1969).

It is worth noting that in the 1968 collection only three out of the nine Agama species known to inhabit Afghanistan were found. Amongst these can be mentioned *A. agrorensis* taken by the Streets near Jalalabad and *A.badakshana*, also collected by the Streets, near Mazari-Sharif. Since the latter resembles *A.caucasica* in many features it is desirable that our *A.caucasica* from the northern foothills should be re-examined.

# Genus CALOTES

Calotes versicolor (Daudin) (5) 30/45 Km. SW Jalalabad 820/1060m.

One of the several eastern species that just penetrate Afghanistan in the valley of the Kabul River. At the above stations it was collected on stone walls near streams. Its habitat is therefore less restricted than was observed in 1964 near Sarobi higher up the Kabul River. Here it was common on earth banks, bamboo thickets and amongst vegetation on the margins of rice fields, diving into the irrigation channels when pursued. *C.versicolor* seems to need a dampish environment and the humid conditions of the region fulfills this requirement.

#### Genus PHRYNOCEPHALUS

Nine species are recognised from Afghanistan, all of which were found in 1968. Since toadheaded agamids occupy mainly low elevations, though up to 2200 metres in the case of *P.scutellatus*, there is a marked north/south divide with taxa north of the central mountains being quite distinct from those occurring in the south. Furthermore all species have marked habitat preferences: "deep" sand-dune species; "firm" sand and dune-margin dwellers and nonsand inhabitants. These precise distinctions means that in a small area several forms may be found in close proximity but kept apart by reason of their exacting requirements. Another interesting observation is the case of parallel evolution between northern and southern species which closely resemble one another not only in appearance but in the ecological niches that they occupy.

Phrynocephalus clarkorum Anderson & Leviton (28) 56 Km. SSE Darweshan 790m., 40 Km. SE Kandahar 1100m.

This species was originally described by Anderson & Leviton (1967) and defined as distinct from *P.ornatus* with which it had been hitherto included. Its range is restricted to the southern deserts of Afghanistan and Baluchistan, living on firm sand pockets and dune margins running to and fro across the sand and taking refuge at the base of spiny bushes and sparse clumps of vegetation. Although sympatric with *P.ornatus* at the Darweshan site it was never found at the isolated localities mentioned under *P.ornatus*, see below. This tendency to keep close to the main sand desert and not to follow migrating sand movement across the alluvial desert plains is probably a contributing factor in its genetic isolation from *P.ornatus*.

# Phrynocephalus euptilopus Alcock & Finn (3) 56 Km.SSE Darweshan 790m.

A "rediscovered" species. This small series is the first to be found since the six syntypes were collected along the Afghan/Baluch border at the end of the last century. A relative giant amongst the southern phrynocephalids, reaching a total length of about 15cms., *P. euptilopus* is an exclusive inhabitant of the deep dune areas, sinking itself rapidly into the loose sand when alarmed, leaving the body outline clear on the sand surface. Apparently rare even at Darweshan and it was found at the sand desert site SE of Kandahar. Very little is known about its precise distribution but it can be assumed to have its northernmost limit at Darweshan.

# Phrynocephalus lutteoguttatus Boulenger (60) 56 Km.SSE Darweshan 790m: 50 Km.SE Kandahar 1100m.

Another species apparently rare in collections although at the localities visited it was extremely abundant. The types, described by Boulenger in 1887, come from "between Nushki and Helmand" along the Baluchistan frontier. In all probability it has the same range as *P.euptilopus*, the parameters being defined by the sand desert margins which are contained by the Helmand river system. *P.lutteoguttatus* is an exclusive sand dweller, sinking itself into loose sand by rapid lateral body movements. This lizard, only reaching 8cms. in total length, is sandy brown above with numerous cream and black spots. The under side of the tail has one or two asymmetrical black marks which are conspicuous when the lizard adopts a defensive posture by raising the tail tip and coiling it up into a tight spiral.

## Phrynocephalus maculatus Anderson (2) 56 Km.SSE Darweshan.

Little is known of the range of this species within Afghanistan although it extends into central Iran and the coasts of Arabia and Iraq. This would seem to be a first record from Afghanistan itself although the boundary commissions took samples from Nushki, south of the Afghan/Baluch border. Apparently uncommon or at least difficult to detect since it lives on the gravel strewn semi-desert plain with which it intimately blends. This lizard twirled its tail into a tight spiral when handled. It was found fully exposed to the midday heat (ground temperatures over 50°C.

# Phrynocephalus mystaceus galli Krassowsky (10) 20 Km.E Mazar-i-Sharif 410m., 30 Km.NW Sheberghan 378m., 50 Km.S Andkhoy 410m.

The giant of the genus reaching at least 25cms. in total length. It was locally plentiful in sandy habitats in the northern desert region and its habits are similar to sand-burying species in southern Afghanistan. According to Terentev & Chernov (1949) it digs long burrows into the sand dunes. This lizard is very bold and aggressive and will hold its ground when threatened, opening the mouth and extending the cutaneous folds at the side of the jaws, which become a vivid red. When handled it bites ferociously and painfully, clamping the jaws tight in "bulldog" manner.

Phrynocephalus ornatus Boulenger (63) 18 Km.E Girishk 864m., 30/75 Km.S Lashkargah 788m., 32 Km.S Darweshan 758m., 50 Km.S Darweshan 680mm., 45 Km.N Juwain 637m., 35 Km.S Farah 728m.

Very abundant at all the sites listed. We could find no marked ecological differences between this and the related *P.clarkorum* in as much as both species live on firm sandy terrain. However *P.ornatus* is probably less sand dependant and the populations at Girishk, Lashkargan, Juwain and Farah were found on local sandy tracts of no great extent isolated from the main sand desert by the intervening alluvial plain. These sand areas have been transported by wind action and *P.ornatus* appears to have followed their migration, thus enabling it to extend its range considerably outside the sand desert proper. In common with *P.clarkorum* the under side of the tail has up to four black bands, not black-tipped as in *P.lutteoguttatus*. These are displayed when the lizard raises the tail over its back and lashes it to and fro. Again the warning gesture is different from *P.lutteoguttatus* in which the tail tip is coiled. A slim, elongate phrynocephalid seldom exceeding 9cms. in total length.

Phrynocephalus raddei boettgeri Bedriaga (28) 10 Km.W Tashkurgan 455m., 20 Km.E Mazari-Sharif 410m., 30 Km.NW Sheberghan 378m., 10 Km.SE Andkhoy 394m.

This species is a common inhabitant of the non-sandy steppe region of northern Afghanistan, living on firm clay and loess intermixed with pebbles and intermittent vegetation. Parallels the southern non-sand dwellers in relying on its inactivity to escape detection. When pressed hard it would reluctantly move to a new position, flattening its squat body close to the ground against which it was almost invisible.

## Phrynocehalus scutellatus (Olivier) (1) 32Km.N Kandahar 1167m.

This single example was taken near the site where it was found in 1964. Similar to *P.maculatus* in behaviour relying on camouflage to avoid detection on its habitat of bare earth and stones. Seemingly rare in Afghan collections. Gasparetti found it at Chah-i-Angir (Leviton 1959).

Phyrnocephalus soqdiarus (Lichtenstein) (50) 20 Km.E Mazar-i-Sharif 410m., 30 Km.NW Sheberghan 378m., 20/32 Km.S Andkhoy 410m.

This is the northern parallel to *P.ornatus*, living in sand spits and ridges hiding amongst clumps of coarse grasses. When alarmed it would raise the tail, lashing it to and fro revealing the black tip and the two to four dark bands. Also resembles *P.lutteoguttatus* in colouring though unlike that species *P.sogdiarus* is not a sand burrower.

#### Genus TRAPELUS

Certain species formerly included under *Agama* are now considered to be distinct enough to be worthy of generic status in their own right. Two species of *Trapelus* inhabit Afghanistan.

Trapelus agilis (Oliver) (44) Collecting sites not individually listed.

This is the most ubiquitous agamid in Afghanistan, being found at nearly all the localities visited. However it is absent in the Kabul Valley river system. Although it avoids rock formations it has a considerable altitudinal range, certainly up to 2500 metres. *T.agilis* is most typically an inhabitant of semi-desert plains provided with at least some vegetation, stone piles where ground has been cleared for cultivation, earth banks and the neighbourhood of holes and rodent burrows. Capable of tolerating extremely high temperatures it can be found abroad at the hottest time of day climbing into spiny bushes to avoid the scorching ground surface, which can reach as high as 60°C. *T.agilis* is often to be seen along roadsides, bobbing its head in typical agamid manner. This lizard displays heterogenous colouring and patterning correlated with environmental conditions. At low temperatures the background colour is dark becoming paler as the temperature rises, the throat in males turning blue and the venter suffused with purple. This occurs also on handling.

# Trapelus ruderata (Oliver) (5) 70/80 Km.S Kabul 2106/2333m., 50 Km.S Qalat 1895m.

Our knowledge of this species in Afghanistan is fragmentary. It is very likely that *Trapelus megalonyx* Günther, described from Ghazni, is a synonym and any separation of the two taxa remains unresolved. In 1968 we found it only at the two sites above listed north and south of Ghazni respectively although in 1964 it was taken in some numbers on the plain of Charikar north of Kabul. It seems to prefer more barren habitats than *T.agilis*, living on naked earthy and stony terrain against which it is hard to detect from its habit of lying quiescent when approached. Although recorded from southern Afghanistan we did not find it there. This species complex has a broad range in S.W.Asia extending as far as S.E.Turkey.

#### Family GEKKONIDAE

Eight genera of geckos are listed from Afghanistan (Scherbak & Golubev 1986). Six are represented in the 1968 collection. Alsophylax is now excluded – see under Tropicolotes. The two other genera not taken in 1968 are Eublepharus and Hemidactylus, both represented by a single species: E.macularius and H.flaviviridis.

# Genus AGAMURA

Agamura persica (Duméril) (1) 50 Km.E Girishk 1045m.

This gecko is known from only four stations in Afghanistan, the above site being one of them, and from a handful of specimens. All localities are to the south of the Hindu Kush the most northerly being Paghmann in the mountains west of Kabul at 2440 metres. Outside Afghanistan known from scattered localities in Iran and western parts of Pakistan south to the coast of the Arabian Sea. The single specimen was found on open ground after dark.

# Genus BUNOPUS

Bunopus tuberculatus Blandford (5) 35 Km.S Farah 728 m., 10 Km.E Darweshan 833 m., 56 Km.SSE Darweshan 790 m.

Known from six stations in Afghanistan, all to the south of the Hindu Kush from Herat in the west to Mucur in the east at 2440 metres. This series of five specimens together with the single example collected at Mucur in 1964 represents nearly the sum total of this species assembled in Afghanistan to date. A single example from Kandahar was collected by the Street expedition in 1965.

#### Genus CROSSOBAMON

In 1969 (Clark et. al.) Anderson and Leviton questioned the validity of Stenodactylus (Crossobamon) lumsdeni as a valid species pending further investigation. In Leviton's & Anderson's Check List (1970) three species of Crossobamon are mentioned: C.eversmanni, C.lumsdeni and C.maynardi. Scherbak & Golubev (1986) amalgamate lumsdeni and maynardi as a subspecies of C.eversmanni: C.eversmanni lumsdeni (Boulenger 1877) status nova.

Crossobamon eversmanni eversmanni (Wiegmann) (15) 30 Km.NW Sheberghan 378m., 20 Km.S Andkhoy 365m.

This would appear to be the first record from Afghanistan, which was not unexpected since it is known from the Soviet side of the border. It was plentiful at both localities on the sand hills after sunset. *C.eversmanni* seems to be an exclusive sand dweller and could be anticipated as far east as Mazar-i-Sharif.

#### Genus TENUIDACTYLUS

The recent taxonomic designation replaces that of Cyrtodactylus Underwood 1954. This genus is probably one of the most complex of the many gecko genera in S.W.Asia. Five, possibly six, species are definitely known from Afghanistan, three of which were collected in 1968. A fourth, T.scaber, was found in 1964 and in 1965 the Street team made the first and only record of T. watsoni: four examples were taken near Jalalabad. The sixth, T. russowi, is postulated from the country by Leviton & Anderson (1970) but its presence needs to be verified. The reader is further referred to a paper by Leviton & Anderson (1984) on the speciation within this group caused by isolation of the various forms from southern Afghanistan caused by the spreading out of the alluvial fans for considerable distances into the low-lying deserts. Although the nomenclature has very recently been revised (Scherbak & Golubey 1986) the notion of generic isolation is valid and doubtless further taxa remain to be discovered in the south of the country and possibly elsewhere. Although Tenuidactylus spp. can sometimes be found concentrated densely, as for example on buildings both occupied and abandoned, these situations are infrequently provided in a country which is so sparsely populated. Many of the finds are of individual specimens taken in open country vast distances from habitation. This means that we have but little knowledge of the various taxa and scanty material from which to make comparisons.

Tenuidactylus caspius caspius (Eichwald) (5) 10 Km.W Tashkurgan 455m., 25 Km.SW Aqcha 365m.

This species is known from only four localities in northern Afghanistan and again only four stations on the southern margin of the Hindu Kush, Islam Qala, Herat, Sar-i-Pul and Paghmann. The Street expedition collection 19 examples of which two came from Zebak, 100 kms. east of Faizabad, at 2653 m. the highest known elevation to date. Whether it is so thinly distributed in Afghanistan is difficult to say. In Soviet Central Asia there are many records from the eastern side of the Caspian Sea and from Turkmenistan near the Afghan/Iranian/Soviet frontier. From Iran itself most of the records are from the north east of the country but from only a few stations.

Tenuidactylus longipes voraginosus (Leviton & Anderson) (2) HOLOTYPE 55 Km.E Girishk 1045 m., 1 PARATYPE 32 Km.N Kandahar 1167m.

Originally described as a new species: Cyrtodactylus voraginosus Leviton & Anderson 1984. Scherbak & Golubev (1986) redescribed this as a subspecies, T.longipes. A further paratype of the new taxon was amongst specimens collected in 1964 (Clark et al. 1969) and included under C.fedtschenkoi in erratum. The middorsal scutellation is quite distinct from the other Tenuidactylus species mentioned here in that the keeled dorsals are very much smaller and the granules small and numerous. The two specimens above listed were found in hiding amongst stones and rocks.

Tenuidactylus turcmenicus (Scherbak) (6) 60 Km.NE Taliqan 1167m., 24 Km.E Khanabad 610m.

This gecko has a very similar range in Afghanistan to *T.caspius*, being known from eight stations to the north of the Hindu Kush from Sheberghan to Faizabad covering an altitudinal range of 350 to 2653 m. There is also a record from Paghmann. The specimens collected in 1968 were originally identified as *T.fedtschenkoi*. According to Scherbak & Golubev (1986) *T.fedtschenkoi* does not occur within Afghan territory although it is found in Turkmenistan and Uzbekistan. The Oxus (Amu Darya) River could well act as a barrier to the spread of certain species southwards, as in this case and in *T.russowi*, and also northwards as with *T.turmenicus* for which there are only three sites known outside Afghanistan, well to the west and south of the Oxus just north of the Afghan/Soviet border. *T.turcmenicus* is separable from *T.fedtschenkoi* in a number of features, the most obvious being in the character of the dorsal scalation. In *T.turcmenicus* the prominently keeled dorsals are large but relatively few in number, tending to converge on each other, whilst the interlying granules are less numerous than in *T.fedtschenkoi*, larger and more irregular in appearance. Both species are readily distinguishable from *T.caspius* which has small, moderately keeled dorsals arranged in regular longitudinal rows separated by fine, minute granules.

# Genus TERATOSCINCUS

Three species are on record from Afghanistan. *T.bedriagai*, collected by the Street expedition in 1965 from near Juwain and Kandahar, was not found by us.

Teratoscincus microlepis Nikolsky (7) 56 Km.SSE Darweshan 790m.

This seems to be a first time record for Afghanistan although known from extreme eastern Iran and N.W. Baluchistan. At Darweshan it was sympatric with *T.scincus keyserlingii*, appearing soon after dusk. When observed on the prowl this gecko was seen walking very slowly over the sand with the body and short fat tail well raised above the surface. On being caught all specimens bit deliberately but painlessly and often defecated. When released in daylight it would run clumsily for shade and dig itself into the sand with its short, spade-like forelimbs.

# Teratoscincus scincus keyserlingii Strauch (6) 56 Km.SSE Darweshan 790 m.

Although sympatric with the above species this gecko was found more in sandy pockets and hollows and not on the main sand desert. Evidently not so exclusively a sand-dweller. When alarmed it adopts a defensive posture, waving the tail to and fro in rapid motion causing the large overlapping plates to vibrate, producing a rustling sound. Two *Teratoscincus* specimens extracted from the stomachs of *Coluber rhodorachis* on the sand desert near Kandahar could not be identified with any certainty. The skin of this gecko is fragile and delicate and is easily damaged.

Teratoscincus scincus scincus (Schlegel) (2) 20 Km.S Andkhoy 410m.

The second record from Afghanistan, the only other locality known being Herat (Scherbak & Golubev 1986). None of our *Teratoscincus* spp. are mentioned in the aforementioned authors' monograph and this gecko genus awaits more detailed study.

# Genus TROPICOLOTES

This genus is represented by a single species in Afghanistan. Six others are known from Iran and Pakistan. All have narrowly restricted ranges. The group is not found in Soviet Central Asia. Two other species inhabit North Africa and the Nile region south to nearly lattitude 20°.

Tropicolotes levitoni Golubev and Scherbak (1) HOLOTYPE Kabul 1786 m.

The holotype of this recently described form, hitherto confused with Alsophylax pipiens, was taken by night on the plastered external walls of the International Club in Kabul. 10 paratypes were found at the same site in 1964 (Clark et al. 1969). *T.levitoni* is only known from locations in the Kabul area and from a site west of Paghmann.

Family LACERTIDAE Genus ACANTHODACTYLUS

A genus of fringe-toed lacertids that occupies a range from south west Europe across north Africa, eastern Mediterranean countries to northern India. The greatest concentration of taxa is in the western part of the range. A single species is to be found in southern Afghanistan and the Kabul river valley. As was pointed out (Clark et al. 1969) Afghan specimens appear to differ from *A.cantoris cantoris* and *A.cantoris blanfordi*. Evaluation of the material collected in 1964 and 1968 has resulted in Afghan populations being renamed as *A.blanfordi*.

Acanthodactylus blanfordi (Boulenger) (42) 10/18 Km.E Girishk 880m., 40 Km.SE Kandahar 1030m., Jalalabad/Nimla 1045m., 45/55 Km.S Lashkargah 803m., 10 Km.N Darweshan 712m., 35 Km.S Darweshan 758m., 56 Km.SSE Darweshan 788m., 45 Km.N Juwain 636m.

Commonly found at all the above stations but particularly abundant at the site near Kandahar. A.blanfordi was always found in sandy pockets and on fine, drifted sand spits but not on the main dune areas. Those from between Jalalabad and Nimla were taken from sand banks and islets close to and in the river bed and at the same location as those collected in 1964. It was never found on the stony terrain nearby. Another species, A.micropholis, is on record from extreme S.E.Iran near the Seistan Basin (Boulenger 1921). Although not yet recorded from Afghanistan itself it could well occur in the Helmand Basin, bearing in mind the herpetofaunal content of this region.

## Genus EREMIAS

The genus Eremias is represented in Afghanistan by at least eleven species which parallel the geographical and ecological dispersals found in the agamid genus Phrynocephalus. The Jalalabad region is unique in containing two species that appear restricted to this part of the country, with their closest affinities to species found north of the Hindu Kush. Most Eremias live at moderate to low altitudes under about 1300 metres. Only one species is ubiquitous throughout southern and central Afghanistan, E.persica, which has been found at least up to 2500 metres altitude. It needs to be stressed that this group of lacertids is very complex and is comprised of several subgenera (Boulenger 1921). One of these, Mesalina, has recently been reinstated. Further evaluation of the considerable amount of material now available for study will doubtless lead to further revisions being made. Boulenger recognised Scapeira as being generically selfstanding although accepting that it stands close to *Eremias* and intergrades with it. The majority of Afghan species were described under Scapteira, which has more strongly fringed digits adapting it to living under sandy conditions. A further species, E.aporosceles (Alcock & Finn), was originally named as Macmahonia aporosceles. Macmahonia, a mono-specific genus, was distinguished from *Scapteira* by the absence of femoral pores. This was found by the boundary commission workers south of the present Afghan frontier in Baluchistan. This taxon was not found by us in 1968 but its subsequent discovery within Afghanistan itself is probably only a question of time.

Eremias acutirostris (Boulenger) (22) 35 Km.S Darweshan 758m., 10 Km.NE Darwshan 833 m., 56 Km.SSE Darweshan 790m.

A valuable series of specimens since this species was formerly described from a single specimen (Boulenger 1887). At the time of its collection it represented the first sample available for study. More recently Steven Anderson collected it in Iranian Seistan (Anderson & Leviton 1984). No examples were seen at the sand desert location near Kandahar, which suggests that *E.acutirostris* is perhaps confined to the more western parts of the southern sand desert. This is difficult to decide on the very limited collecting localities at which this lizard has been found. At the Darweshan sites it was plentiful but awkward to catch being amazingly fleet, speeding over the open dunes in a flurry of flying sand when alarmed. In the cooler early morning hours it was possible, by carefully scanning the neighbourhood, to observe this lizard

hunting for food, dipping its snout into shallow holes to extract insects, which it was seen to do on several occasions. A characteristic habit while foraging was to bob the head rapidly up and down in jerky motion. *E.acutirostris* is one of the largest of the Afghan species, attaining a total length of 25cms.

Eremias aria Anderson & Leviton (3) 30 Km.SW Jalalabad 1060m.

These few specimens supplement the small series collected by us in 1964, confirming the status of *E.aria* as a hitherto unknown species (Anderson & Leviton 1967). The present series was taken at the same site as those collected in 1964 and none were seen elsewhere, thus making it impossible to determine the range of this lizard. *E.aria* is an inhabitant of rocks and boulders and the intervening stony ground, hiding amongst the base of shrubby vegetation. It was only found in small numbers and often in the immediate vicinity of water. This lizard seems to fill the ecological niche left vacant by the absence of the ubiquitous *E.pesica* and *E.velox*, either of which might be anticipated in the area but which do not seem to occur. However *E.persica* is found in Khost province not far to the south of Jalalabad (Clark et al. 1969) from which region *E.aira* has not been taken. This suggests, on the very limited information available, that *E.aria* may well have an extremely restricted range.

Eremias fasciata Blandford (5) 56 Km.SSE Darweshan 790m., 64 Km.W Kandahar 940m., 16 Km.NW Delaram 867m.

A seemingly sporadic species occurring in small numbers throughout the Helmand basin, at least along the northern limit. This seems to be the second firm record for Afghanistan, the first certain documentation being made by Leviton (1959). A typically "striped" *Eremias* species with nine dark stripes alternating with the greyish ground colour. This pattern is present at birth. Although a sand dweller *E.fasciata* is kept apart from both *E.acutirostris* and *E.scripta* by occupying isolated sandy pockets and wind-dispersed sandy areas away from the main sand desert. It thus occurs over a broader area than the other two taxa and resembles *P.ornatus* in following migratory sand movements.

Eremias grammica (Lichtenstein) (35) 20 Km.E Mazar-i-Sharif 410m., 30 Km.NW Sheberghan 378m., 20/50 Km.S Andkhoy 394/410m.

Parallels the southern *E.acutirostris* in many respects both in size, biotope and behaviour. It was found not to be so nervous and this may be due to the much greater amount of vegetation on the sand hills which provides the lizard with more readily available hiding places. This is apparently the first documented record of this species from Afghanistan although it was previously known from N.E.Iran and contiguous areas of Soviet Central Asia. It was not found further east than the Mazar-i-Sharif locality. The ground colour of this lizard is greyish with a grey-black network. It is worth mentioning that the sand is much lighter in colour than in the great sand desert in southern Afghanistan, where it is a deep yellow or even orange. *E.grammica* is thus as well colour-adapted to its environment as *E.acurostris* is in the south. The reticulated dorsal patterning helps to camouflage it amongst the grasses and vegetation present on the sand hills.

Eremias intermedia (Strauch) (22) 20 Km. E/75 Km.W Mazar-i-Sharif 410/350m., 25 Km.SW Aqcha 365m., 30 Km.NW Sheberghan 378m., 20/50 Km.S Andkhoy 394/410m.

First documented by Král (1969). *E.intermedia* was reasonably plentiful at all the above localities and sympatric with *E.grammica* and *E.lineolata* though preferring firm sandy soils and shunning loose sands and dunes. It thus parallels the ecological requirements of *E.fasciata* from southern Afghanistan. The digits are not as markedly fringed as in the northern desert sand-dwelling species.

Eremias lineolata (Nikolsky) (15) 65/75 Km. W Mazar-i-Sharif 455/350m., 20/50 Km.S Andkhoy 394/410m.

Another first time record for this delicately built lizard. It was only observed at these two sites and would seem to live entirely on large expanses of loose sand. Where found it was always close to or in vegetation, never venturing far from cover. Like *E.fasciata*, *E.scripta* and *E.regeli* this species retains the juvenile striped livery throughout life, having up to seven dark dorsal lines on the pale grey ground. In appearance, habitus and mode of behaviour it resembles the southern *E.scripta* to a remarkable degree.

Eremias nigrocellata Nikolsky (8) 10 Km. W Tashkurgan 560 m., 20 Km. E Mazar-i-Sharif 410m.,

25 Km.SW Aqcha 365m., 50 Km.S Andkhoy 410m.

First recorded from Afghanistan by the Street expedition, who collected three examples east of Faizabad at 2653 metres elevation. Nowhere was this lizard observed to be plentiful. *E.nigrocellata* is an inhabitant of open firm ground, clay or loess provided with some vegetation. An ocellated *Eremias* with black-ringed whitish spots against a grey ground. The spotting becomes less marked with age.

*Eremias persica* (Blandford) (19) 36/56 Km.N Kandahar 1120/1258 m., 10 Km.N Darweshan 803m., 15 Km. N/10 Km.S Ghazni 2500/2258m., 50 Km.N Qalat 1894 m., 72 Km.S Herat 1410 m., Girishk 850m.

Terentev & Chernov consider *E.persica* to be distinct from the closely related *E.velox*. Boulenger (1921) considered velox and persica to be varieties of *E.velox*. It is now accepted that Terentev & Chernov are more correct. Widespread through southern Afghanistan up to at least 2500 metres elevation at Ghazni. It inhabits mainly open ground, hiding in holes or rodent burrows or at the base of bushes. Where sandy soils are available it shows a preference for these. Absent from the Jalalabad area, see under *E.aria*. This species demonstrates ontogenetic changes, the striped juvenile livery gradually disappearing as the animal nears maturity (Clark et al., 1969).

Eremias regeli Bedriaga (3) 30/45 Km.W Jalalabad 1060 m.

This was first recorded from Afghanistan in 1964 (Clark et al. 1969). The small series was taken in the same region as in 1964 but at a different locality close to the main route from Jalalabad to Kabul near the Kabul river. So far only known in this part of the country, to the south of the Hindu Kush. Otherwise *E.regeli* is known from Soviet Tadjikistan and has been taken from near the Afghan/Soviet border but not in Afghanistan itself. Boulenger (1921) questions the validity of *E.regeli* = *E.bedriagai*) considering the single specimen then known to be an aberrant *E.velox*. Could possibly be mistaken for a juvenile *E.velox* which lives in northern Afghanistan. That *E.regeli* is a good species is not open to doubt. That populations from Jalalabad are synonymous with those in Tadjikistan is more dubious and the real affinities within this species need clarifying, as does the distribution of this interesting form.

Eremias scripta (Strauch) (22) 35 Km.S Darweshan 758 m., 10 Km.NE Darweshan 833 m., 56 Km.SSE Darweshan 790 m., 40 Km.SE Kandahar 1060 m.

This is the first documented record from within Afghanistan. It was reasonably common at all the sites visited. Like *E.lineolata* in the north it inhabits the permanent sand hills and ridges, keeping close to sparse patches of vegetation into which it readily climbs, hopping nimbly amongst the leafless branches well disguised in the shadow pattern. *E.scripta* has the typical striped patterning of many desert *Eremias* species but the stripes tend to form reticulations along the dorsal midline. Both Nikolsky and Boulenger state that this species is to be found in Soviet Central Asia and Kazakhstan. In view of the north/south division of the majority of Afghan *Eremias* we question whether *E.scripta* populations in the south are synonymous with those to the north of the Afghan/Soviet border, a point raised by Leviton & Anderson (1970). Clearly more research is here needed as indeed it is with many other species within the group.

Eremias velox velox (Pallas) (25) 70 Km.W Mazar-i-Sharif 350 m., 25 Km.SW Aqcha 365 m., 10 Km.W Tashkurgan 560 m., 24 Km.E Khanabad 610 m., 30 Km.E Taliqan 1180 m.

Found occasionally throughout the northern steppe and in the low foothills of the Hindu Kush. Inhabits firm, never sandy ground, normally provided with scrub and vegetation. Its precise point of range separation from *E.persica* is difficult to determine since the latter species is known from the Herat area in the west and from Paghmann in the east. In 1964 we found *E.persica* on the plain of Charikar north of Kabul. This region is tucked in near to the steep climb to the Salang Pass (3700 metres) which links across the Hindu Kush, a distance of only some 100 kilometres from south to north.

#### **Genus MESALINA**

One species in Afghanistan formerly referred to under Eremias guttulata watsonana. Mesalina watsonana (Stoliczka) (37) 30/70 Km.NE Herat 1121/1621 m., Shindand 1227 m., 30 Km.E Girishk 879 m., 25 Km.SW Jalalabad 1100 m., Kabul to Lataband 1924 m., 80 Km.S Kabul 2333 m., 24/50 Km.N Qalat 1758/1894 m., 32/40 Km.N Kandahar 818/1167 m.

It has been remarked earlier (Clark et al., 1969) that this is the most ubiquitous lizard in SW Asia covering a range from Syria to Rajputana. It was never found abundantly but occurred in reasonable numbers at all the above mentioned localities. *M.watsonana* is a typical inhabitant of firm earthy soils, hiding under stones, holes in the ground or at the base of spiny bushes and clumps of vegetation. It was not found in northern Afghanistan and in Soviet territory is only known from Turkmenistan east to the Oxus (Terentev & Chernov 1949). In 1964 we found it in Khost province at 2500 metres elevation in conifer forests and east of Jalalabad near to the Khyber Pass. Evidently active at low temperatures as was observed near Herat in late February with air temperatues around 10°C.

# Genus OPHISOPS

A single species in Afghanistan.

Ophisops jerdoni Blyth (3) Near Nimla SW of Jalalabad 940-1150 m.

The first record of this Indian species in Afghanistan and the only known locality in the country which otherwise has a range from the NW frontier provinces east to Rewa State and Bellary. A small and inconspicuous lacertid seemingly uncommon, inhabiting broken terrain where it lives amongst rocks and vegetation. Our specimens were taken in early March and no examples were seen when the area was revisited in early May.

Family SCINCIDAE Genus ABLEPHARUS

Two species are known from Afghanistan. A.bivittatus linbergi, not found by us, is on record 'from upland Afghanistan 2900 metres' (Leviton & Anderson 1970): no locality is given.

Ablepharus pannonicus Lichtenstein (1) 72 Km.S Herat 1410m.

This was the only specimen found and was taken on May 12th. Its further distribution is unclear. John Gasparetti took two examples just south of Kabul (2300 m) on April 10th. 1961 (Leviton & Anderson 1963).

#### Genus OPHIOMORUS

Ophiomorus tridactylus Duméril & Bibron (5) 35 Km.S Darweshan 758 m., 10 Km.E Darweshan 833 m.

This skink is exclusively a sand dweller and is hard to capture because of its fossorial habits. It favours small sandy tracts rather than the main dune areas and its undulating track could often be seen on the sand surface. Capturing these skinks meant in many cases following the trail and digging the animals out of hiding. Many attempts proved abortive. The minute limbs are only used when the skink progresses in a leisurely manner but the normal form of locomotion seems to be "sand swimming".

Several other genera in the family Scincidae are reported from Afghanistan. Mabuya dissimilis was taken on the 1964 trip near Jalalabad and also from the same area by the Streets in 1965. Eumeces schneideri is on record from both northern and southern lowland Afghanistan and *E.taeniolatus* from a single locality near Kandahar. A montane species, *Scincella himalayana*, has been reported from Nuristan (Leviton & Anderson 1970).

Family VARANIDAE Genus VARANUS

Varanus bengalensis bengalensis (Daudin) Sight observations as well as specimens that were captured and released. 50 Km.E Kabul 1300 m., several localities west and south west of Jalalabad around 1000 m.

The first positive documentation of this monitor lizard in Afghanistan was made in 1964 when it was commonly found at the site east of Kabul. On visiting this site in early March 1968 no monitors were found, the weather being too cool with temperatures around 15°C. In early May there was plenty of activity at this station. Around Jalalabad in early March the weather was appreciably warmer and several examples were seen. V.bengalensis was always found near water but ranged into drier terrain but never far from rivers, streams and irrigated plots of cultivation. A detailed account of its habits and activity patterns has been presented earlier (Clark et al. 1969). In 1965 the Streets found it north of Jalalabad at 2600 metres, indicating a wide altitudinal range. It was also taken on the 1964 trip in Khost province to the south of Jalalabad. This monitor is restricted to the eastern part of Afghanistan but its range parameters need to be defined. Monitors caught in early March near Jalalabad were in poor condition: the tail base was thin and numerous folds of skin down the body made them look emaciated. By May monitors from this region were plump and healthy-looking with the tail base full and firm.

#### Varanus griseus caspius (Eichwald)

One example was located between Herat and Islam Qala in early May on open ground amongst sparse vegetation. When chased and cornered it held its ground and made threatening motions, opening the mouth, hissing loudly and lashing its tail. On being picked up it attempted to bite. This is in contrast to *V.bengalensis* which would use its long powerful tail as a defence but would never try to bite. This lizard was also encountered in the Farah region but only now and again.

# Suborder SERPENTES Family BOIDAE Genus ERYX

Three species of *Eryx* are on record. *E.elegans* has only one positive record, namely at Paghmann collected by the Street expedition in 1965, and *E.johnii* is included in the Afghan fauna on the basis of a record by Murray in 1892 from near Kandahar. *E.tataricus* would seem to be much more common and widespread.

*Eryx tataricus* (Lichtenstein) (2) 30 Km.NW Sheberghan 378 m., 20 Km.S Andkhoy 394 m. This sand boa was locally plentiful. All were found shortly after dusk roaming over the dunes. Although listed from the southern deserts none were found. The tail markings, a short horizontal line terminating in a black spot, closely resemble the mouth and eye, which is presumably a defensive feature. On being alarmed this sand boa will raise the tail tip and wave it to and fro in order to distract a potential enemy from attacking the fore part of the body.

Family COLUBRIDAE Genus COLUBER

A complicated genus in S.W. and Central Asia. Three, possibly four, species in Afghanistan.

Coluber karelini Brandt (7) 10 Km.W Tashkurgan 455 m., 10 Km.N Darweshan 803 m., 15 Km.NE Darweshan 833., 40 Km.SE Kandahar 1060 m., 45 Km.W Herat 880 m.

Very common at the Darweshan and Kandahar sites; only a few of those seen being caught. Occurred sporadically elsewhere. It was found both in non-sandy and sandy biotopes, both firm and loose sands. Those on the sand dunes south of Kandahar and Darweshan were seen prowling over the sand, entering and leaving holes at the base of xerophytic shrubs evidently on the search for prey. One of the specimens obtained here was found lying in the open so bloated with a large gecko (*Teratoscincus*) that it had just consumed that it was incapable of movement. Another was found dead partly down a hole and stuck fast. The stomach also contained a *Teratoscincus*. All specimens were of the sandy/brown/black-barred form. In the Kabul bazaar one of the snake charmers was displaying a variety of snakes, amongst them *Coluber* species, with a prominent red vertebral stripe. Since this colour variety is common to both this and to *C.rhodorachis* and I was not allowed to handle and examine the snakes, being told they were very dangerous (!), I was not able to determine to which species they belonged. The two examples from Tashkurgan and Herat were of a light grey ground colour.

# Coluber rhodorachis (Jan) (2) 30/40 Km.SW Jalalabad 1045/818 m.

This species was only found at the above stations. One was seen lying on a narrow ledge up a low cliff. When approached it remained motionless and seemed totally inactive. The snake was grossly distended and was found to have devoured a half-grown *A.nupta*. It seems unlikely that such an active lizard could be overcome unless it was attacked when in hiding.

# Genus LYTORHYNCHUS

This genus of leaf-nosed snakes contains four species. Two are to be found in Afghanistan.

Lytorhynchus maynardi Alcock & Finn (3) 10 Km. NE Darweshan 833 m., 56 Km.SSE Darweshan 790 m.

The first positive documentation from Afghanistan, previously known only from the type specimens taken from the Afghan/Baluch border. They were found after dark on the sand dunes, on which they left a wavy track. When threatened they would hold the tip of the tail erect and wave it slowly from side to side, simulating head movement.

Lytorhynchus ridgewayi Boulenger (1) 35 Km.S Darweshan 758 m.

This single specimen was also found active after sunset on the gravel strewn alluvium. The range of this species is better than *L.maynardi* being on record from both N.W.Afghanistan, southern and central Iran and Turkmenistan. Gasparetti took one specimen in 1950 (Leviton 1959).

# Genus PSAMMOPHIS

Represented by three species. P.leithi was not found.

Psammophis lineolata (Brandt) (3) 70 Km.W Mazar-i-Sharif 455 m., 45 Km.S Andkhoy 410 m., 30 Km.SE Shindand 1258 m.

This snake was occasionally seen in the northern steppe where it lived amongst the vegetation on firm clay or baked earth terrain. Found at both low and high elevations throughout the country. Outside Afghanistan ranges far into the USSR as far north as Latitude 49°.

Psammophis schokari (Forskål) (10) 18 Km.E Girishk 880 m., 32 Km.NW Lashkargah 818 m., 45 Km.W Jalalabad 818 m., 40 Km.SE Kandahar 1060 m.

A very commonly seen snake particularly near Lashkargah in late February and mid March where it was active at relatively low temperatures around 15°C. Usually found near bushes and on man-made earth banks, often in the vicinity of rodent holes into which they escaped when alarmed. Only known from the south of the country at low altitudes.

# Genus PTYAS

# Ptyas mucosus (Linnaeus) (1) Kabul

This juvenile was obtained from one of the Kabul snake charmers in exchange for a *Psammophis* schokari. No collecting locality available. The Street expedition collected several examples ranging from Herat in the west to Kamdesh in Nuristan as well as from Kandahar. Evidently broadly distributed.

# Genus XENOCHROPHIS

Xenochrophis piscator (Schneider) (1) 40 Km.SW Jalalabad 1045 m.

The first documented find for Afghanistan of this Indian and far eastern snake. Smith (1945) includes Baluchistan in its range. The single specimen, the only one seen, was found amongst rocks on the edge of a stream. When alerted it hid under the rocks and was easily caught. On being caught it bit forcibly and deliberately. Smith comments on the extreme aggressiveness of this snake, in Ceylon, which will spring at its aggressor when cornered. This was a female containing 7 eggs, 19 x 11mm.

Family ELAPIDAE Genus NAJA

#### Naja oxiana (Eichwald)

This was not found in the field. However several were on display in the Kabul bazaar. A guide told me that they had been obtained locally and that the snake was common in the Kabul area. In 1965 the Streets took a single example from near Jalalabad.

Family LEPTOTYPHLOPIDAE Genus LEPTOTYPHLOPS

Leptotyphlops blanfordi (Boulennger) (6) Nimla 1167 m. These examples represent the first documented Afghan record. This secretive snake was collected by Alcock & Finn in extreme north western Baluchistan near the Afghan/Iranian boundary but not within Afghanistan itself. The present series was taken under rocks and stones in dampish conditions in early March. As with other *Leptotyphlops* species they would be extremely difficult to find later in the year under hotter, drier conditions since they retreat deep into the ground. See Clark & Clark (1973) concerning *L.macrorhyncus* in Turkey.

# Family VIPERIDAE Genus ECHIS

Echis carinatus (Schneider) (6) 20 Km.SE Islam Qala 788 m., 32 Km. NW Lashkargah 818 m., 10 Km.W Tashkurgan 560 m.

Species	Total Length (mm)	Body Length (mm)	Dorsals	Ventrals	Subcaudals
Eryxtartaricus	368;375;231	339;328;209	47;49;51	211;194;181	23;32;30
Coluber karelini	R 740-1260 x 959 n 8	R 550-940 x 628 n 8	R 19 x 19 n 8	R 209-242 x 227 n 8	R 91-126 x 112 n 8
C. rhodorachis	1147;378	810;276	19	225;224	134;129
Lytorhynchus maynardi	229;412;363	192;343;298	19	199;192;203	59;53;53
L. ridgewayi	394	324	19	171	45
Psammophis lineolata	677;518;434	497;377;404	17	190;196;186	92;113;84
P. schokari	R 655-1089 x 903 n 10	R 437-715 x 601 n 10	R 17 x 17 n 13	R 176-191 x 184 n 13	R 116-132 x 122 n 13
Ptyas mucosus	624	465	17	204	117
Xenocrophis piscator	778	577	18	155	78
Leptotyphlops blanfordi	R 103-215 x 160 n 6	R 93-191 x 146 n 6	+	-	-
Echis carinatus	R 292-543 x 378 n 10	R 263-487 x 379 n 10	R 31-33 x 31-6 n 11	R 177-196 x 184 n 11	R 31-36 x 34 n 11
Eristocophis macmahoni	349;636	314;591	21;23	146;144	35;23

# DIAGNOSTIC DATA ON SNAKES COLLECTED

† scales round body, at mid-body, 14.

N.B. Adults only included in measurement calculations.

R = range, x = mean, n = number.

The single specimens taken at the first two localities were found in late February, the individual from Islam Qala beside the road, the one from Lashkargah caught while sunning itself at the edge of a rodent hole on open ground. No others were seen in the south. However at the Tashkurgan station visited in mid April these snakes were very common. The habitat here was earth and clay soils covered with stones and vegetation. Most of these seen, both early and late in the day but not after dusk, were close to rodent holes. They were easy to approach but when disturbed acted with extreme aggression, throwing the body into an S-shape and vibrating the rough scales against each other, producing the characteristic rasping sound. This snake must be regarded as highly dangerous from the point of view of its small size, under 60 cms., its inconspicuousness against its background, holding its position when threatened and the highly toxic venom. On several occasions they were nearly trodden on. The status of *Echis* in Afghanistan needs clarifying. Gans (1988) has pointed out that there are six species of this genus across the broad range from North Africa to Sri Lanka. A number of specimens were collected and dispatched to the Zoological Society of London for exhibition at Regent's Park. None survived for long, (David Ball personal communication). Probably the dry conditions favoured by this snake make it difficult to keep in captivity unless low relative humidity can be provided. However the nervous and irascible disposition of this viper is doubtless a contributing factor.

#### Genus ERISTOCOPHIS

A mono-specific genus of sand vipers with a distribution restricted to the deserts of southern Afghanistan, N.W. Baluchistan and S.E. Iran.

Eristocophis macmahoni Alcock & Finn (2) 10 Km.NE Darweshan 833 m.

Only these two examples of this rare snake were found. One was seen lying on the sand surface in the early morning and buried itself with surprising speed by lateral body movements. The outline was clearly visible and the snake caught without difficulty. It was not aggressive and seemed reluctant to bite. The other was found dead on the firmer dune margins, apparently having been trampled by a camel train that had passed overnight. Along with several other reptile species from this region the finding of this viper comes as a rediscovery since the species was originally described in 1896. Darweshan lies well to the north of the type locality along the Afghan/Baluch frontier.

# DISCUSSION

In the first instance it is perhaps useful to compare the results of the 1968 expedition with that made by me in 1964 and that undertaken by the Streets in 1965. Each of these provides us with fresh insights into the Afghan herpetofauna and each concentrated its activities in different ways and in different areas with some overlap. The 1964 trip produced two new species, Eremias aria and Phrynocephalus clarkorum as well as six new species records for the country, either totally new or positive confirmation of earlier dubious records: Bufo stomaticus, Rana cyanophlyctis, Calotes versicolor, Eremias regeli, Mabuya dissimilis and Varanus bengalensis. In addition two geckos, misidentified at the time, have been awarded the status of new taxa: Tenuidactylus longipes voraginosus and Tropicolotes levitoni. The Street expedition in 1965 found two hitherto undescribed species, Agama nuristanica, Agama badakshana and eight first time records: Agama agrorensis, Agama erythrogastra, Agama lehhmanni, Tenuidactylus watsoni, Hemidactylus flaviviridis, Eremias nigrocellata and Eryx elegans. The 1968 expedition did not locate any new species, as far as is known at the time of writing, but an abundance of first time records and confirmation of earlier doubtful findings which are indicated in the text, the most notable being Tenuidactylus turcmenicus, Ophisops jerdoni, Phrynocephalus euptilopus and Eristocophis macmahoni. In 1964 only one snake was found alive in the field, Coluber karelini, but in 1968 12 snake species were found though there remained a number of gaps in this collection which are worth mentioning since these were found by the Streets who were in Afghanistan for a longer period from July through to November: Eryx elegans, Coluber ravergieri, Natrix tessellata, Ptyas mucosus, Sphalerosophis diadema, Naja oxiana and Vipera lebetina. The Streets spent the second half of July at Paghmann collecting seven snake species and four Agama species including Agama erythrogastra, which is otherwise restricted to low elevations in N.E.Iran (Clark, Clark, Anderson & Leviton 1966) and neighbouring areas of N.W.Afghanistgan and S.E.Turkmenistan. The implication is that there must be other regions in Afghanistan that will, on investigation, be found to contain "anomalies" based on our current and still limited knowledge of the herpetofauna.

Apart from the mountainous regions of central and eastern Afghanistan which are poorly known much more work needs to be done in the valley of the Kabul River and Jalalabad. This is an area of high zoogeographical interest with the majority of species being of Indian origin. For this reason a special table has been compiled to demonstrate the reptile content of this zone. How far some of these animals range north and south out of the immediate area is a matter of great importance and one that warrants more systematic investigation.

Any attempt to map distribution patterns in a country with such a poor and limited road network is a formidable task. Certain regions can only adequately be penetrated from well organised base camps and with local guides, which involves considerable financial outlay. Not least, in 1968, was the problem of obtaining travel permission to visit some areas. I was denied access to Nuristan on the grounds that it was a most dangerous region for foreigners to visit due to local unrest. In 1964 a visit to Khost Province was only possible in an official party under the auspices of Kabul University and with Afghan drivers. Again in 1968, due to border sensitivities, an attempt to travel north from Herat to Kushk on the Soviet border was made impossible by military check points which could not be passed without written authority, which was not forthcoming. Not least it should be mentioned that in a country with such an enormous range of topography, altitude and climate there is a considerable variation in optimum activity. In the summer the desert zones are unbearably hot and up to May or even June the high mountains are impenetrable due to snow, rain and flooding which makes the unpaved roads impassable. It is clear that even a visit of several months cannot possibly sample the entire faunal spectrum. Although some aspects of 1968 were disappointing in the main the trip was successful, since activities were concentrated in the northern and southern lowlands and in the Kabul River valley at a time of year when temperatures were tolerable and reptile activity at a peak. It is interesting that the Streets collected no Phrynocephalids from northern lowland Afghanistan in the summer and very few Lacertids. This must be partly attributable to the time of year though whether this gap in their collection was also due to priority of interests in other directions is not altogether clear.

Regarding the systematics of certain groups I have been advised that work is currently in hand: Darevsky, Ananjeva and Borkin (Agamid lizards) – Leviton personal communication. Also Golubev (*Phrynocephalous* and *Eremias* species) – Golubev personal communication.

Without doubt these investigations will lead to some important taxonomic revisions, the results of which are eagerly awaited.

The affiliations of the Afghan herpetofauna have been discussed in earlier papers: Leviton (1959), Clark et al. (1969), Král (1969) but in no great depth due to many unknowns, and a complete analysis must await further study. A few remarks can be made in the light of our present knowledge. Most of the fauna is deserticulous, receiving genera and species from the Central Asian zone and from the vast area westwards to the eastern Mediterranean. Amongst the typical genera can be mentioned Agama, Phrynocephalus, Trapelus, Crossobamon, Tenuidactylus, Teratoscincus, Acanthodactylus, Eremias, Coluber, Lytorhyncus, Psammophis, Echis and Naja. The special zoogeographical significance of the Kabul River Valley system, which receives its fauna from the N.W. Frontier Provinces, Sind and further east (the "Oriental" zone) has been elaborated upon. I would speculate that Vipera russelli is by no means an impossible inclusion since this occurs in Sind. Other restricted distributions occur in the Registan desert which relates to the sand deserts of S.E. Iran and Baluchistan. Although only one genus seems endemic, Eristicophis, several species are confined to this area notably P.lutteoguttatus, P.euptilopus, E.acutirostris and E.scripta. Some montane species related to himalayan and high altitude elements further east occur in the eastern highlands: Batrachyperus mustersi, R.sternosignata, A.himalayana, Scincella himalayana and Akgistrodon himalayana. These must be only a small fraction of high altitude species awaiting future discovery. Finally a few Palearctic/European species attain their most easterly points of distribution in Afghanistan: B.viridis, R.ridibunda, Ophisaurus apodus, Natrix tessellata and Typhlops vermicularis. The genus Lacerta does not appear to have extended into Afghanistan. However in view of the penetration of the above named species it is not impossible that one or more representatives could exist in the north of the country.



Plate 1: *Phrynocephalus lutteoguttatus* with body well raised above the sand surface. Note the tail tip coiled up in typical defensive posture.



Plate 2: Eristocophis macmahoni photographed in situ having been exhumed after burying itself below the sand.

# EXPLANATION OF TABLE

- A. Species apparently endemic. The improbability of *Eremias regeli* being synonymous with populations in Tadjikistan warrants this inclusion.
- B. Eastern/Oriental species restricted to this region on available information. For Leptotyphlops blanfordi see text.
- C. Eastern/Oriental species which have also been taken in Baluchistan and/or S.E. Iran as well as Khost province in some cases. The implication is that those in category B may also be more widely found in the extreme eastern and southern parts of the country.
- D. Species with a much broader distribution both within Afghanistan and in neighbouring territories.

Remarks: it cannot be assumed that this categorisation is completely correct but gives a good picture of species dispersal with certain reservations. Král (1969) lists a juvenile *Eremias persica* a few kilometers east of Jalalabad. This record seems suspect and may be based on misidentification, possibly with *Eremias regeli*. Furthermore the Table gives no indication of abundance. Some records are founded on single specimens.

# TABLE OF SPECIES INHABITING THE KABUL RIVER VALLEY SYSTEM

C

D

	2	e	D
Eremias aria	Agama agrorensis	Bufo stomaticus	Agama nupta
Eremias regeli	Tenuidactylus watsoni	Rana cyanophlyctis	Trapelus ruderata
	Ophisops jerdoni	Calotes versicolor	Tenuidactylus scaber
	Mabuya dissimilis	Uromastyx hardwickii	Mesalina watsonana
	Psammophis leithi	Eublepharis macularius	Psammophis lineolata
	Oligodon arnensis	Varanus bengalensis	Ptyas mucosus
	Xenochrophis piscator	-	Sphalerosophis diadema
	Leptotyphlops blanfordi		Naja oxiana
	Bungarus caeruleus		Echis carinatus
	-		Vipera lebetina

# SPECIES NOTABLY ABSENT

Bufo viridis Testudo horsfieldi Trapelus agilis Phrynocephalus species Eremias persica Eremias velox

R

# **COLLECTING SITES**

In the text collecting sites are indicated by the distance in kilometres from the nearest town or village. Because of altitudinal differences and variety of habitat encountered over quite short distances in some instances precise localities are stated in the text. Only main reference points on the map.

- 1. Islam Qala (frontier post)
- 2. Herat
- 3. Shindand (Sabzewar)

Α

- 4. Farah
- 5. Juwain
- 6. Delaram
- 7. Girishk
- 8. Lashkargah (Chah-i-Angir)

- 9. Darweshan
- 0. Kandahar
- 1. Qalat
- 2. Ghazni
- <sup>1</sup>3. Kabul
- 4. Lataband
- <sup>1</sup>5. Jalalabad

- 16. Nimla
- 17. Pul-i-khumri
- 18. Khenjan
- 19. Taliqan
- 20. Khanabad
- 21. Tashkurgan
- 22. Mazar-i-Sharif
- 23. Aqcha
- 24. Sheberghan
- 25. Andkhoy

# **OTHER LOCALITIES**

- 1. Nushki
- 2. Mucur
- 3. Khost
- 4. Paghmann
- 5. Charikar
- 6. Sarobi
- 7. Kamdesh
- 8. Zebak
- 9. Faizabad
- 10. Kushk





LEGEND TO MAP OF AFGHANISTAN

Numbers referring to collecting sites are given in large: 4

Numbers referring to other localities are given in small: 4

Rivers named in lower case

Distances in kilometres

Altitude contours in hundreds of metres

# DATES ON WHICH PRINCIPLE COLLECTING SITES WERE VISITED

Herat – 24th February; 24th-29th March; 12th May Shindand – 24th February Farah/Juwain – 23rd-25th March Delaram – 31st March; 11th May Girishk – 26th-29th February; 21st March; 10th May Lashkargah – 27th February; 13th & 14th March; 4th April Darweshan – 14th-20th March; 1st-4th April Kandahar – 28th & 29th February; 12th March; 6th & 7th April; 9th & 10th May Qalat/Ghazni – 9th April; 8th & 9th May Kabul – 5th-8th May Jalalabad – 7th-10th March; 2nd-4th May Northern Steppe & Desert including Pul-i-Khumri and Khenjan – 11th-25th April Khanabad & Taliqan – 28th & 29th April

#### ACKNOWLEDGEMENTS

1. To the California Academy of Sciences, San Francisco, who partly funded the expedition. To Alan Leviton and Steven Anderson who confirmed identifications and to Jens Vindum, Collections Manager, who recently provided me with a computer print-out of specimens accessioned at the CAS. This enabled me to revise some of the nomenclature.

2. To the staff at the British Museum (Natural History) and specially to E.N. Arnold and A.F. Stimson for sight of papers dealing with the Afghan Herpetofauna.

3. To Henrik Bringsøe who provided me with the paper by Eiselt & Schmidtler dealing with *Bufo* and *Rana* systematics.

4. To the people of Afghanistan whom I met on my travels and who were always friendly and hospitable.

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# LETTERS TO THE EDITORS

Dear Sir,

# Snakebite Error

The article by Saul Halpern on snakebite in Bulletin No 32 made interesting reading but in particular demonstrated how some people seem to suffer ill-luck well beyond their deserved share. I refer to the picture of the poor chap with the appalling injury inflicted by *Echis carinatus*. Would you believe that this same individual suffered an identical injury illustrated in a paper by H.A. Reid et al. in The Lancet (1963), but that time after an encounter with *Ancistrodon rhodostoma*?

To be more serious, I discussed the Lancet paper soon after publication with the late Dr. Reid and I am almost certain the picture was taken by him at the Sungei Patani Hospital in Kedah, Northen Malaya. The casualty was a rubber estate employee and he had been bitten by *A. rhodostoma* in the course of his work. I have seen a number of bites by this animal and they were all rather an ugly sight, including my own hand after a single fang puncture in my right index finger. I have never seen the result of a bite by *Echis* though I believe them to be capable of equally or even more horrendous results.

Incidentally, the photograph shows the marks made on the arm to identify the points at which a series of measurements were taken, and the rate and degree of swelling were used to assess the degree of envenomation. Dr. Reid was a pioneer, if not the originator, of this aid to diagnosis.

Michael Buchanan-Jones, Perry's Acre, Micheldever, Hampshire SO21 3DR

# REFERENCE

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Ed. Note: The editors apologise for the mis-labelling of Dr. Halpern's slide – this was due to a printing error which we failed to notice before publication.

Dear Sir/Madam,

# Dead Varanus exanthematicus wanted

I am currently carrying out a study on the "Sonographic anatomy of the Savanna or Bosc monitor Varanus exanthematicus" using real time ultrasound, with a colleague Dr Claudia Gili. We need to describe the normal sonographic anatomy to aid the diagnosis of abnormalities in this and similar species.

For this study we need dead specimens of this species, preferably frozen, in order to determine the normal anatomy. To our knowledge, no detailed studies have been carried out on the anatomy of this lizard. We hope that you will be able to help us by placing a request in your newsletter for any dead specimens which your members have or hear about over the next six months. We would be willing to collect or pay for a carrier. I should stress that it needs to be V. exanthematicus and no other species.

Thank you very much for your help in advance,

Yours sincerely,

A.W. Sainsbury, MRCVS, The Zoological Society of London Institute of Zoology, Regent's Park, London NW1 4RY