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The reptiles of Anatolia: a checklist and zoogeographical analysis [1]

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SUMMARY

The geographical distribution of Reptiles in the Anatolian region is examined and discussed, in comparison with the reptile faunas of other Near East areas. The study area was confined to the Asiatic territories included within the political borders of the Turkish Republic, and the Greek islands along the Turkish coasts; the Turkish Thrace was excluded because on the European continental shelf. An updated checklist of the 109 species of indigenous reptiles (8 Turtles, 1 Amphisbaenian, 55 Lizards, 45 Snakes), belonging to 48 genera and 19 families, is presented. For each species are given: (1) the general distribution, (2) the distribution in Anatolia, (3) the main chorotype and the detailed one, (4) a short notice on affinities when available, (5) an outline of subspecies occurring in Anatolia, (6) a map with both bibliographic and unpublished records (for indigenous species only). The term "endemic" was used for species found solely in Anatolia or living within Anatolia and extending to some restricted adjacent areas. The highest number (10) of endemic taxa is referable to an "Armenian" pattern of distribution, which usually includes species inhabiting mountains or plateaux. These are usually adapted to steppe or rocky habitats in the north-eastern Anatolia and, more or less marginally, also in Transcaucasia. Excluding the endemic species, representing the 26% of the reptile fauna, three chorotypes are dominant: the SW-Asiatic (23%), the E-Mediterranean (18%), and the Turano-Mediterranean (9%). Other chorotypes are represented by low percentages, except for the Mediterranean (5%). From the similarity dendrogram, six larger divisions corresponding to main geographic regions of Anatolia were selected and then compared with 13 selected geographic areas outside Anatolia, in order to check their faunistic affinities.

INTRODUCTION

The herpetofauna of the Near East is very rich and diverse. In terms of species richness and taxonomic diversity of reptiles, this area harbours the most remarkable reptile fauna within the Western Palaearctic region, owing to the high habitat diversity and historical zoogeographical factors. Present knowledge is based on some major works dealing with national or regional areas (*e.g.*, Baran, 1976, Basoglu and Baran, 1977, 1980; Baran and Atatür, 1998: Turkey; Disi,

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1985, 1991, 1993, Disi et al., 1988, Sindaco et al., 1995: Jordan; Werner, 1988: Israel; Disi and Böhme, 1996, Martens, 1997: Syria; Arnold, 1986, Gasperetti, 1988, Gasperetti et al., 1993: Arabian Peninsula; Leviton et al., 1992: Iraq, Kuwait, NE Saudi Arabia, Bahrain, Qatar and United Arab Emirates; Latifi, 1991, Anderson, 1999: Iran). Additional records and descriptions of new taxa are found in several papers written by many authors and dispersed in a large literature.

The aim of the present work is to set up a review of the herpetofauna of Anatolia, which is the westernmost area of the Near East, providing an updated checklist and distribution maps of the species, together with a zoogeographical analysis. The present knowledge of the reptile fauna of Anatolia may be considered satisfactory if compared with that of adjacent regions, as Syria or NW Iran.

The first basic contribution to the Anatolian herpetofauna was given by Bodenheimer (1944), followed by Baran (1976), Basoglu and Baran (1977, 1988) and Baran and Atatür (1998) who gathered the faunistic data existing till then for the Turkish Republic, provided morphological descriptions and arranged keys for taxonomic identification. Additional data occur in successively published articles (see "Special references"), as those dealing with taxonomy and distribution of Viperidae, and of some difficult genera, *e.g.*, *Lacerta, Ablepharus, Eirenis*, with the description of several new species (see in the checklist).

Other recent contributions provided distribution maps of some reptile families as Gekkonidae (Baran and Gruber, 1982), Agamidae (Baran et al., 1989), Anguidae (Baran et al., 1988a) and Chamaeleonidae (Baran et al., 1988b).

Some zoogeographical aspects were discussed concerning some taxonomic groups (Nilson and Andrén, 1986) or restricted areas (Schmidtler, 1998). Nevertheless, yet it has lacked a zoogeographical analysis of the Anatolian reptiles on the whole, supported by modern cartographical and statistical methods.

STUDY AREA

Owing to the zoogeographical intent of the present paper, the study area was defined according to a biogeographical criterion, apart from political boundaries. For this reason, the study area was confined to the Asiatic territories included within the political borders of the Turkish Republic, and the Greek islands along the Asiatic Aegean and Mediterranean coasts. The Turkish Thrace was excluded because on the European continental shelf.

The name Anatolia is given to the peninsular land that today constitutes the Asiatic portion of Turkey. Because of its geographic position, the Anatolian peninsula acted as both a barrier and a bridge between Asia and Europe. Such a bridge has a north-south extent that ranges from about 300 to 400 miles

(480 to 640 kilometres), and it stretches about 1,000 miles from west to east. The geology of Anatolia includes sedimentary rocks ranging from Paleozoic to Quaternary, numerous intrusions, and extensive areas of volcanic material.

The Anatolia (755,688 square kilometres, and about 7,000 additional square kilometres of the coastal islands) is predominantly mountainous, with true lowlands confined to the coastal fringes. About one-fourth of the surface has an elevation above 1,200 metres, and less than two-fifths lies below 500 metres. Mountain crests exceed 2,500 metres in many places, particularly in the east, where Turkey's highest mountain, Mount Ararat (Agri Dag) reaches 5,137 metres close to the borders with Armenia and Iran. Steep slopes are common throughout the country, while flat or gently sloping land makes up barely one-sixth of the total area. These relief features affect other aspects of the physical environment, producing climates often much harsher than might be expected for this latitude.

Four main relief regions can be identified: the northern mountains, the southern mountains, the central massif, and the Arabian platform.

The northern zone comprises a series of mountain ridges (*i.e.*, the Pontic Mountains), increasing in elevation toward the east, that occupy a belt about 145 to 190 kilometres wide immediately south of the Black Sea. The Kizil and Yesil rivers break through the mountain barrier in a zone of weakness where summits are below 650 metres, dividing the Pontic Mountains into western and eastern sections.

The southern zone occupies the southern third of the country from the Aegean to the Gulf of Iskenderun, from which it extends to the northern side of the Arabian platform. The mountain system falls into two main parts: a complex series of ridges occur west of Antalya, with a north-south trend reaches 2,200 to 2,700 metres; the massive Taurus (Toros) mountain system estends along the Mediterranean coast, with a crestline which often exceed 2,600 metres (some peaks over 3,600 metres). Even though the Mediterranean coastal plain is narrow, there are two major lowland areas: the Antalya Plain which extends inland some 20 miles, and the Adana Plain, measuring roughly 145 by 95 kilometres, at the mouths of the Seyhan and Ceyhan rivers.

In the eastern third of the country the northern and southern fold systems converge to produce an extensive area of predominantly mountainous land with confined valleys.

The central massif, often referred to as the Anatolian Plateau, is located in the western half of the country, between the Pontic and Taurus systems. The most distinctive part of the central massif is the area bounded on the south by the Taurus Mountains and on the northeast by a line from Ankara through Lake Tuz to Nigde. It is an area of flat or gently sloping land at elevations of about 900-1,000 metres, and measuring some 240 by 320 kilometres.

The southeastern Anatolia, the region between the Euphrates and Tigris Rivers, represents the northernmost part of the Arabian platform. It is

characterised by relatively gentle relief, with broad plateau surfaces descending to the south from about 800 metres at the mountain foot to 300 metres along the Syrian border.

Over 250 lakes occur in Anatolia (50 with areas of more than four square miles). The largest are Lakes Van and Tuz; the latter is very shallow, expanding and contracting with the seasons. Being centres of inland drainage, both are saline. The largest freshwater lakes are those in north side of the Taurus, *e.g.*, Lakes Aksehir, Egridir, and Beysehir.

Contrasts between the interior and the coasts produce six main climatic regions.

(1) The Black Sea coastlands are the wettest region, with rain throughout the year and a winter maximum. Annual totals exceed 800 mm, reaching 2400 mm in the east. Winters are generally mild, with January means of 6-7° C, and summers are hot, with July means above 20° C at sea level.

(2) The Marmara region with lower temperatures but drier summers than along the Black Sea. Annual precipitation ranges from about 600 to 900 mm, with a pronounced winter maximum. January mean temperatures are close to freezing; summers are hot, with July means above 25° C.

(3) The Aegean coastlands have a Mediterranean regime. Average temperatures range from 7-8° C in January to 25-30° C in July, and frosts are rare. Annual rainfall varies from about 600 to 800 mm, and there is a pronounced summer drought.

(4) The Mediterranean coastlands display characteristics similar to the Aegean but in a more intense form. July means exceed 28° C at sea level. Annual rainfall declines from about 1000 mm in the west to barely 600 mm in the Adana Plain, and the summer months are virtually rainless at sea level.

(5) The southeast Anatolia is dry and hot during the summer. Winters are cold, with January means near freezing; July means are generally above 30° C. Annual rainfall ranges from about 300 to 600 mm.

(6) The Anatolian interior has a semi-continental climate with a large temperature range; Ankara's January mean is -2° C, and its July mean is 23° C. Precipitation is influenced by relief: Konya, with barely 300 mm, is among the driest places in the country, but in the mountainous east the annual totals generally exceed 600 mm.

Two main types of natural vegetation occur: (1) steppe grasslands, which occur mainly in central Anatolia and the southeast but are also found in the valleys and basins of eastern Anatolia; (2) forest and woodland, which cover the remainder of the country. Over much of its landscape, Anatolia has been greatly modified by human action, both directly (through lumbering and clearance for agriculture) and indirectly (through the activities of grazing animals).

The richest type of woodland is the Pontic, or Colchian, forest, confined to the eastern part of the Black Sea coastlands where rainfall is heavy, there is no summer drought, and winters are mild. Hornbeam, sweet chestnut, oriental spruce, and alder are the commonest species, and there is a rich shrub layer of rhododendron, laurel, holly, myrtle, hazel, and walnut. The remainder of the Black Sea zone is occupied by humid deciduous forest, dominated by oriental spruce, beech, hornbeam, alder, oak, fir, and yew, with oak and pine in the drier parts. Coniferous species become dominant above 1,000 metres, giving way to alpine grassland above 2,100 metres.

Drier conditions in the western and eastern parts of the interior (on either side of the central steppe-grassland zone) produce the drier mixed and deciduous forest belt, where the dominant species are oak, juniper, pine, and fir, with patches of open grassland. Mediterranean mountain forest is characteristic of the central and western Taurus, where pine, fir, and oak are the main species, but cedar, beech, juniper, and maple also occur. Along the Aegean and Mediterranean coasts is a belt of Mediterranean lowland vegetation of the maquis type. Myrtle, wild olive, laurel, and carob are the commonest species, but there are occasional stands of oak, pine, and cypress.

MATERIALS AND METHODS

The checklist in the present work includes all the indigenous species occurring in the study area; additional sections of the checklist are reserved to (a) the introduced species, (b) those inhabiting the Turkish Thrace and not occurring in Anatolia, (c) one uncertain and vague record of one snake never confirmed.

In the checklist, for each species are given: (1) the general distribution, (2) the distribution in Anatolia, (3) the main chorotype and the detailed one within brackets, (4) a short notice on affinities when available, (5) an outline of subspecies occurring in Anatolia. Such an updated checklist was compiled by a critical review of all literature data from over 200 articles and books (see the "Special references"). Many unpublished data come from the herpetological collections stored by the following Italian museums: Zoological Museum of the University of Rome "La Sapienza", Regional Museum of Natural Sciences (Turin), Civic Museum of Natural History (Carmagnola, Turin).

Maps of Turkish distribution (Figs. 1-78) from both bibliographic and unpublished records (for indigenous species only) were arranged by a grid system of squares (side length: 1/2 degree), that is a scale slightly larger than that used for the European Atlas of Amphibians and Reptiles (Gasc et al., 1997). The cartographic performance was made by ArcView GIS 3.0 (ESRI Inc.).

Photos were given for 30 representative species belonging to 26 genera (Figs. 87-116). All of them were shot by Roberto Sindaco, except for the following:

Eumeces schneideri and *Blanus strauchi* (Marco A. Bologna), *Malpolon monspessulanus* (Alberto Venchi), *Vipera xanthina* (Augusto Vigna Taglianti), *Leptotyphlops macrorhynchus* (Marzio Zapparoli).

Both literature and unpublished data (more than 8,000) were inserted on a database. The uncertain or vague records, and those which could be based on doubtful identification were excluded from the analyses; only a few of them were plotted in the maps because they were relevant for the definition of the distribution range of the species in Anatolia.

According to their distribution patterns, the species were classified into major chorotypes, firstly used in this work and defined according to the guidelines prepared by Vigna Taglianti et al. (1993: for the Western Palaearctic; 1999: for the Near East). The term "endemic" is here used for species found solely in Anatolia or living within Anatolia and extending to some restricted adjacent areas.

In order to carry out a faunistic analysis of similarity, the database provided a presence/absence matrix for 109 cartographic units of 1° of longitude per 1° of latitude. Similarity between cartographic units was calculated by using the SYN-TAX 5.0 pc package. A joining (tree clustering) method was used with UPGMA as amalgamation rule and the Baroni Urbani and Buser 2 Dissimilarity Index (Podani, 1993). The matrix included 76 squares and 97 species following these criteria: (a) only the cartographic units including 10 species at least were considered; (b) the marine species (sea turtles), the introduced species (*Podarcis sicula* and *Testudo marginata*), the uncertain species, and those occurring into a single cartographic unit were excluded.

From the obtained dendrogram, six larger divisions corresponding to main geographic regions of Anatolia were selected and then compared with 13 selected geographic areas outside Anatolia, in order to check their faunistic affinities. These selected areas are: Peloponnese, Cyclades, Crete, Cyprus, Dobrugea, Crimea, W Transcaucasia (west of 44th meridian), E Transcaucasia (east of the same limit), NW Iran (eastern and western Azerbaijan provinces), N Iran (Gilan and Mazandaran provinces, up to the 54th meridian), SW Iran (Fars province), the Syrian desert (Syria east of the 38th meridian), Latakia (Mediterranean Syria and Lebanon). The faunistic data concerning the areas external to Anatolia were gathered from literature and museal records. Particularly, those of the European continent, from Gasc et al. (1997); those of Transcaucasia from Bannikov et al. (1977); those of Iran from Latifi (1991) and Anderson (1999); those of remaining Levant areas from Sindaco (1998). For this analysis was built a second matrix, based on 200 species and 19 regions. As regards of the Anatolian six regions, were considered not only the 76 species previously mentioned, but also a few species occurring widely outside of Anatolia, even though present only in a single square in Anatolia (*Ablepharus bivittatus, Acanthodactylus schreiberi,*

Archaelacerta dryada, A. sapphirina, Asaccus elisae, Coluber ventromaculatus, Stenodactylus grandiceps, Vipera kaznakovi, Vipera wagneri).

CHECKLIST

The present annotated checklist includes 109 species of indigenous reptiles, belonging to 48 genera and 19 families. The checklist published by Daszak and Cawthraw (1991) included 83 species for the entire Turkey [with the addition of *Lepidochelys kempi* (Garman, 1880), a Caribbean marine turtle erratic in Mediterranean, not considered in our checklist], while the Baran and Atatür (1998) book concerned 100 species for Turkey, including an introduced species. Such an increased number of species, compared with the 82 species previously listed for the entire Turkey in the comprehensive books by Basoglu and Baran (1977, 1980), is due to the following reasons: (1) the description of several new species during the last two decades, *e.g.*, some *Lacerta* of the subgenus *Caucasilacerta*, *Vipera pontica*, *Vipera wagneri*; (2) the discovery of some species new for the Anatolian fauna, *e.g.*, *Acanthodactylus schreiberi*, *Cyrtopodion scabrum*; (3) a new taxonomic interpretation of some species groups or genera, *e.g.*, the *Lacerta* of the "*saxicola*" and "*trilineata*" groups, *Ablepharus*, *Eirenis*, *Vipera*.

Order **TESTUDINES**

Family **Trionychidae**

Rafetus euphraticus (Daudin, 1802)

General distribution. Tigris and Euphrates basins in SE Turkey, Syria, Iraq and SW Iran.

Anatolian distribution. SE Anatolia, Tigris and Euphrates basins (Fig. 1).

Chorotype. SW Asiatic (Mesopotamian).

Affinities. The genus *Rafetus* includes only *R. euphraticus* and *R. swinhoei* (Gray, 1873) from the coastal China. The genus *Rafetus* is closely related to *Trionyx* (which includes a species mostly Afrotropical; cf. *T. triunguis*) and *Apalone* (3 Nearctic species from central and eastern U.S.A. and NE Mexico).

Anatolian subspecies. Monotypical species.

Trionyx triunguis (Forsskål, 1775)

General distribution. Western Africa in the Guinean and Congo basins, from Senegal to Angola and Eastern Africa in the Nile, Uebi Shebelli and Juba riverbasins, from Kenya to Eritrea, in Israel and along the coastal Mediterranean regions of Anatolia. This species was occasionally recorded also offshore the East Mediterranean coast.

Anatolian distribution. According to Kasparek and Kinzelbach (1991), this species was recorded from several southern coastal localities, but only two stable populations

are known: the Koycegiz-Dalyan marshes and the Dalaman River basin, both in the Mugla province (Fig. 1). In the past, another population was recorded from the Amik Lake (Hatay province), dried in the '60 years, but some recent records suggested the possible presence of survived individuals in the artificial channels.

Chorotype. Afrotropico-Mediterranean.

Affinities. See *Rafetus euphraticus*.

Anatolian subspecies. Monotypical species.

Family **Dermochelydae**

Dermochelys coriacea (Vandelli, 1761)

General distribution. Species widespread overall the tropical and temperate seas, nesting on a relatively small number of beaches from tropical areas in the Indian, Pacific and Atlantic Oceans (mainly between 30°N and 20°S) (Iverson, 1992; Gasc et al., 1997). Frequent adult and rare juvenil specimens have been recorded from the Mediterranean Sea, but no reproductive site was ascertained.

Anatolian distribution. Kinzelbach (1986) signaled a non precise record of this species from Turkey. The occurrence of this species in Turkey is also discussed by Taskavak and Farkas (1998).

Chorotype. Cosmopolitan.

Anatolian subspecies. Monotypical species.

Family **Cheloniidae**

Caretta caretta (Linnaeus, 1758)

General distribution. Species widespread overall the tropical and temperate seas; uncommon along the eastern coasts of the Pacific Sea. The reproductive sites of the Mediterranean are concentrated on the Ioanian islands, southern Peloponnese, Crete, Rhodes (Greece), Turkish coast, Cyprus. The present situation along the North African and Middle East coasts is almost unknown; a single site is recorded in Cyrenaica, and in Israel the populations are apparently extinct (Baran and Kasparek, 1989). A few nesting sites are also recorded in Southern Italy (S Calabria, Lampedusa and Linosa islands).

Anatolian distribution. The reproductive sites are distributed along the southern coasts of Mugla and Hatay provinces.

Chorotype. Cosmopolitan.

Anatolian subspecies. Monotypical species.

Chelonia mydas (Linnaeus, 1758)

General distribution. Widespread overall the tropical and subtropical seas, except along the Pacif coasts of America, where occurs the related species *C. agassizi* Boucourt, 1868. The reproductive sites of the Mediterranean are restricted to the southeastern Anatolian coast and Cyprus.

Anatolian distribution. The reproductive sites are concentrated in a few beaches of the Içel, Adana and Hatay provinces (Baran and Kasparek, 1989).

Chorotype. Cosmopolitan.

Anatolian subspecies. Monotypical species.

Family **Bataguridae**

Mauremys caspica (Gmelin, 1774) (Fig. 87)

General distribution. Southern Balkans, several Aegean islands, Near East (Cyprus included), Iraq, W and N Iran, E Transcaucasia, SW Turkmenistan; one isolated population in the Arabian peninsula (Persian Gulf).

Anatolian distribution. Most of the peninsula, perhaps absent in the northeastern and in the extreme eastern regions. Quoted from the islands of Lesvos, Limnos, Kos and Rhodes (Fig. 2).

Chorotype. Turano-Mediterranean (Turano-Balkan).

Affinities. The genus *Mauremys* includes four species: *M. leprosa* (Schweigger, 1812) (Iberian Peninsula, Maghreb and isolated populations in some oases of the Sahara) and three species widespread in eastern Asia, from Japan to Vietnam.

Anatolian subspecies. The nominate subspecies (central and E Anatolia), and the ssp. *rivulata* (Valenciennes, 1833), from Mediterranean Anatolia.

Family **Emydidae**

Emys orbicularis (Linnaeus, 1758)

General distribution. From Maghreb and Iberian Peninsula to Central Asia (N Iran, Aral Lake), and also W Syria and perhaps Israel.

Anatolian distribution. Restricted to the W Anatolia. Recorded also from the Limnos island (Fig. 3).

Chorotype. Turano-Europeo-Mediterranean.

Affinities. Emys is monotypical; the closest genera are *Clemmys*, *Emydoidea* and *Terrapene*, all Nearctic.

Anatolian subspecies. Fritz (1994) cited and described from Anatolia the subspecies *hellenica* (Aegean and Marmara regions), *luteofusca* (Central Anatolia), *colchica* (Eastern Anatolia), and recorded two undescribed subspecies respectively from the Hatay and Adana provinces, as well as other intermediate populations.

Family **Testudinidae**

Testudo graeca Linnaeus, 1758 (Fig. 88)

General distribution. The primary range includes the non-desert areas of North Africa (Egypt excepted), the southern Balkans, Anatolia, Mediterranean Near East, E Transcaucasia (with two relict populations in Abkhasia and in the

Northern Great Caucasus), N Iraq, Iranian Plateau to the Afghanistan and Pakistan borders. Introduced in several other places.

Anatolian distribution. Anatolia (except the NE regions). Recorded from Hios, Kos, Leros, Lesvos, Limnos islands (Fig. 4).

Chorotype. Turano-Mediterranean (Irano-Mediterranean).

Affinities. *Testudo* includes six species: (a) four of the nominate subgenus (*graeca*, *hermanni* Gmelin, 1789, from southern Balkans, Italy and SW France, *marginata* Schoepff, 1792 and *weissingeri* Bour, 1995, from Greece, *kleinmanni* Lortet, 1883, from the coasts of Libya and Egypt); (b) one of the subgenus *Agrionemys* (*horsfieldii* Gray, 1844, from Transcaspia, Iran, Afghanistan and Pakistan). Some other populations of different species, probably introduced, are distributed in other regions of the Mediterranean basin.

Anatolian subspecies. *T. g. anamurensis* Weissinger, 1987 (southern coast of Anatolia; this subspecies needs confirmation), *T. graeca terrestris* Forsskål, 1775 (SE Anatolia) and *T. g. ibera* Pallas, 1814 (other parts of Anatolia).

Order SQUAMATA

Suborder Amphisbaenia

Family **Amphisbaenidae**

Blanus strauchi (Bedriaga, 1884) (Fig. 89)

General distribution. Mediterranean Anatolia and some adjacent Aegean islands, NW Syria, Lebanon, N Israel (probably extinct), N Iraq.

Anatolian distribution. S Anatolia and Kos, Leros, Rhodes, Kastellorizo islands (as well as several close islets) (Fig. 5).

Chorotype. E-Mediterranean (NE-Mediterranean).

Affinities. The other species of *Blanus* are widespread in the Iberian Peninsula and Morocco.

Anatolian subspecies. *B. s. strauchi* (Bedriaga, 1884) from the Aegean region, N of Bodrum; ssp. *aporus* Werner, 1898 from the Western Anatolia (the "lakes region") and the Antalya province; ssp. *bedriagae* Boulenger 1885, from a small area between Fethiye and Kas.

Suborder Sauria

Family **Gekkonidae**

Asaccus elisae (Werner, 1895)

General distribution. SE Anatolia, NE Syria, N Iraq, SW Iran (Arnold and Gardner, 1994).

Anatolian distribution. A few localities along the Euphrates valley (Fig. 6).

Chorotype. SW-Asiatic (Mesopotamian).

Affinities. The other *Asaccus* species are distributed in Iraq and W Iran (two species) and on the mountains of the SE Arabian peninsula (four species).

Anatolian subspecies. Monotypical species.

Cyrtopodion heterocercum (Blanford, 1874)

General distribution. SE Anatolia, N Syria, N Iraq, W Iran.

Anatolian distribution. Recorded from several SE Anatolian provinces (Gaziantep, Malatya, Diyarbakir, Mardin, Siirt, Bitlis) (Fig. 7).

Chorotype. N-Mesopotamian endemic.

Affinities. This species belongs to the subgenus *Mediodactylus* Szczerbak and Golubev, 1977 (as re-defined by the same authors, 1996), distributed from S Balkans to Transcaucasia, Iran, and central Asia (Chinese Turkestan). The whole genus is also widespread in Sinai, Middle East, E Arabian peninsula, Pakistan, Cutchh, W Himalaya (E to S Tibet and W Nepal).

Anatolian subspecies. C. h. mardinensis (Mertens, 1924).

Cyrtopodion kotschyi (Steindachner, 1870)

General distribution. NE Mediterranean regions (from Apulia to Crimea, Anatolia, Cyprus, W Syria, Lebanon, N Israel).

Anatolian distribution. W and S Anatolia, with isolated populations in Central and NE provinces (Artvin). Recorded also from several Aegean islands: Armathia, Fourni, Kalimnos, Karavonissia, Karpathos, Kassos, Kos, Lesvos, Limnos, Rhodes, Saria, Simi (Fig. 8).

Chorotype. E-Mediterranean (NE- Mediterranean).

Affinities. Close to *C. heterocercum* previously discussed.

Anatolian subspecies. The following subspecies are cited of Anatolia: *beutleri* (Baran and Grüber, 1981), *bolkarensis* (Rösler, 1994), *ciliciensis* (Baran, 1982), *colchicus* (Nikolskij, 1902), *danilewskii* (Strauch, 1887), *fitzingeri* (Stepanek, 1937), *karabagi* (Baran and Grüber, 1981), *ponticus* (Baran, 1982), *syriacus* (Stepanek, 1937). Some of these taxa need confirmation.

Cyrtopodion scabrum (Heyden, 1827) (Fig. 90)

General distribution. From SE Anatolia E to Pakistan and S to the E Arabian peninsula. Isolated records are known from the African coasts of Red Sea from Sinai to Eritrea, but perhaps are due to introductions.

Anatolian distribution. Only a few localities in the provinces of Sanli Urfa and Mardin (Fig. 8).

Chorotype. SW-Asiatic.

Affinities. C. scabrum belongs to the nominate subgenus, which is widespread in the same area of this species, and also in Central Asia (Gobi desert and Chinese Turkestan). The highest number of species of the subgenus is distributed in Pakistan.

Anatolian subspecies. Monotypical species.

Hemidactylus turcicus (Linnaeus, 1758)

General distribution. Mediterranean coastal regions, E to the deserts of Syria and Jordan, Egypt (E of the Nile river). The distribution along the Red Sea coasts is uncompletely known, due to the uncertain value of some close taxa, here considered as distinct species, but perhaps representing only subspecies of *turcicus* (*e.g.*, *parkeri* Loveridge 1936, *robustus* Heyden 1827, *macropholis* Boulenger, 1896).

Along the borders of the Arabian Peninsula is present *robustus* [probably only a synonym of *parkeri,* considered as a distinct species by Lanza (1978, 1990)]. It was recorded also from Pakistan (as *karachiensis* Murray, 1884, synonym of *parkeri*), Iraq, W and S Iran, Turkmenistan (Ashkhabad). Perhaps in some of these localities are present the other taxa previously discussed, or introduced specimens of *turcicus*. Other introductions concern Mexico, Florida, Caribbeans and Chile.

Anatolian distribution. Mediterranean and Aegean coastal regions. Recorded also from the following Greek islands: Lesvos, Samos, Agathonissi, Kalimnos, Karpathos, Leros, Lipsi, Patmos e Rhodes (Fig. 9).

Chorotype. Mediterranean.

Affinities. Close to the other taxa previously cited.

Anatolian subspecies. Only the nominate form is cited from Anatolia.

Stenodactylus grandiceps Haas, 1952

General distribution. SE-Anatolia, Jordan, Syria, W-Iraq.

Anatolian distribution. A single Turkish locality near Gaziantep, close to the Syrian border (Fig. 6).

Chorotype. SW-Asiatic (Mesopotamian).

Affinities. Stenodactylus is a typical Saharo-Arabian genus. The closest species to *grandiceps* (cf. Arnold, 1980) are Saharo-Arabian or stricly Arabian.

Anatolian subspecies. Monotypical species.

Family **Agamidae**

Laudakia caucasia (Eichwald, 1831)

General distribution. From E Anatolia, E to southern Tajikistan, N e E Afghanistan, W Pakistan (Ananjeva and Orlova, 1978). Several localities recorded in the maps provided by Ananjeva and Orlova (1978) are erroneous: those from Iraq must be referred to *L. nupta* (De Filippi, 1843) (cf. Leviton et al., 1992), and those from Iran (S of 35°N) are in disagreement to the map of Anderson (1999).

Anatolian distribution. Extreme eastern Anatolia, W to Van Lake (Fig. 10).

Chorotype. Turanian (Turano-Caucasian).

Affinities. The genus *Laudakia* is widespread in the Near East, from the Aegean

islands S to Arabian Peninsula, E to Pakistan, Himalaya (just E of Katmandu), and to W China (Tibet, Xinjiang, Gansu), and SE Mongolia. We adopt the generic name *Laudakia* and not *Plocederma* according to Baig and Böhme (1997).

Anatolian subspecies. The nominate subspecies.

Laudakia stellio (Linnaeus, 1758) (Fig. 91)

General distribution. From Cyclades islands E to eastern Anatolia and S to Cyprus, Jordan, Sinai and N Arabia. Due to introduction is present also in two areas of Greece (Thessaloniki and Kerkyra), and of Egypt (near Alexandria and Cairo).

Anatolian distribution. Widespread in the W and S Anatolia, W to the Van Lake; isolated populations in C and N Anatolia. Distributed also in several Aegean islands (Lesvos, Fourni, Ikaria, Samos, Agathonissi, Halki, Hios, Kalimnos, Kastellorizo, Kos, Leros, Nissiros, Patmos, Rhodes, Simi, Telendos) (Fig. 11).

Chorotype. E-Mediterranean.

Affinities. The same of the previous species.

Anatolian subspecies. The Anatolian populations are usually referred to the subspecies *L. stellio stellio* (S, SE and C Anatolia) and *L. s. daani* Beutler-Frör, 1980 (W Anatolia).

Phrynocephalus persicus De Filippi, 1863

General distribution. E Anatolia, Armenia and Azerbaijan (apparently isolated populations, with the exception of the Araxes valley), C and NW Iran.

Anatolian distribution. Only in the plain area under Mount Ararat (Fig. 12).

Chorotype. SW-Asiatic (Irano-Caucasian)

Affinities. The genus *Phrynocephalus* has a fragmented range: (a) Arabian Peninsula; (b) Central Asia, from E Anatolia and Caucasus S to the Afghanistan (Helmand river basin and northern plains), the Pakistani Beluchistan and NW-India (Kashmir and Ladakh), E to Mongolia, W and N China W and N (Xinjiang, Tibet, Qinghai, Gansu, Nei Mongol, Hebei, Shaanxi, Ningxia, NW-Sichuan); (c) desert areas of W Rajasthan.

P. persicus is very close to *P. helioscopus* (Pallas, 1771), of which was considered a subspecies (see Mezhzherin and Golubev, 1989 and Anderson, 1999, who treated as valid species several former subspecies of the latter). *P. helioscopus* inhabits N Iran (Gorgan region), the whole Central Asia S of the 49°N, E to W China (W-Xinjiang), and SW Mongolia with a few isolated populations along the western coast of the Caspian Sea.

Trapelus ruderatus (Olivier, 1804) (Fig. 92)

General distribution. Anatolia, Syria, Lebanon, N Israel, Jordan, Iraq, S Azerbaijan, Iran.

Anatolian distribution. Two distinct areas in SE Anatolia and central highlands; this last subrange is isolated from the main range of the species (Fig. 12).

Chorotype. SW-Asiatic (Irano-Anatolian).

Affinities. The genus *Trapelus* is widespread in Sahara, Arabian Peninsula, Near and Middle East, E to NW India (Rajasthan), NE to Kazakhstan (S of 48°N) and China (W Xinijang). The closest species are *pallidus* Schmidt, 1939, a southern vicariant (Egypt NE of Cairo, N Sinai, Israel, Jordan, N Saudi Arabia, Iraq, Kuwait), and *megalonyx* Günther, 1864 (Afghanistan and Beluchistan), both considered as subspecies of *ruderatus* by some specialists. Another close species is *mutabilis* (Merrem, 1820) from Sahara, W of the Nile River.

Anatolian subspecies. The nominate subspecies.

Family **Chamaeleonidae**

Chamaeleo chamaeleon Laurenti, 1768 (Fig. 93)

General distribution. S Iberian Peninsula, S and E Mediterranean coastal areas, and some islands (Crete, Cyprus), W Saudi Arabia, some Saharan oases.

Anatolian distribution. Aegean and Mediterranean coastal regions, isolated records from the Marmara Sea and the Greek islands of Hios and Samos (Fig. 13).

Chorotype. Mediterranean.

Affinities. According to Hillenius (1978) the closest species are *zeylanicus* Laurenti, 1768 (India and Sri Lanka) and *arabicus* Matschie, 1893 (southern Arabian Peninsula).

Anatolian subspecies. C. c. recticrista Boettger, 1880, which is considered only a synonym of the nominate subspecies by Hillenius (1978).

Family **Lacertidae**

Acanthodactylus boskianus (Daudin, 1802)

General distribution. Whole Sahara and Sahel (SE to Eritrea), the Arabian Peninsula, Syrian desert and S Anatolia.

Anatolian distribution. Only in a few localities of the subdesert border regions of SE Anatolia along the rivers Tigris and Euphrates (Fig. 14).

Chorotype. Saharo-Sahelo-Arabian.

Affinities. Acanthodactylus is widespread in the Iberian peninsula, the Mediterranean Africa and Sahel (from Senegal to Eritrea), the Near and Middle East, from Cyprus E to NW India (Gujarat, Haryana, Punjab, Rajasthan, Uttar Pradesh), the Arabian Peninsula. The *boskianus* group (sensu Salvador, 1982) includes also *schreiberi* Boulenger, 1878 (see below) and *nilsoni* Rastegar-Pouyani, 1998, from SW Iran.

Anatolian subspecies. The subspecies *asper* (Audouin, 1829).

Acanthodactylus schreiberi Boulenger, 1878 (Fig. 94)

General distribution. SE Turkey, Cyprus, coastal Lebanon (isolated populations), W Israel.

Anatolian distribution. Two coastal localities of the Hatay province (Franzen, 1998) (Fig. 14).

Chorotype. E-Mediterranean (Palaestino-Cyprioto-Taurian).

Affinities. Included in the *boskianus* group previously discussed.

Remarks. According to Franzen (1998), the Hatay records are possibly due to introduction. In our opinion this could be a relict population, because a similar distribution is typical of several insects and vertebrates (see also *Archaeolacerta laevis* Gray, 1838 and *Ablepharus budaki* Goçmen, Kumlutas and Tosunoglu, 1996).

Eremias pleskei Bedriaga, 1907

General distribution. E Anatolia, Armenia, Nakhichevan, NW Iran (W and E Azerbaijan).

Anatolian distribution. Mt. Ararat area only (Fig. 15).

Chorotype. Armeno-Caucasian endemic.

Affinities. E. pleskei belongs to the subgenus *Rhabderemias* Lantz 1928, widespread on the Iranian highlands, towards the Turan to NW China, middle and S Mongolia, Afghanistan and W Pakistan.

Anatolian subspecies. Monotypical species.

Eremias strauchi Kessler, 1878

General distribution. Fragmented range, respectively in the Transcaucasian area (E Anatolia, Armenia, S Azerbaijan and NW Iran: nominate subspecies and ssp. *suphani*), and in the S Turan area (NE Iran, SE Turkmenistan: ssp. *kopetdaghica* Szczerbak, 1972).

Anatolian distribution. Distributed only in the Ararat Mt. and Van Lake regions (Fig. 16).

Chorotype. SW-Asiatic (Irano-Caucasian).

Affinities. This species belongs to the subgenus *Eremias*, widespread in the Iranian highlands, and Central Asia, E to the xeric regions of Northern China (Xinjiang, Gansu, Nei Mongol), and SE to Afghanistan and NW Pakistan.

Anatolian subspecies. E. s. strauchi Kessler, 1878 (Mt. Ararat environs), and ssp. *suphani* Hellmich and Baran, 1968 (Van Lake). This last taxon is considerd as a distinct species by some authors.

"***Archaeolacerta***"

The generic systematics of the Mediterranean Lacertidae is still debated. We prefer call provisionally as "*Archaeolacerta*" the small lizards often treated as subgenera of *Lacerta* Linnaeus, 1758 by Arnold (1973; 1989) and Harris et al. (1998). This arrangement is clearly poliphyletic, because many species of "*Archaeolacerta*" are more closely related with other largely accepted genera than with other "*Archaeolacerta*" (*i.e.*, "*A.*" *danfordi* and *laevis* with *Podarcis* and *Algyroides*; "*A.*" *parva* group with "*Timon*" etc.) (see Arribas, 1999). According

to Arribas (1999), the genus *Archaeolacerta* Mertens, 1921 *sensu stricto* includes only three European species: *A. bedriagae* (Camerano, 1885), *A. mosorensis* (Kolombatovic, 1896) and *A. oxycephala* (Duméril and Bibron, 1839).

Under the name "*Archaeolacerta*" in the present checklist, we conservatively included all the Anatolian small lizards quoted by the different authors as: (a) *Archaeolacerta*; (b) *Apathya* Méhely, 1907, including only *cappadocica* (Werner, 1902); (c) *Caucasilacerta* Harris, Arnold and Thomas, 1998 (senior synonym of *Darevskia* Arribas, 1999), including the species before considered as *Lacerta* of the *saxicola* group; (d) *Parvilacerta* Harris, Arnold and Thomas, 1998, including *fraasi* (Lehrs, 1910) and *parva* (Boulenger, 1887).

The subgenus *Caucasilacerta* includes both bisexual and parthenogenetic species; the male occurrence in the parthenogenetic species is rare or completely lacking. This subgenus is endemic to Caucasus, Transcaucasia, Anatolia (Eastern and Black Sea regions), Iran (NW and Elburs Mts, E to Kopet Dag), with isolated populations also in Crimea [*saxicola* (Eversmann, 1834)] and northern Balkans [*praticola* (Eversmann, 1834)].

Archaeolacerta danfordi (Günther, 1876) (*incertae sedis*) (Fig. 96)

General distribution. Endemic to W Anatolia and some Aegean islands.

Anatolian distribution. SW Mediterranean Anatolia, and Greek islands of Rhodes, Simi, Ikaria and Pentanissos (Fig. 17). According to Mayer and Lutz (1988) we refer to *A. danfordi* also *A. anatolica* (Werner, 1900) and *A. oertzeni* (Werner, 1904).

Chorotype. SW-Anatolian endemic.

Affinities. Isolated from other species of *Archaeolacerta* and close to the *laevis* group.

Anatolian subspecies. The nominate, *anatolica* (Werner, 1900) and *oertzeni* (Werner, 1904) subspecies were traditionally accepted in literature. The last two subspecies were elevated to specific rank by Eiselt and Schmidtler (1986). These Authors described the subspecies *aegaea*, and referred it to *anatolica*; they also described the subspecies *budaki, finikensis, ibrahimi* and referred them to *oertzeni*, as well as *pelasgiana* (Mertens, 1959). Mayer and Lutz (1988), could not evidence any genetic difference among the species and subspecies considered by Eiselt and Schmidtler (1986).

Archaeolacerta laevis (Gray, 1838) (*incertae sedis*) (Fig. 97)

General distribution. From the SE Mediterranean regions of Anatolia to Israel, along the Levant coast (nominate subspecies), and Cyprus [ssp. *troodica* (Werner, 1936)].

Anatolian distribution. SE Mediterranean Anatolia (Fig. 18).

Chorotype: E-Mediterranean (Palaestino-Cyprioto-Taurian).

Affinities. The systematic position of this species needs clarification (Mayer and Benyr, 1994). According to Mayer and Lutz (1989) and Arribas (1999),

laevis seems to have close relationships with the genera *Podarcis* and *Algyroides* and less with the other *Archaeolacerta*. *A. kulzeri* (Müller and Wettstein, 1933), from Lebanon, Syria and Jordan has recently been elevated to a specific rank, as well as *A. troodica* (Werner, 1936) from Cyprus (Tasonoglu et al., 1999).

Anatolian subspecies. Nominate subspecies.

Archaeolacerta (Apathya) cappadocica (Werner, 1902) (Fig. 95)

General distribution. SE Anatolia, NW Syria, NW Iran and NE Iraq (Zagros Mts.)

Anatolian distribution. SE Anatolia (Fig. 15). Some records published by Clark and Clark (1973) from the Mediterraean regions must be referred to *A. danfordi*.

Chorotype. SW-Asiatic (Mesopotamian).

Affinities. According to Mayer and Benyr (1994) the monotypic subgenus *Apathya* represents the sister taxon of the present subgenus *Caucasilacerta*.

Anatolian subspecies. Several subspecies have been described from Turkey: the nominate, *muhtari* Eiselt, 1979, *schmidtlerorum* Eiselt, 1979, *urmiana* (Lantz and Suchow, 1934), *wolteri* (Bird, 1936).

Archaeolacerta (Caucasilacerta) clarkorum (Darevsky and Vedmederja, 1977)

General distribution. Endemic to NE Anatolia.

Anatolian distribution. NE Anatolia from the Giresun province to Hopa (Artvin province) (Fig. 26).

Chorotype. Kolkhidian endemic.

Anatolian subspecies. Monotypical species.

Archaeolacerta (Caucasilacerta) derjugini (Nikolsky, 1898)

General distribution. The range of this species is fragmented in three subranges: (1) NW slope of Caucasus (Russia); (2) S slope of Caucasus from Black Sea coast (SE Krasnodar and Abkhazia) to central Caucasus (N Georgia); (3) SW Georgia and NE Anatolia.

Anatolian distribution. NE Anatolia (Trabzon and Artvin provinces) (Fig. 21).

Chorotype. Kolkhido-Caucasian endemic.

Affinities. According to the mitochondrial DNA studies of Fu et al. (1997), this species is included in the *caucasica* group with *A. alpina* (Darevski, 1967), *A. caucasica* (Méhely, 1909), *A. daghestanica* (Darevski, 1967) (all three from Caucasus) and *A. clarkorum*.

Anatolian subspecies. *A. d. barani* Bischoff, 1982.

Archaeolacerta (Caucasilacerta) dryada (Darevsky and Tuniyev, 1997)

General distribution. NE Anatolia and SW Georgia (Adzharia).

Anatolian distribution. Only near Hopa (Artvin province) (Fig. 22).

Chorotype. Kolchidian endemic.

Affinities. Close to *clarkorum*.

Archaeolacerta (Caucasilacerta) mixta (Méhely, 1909)

General distribution. W Georgia and NE Anatolia.

Anatolian distribution. One a single locality in the eastern Pontic region of Turkey (Darevsky, 1967) (Fig. 18).

Chorotype. Kolkhidian endemic.

Affinities. See *A. nairensis* (Darevsky, 1967).

Anatolian subspecies. Monotypical species.

Archaeolacerta (Caucasilacerta) nairensis (Darevsky, 1967)

General distribution. Armenia and E Anatolia.

Anatolian distribution. Easternmost regions of Anatolia (Erzurum and Kars provinces) (Fig. 22).

Chorotype. Armenian endemic.

Affinities. According to Fu et al. (1997) this species is close to *A. mixta* (Méhely, 1909), *A. raddei* (Boettger, 1892), both from Transcaucasia, and *A. saxicola* (Eversmann, 1934) from Caucasus and Crimea.

Remarks. Previously referred to *A. raddei* as subspecies, but elevated to a specific rank by Fu et al. (1997) on the basis of mt-DNA evidences.

Anatolian subspecies. Monotypical species.

Archaeolacerta (Caucasilacerta) parvula (Lantz and Cyrén, 1913) (Fig. 99)

General distribution. NE Anatolia and SW Georgia.

Anatolian distribution. NE Anatolia E of Trabzon and Erzurum, and N of the Araxes River (Fig. 23).

Chorotype. Kolkhido-Armenian endemic.

Affinities. According to Fu et al. (1997), this species belongs to the *rudis* group. It includes *A. valentini* (Boettger, 1889), *A. rudis* (Bedriaga, 1886), and *A. portschinskii* (Kessler, 1878), endemic to S Georgia and N Armenia.

Anatolian subspecies. *A. p. adjarica* (Darevsky and Eiselt, 1980) (Black sea coast E of Trabzon) and the nominate subspecies (other Anatolian area).

Archaeolacerta (Caucasilacerta) raddei (Boettger, 1892)

General distribution. Armenia (nominate subspecies), E Anatolia [ssp. *vanensis* (Eiselt, Schmidtler and Darevsky, 1993)] and NW Iran (nominate and intermediate forms to *vanensis*).

Anatolian distribution. SE and E sides of the Van Lake, N to the Ararat Mt. (Fig. 22).

Chorotype. Armenian endemic.

Affinities. See *A. nairensis*.

Anatolian subspecies. Both the cited subspecies.

Archaeolacerta (Caucasilacerta) rudis Bedriaga, 1886

General distribution. Caucasus [nominate and *svanetica* (Darevsky and Eiselt,

1980) subspecies], W Georgia and Anatolian coast of the Black Sea (several subspecies).

Anatolian distribution. N Anatolia. The distribution other than in the Pontic area is still scarcely know. Taxa named cf. *rudis* are recorded from different mountain regions, where another taxon occurs, *A. valentini lantzcyreni* (Darevsky and Eiselt, 1967) (see Schmidtler et al., 1990, Bischoff and Franzen, 1993b, Mulder 1995, Schmidtler 1997b) (Fig. 24).

Chorotype. Ponto-Caucasian endemic.

Affinities. See *A. parvula*.

Anatolian subspecies. The nominate subspecies (E Pontic region), *bischoffi* (Böhme and Budak 1977) (E Pontic region), *bithynica* (Méhely 1909) (mountains E of the Marmara Sea), *macromaculata* (Darevsky 1967) (E Pontic region), *obscura* (Lantz and Cyrén 1936) (E Pontic region), *tristis* (Lantz and Cyrén 1936) (W Pontic region).

Archaeolacerta (Caucasilacerta) valentini (Boettger, 1889)

General distribution. E Anatolia, S Georgia and Armenia. Also NW Iran (Anderson, 1999).

Anatolian distribution. E Anatolia, E Pontic region (W to the Samsun province), mountains of Central and S Anatolia (provinces of Kayseri, Nigde and Içel) (Fig. 25). Some of the records quoted as cf. *rudis* could be referred to *A. v. lantzcyreni*.

Chorotype. Armeno-E-Anatolian endemic.

Affinities. See *A. parvula*.

Anatolian subspecies. The nominate subspecies (N and E of the Van Lake), *lantzcyreni* (Darevsky and Eiselt, 1967) (from Bolkar Mts. and Erciyes Mt., E to the Van Lake), *spitzenbergerae* (Eiselt, Darevsky and Schmidtler 1992) (extreme SE Anatolia: Cilo-Sat Mt).

Parthenogenetic species of *Archeolacerta* (*Caucasilacerta*)

In the Eastern Anatolia and Transcaucasia (particularly in Armenia), occur some *Archaeolacerta* species, close to *A. saxicola*, which are only known on parthenogenetic females. A possible explication of this phenomenon is that these species derived by hybridization of bisexual species. This is supported by some cases of intermediate ecological conditions and by overlapping ranges of parthenogenetic and bisexual possible parental species (Uzzell and Darevsky, 1975). Similar phenomena were described in other lizards belonging to the families Agamidae s.l., Teiidae, Gymnophthalmidae, Xanthusiidae and Gekkonidae.

Archaeolacerta (Caucasilacerta) armeniaca (Méhely, 1909)

General distribution. S Georgia, Central and N Armenia, NW Azerbaijan and NE Anatolia.

Anatolian distribution. NE Anatolia (Trabzon and Artvin provinces) (Fig. 20).
Chorotype. Armenian endemic.
Anatolian subspecies. Monotypical species.
Remarks. Uzzell and Darevsky (1975) suggested that the parental species could be *valentini* and *mixta* (see).

Archaeolacerta (Caucasilacerta) bendimahiensis (Schmidtler, Eiselt and Darevsky, 1994)
General distribution. Endemic to E Anatolia.
Anatolian distribution. Recorded only from a few localities of the extreme eastern Anatolia, along the Iran boundaries (Agri and Van provinces) (Fig. 21).
Chorotype. Armenian endemic.
Anatolian subspecies. Monotypical species.
Remarks. According to Schmidtler et al. (1994), this species originated by hybridization between *A. valentini* and *A. raddei*.

Archaeolacerta (Caucasilacerta) sapphirina (Schmidtler, Eiselt and Darevsky, 1994)
General distribution. Endemic to E Anatolia.
Anatolian distribution. Only known from the type locality, north of the Van Lake (Fig. 24).
Chorotype. Armenian endemic.
Anatolian subspecies. Monotypical species.
Remarks. According to Schmidtler et al. (1994) this species derived by hybridization between *A. valentini* and *A. raddei*.

Archaeolacerta (Caucasilacerta) unisexualis (Darevsky, 1966)
General distribution. Armenia and E Anatolia.
Anatolian distribution. E Anatolia (Erzurum and Agri provinces) (Fig. 20).
Chorotype. Armenian endemic.
Remarks. According to Uzzell and Darevsky (1975) the parental species of *A. unisexualis* are *A. valentini* and *A. nairensis*.
Anatolian subspecies. Monotypical species.

Archaeolacerta (Caucasilacerta) uzzelli (Darevsky and Danielyan, 1977)
General distribution. E Anatolia and perhaps also Armenia.
Anatolian distribution. NE Anatolia (Erzurum, Agri and Kars provinces) (Fig. 26).
Chorotype. Armenian endemic.
Anatolian subspecies. Monotypical species.
Remarks. Darevsky and Danielyan (1977) considered *A. parvula* and *A. valentini* as possible parental species, but recently Schmidtler (1993) proposed *A. raddei* and *A. valentini*.

Archaeolacerta (Parvilacerta) parva (Boulenger, 1887) (Fig. 98)

General distribution. Anatolia, Armenia, Nakichevan and W Azerbaijan (see Bischoff and Franzen, 1993b); recently recorded from the Turkish Thrace in Europe (Venchi and Bologna, 1996).

Anatolian distribution. Most of the Anatolian peninsula (Fig. 19), except in the Pontic and Mediterranean regions, as well as in the southerneast provinces.

Chorotype. Armeno-Anatolian endemic.

Affinities. Related to *A. fraasi*, endemic to the Lebanon mountains.

Anatolian subspecies. Monotypical species.

Genus ***Lacerta*** Linnaeus, 1758

For the *Lacerta* sensu stricto, we adopted the recent classification proposed by Schmidtler (1986a, 1986b) who revised the species of the *viridis* and *trilineata* complexes. Some taxa here considered as a distinct species (*L. media* Lantz and Cyrén, 1920, *L. pamphylica* Schmidtler, 1975) are treated as subspecies of *L. trilineata* Bedriaga, 1878 by other authors.

Lacerta agilis Linnaeus, 1758

General distribution. Central and northern Europe (S to Pyrenees, Alps, Pindus and Rhodopes), Russia (N to 60°), Caucasus, Transcaucasia, NE Turkey, N Kazakstan, Kirghizia, NW China (Tian Shan) and to the extreme SW Mongolia.

Anatolian distribution. NE Anatolia (Kars, Erzurum and Artvin provinces) (Fig. 27). The record of the ssp. *grusinica* from Trabzon (Peters, 1962, cited also by Basoglu and Baran, 1977) must be referred to *L. viridis* (Laurenti, 1768) (cf. Schmidtler 1986a).

Chorotype. Centralasiatic-European.

Affinities. The other species of the genus are distributed in southern Europe, in the Near and Middle East. *L. agilis* is the only one with a wide distribution.

Anatolian subspecies. L. a. brevicaudata Peters, 1958 (Erzurum, Ardahan and Kars provinces), and *L. a. grusinica* Peters, 1960 (Trabzon and Artvin provinces).

Lacerta media Lantz and Cyrén, 1920 (Fig. 100)

General distribution. Anatolia, W Syria, Lebanon, Israel, NW Jordan, Georgia, Armenia, Azerbaijan, NE Iraq, W Iran.

Anatolian distribution. Central and E Anatolia (Fig. 28).

Chorotype. SW-Asiatic (Irano-Anatolian).

Affinities. Strictly close to *L. trilineata.*

Anatolian subspecies. The nominate subspecies (W to the Kastamonu and Nigde provinces), ssp. *isaurica* Schmidtler, 1975 (central highlands of the Konya province), ssp. *ciliciensis* Schmidtler, 1975 (Içel, Adana and Kayseri provinces), ssp. *wolterstorffi* Mertens, 1922 (only the Hatay province).

Remarks. The range of this species overlaps with *L. trilineata* in central Anatolia, with *L. pamphylica* in southern Anatolia, and with *L. strigata* in the Araxes valley. For this reason we did not report in the map the records of *Lacerta* from these areas of overlapping ranges, published before the review by Schmidtler (1986).

Lacerta pamphylica Schmidtler, 1975

General distribution. Endemic to the Southern Anatolia.

Anatolian distribution. Mediterranean coastal regions and northern slope of the Taurus Mts. (Antalya and Içel provinces) (Fig. 29).

Chorotype. SW-Anatolian endemic.

Affinities. See *L. media.*

Anatolian subspecies. Monotypical species.

Lacerta strigata Eichwald, 1831

General distribution. E Anatolia, Caucasian Russia, Armenia, E Georgia (with an isolated population in Abkhazia), Azerbaijan, N Iran (with a very isolated record from Shiraz), SW Turkmenistan. The Iraqi published records must be referred to *L. media* or perhaps also to *Timon princeps* (Leviton et al., 1992).

Anatolian distribution. Easternmost Anatolia (Araxes valley) (Fig. 31).

Chorotype. SW-Asiatic (Irano-Caucasian).

Affinities. Close to *Lacerta agilis.*

Anatolian subspecies. Monotypical species.

Remarks. Other *Lacerta* species have erroneously been referred to *L. strigata* in the literature, before 1975.

Lacerta trilineata Bedriaga, 1878

General distribution. Balkans, most Aegean islands and W Anatolia.

Anatolian distribution. W Anatolia, E to Çankiri, Kirikkale, Konya and Antalya provinces. Recorded from the Greek islands of Lesvos, Samos, Hios, Kos and Rhodes (Fig. 30).

Chorotype. E-Mediterranean (NE Mediterranean).

Affinities. Close to *L. media* and *L. pamphylica.*

Anatolian subspecies. L. t. cariensis Peters, 1964 in the inner regions of W Anatolia (Afyon and Aydin provinces); ssp. *diplochondrotes* Wettstein, 1952 along the coastal regions, N to the Burdur Lake; ssp. *galatiensis* Peters, 1964 in the central and N Anatolia (Ankara and Konya provinces).

Lacerta viridis (Laurenti, 1768)

General distribution. Central and E Europe, E to Balkans, Ukraina, and N Anatolia.

Anatolian distribution. N Anatolia, particularly along the Marmara and Blak Sea coasts; Schmidtler (1986a) recorded *viridis* also from two Aegean coastal localities (Fig. 31).

Chorotype. E-European.

Affinities. Recently the W-European green lizard populations were referred to *L. bilineata* Daudin, 1802, on the basis of genetic characters (Rykena, 1991). Close to the *trilineata* complex of species previously discussed.

Anatolian subspecies. Schmidtler (1986a) distinguished in Anatolia the following subspecies which need revision: ssp. *infrapunctata* Schmidtler 1986 (E Pontus), ssp. *meridionalis* Cyrén 1933 (Marmara Sea region) and ssp. *paphlagonica* Schmidtler 1986 (W Pontus).

Ophisops elegans Ménétriés, 1832 (Fig. 101)

General distribution. Thrace, Anatolia, Armenia, Azerbaijan, Caucasian Russia (Checheno-Ingush), Cyprus, Iran, Lebanon, Israel, Jordan, NE Sinai, Egypt, NE Libia; a very isolated population in the Aurés massif (N Algeria).

Anatolian distribution. Anatolia, except along the Black Sea coast, and several Greek Aegean islands: Agathonissi, Agios Efstratios, Fourni, Hios, Ikaria, Kalimnos, Kos, Leros, Lesvos, Limnos, Lipsi, Nissiros, Patmos, Psara, Rhodes, Samos, Simi and Telendos (Fig. 32).

Chorotype. E-Mediterranean, with extension to Maghreb.

Affinities. The genus *Ophisops* Ménétriés, 1832, has a discontinuous distribution. It includes also five species from the Indian peninsula (two of which previously referred to the genus *Cabrita* Gray, 1838), one from N Africa, and one from the Red Sea regions (both in SW Arabia and along the Sudano-Egyptian borders).

Anatolian subspecies. In our area are quoted 4 subspecies: the nominate (E Anatolia), the ssp. *macrodactylus* Berthold, 1842 (Aegean region, E to the Antalya province), ssp. *basoglui* Baran and Budak, 1978 (Mediterranean coasts, E of Antalya), ssp. *centralanatoliae* Bodenheimer, 1944 (central highlands), and ssp. *ehrenbergi* (Wiegmann, 1835) (SE Anatolia).

Podarcis muralis (Laurenti, 1768)

General distribution. Southern and central Europe, NW Anatolia.

Anatolian distribution. NW Anatolia (Balikesir, Bolu, Sakarya and Izmit provinces) (Fig. 33).

Chorotype. S-European.

Affinities. The relationships within the genus *Podarcis* Wagler, 1830 were recently discussed by Oliverio et al (1998, 2000). This genus has a N Mediterranean distribution, east to W Anatolia, with extensions to Maghreb and central Europe.

Anatolian subspecies. The nominate subspecies (W Anatolia) and the doubtful ssp. *kefkenensis* Baran and Gruber, 1981, from the Kefken islets in the Black Sea (Kandira province).

Podarcis taurica (Pallas, 1814) (Fig. 102)

General distribution. Balkans, S Ukraina, Crimea, NW Anatolia.

Anatolian distribution. Only few Anatolian records from the Kocaeli peninsula (Kocaeli province) (Fig. 34).

Chorotype. E-Mediterranean (NE-Mediterranean).

Affinities. It seems related to other Balkanic species as *P. melisellensis* (Brown, 1877) (Oliverio et al., in press).

Anatolian subspecies. The nominate subspecies.

Timon princeps (Blanford, 1874)

General distribution. SE Anatolia, NE Iraq e SW Iran.

Anatolian distribution. Extreme SE Anatolia (Mardin, Siirt and Hakkari vil.) (Fig. 27).

Chorotype. N-Mesopotamian endemic.

Affinities. Close to other West Mediterranean two species of the genus: *T. lepidus* (Daudin, 1802) (Iberian Peninsula, S France, W Liguria) and *T. pater* (Lataste, 1880) (Maghreb). A similar pattern of genus distribution is shown by *Blanus, Testudo, Mauremys* and *Macrovipera* species.

Anatolian subspecies. *T. princeps kurdistanicus* (Suchow, 1936).

Family **Scincidae**

Genus ***Ablepharus*** Fitzinger, 1823

The Near East *Ablepharus* previously referred to the species *A. kitaibelii* Bibron and Bory St.Vincent, 1833, were recently revised by Schmidtler (1997a), who recognised three polytypical species only on the basis of the external morphology. We adopted here this systematic arrangement with some reserves.

Ablepharus bivittatus (Ménétriés, 1832)

General distribution. E Anatolia, S Transcaucasia, W and N Iran (Zagros and Elburs Mts.), mountains of S Turkmenistan.

Anatolian distribution. Van Lake region (Fig. 37).

Chorotype. SW-Asiatic (Irano-Caucasian).

Affinities. Close to the species of the *kitaibelii* complex.

Ablepharus budaki Goçmen, Kumlutas and Tosunoglu, 1996

General distribution. Coastal areas of S Anatolia, Cyprus, Syria and Lebanon.

Anatolian distribution. Mediterranean regions of Anatolia (Antalya, Içel, Adana and Hatay provinces) (Fig. 35).

Chorotype. E-Mediterranean (Palaestino-Cyprioto-Taurian).

Affinities. The genus *Ablepharus* Fitzinger, 1823, is distributed in the Balkans, the Near East, the Turanian plain, in Afghanistan, Iran and in two very isolate areas of SW and SE Arabia.

A. budaki belongs to the *kitaibelii* complex as before discussed.

Anatolian subspecies. Schmidtler (1997a) recognised in Anatolia the nominate form and described *anatolicus* (Mediterranean coasts E to Adana).

Ablepharus chernovi Darevsky, 1953

General distribution. E Anatolia, N Syria and Armenia.

Anatolian distribution. E Anatolia, W to Kayseri and Nigde provinces, and along the coast of Antalya province (Fig. 36).

Chorotype. Armeno-E-Anatolian endemic.

Affinities. This species belongs to the *kitaibelii* complex as before discussed.

Anatolian subspecies. Schmidtler (1997a) (see for details on the distribution within Anatolia) recognised in Anatolia the nominate form and described the following subspecies: *eiselti, isauriensis* and *ressli*.

Ablepharus kitaibelii Bibron and Bory St. Vincent, 1833 (Fig. 103)

General distribution. Balkans, Ionian and Aegean islands, W Anatolia.

Anatolian distribution. W Anatolia, E to the Kastamonu and Nigde provinces, S to Mugla province (Fethiye). Recorded also from the Greek islands of Halki, Karpathos, Kassos, Kos, Leros, Rhodes and Simi (Fig. 37).

Chorotype. E-Mediterranean (NE-Mediterranean).

Affinities. See as discussed before.

Anatolian subspecies. Schmidtler (1997a) considered this species as polytypical, without a discussion on the Anatolian forms.

Chalcides ocellatus (Forsskål, 1775) (Fig. 104)

General distribution. N Africa (S to Central Sahara, SE to Somalia), Sardinia and Sicily, some mainland areas of Greece and some Aegean islands, Anatolia, Cyprus, Near East, Arabian Peninsula, S Iran and Pakistan (coastal Makran); two very isolate findings in the Kopet Mts. (Turkmenia).

Anatolian distribution. Mediterranean coasts and the Greek islands of Hios, Karpathos and Rhodes (Fig. 38).

Chorotype. Mediterraneo-Sindian.

Affinities. According to Pasteur (1981), this species belongs to a group widespread in the same area of *C. ocellatus* with extensions to the Iberian Peninsula and Canary islands.

Anatolian subspecies. The nominate subspecies.

Eumeces schneiderii (Daudin, 1802) (Fig. 105)

General distribution. Near East, Transcaucasia, Central Asia E to Kirghizia, Afghanistan, and from Iraq E to NW India (Punjab), N Africa and S to Arabian Peninsula.

Anatolian distribution. SE Anatolia, W to Mersin and Konya provinces, Araxes valley (Fig. 39).

Chorotype. SW-Asiatic.

Affinities. It belongs to a group of species widespread in the same region of *E. schneiderii*, with extension to Maghreb.

Anatolian subspecies. The ssp. *princeps* (Eichwald, 1839) is distributed in the whole Turkish range, excluding the Adana area, where occurs the ssp. *pavimentatus* (Geoffroy St. Hilaire, 1827).

Mabuya aurata (Linnaeus, 1758)

General distribution. Eastern Aegean islands, Anatolia, S Armenia, Iraq, W and N Iran, S Turkmenistan, E Arabian peninsula, Eritrea and Ethiopia.

Anatolian distribution. W and S Anatolia, Samos, Kos, Rhodes and Simi islands (Fig. 40).

Chorotype. SW-Asiatic.

Affinities. The closests species is *M. vittata* (Olivier, 1804) (see below) and perhaps *M. dissimilis* (Hallowell, 1857) from E Afghanistan, Pakistan and NW India.

Anatolian subspecies. The nominate subspecies.

Mabuya vittata (Olivier, 1804) (Fig. 106)

General distribution. Near East from Anatolia and Cyprus to Israel and W Iran, N Africa from Egypt W to E Algeria.

Anatolian distribution. S Anatolia, with isolated records in the central highlands (Fig. 41).

Chorotype. Mediterranean.

Affinities. See *M. aurata*.

Anatolian subspecies. Monotypical species.

Ophiomorus punctatissimus (Bibron and Bory St.Vincent, 1836) (Fig. 107)

General distribution. E Greece, Peloponnese, Kithira island and SW Anatolia.

Anatolian distribution. Only few localities: Xanthos (Antalya province), Kas and adjacent islets (included the Greek island of Kastellorizo) (Fig. 39).

Chorotype. E-Mediterranean (NE-Mediterranean).

Affinities. The genus *Ophiomorus* has a discontinuous distribution from S Balkans to the Indian Kutch. *O. punctatissimus* belongs to the western group of species (specialised to an under stone life), including also *O. persicus* (Steindachner, 1867) (Zagros Mts.) and *O. latastii* Boulenger, 1887 (from a small area along the borders of Syria, Lebanon, Israel and Jordan) (Anderson and Leviton, 1966).

Anatolian subspecies. Monotypical species.

Family **Anguidae**

Anguis fragilis Linnaeus, 1758

General distribution. Europe (to the 50° E in Russia), N Anatolia, Caucasus and Transcaucasia, N Iran.

Anatolian distribution. Only in N Anatolia (Fig. 42).
Chorotype. European.
Affinities. The genus includes only a second species, *A. cephallonicus* Werner, 1894 from Peloponnese and Ionian islands.
Anatolian subspecies. *A. fragilis colchicus* (Nordmann, 1840).

Ophisaurus apodus (Pallas, 1775) (Fig. 108)
General distribution. From Balkans, along the Black Sea coasts E to Caucasus and Central Asia (Tajikistan and Kirghizia), and from Anatolia in Near and Middle East, E Afghanistan. Lacking in the Cyclades islands.
Anatolian distribution. Aegean and, likely discontinuously, on Mediterranean coasts of Anatolia; isolated records from Black Sea coasts and in the Ararat area. Greek islands of Kos, Rhodes, Lesvos, Limnos and Samos (Fig. 43).
Chorotype. Turano-Mediterranean (Turano-Balkan).
Affinities. In the Palaearctic only a second species, *O. koellikeri* (Günther, 1873) from Morocco. The other species occur in the Oriental and Nearctic Regions.
Anatolian subspecies. The nominate subspecies in the north eastern regions, and the ssp. *thracius* Obst 1978 in the other part of Anatolia.
Remarks. The old name *Pseudopus* Merrem, 1820 was resurrected by Klembara (1981) on the grounds of paleontological evidences; for the moment we used the traditional nomenclature waiting for taxonomical clarification.

Family **Varanidae**

Varanus griseus (Daudin, 1803)
General distribution. The whole Sahara, the Red Sea coasts S to Eritrea, Arabian Peninsula, Turan Depression, xeric regions of Near and Middle East, E to N India.
Anatolian distribution. Only a few localities in SE Anatolia (Fig. 42).
Chorotype. Saharo-Turano-Sindian.
Affinities. This species belongs to the monotypic subgenus *Psammosaurus* Fitzinger, 1838.
Anatolian subspecies. The nominate subspecies.

Suborder Serpentes

Family **Leptotyphlopidae**

Leptotyphlops macrorhynchus (Jan, 1860) (Fig. 109)
General distribution. Sahara and Sahel, Sinai, Arabian Peninsula, Near East and Mesopotamia, S Iran, Pakistan.
Anatolian distribution. SE Anatolia (Fig. 44).
Chorotype. Saharo-Sahelo-Sindian.

Affinities. According to Hahn (1978), three other species belong to the *macrorhynchus* group: *macrurus* (Boulenger, 1903) and *filiformis* (Boulenger, 1899) (both endemic to Sokotra island) and *hamulirostris* (Nikolsky, 1916) (from SE Iran).

Anatolian subspecies. The nominate subspecies.

Family **Typhlopidae**

Typhlops vermicularis Merrem, 1820 (Fig. 110)

General distribution. From the Balkans E to Transcaucasia, Near East and Turan Depression (E to S Tajikistan), S to Sinai, Iran and NW Afghanistan.

Anatolian distribution. Almost in the whole Anatolia, uncommon in northern regions. Recorded from the following Greek Aegean islands: Lesvos, Hios, Samos, Patmos, Leros, Kalimnos, Kos and Rhodes (Fig. 45).

Chorotype. Turano-Mediterranean (Turano-Balkan).

Affinities. Unknown

Anatolian subspecies. Monotypic species.

Family **Boidae**

Eryx jaculus (Linnaeus, 1758)

General distribution. From S Balkans to Transcaucasia, and Eastern Caucasian Russia, Near and Middle East, S to Iran and NE Saudi Arabia, Mediterranean North Africa.

Anatolian distribution. Almost in the whole Anatolia, but in the northern regions. Recorded from the following Aegean islands: Gokce, Limnos, Lesvos, Hios, Samos, Leros, Kalimnos, Kos and doubtfully from Rhodes (Fig. 46).

Chorotype. Mediterranean (Anatolo-Balkano-N-African).

Affinities. The other species of *Eryx* close to *jaculus* inhabit the arid regions of the Middle East (exclusive of the Arabian Peninsula, inhabited by the subgenus *Pseudogongylophis*), NE to S Mongolia, E to W China, SE to Pakistan and NW India.

Anatolian subspecies. In the past literature were recognised the nominate subspecies and the ssp. *familiaris* Eichwald, 1831 and *turcicus* (Olivier, 1801), but recently the species was considered monotypical.

Family **Colubridae**

Genus ***Coluber*** Linnaeus, 1758

Recently, Schätti (1988, 1993) considered *Hierophis* Fitzinger, 1843 as a distinct monophyletic genus, and not as simple subgenus of *Coluber*, referring to it only some European and Asian species. Because the other species are until now not allocated to other genera or subgenera, they are here considered as *Coluber 'incertae sedis'*.

Coluber najadum (Eichwald, 1831)

General distribution. From W and S Balkans to Caucasus and Transcaucasia, Near East, NW Iran and S Turkmenistan.

Anatolian distribution. Almost in the whole Anatolia, but in the Pontic region. Recorded from the following Greek Aegean islands: Samothraki, Limnos, Lesvos, Kea, Samos, Leros, Kalimnos, Kos and perhaps Rhodes (Fig. 47).

Chorotype. Turano-Mediterranean (Turano-Balkan).

Affinities. According to Schätti (1987), this species belongs to a group composed by five other species: *karelini* (Brandt, 1838), *rhodorhachis* (Jan, 1865), *rogersi* (J. Anderson, 1893), *rubriceps* (Venzmer, 1919) and *ventromaculatus* Gray, 1834, widespread also in Near and Middle East to the Turan depression and N India, in the Arabian Peninsula, as well as in N and E Africa (from the Tassili'n'Ajjer in S Algeria E to Egypt, and SE to Ethiopia, Eritrea and Somalia).

Anatolian subspecies. The nominate subspecies, and ssp. *dahlii* Schinz, 1833.

Coluber nummifer Reuss, 1834

General distribution. From S Anatolia and Cyprus E to Central Asia (Tajikistan), Transcaucasia, N Iraq, Iran, and Mediterranean regions of the Near East , S to Sinai and the Nile delta in Egypt (Schätti and Agasian, 1985).

Anatolian distribution. Particularly in S Anatolia. The Turkish range overlaps that of *ravergieri* Ménétriés, 1832 in the extreme SE and in the Ararat Mt. area (Schätti and Agasian 1985) (Fig. 49).

Chorotype. Turano-Mediterranean (Turano-E-Mediterranean).

Affinities. According to Schätti (1987), this species belongs to a group including also *C. ravergieri* Ménétriés, 1832, *C. hippocrepis* Linnaeus, 1758 and *C. algirus* (Jan, 1863), distributed also in Northern Africa.

Anatolian subspecies. Monotypical species.

Coluber ravergieri Ménétriés, 1832

General distribution. From central Anatolia and Transcaucasia, E to Central Asia (W Sinkiang in China), and SE to Afghanistan and Pakistan (Schätti and Agasian, 1985). Isolated populations are relict on the Lebanon Mts., Hermon Mt. and Jabal Al-Druz (Syrian-Jordan border).

Anatolian distribution. E Anatolia and mountains of central Anatolia (Fig. 51).

Chorotype. Centralasiatic.

Affinities. See the previous species.

Anatolian subspecies. Monotypical species.

Coluber rubriceps (Venzmer, 1919)

General distribution. European coasts of Black Sea (SE Bulgaria and Thrace), W and S Anatolia, Syria, Lebanon, Israel, Jordan.

Anatolian distribution. Scatterd records from the Mediterranean and Aegean Anatolia (Fig. 48).

Chorotype. E-Mediterranean (NE-Mediterranean).
Affinities. See *C. najadum.*
Anatolian subspecies. The nominate subspecies.

Coluber ventromaculatus Gray, 1834

General distribution. SE Anatolia, Iraq, E Arabia, S Iran, Pakistan, N India.
Anatolian distribution. Recorded only from SE Anatolia (Fig. 50).
Chorotype. SW-Asiatic (Sindo-Mesopotamian).
Affinities. See *C. najadum.*
Anatolian subspecies. Monotypical species.

Coronella austriaca (Laurenti, 1768)

General distribution. Europe (E to the 65°), Transcaucasia, Anatolia, N Iran.
Anatolian distribution. N Anatolia and some mountains of central Anatolia. A record from Izmir (Basoglu and Baran 1980) needs confirmation (Fig. 52).
Chorotype. European.
Affinities. The genus *Coronella* includes also *C. girondica* Daudin, 1802, a W Mediterranean species.
Anatolian subspecies. Probably the species is monotypical.

Genus ***Eirenis*** Jan, 1863

Thirteen species of this genus occur in Anatolia. The genus can be divided in two groups. The first one, characterised by 15 scales on the middle of trunk, includes: *E. coronella* (Schlegel, 1837), *E. collaris* (Ménétriés, 1832), *E. eiselti* Schmidtler and Schmidtler, 1978, *E. rothi* Jan, 1863, *E. thospitis* Jan, 1863, distributed in Turkey, and *E. medus* (Chernov, 1940) and *E. rechingeri* Eiselt, 1971 (respectively from the area between Turkmenistan and Iran, and from the S Zagros Mts.). The second group, characterised by 17 scales, includes the remaining species. In this second group, Schmidtler (1993b) recognised the *modestus* complex, including 4 species phylogenetically very close (*E. aurolineatus, E. barani, E. levantinus, E. modestus*), which are presently distinct only by morphological features (pattern) of head.

Eirenis aurolineatus (Venzmer, 1918)
General distribution. Endemic to S Anatolia.
Anatolian distribution. Restricted to the S slope of the Bolkar Mts. (Fig. 58).
Chorotype. S-Anatolian (Taurian) endemic.
Anatolian subspecies. Monotypical species.

Eirenis barani Schmidtler, 1988
General distribution. SE coastal Anatolia and NW Syria.
Anatolian distribution. Mediterranean regions of the E Anatolia (Fig. 57).

Chorotype. S-Anatolian (Taurian) endemic.
Anatolian subspecies. The nominate subspecies and the ssp. *bischofforum* Schmidtler, 1997 (Tahtali Mts.).

Eirenis collaris (Ménétriés, 1832)
General distribution. Daghestan, E Transcaucasia, E Anatolia, W Iran, NE Iraq.
Anatolian distribution. E Anatolia: Agri, Kars and Hakkari provinces (Franzen and Sigg, 1989; Schmidtler and Baran, 1993) (Fig. 53).
Chorotype. SW-Asiatic (Irano-Caucasian).
Anatolian subspecies. The nominate (the whole Anatolian range) and the *macrospilotus* Werner, 1903 subspecies (type locality: Takjaltu Mt. near Kasikoporan, village 20 Km WSW Tuzluca, Kars province).

Eirenis coronella (Schlegel, 1837)
General distribution. SE Anatolia, Levant from Latakia to Sinai, Jordan, S Iraq, SW Iran, NE Saudi Arabia; isolated populations in SW Saudi Arabia (ssp. *fennelli* Arnold, 1982).
Anatolian distribution. SE Anatolia (Fig. 54).
Chorotype. Mesopotamian.
Anatolian subspecies. The nominate subspecies.

Eirenis decemlineatus (Duméril, Bibron and Duméril, 1854)
General distribution. SE Anatolia, Syria, Lebanon, Jordan.
Anatolian distribution. SE Anatolia, from the Içel province E to the Van Lake (Fig. 55).
Chorotype. E-Mediterranean (Palaestino-Taurian).
Anatolian subspecies. Monotypical species.

Eirenis eiselti Schmidtler and Schmidtler, 1978
General distribution. SE Anatolia.
Anatolian distribution. SE Anatolia. Most of the records of *E. collaris* in this region before the description of *eiselti* must be referred to this species (Fig. 53).
Chorotype. Kurdish endemic.
Anatolian subspecies. Monotypical species.

Eirenis hakkariensis Schmidtler and Eiselt, 1991
General distribution. Endemic to SE Anatolia.
Anatolian distribution. Only a few localities SE of the Van Lake (Fig. 56).
Chorotype. Kurdish endemic.
Anatolian subspecies. Monotypical species.

Eirenis levantinus Schmidtler, 1993 (Fig. 111)
General distribution. From the Içel province in SE Anatolia, to N Israel.
Anatolian distribution. Mediterranean region E of Mersin (Fig. 59).

Chorotype. E-Mediterranean (Palaestino-Taurian).
Anatolian subspecies. Monotypical species.

Eirenis lineomaculatus Schmidt, 1939
General distribution. SE coastal Anatolia, Syria, Lebanon, Jordan.
Anatolian distribution. Mediterranean regions of the E Anatolia (Fig. 56).
Chorotype. E-Mediterranean (Palaestino-Taurian).
Anatolian subspecies. Monotypical species.

Eirenis modestus (Martin, 1838)
General distribution. Some eastern Aegean islands and a few localities of the Turkish Thrace, Anatolia (the SE regions excepted), Transcaucasia (N to Daghestan); quoted by Latifi (1991) from the Central and Zanjhan province in Iran. The records previously referred to *E. modestus* from the coastal SE Turkey to Israel, must be referred to *E. levantinus* or perhaps to an undescribed species (Schmidtler and Baran, 1993; Schmidtler 1997b).
Anatolian distribution. The whole Anatolia with the exclusion of the SE provinces (Fig. 60).
Chorotype. SW-Asiatic (Anatolo-Caucasian).
Anatolian subspecies. The nominate and the subspecies *semimaculatus* (Boettger, 1876), and *cilicius* Schmidtler, 1993.

Eirenis punctatolineatus (Boettger, 1892)
General distribution. SE Anatolia, S Armenia, S Nakichevan, W Iran.
Anatolian distribution. E Anatolia, from Malatya and Elazig provinces, to Siirt and Agri provinces (Fig. 57).
Chorotype. Armenian endemic.
Anatolian subspecies. The nominate subspecies is distributed in the eastern Anatolia; the doubtful ssp. *kumerloevei* Eiselt, 1970 was described from the Akdamar islet in the Van Lake.

Eirenis rothi Jan, 1863
General distribution. Mediterranean regions of the extreme Eastern Anatolia, Syria, Lebanon, Jordan and perhaps in Israel.
Anatolian distribution. SE Anatolia, E of the Amanus Mts. (Fig. 58).
Chorotype. E-Mediterranean (Palaestino-Taurian).
Anatolian subspecies. Monotypical species.

Eirenis thospitis Jan, 1863
General distribution. Endemic to the Armenian Anatolia.
Anatolian distribution. Only a few localities near the Van Lake (Fig. 54).
Chorotype. Armenian endemic.
Anatolian subspecies. Monotypical species.

Elaphe hohenackeri (Strauch, 1873)

General distribution. Anatolia, Transcaucasia, Caucasian Russia (Caucasus), NW Iran; isolated populations are distributed also on the Lebanon Mts. and on the Hermon Mt. (between Lebanon and Syria).

Anatolian distribution. E and S Anatolia; in this last region the distribution needs details, due to possible misidentification of some records with *E. situla* (Linnaeus, 1758) (see below) (Fig. 61).

Chorotype. SW-Asiatic (Anatolo-Caucasian).

Affinities. Schulz (1996) included *E. hohenackeri* in a group of species with *E. situla*, *E. persica* (Werner, 1913), *E. scalaris* (Schinz, 1822), and perhaps also *E. longissima* (Laurenti, 1768). Nilson and Andrén (1984) simply consider it in the *longissima* complex. This group is widespread from Central and S Europe to Crimea and N Iran.

Anatolian subspecies. According to Nilson and Andrén (1984) the species is monotypical, but other Authors consider two subspecies: the nominate one and *taurica* (Werner, 1898).

Elaphe longissima (Laurenti, 1768)

General distribution. S Europe from Pyrenees to S Ukraina, SW Russia (Krasnodar), W Georgia, and perhaps NW Iran. Recently, Lenk and Wüster (1999) elevated the southern Italian populations to a semi-specific rank [*E. lineata* (Camerano, 1891)].

Anatolian distribution. Only along the Black Sea regions and around the Ararat Mt. (Fig. 62).

Chorotype. S-European, with Caucasian and Anatolian extension.

Affinities. See before.

Anatolian subspecies. The nominate subspecies.

Elaphe quatuorlineata (Lacépède, 1789)

General distribution. From the Italian peninsula E to W Turkmenistan, and across Anatolia, Transcaucasia and W Iran, S to Syria (a single locality), with scattered populations on the Lebanon Mts. and on Mt. Hermon (between Lebanon and Syria).

Anatolian distribution. Almost the whole Anatolia (Fig. 63).

Chorotype. Turano-Mediterranean (Turano-Apenninian).

Affinities. According to Schulz (1996) this species belongs to a group including also *E. dione* (Pallas, 1773) (Ukraina, E Transcaucasia, Central Asia E to Korea and S to Iran and N Afghanistan), and three other species from the Chino-Japanese area.

Anatolian subspecies. E. q. sauromates (Pallas, 1814).

Elaphe situla (Linnaeus, 1758) (Fig. 112)

General distribution. S Italy and Sicily, S Balkans, S Crimea, Anatolia.

Anatolian distribution. Restricted to the W Anatolia and some Aegean islands (Rhodes, Hios, Samos, Kos, Lesvos) (Fig. 64). Perhaps some records of this species and of *E. hohenackeri* were confused because the ranges of both species overlap in SW Anatolia (Schulz 1996; Schätti and Baran 1988). A record from Trabzon (Black Sea coast) is very doubtful and could be referred to *E. hohenackeri* or is simply due to a label error.

Chorotype. E-Mediterranean (NE-Mediterranean).

Affinities. See *E. hohenackeri*.

Anatolian subspecies. Monotypical species.

Genus ***Hierophis*** Fitzinger, 1843

As discussed before (see *Coluber*), according to Schätti (1988), we consider *Hierophis* as a distinct genus, including the following species for the Near East area: *H. caspius* (Gmelin, 1789), *H. cypriensis* Schätti, 1985, *H. jugularis* (Linnaeus, 1758), *H. schmidti* Nikolsky, 1909.

Hierophis caspius (Gmelin, 1789)

General distribution. From Balkans and Hungary to W Anatolia, S Ucraina and S Russia (N of Caucasus and E of the Volga River), Azerbaijan, W Kazakhstan.

Anatolian distribution. Still partially detailed, due to the confusion with *H. schmidti* Nikolsky, 1909. Confirmed records from W Anatolia and the islands of Samothraki, Gökceada, Limnos, Lesvos, Hios, Samos, Ikaria, Leros, Kalimnos, Karpathos and Kassos (Fig. 65).

Chorotype. Turano-Mediterranean (Turano-Balkan).

Affinities. Close to the other Near East *Hierophis*.

Anatolian subspecies. Monotypical species.

Hierophis jugularis Linnaeus, 1758

General distribution. S Anatolia and some Aegean islands, Cyprus, Syria, Lebanon, Israel, Jordan, NE Sinai, N Iraq, SW Iran (Schätti, 1988). Recently recorded also from Kuwait.

Anatolian distribution. S Anatolia, with isolated records from eastern highlands (Fig. 66).

Chorotype. SW-Asiatic (Irano-Anatolian).

Affinities. See *H. caspius*.

Anatolian subspecies. The validity of the ssp. *asianus* (Boulenger, 1893), cited from Anatolia, needs confirmation.

Hierophis schmidti Nikolsky, 1909

General distribution. Central and E Anatolia, E Transcaucasia, SE Daghestan, W and N Iran and adjacent areas of Turkmenistan and Uzbekistan. A single record from N Jordan (Schätti, 1988).

Anatolian distribution. Not detailed, due to the confusion with *H. caspius*. The only confirmed records are from E Anatolia and central highlands (Fig. 67).

Chorotype. SW-Asiatic (Irano-Anatolian).

Affinities. See *H. caspius*.

Anatolian subspecies. Monotypical species.

Malpolon monspessulanus (Hermann, 1804) (Fig. 113)

General distribution. S Europe (in Italy only in W Liguria, Lampedusa island and perhaps in north eastern regions), Anatolia, Cyprus, S Transcaucasia, Daghestan, Ciscaucasia, N Africa, Near East.

Anatolian distribution. Disjunct: W, S and E Anatolia (Fig. 68), with some records in the Kars province.

Chorotype. Mediterranean.

Affinities. The second species belonging to this genus is *M. moilensis* (Reuss, 1834) distributed in N Africa (from Algeria to Egypt, S to Sudan), Arabian Peninsula, Near East (N to Syria), and SW Iran.

Anatolian subspecies. In literature the Anatolian populations are usually referred to the ssp. *insignitus* (Geoffroy, 1827). De Haan (1996) refers to the ssp. *fuscus* (Fleischmann, 1831) the same populations.

Natrix natrix (Linnaeus, 1758)

General distribution. Maghreb, from W Europe, to Central Asia (E to the Bajkal Lake, N Mongolia, China).

Anatolian distribution. Anatolia with exception of the SE regions (Fig. 50).

Chorotype. Centralasiatic-Europeo-Mediterranean.

Affinities. Apart *N. natrix* and *N. tessellata*, the only other palaearctic species of this genus is *N. maura* (Linnaeus, 1766) from SW Europe and Maghreb. Other two species traditionally referred to the genus *Natrix* inhabiting Borneo, but are not related to the palaearctic species.

Anatolian subspecies. In the literature the Anatolian populations are usually referred to the ssp. *persa* (Pallas, 1814), recently considered as a synonym of the nominate subspecies.

Remarks. According to the recent genetic studies of Hille (1997), *Natrix megalocephala* Orlov and Tuniyev, 1987, described from Transcaucasia, and recorded close to the Turkish border at Batumi (Georgia), is a synonym of *N. natrix*.

Natrix tessellata (Laurenti, 1768)

General distribution. From Italy and SE Europa, E to Central Asia (N Afghanistan, W China, SW Mongolia), Near and Middle East, and in the Nile delta.

Anatolian distribution. The whole Anatolia (Fig. 69).

Chorotype. Centralasiatic-European.

Affinities. See *N. natrix.*
Anatolian subspecies. Monotypical species.

Pseudocyclophis persicus (Anderson, 1872)
General distribution. SE Anatolia, S Armenia, SW Turkmenistan, Iran, E Iraq, Afghanistan, Pakistan, NW India (Leviton et al., 1992).
Anatolian distribution. Only in SE Anatolia (Fig. 70).
Chorotype. SW-Asiatic (Sindo-Mesopotamian).
Affinities. Monotypical genus; this species was previously referred to *Eirenis.*
Anatolian subspecies. Monotypical species.

Rhynchocalamus melanocephalus Gunther, 1865 (Fig. 114)
General distribution. SE Anatolia, S Armenia, Nakichevan, W Syria, Lebanon, Jordan, Israel, Sinai, NW Iraq, W Iran, and an unconfirmed record from lower Egypt.
Anatolian distribution. SE Anatolia, W to Adana province (Fig. 71).
Chorotype. SW-Asiatic (Irano-Palaestinian).
Affinities. The genus *Rhynchocalamus* includes only a second species from the SW Arabian Peninsula (*R. arabicus* Schmidt, 1933).
Anatolian subspecies. The nominate subspecies is distributed only in the Hatay province; the ssp. *satunini* (Nikolsky, 1899) in the other areas of SE Anatolian.

Spalerosophis diadema (Schlegel, 1837)
General distribution. Sahara, Arabian Peninsula, Middle East, Central Asia, E to N India.
Anatolian distribution. Only in the steppic xeric area of SE Anatolia (Fig. 62)
Chorotype. Saharo-Turano-Sindian.
Affinities. The genus *Spalerosophis* includes three other species: *dolichospilus* (Werner, 1923) (Morocco), *S. josephscorteccii* Lanza, 1964 (Somalia), *S. arenarius* (Boulenger, 1890) (SE Pakistan and NW India).
Anatolian subspecies. The ssp. *cliffordi* (Schlegel, 1837), sometimes considered as distinct species, occuring also in Israel, Jordan, Syria, Iraq, SW Iran.

Telescopus fallax (Fleischmann, 1831) (Fig. 115)
General distribution. E Adriatic coast (N to extreme NE Italy), S Balkans, Anatolia, Cyprus, Near and Middle East (S to Sinai, E to Iran), Transcaucasia (coastal Daghestan included), Turkmenistan.
Anatolian distribution. W, S and E Anatolia; no records from northern and central highlands regions of Anatolia (Fig. 72).
Chorotype. Turano-Mediterranean (Turano-Balkan).
Affinities. T. fallax belongs to a group of species or semispecies (*T. hoogstraali* Schmidt and Marx, 1956 and *T. nigriceps* Ahl, 1924), whose range extends to Mesopotamian desert areas and Sinai.

Anatolian subspecies. The nominate subspecies occurs in the Aegean and Mediterranean regions; the ssp. *iberus* (Eichwald, 1831) in the central and eastern regions; the ssp. *syriacus* (Boettger, 1880) in SE Anatolia; the ssp. *cypriaca* Barbour and Amaral, 1927 in Cyprus.

Family Viperidae

Macrovipera lebetina (Linnaeus, 1758)

General distribution. From S Anatolia and E Transcaucasia, E to S Transcaspia, Afghanistan, W and N Pakistan, and S to Near East, and perhaps an isolated population in Maghreb described as *M. l. transmediterranea* Nilson and Andrén, 1988. This subspecies is of doubtful validity and a possible a synonym of *M. mauritanica* (Duméril and Bibron in Guinechot, 1848) or *M. deserti* (Anderson, 1892).

Anatolian distribution. E Anatolia, not along the Black Sea, Mediterranean coasts, W to Fethiye, and Cyprus (Fig. 73).

Chorotype. Turano-Mediterranean (Turano-Anatolian).

Affinities. M. lebetina is strictly related to *M. schweizeri* (Werner, 1935) from Cyclades, and also to *M. mauritanica* and *M. deserti*, from NW Africa.

Anatolian subspecies. Usually from Anatolia is recorded the ssp. *obtusa* Dwigubskij, 1832, but, according to Billing and Schätti (1984) in some parts of Anatolia (particularly in the southern regions) is distributed the nominate form.

Remarks. According to Herrmann et al. (1992), we included this and the close species in the genus *Macrovipera* Reuss, 1927.

Vipera (Vipera) ammodytes (Linnaeus, 1758)

General distribution. E Alps, Central and S Balkans, Aegean islands, Anatolia, S Georgia (high Kura valley).

Anatolian distribution. N Anatolia and isolated records on the Aegean coasts (Kusadasi), in the Central (Konya province) and Mediterranean Anatolia (Içel province) (Fig. 74).

Chorotype. E-Mediterranean (NE-Mediterranean).

Affinities. V. ammodytes belongs to the subgenus *Vipera* Laurenti, 1768, together with *V. aspis* (Linnaeus, 1758), *V. latasti* Boscá, 1878, *V. monticola* Saint Girons, 1953 and *V. pontica* Billing, Nilson and Sattler, 1990 (cf. Nilson et al., 1994; Nilson and Andrén, 1997; Nilson et al., 1999a, 1999b).

Anatolian subspecies. In Anatolia is quoted the ssp. *transcaucasiana* Boulenger, 1913, which was recently treated as a species. In the present work, we maintain the traditional position waiting for a more definitive taxonomic arrangement of the entire subgenus. In the Turkish Thrace were cited two other subspecies: *V. a. meridionalis* Boulenger, 1903 and *V. a. montandoni* Boulenger, 1904.

Vipera pontica Billing, Nilson, Sattler, 1990 (*incertae sedis*)

General distribution. NE Anatolia and perhaps the Kura valley in Georgia.

Anatolian distribution. Only in the Çoruh valley (Artvin province), but according to Billing et al. (1990) this species is probably present also in the Erzurum province (Fig. 75).

Chorotype. Kolkhidian endemic.

Affinities. According to Billing et al. (1990) it is related to the *kaznakovi* group (subgenus *Pelias*), or according, to the more recent literature (cf. Nilson et al., 1994; Nilson and Andrén, 1997; Nilson et al., 1999a, 1999b) to the group of *V. aspis* (Linnaeus, 1758) (subgenus *Vipera*).

Anatolian subspecies. Monotypical species.

Remarks. Till now only two specimens of this species have been studied.

Vipera (Pelias) berus (Linnaeus,1758)

General distribution. N, E and Central Europe, S to Alps (with a few relict populations in the Po valley, today extinct), Balkans, Ukraina and S Russia, NW Anatolia, Siberia, E to Sakhalin island, N Korea.

Anatolian distribution. NW Anatolia (Sakarya and perhaps Kocaeli provinces) (Fig. 75).

Chorotype. Sibero-European.

Affinities. According to the recent studies of Joger et al. (1997), the complex of *V. berus* includes two semispecies: *V. (b.) berus* (with three subspecies: *berus, nikolskii* Vedmederya, Grubandt and Rudaeva, 1986, and *sachalinensis* Carevskij, 1917), and *V. (b.) bosniensis* Boettger, 1889 (with two subspecies: the nominate and *barani* Böhme and Joger, 1983).

Anatolian subspecies. The ssp. *barani*, was described as distinct species (Böhme and Joger, 1983). The first Anatolian records were made by Werner (1914), but since the description of *V. barani* no more specimens have been examined until 1994. The recent synonymy with *V. berus* was proposed by Joger et al. (1997) on the basis of four new specimens, which include the first known male and the first no melanistic specimens.

Vipera (Pelias) kaznakovi Nikolksy, 1909

General distribution. W Caucasus (Krasnodar territory and Abkhazia) and W Transcaucasia (W Georgia and extreme NE Anatolia).

Anatolian distribution. Only near Hopa in the Artvin province (Fig. 76).

Chorotype. Caucasian endemic.

Affinities. Strictly related to two other Caucasian endemic species: *V. dinniki* Nikolsky, 1913 (Great Caucasus, Georgia and Azerbaijan), and *V. darevskii* Vedmederja, Orlov and Tuniyev, 1986 (E Dzavachet Mts., N Armenia). See also below.

Anatolian subspecies. Monotypical species.

Vipera (Pelias) ursinii (Bonaparte, 1835)

General distribution. Isolated populations in SE France, Apennines, Balkans, Anatolia, and Little Caucasus. The species has a continuous range from Moldova eastwards to Central Asia (Mongolian Altaj) and S to N Iran (Elburs Range).

Anatolian distribution. North eastern regions, with an isolated population in SW Anatolia (Fig. 76).

Chorotype. Centralasiatic-European.

Affinities. According to the immunological results of recent studies (Joger et al., 1992; Herrmann et al., 1992), *V. ursinii* seems isolated among the Palaearctic "small vipers" (subgenera *Pelias* and *Vipera*).

Anatolian subspecies. The ssp. *anatolica* Eiselt and Baran, 1970 (endemic to the SW Anatolia) and *eriwanensis* Reuss, 1933 (NE Anatolia). The range of *eriwanensis* (endemic to NE Anatolia and the Little Caucasus in Armenia) is greatly separated by that of *renardi* Cristoph, 1861 (extended to the N slope of the Great Caucasus).

Remarks. Joger et al. (1992), on the basis of immunological studies, considered the popolations previously included in *ursinii* as distinct species: *V. anatolica, V. renardi* (Christoph, 1861), *V. ursinii* and *V. graeca* Nilson and Andrén, 1988. The specific rank of these taxa is not accepted by other specialists (cf. Nilson and Andrén, 1997).

Vipera xanthina group

The systematics of the *V. xanthina* group (sensu Nilson and Andrén, 1986) is greatly debated. Some Authors distinguished nine species, five of which from Anatolia: *V. albizona* Nilson, Andrén and Flardh, 1990, *V. bulgardaghica* Nilson and Andrén, 1985, *V. xanthina* (Gray, 1849), *V. raddei* Boettger, 1890 and *V. wagneri* Nilson and Andrén, 1984. Other Authors only two or three: *V. xanthina, V. raddei* and perhaps *V. wagneri*. We agree with Schätti et al. (1991) that several "species", described only on the basis of the external morphology of very few specimens, need confirmation. The group is included as a whole in the subgenus *Montivipera* Nilson, Tuniyev, Andrén, Orlov, Joger and Herrmann, 1999. A possible related species is *V. palestinae* from the Mediterranean areas of the Levant, from Syria to Israel.

Vipera (Montivipera) raddei Boettger, 1890

General distribution. Extreme E Anatolia, Armenia, Azerbaijan, NW Iran.

Anatolian distribution. Extreme E Anatolia (Fig. 77).

Chorotype. SW-Asiatic (Irano-Caucasian).

Affinities. The group of *V. raddei* includes also two other taxa from NW Iran: *V. albicornuta* Nilson and Andrén, 1985 and *V. latifii* Mertens, Darevsky and Klemmer, 1967, both considered by Schätti et al. (1991) only as isolated populations of *V. raddei*. The specific validity, on the contrary, is supported by biochemical data published by Herrmann et al. (1987).

Anatolian subspecies. Other than the nominate subspecies (E Anatolia, Armenia and NW Iran), was described the ssp. *kurdistanica* Nilson and Andrén, 1986 (near the Urmia Lake, NW Iran, and perhaps the extreme SE regions of Anatolia); this form needs confirmation.

Vipera (Montivipera) wagneri Nilson and Andrén, 1984
General distribution. Endemic to the NE Anatolia.
Anatolian distribution. Know only from the Araxes valley (Fig. 78).
Chorotype. Armenian endemic.
Affinities. According to Joger et al. (1988), this species is the closest relative of *V. xanthina* (Gray, 1849).
Anatolian subspecies. Monotypical species.

Vipera (Montivipera) xanthina (Gray, 1849) (Fig. 116)
General distribution. Turkish and Greek Thrace, W Anatolia and several Aegean islands; isolated populations also on the Bolkar and Kulmac Mts. On the Lebanon Mts. and on the Hermon Mt. (between Syria and Lebanon), was described *V. bornmuelleri* Werner, 1898, which is a possible synonym of *V. xanthina*.
Anatolian distribution. W Anatolia (E to the Kayseri province), Bolkar Mts. (described as *V. bulgardaghica* Nilson and Andrén, 1985, here considered as a synonym) and Kulmac Mts. (described as *V. albizona* Nilson, Andrén and Flardh, 1990, and here considered as a synonym). Recorded from the Greek islands of Inousses, Leros, Lesvos, Lipsi, Patmos, Kos and Samos (Fig. 78).
Chorotype. E-Mediterranean (NE-Mediterranean).
Affinities. See before.
Anatolian subspecies. There are no subspecies described from Anatolia.
Remarks. The synonymies previous discussed, are proposed by Schätti et al. (1991).

ADDENDA

a) Introduced species

Two species of reptiles (the marginated tortoise and the Italian wall lizard) were introduced to Anatolia from Balkans and other Mediterranean regions. Probably the tortoise was introduced by recent commercial activities from Greece or Thrace. The introduction of the Italian wall lizard is probably older because a distinct form from the Marmara islets was described since the middle of the XIX century.

Testudo marginata Schoepff, 1792
General distribution. S Balcans (Greece and S Albania); introduced and acclimatised in Sardinia and perhaps in the coastal Tuscany.

Anatolian distribution. A single record from W Anatolia and one from the Aegean Greek island of Hios. Probably introduced from Greece; the acclimatisation needs confirmation.

Podarcis sicula (Rafinesque-Schmaltz, 1810)

General distribution. Italian Peninsula and Thyrrenian islands, E Adriatic coast, S to Montenegro. Some coastal area of the Marmara Sea, probably after introduction. Introduced also in Spain, U.S.A. and other countries.

Anatolian distribution. Only in some islets on the Asiatic side of the Marmara Sea.

Anatolian subspecies. From the Anatolian islets was described the ssp. *hieroglyphyca* (Berthold, 1842); as well as in the case of several Italian insular populations, phenotypic differences derived also by recent dispersal events, with genetic drift. These differences were emphasised by traditional taxonomy, but several of these insular forms, the Anatolian one included, strongly needs confirmation.

b) *Species from Turkish Thrace*

In addition to the Anatolian checklist, two other reptiles species can be listed to complete the Turkish catalogue: *Archaeolacerta (Caucasilacerta) praticola* (Eversmann, 1834) and *Testudo hermanni* Gmelin, 1789.

The following Anatolian species, previously cited in the checklist, are distributed also in Thrace (see Gasc et al., 1997; Venchi and Bologna, 1996): *Emys orbicularis, Mauremys caspica, Testudo graeca, Laudakia stellio, Anguis fragilis, Ophisaurus apodus, Cyrtopodion kotschyi, Hemidactylus turcicus, Archaeolacerta parva, Lacerta viridis, Ophisops elegans, Podarcis muralis, P. taurica, Ablepharus kitaibelii, Eryx jaculus, Coluber najadum, C. rubriceps, Coronella austriaca, Eirenis modestus, Elaphe longissima, E. quatuorlineata, E. situla, Hierophis caspius, Malpolon monspessulanus, Natrix natrix, N. tessellata, Telescopus fallax, Typhlops vermicularis, Vipera ammodytes, V. berus, V. xanthina.*

c) *Uncertain species*

Pseudocerastes persicus (Duméril, Bibron and Duméril, 1854)

This is SW Asian species, distributed from Pakistan to Arabian peninsula and Iran (exclusive of the NW regions). Quoted from Anatolia only by Baran (1976).