

Tiger-moths of Iran

(Lepidoptera, Arctiidae: Arctiinae)

by

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received 26.X.2005

Abstract: Based on the vast material from the collection of the Hayk Mirzayans Insect Museum (HMIM) and literature data, 28 species are recorded from Iran.

Callimorpha dominula rossica KOL., *Axiopoena karelini* MÉN., *Utetheisa lotrix* CR., *Watsonarctia deserta* BART., *Diaphora mendica* CL. are recorded from this country for the first time. Four new subspecies, *Arctia caja mazandarana* **subspec. nov.** from the Caspian Coast, *Eucharia festiva hormozgana* **subspec. nov.** from South Iran, *Watsonarctia deserta elbursica* **subspec. nov.** from the Alburz Mts., and *Phragmatobia placida mirzayansi* **subspec. nov.** with a pale coloration, from the high mountains of the Albourz are described.

The analysis of the Arctiinae fauna shows that the fauna of South-Eastern Iran is the Oriental, and not Palearctic.

Zusammenfassung: Mit Hilfe des reichhaltigen Materials des Hayk Mirzayans Insect Museum (HMIM) und aufgrund von Literaturangaben können 28 Arten für den Iran angegeben werden. *Callimorpha dominula rossica* KOL., *Axiopoena karelini* MÉN., *Utetheisa lotrix* CR., *Watsonarctia deserta* BART., *Diaphora mendica* CL. werden erstmals für dieses Land gemeldet. Vier neue Unterarten werden beschrieben: *Arctia caja mazandarana* **subspec. nov.** von der Küste des Kaspischen Meeres, *Eucharia festiva hormozgana* **subspec. nov.** aus dem Süden des Irans, *Watsonarctia deserta elbursica* **subspec. nov.** aus dem Elbursgebirge und die sehr blaß gefärbte *Phragmatobia placida mirzayansi* **subspec. nov.** aus den Hochlagen des Elburs.

Die Analyse der Arctiinae-Fauna aus dem Südosten des Irans zeigt, daß diese zur Orientalis und nicht zur Palaearktis gehört.

History of the Arctiinae fauna investigations in Iran

The first researcher of the Arctiinae fauna of Iran was J. HABERHAUER, who visited North-Eastern Iran, the region of Astrabad (now – Gorgan in Mazandran) in 1869. His material was determined and published by J. LEDERER [1871]; this list included 3 species of Arctiinae: *Arctia spectabilis* TAUSCH. (= *Lacydes spectabilis* TAUSCH.), *A. maculosa* S. V. (an incorrect determination of *Chelis reticulata* CHR.) and *A. fuliginosa* L. (= *Phragmatobia fuliginosa* L.). A year later, in 1870 and 1871, a Russian entomologist H. CHRISTOPH visited the same locality; he collected butterflies and moths in Shakhkukh Mountains and also recorded three species of Arctiinae: *Deiopeia pulchella* L. (= *Utetheisa pulchella* L.), *Arctia villica* L. (= *Epicallia villica* L.) and *Arctia maculosa* GERN. (= *Chelis reticulata* CHR.) [CHRISTOPH, 1873, 1877]. In 1887, another Russian entomologist and a preparator of the Zoological Museum in St. Petersburg, OTTO HERZ, collected Lepidoptera in North-East Iran in Siaret (vicinity of Shirvan, NW from Quchan), but his material still is not

published. Other faunistic observations in Iran in XIX century, like those of HAMPSON (1899), contain few informations on tiger-moths, mainly on the most noticeable species, like *Utetheisa pulchella* L.

In the early XX century, LE CERF (1913) published a first contribution to the Lepidoptera fauna of Iran; this work was based on various material, collected in the end of XIX and beginning of XX century. Among a vast number of Lepidoptera, mainly butterflies, he cited also three tiger moths species: *Arctia villica* L., *Deiopeia pulchella* L. and described as new *Callimorpha dominula persica* LE CERF, 1913, which was just a synonym of *C. d. philippsi* BARTEL, 1906, described from the Russian Transcaspien. W. TAMS described the first Arctiinae species from the Iran territory, but as a subspecies *Callimorpha quadripunctaria splendidior* TAMS, 1922. THOMAS (1988) showed its specific status and outlined the distribution of this species throughout Iran.

From 1935 onwards, many European expeditions began to visit Iran. In 1936, the German expedition by PFEIFFER studied the Alburz (=Elburs) Mts. in Tacht-i-Suleiman Region, the Austrian expedition by WAGNER & SCHWINGENSCHUSS worked in the northern part of the Kendevan Range (SHUMAKOV, 1974). Based on the material of these expeditions, several new taxa were described: *Lacydes elbursi* DANIEL, 1937 (= *Nebrarctia semiramis elbursi* DAN.) and *Parasemia plantaginis caspica* DANIEL, 1939 from Pfeiffer's material, and *Lacydes (Arctia) ninyas* WAGNER, 1937 (= *Nebrarctia semiramis elbursi* DANIEL) and *Volgarctia kendevani* SCHWINGENSCHUSS, 1937 (= *Lacydes spectabilis annellata* CHR.) on the material from the Austrian expedition.

Next of the main investigators of the Iranian Lepidoptera were the BRANDT brothers, who traveled much throughout Iran in 30-th of the XX century. Based on this material, W. BRANDT in 1938-1939 described many new lepidopterous taxa, and later, a new tiger-moth species — *Ocnogyna nordstroemi* BRANDT, 1947. The latter, together with two sibling species from Hindukush, was later selected into the own genus *Ebertarctia* DUBATOLOV, 2004. Based on BRANDT's material, DANIEL (1949) described the South Iranian subspecies *Lacydes semiramis brandti* DANIEL, 1949 (= *Nebrarctia semiramis brandti* DAN.).

In 1956, an expedition of Natural History Museum of Stuttgart, investigated southern regions of Iran (Shumakov, 1974). The materials on the bombycoid moths from this expedition were determined by DANIEL (1961), who recorded three tiger moths species: *Utetheisa pulchella* L., *Axiopoena maura* EICHW. and *Creataloum arabicum* Hmps.

In 1963 and 1965, two more Austrian expeditions visited Iran. Helpmate VARTIAN & KASI collected the Lepidoptera material during these expeditions. Their numerous collections, including tiger moths, were determined by DANIEL, who recorded *Utetheisa pulchella* L., *Lacydes spectabilis annellata* CHR., *Nebrarctia semiramis* STGR., *Spilosoma urticae* ESP., *Phragmatobia fuliginosa* L., *Ph. placida* Friv. (DANIEL, 1965) and *Axiopoena maura* EICHW. (DANIEL, 1971).

In the late 90-th, Turkish entomologists under the guidance of KOÇAK studied the Lepidoptera fauna of Iran, but the tiger moth from these expeditions were poorly published, excluding information analysed with the exception of *Epicalia villica* L. and *Eucharia festiva nivea* O.B.-H. in North Iran (KOÇAK, SEVEN & HUSYINOGLU, 1997a, b). The material collected by several Hungarian expeditions in Iran in the last years, is still not published as well.

Investigations on Arctiidae fauna of Iran by the Iranian entomologists were poorly published.

PAZUKI, MIRZAYANS, ABAI, RAJABI AND KALALI had lots of expedition trips to different parts of Iran to collect the Lepidoptera fauna during the last decades of the XX century. Surely one of the first checklists of Iranian Lepidoptera belongs to BAROU (1970), who recorded 15 Arctiinae species from Iran, among them there are 5 new species for the country, cited as: *Callimorpha quadripunctaria* PODA, *Euprepia rivularis* MÈN., *Argina cribraria* CLERCK, *Arctia caja* L., *Rhyparia purpurata* L. In the second part of this work, MIRZAYANS & KALALI (1970) added two Arctiinae species to this list, *Cretonotus arabica* Hps. and *C. gangis* L., the latter was firstly recorded to the Iranian fauna. Later, KALALI (1976) published a list of Lepidoptera of Khorassan and cited 5 Arctiinae species: *Phragmatobia fuliginosa* L., *Diaphora turensis* ERSCH., *Utetheisa pulchella* L., *Arctia hebe* HFN. and *Ocnogyna loweii* ZELL. The final and the most complete list of the insect fauna of Iran was published by MODARRES AWAL (1994, 1997) who recorded 21 species for Iranian Arctiins. Some years ago, ABAI (2002) recorded *Hyphantria cunea* DRURY from some parts of Guilan, such as Talesh, as a key pest in northern forests.

This article is based mainly on the material of the Hyke Mirzayans Insect Museum of the Insect Taxonomy Research Department (ITRD) at Plant Pests & Diseases Research Institute (Tehran, Iran); this material is not marked specially. We use also the material from Zoological Institute of the Russian Academy of Sciences, St.-Petersburg, Russia (ZIN), Zoological Museum of Moscow State University, Russia (ZMMU), Natural History Museum, Zoological Department, Budapest, Hungary (TTMAB), Natural History Riksmuseet, Stockholm, Sweden (NHRS). The material from non-Iranian museum are specially abbreviated. The names of the main Iranian collectors are abbreviated:

AFZ. - AFZALI; ATA. - ATABAY; ALIP. - ALIPANAH; AYAT. - AYATOLAH; BAR. - BARARI; BEHBA. - BEHBAHANI; BROU. - BROUMAND; DEZ. - DEZFULIAN; DJAV. - JAVAN MOGHANDDAM; EBRA. - EBRAHIMI; FAL. - FALSAFI; GIL. - GILASSIAN; GH. - GHAYOUR FAR; HASH. - HASHEMI; ILKH. - ILKHANI; KAL. - KALALI; LINNA. - PROF. LINNAVORI; MAN. - MANZARI; MIRZ. - MIRZAYANS; MOF. - MOFIDI; MOGH. - MOGHADDAM; MORTAZ. - MORTAZAVIAH; NAZ. V. - VAZRIK NAZARI; NEM. - NEMATIAN; N.NAZ. - NAHID NAZARI; PARCH. - PARCHAMI; PAZ. - PAZUKI; RADJ. - RAJABI; REZ. - RAZVANI; SABZ. - SABZEVARI; SAF. - SAFAVI; SAFZ. - SARAFRAZI.

Other abbreviations:

Lab. - laboratory.

L.T. - by light trap.

Several abbreviations on labels in the Arctiinae collection in Tehran are uncertain for us, they are: B.El., Ch., Dhav., L.m., M.A.B., S.B.K.GH., Vak.

The provinces of Iran are shown on the map (p. 519, fig. 1).

Callimorphini

Callimorpha dominula (LINNAEUS, 1758)

Distribution: Europe, South Ural, Turkey, Caucasus, North Iraq, North Iran, probably in Southern Turkmenistan (DUBATOLOV, 1996).

Callimorpha dominula rossica KOLENATI, 1846

(colour plate 6, fig. 1)

Distribution: The Caucasus, North-East Turkey. Firstly recorded from Iran; most probably, it was collected in West or East Azarbaijan.

Material. 1 ♂, [Iran], without an exact label.

Notes on systematics: The specimen from Iran belongs to *C. d. rossica* KOLENATI without any doubt, it differs strongly from *C. d. kurdistanica* THOMAS, 1983, which was described from SE Turkey and has wide light spots in the central part of the forewing.

Callimorpha dominula philippsi BARTEL, 1906 (= *persica* LE CERF, 1913)

(colour plate 6, fig. 2)

Callimorpha dominula persica LE CERF, 1913; Ann. Hist. Nat. Perse Ent. 2: 82-83, t. 1, f. 10 (Perse septentrionale, Serdeb-e-Bala, Ghilan [900 mètr. alt.] [Guilan]).

Callimorpha dominula, BAROU, 1967; Entomol. et Phytopath. Appl. 26: 48 (Province Centrale: Karadj); MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 177 (Tehran); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 200 (Tehran).

Distribution: South-East Azerbaijan (Talysh Mts.) (DUBATOLOV, 1990, 1996), North Iran: Guilan, Mazandran, Golestan (fig. 19), probably also in Tehran (MODARRES AWAL, 1997). The type locality of *C. d. philippsi* BART., namely "Russisch-Turkmenien (Kuschk)", is probably a mistake (DARICHEVA & DUBATOLOV, 1989).

Material: **Guilan:** 9 ♂♂, 1 ♀, Assalem, Abish-Gharah, 1250 m, 30.VII.1976, PAZ./BROU.; 1800 m, 22.VII.1975, KNOFF/ADELI; 1 ♂, Lakushin, 305 m, 29.VI.1997, MOF./BAR.; 3 ♂♂, Astara, Fandogh Poshteh, 726 m, 18.VI.2001, GH.; **Mazandran:** 3 ♂♂, 2 ♀♀, Kalardasht Hght, 24.VII.1980, HASH./ZAIRI; 2 ♂♂, Rudbarak, 1500 m, 25.VII.1980, HASH./ZAIRI; 3 ♂♂, Tonekabon, Abbas Abad Mnt., 18.VII.1980, HASH./ZAIRI; 5 ♂♂, Sehezar, 980 m, 27.VI.1998, MOF.; 7 ♂♂, Sangdeh, Cheshmeh Bula (36° 04' N 53° 13' E), 1650 m, 25.VI.1998, MOF.; 4 ♂♂, Ruyan (36° 34' N 51° 03' E), Kodisar, 1200 m, 1.VII.2000, MOF./BAR./DEUVE; 3 ♂♂, Hasankif, Mazuchal (36° 32' N 51° 03' E), 1800 m, 23.VII.2000, BAR./MOF./EBRA./DEUVE; 2 ♂♂, Amol, Sangechal, 1200 m, 18.VIII.1995, MIRZ./SAFZ./BADII; **Golestan:** 1 ♂, Ramian, Cheshmeh Tuskai, 1350 m, 25.-27.VI.2000, BAR./MOF./DEUVE; 1 ♂, Gorgan, Aliabad, Kabudval, 220 m, 19.VI.1995, MIRZ./SAFZ./BADII.

Systematic notes: The subspecies was described as a distinct species but downgraded to a subspecies of *C. dominula* L. by DUBATOLOV (1996), in the same work it was synonymized with Iranian *C. d. persica* LE CERF.

Habitat: *C. d. philippsi* BART. is limited between the Caspian Sea and northern parts of the Alburz mountains. The average annual rainfall in this area is between 800-1100 mm and the

dominating biotopes forests. Moths fly from Late June till August, in one brood.

***Euplagia quadripunctaria* (PODA, 1761)**

Distribution. Europe, South Ural, Syria (probably not correct, the single exact record (TAMS, 1922) should be transferred to the Hatay Province of Turkey; nevertheless, the species should occur in the mountains of the extreme north-western part of Syria), Turkey, Caucasus, North Iran, South Turkmenistan (Kopetdagh Mts.) (DUBATOLOV, 1996).

***Euplagia quadripunctaria fulgida* (OBERTHÜR, 1896)**

(colour plate 6. fig. 3)

Panaxia quadripunctaria, MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 177 (Tehran and other northern provinces); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 200 (Tehran and other northern provinces).

Panaxia quadripunctaria magna, MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 177 (Gilan, Mazandaran); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 200 (Gilan, Mazandaran).

Distribution. Near East to South Turkmenistan; North Iran: East Azarbaijan, Ardebil, Guilan, Mazandran, Golestan, Tehran, Semnan and North Khorassan (fig. 20).

Material. **East Azarbaijan:** 1 ♂, Kaleybar, Vayeghan, 1440 m., 7.VII.1992, PARCH./BADII; **Ardebil:** 1 specimen, Hiaf (=Meshkinshehr) (ZIN); **Guilan:** 1 ♂, Assalem, Schondol, 950 m, 9.VIII.1974, MIRZ.; 1 ♂, Assalem, Abish-Gharah, 1250 m, 30.VII.1976, PAZ./BROU.; 4 ♂♂, 2 ♀♀, Assalem, Hashtpar, 1250 m, 6.IX.1972, BROU./ZAIRI; 1 ♂, Assalem, Pissasson, 1300 m, 15.-16.VIII.1980, PAZ./BROU.; 1 ♂, Assalem, Parchsar, 750 m, 13.VIII.1974, MIRZ.; 1 ♂, 1 ♀, Siahkal, 12 km N Daylaman, 1300 m, 13.VIII.1980, PAZ./BROU.; 4 ♂♂, Astara, Fandogh-Poshteh, 726 m, 18.VI.2001, GH.; 1 ♂, Pahlavi, Pouncl, 30 km S of Assalem, 250 m, 12.VIII.1974, MIRZ./ILKH.; 1 ♂, Hashtpar, Rek, 15 km Hashtpar, 570 m, 31.VIII.1975, MIRZ.; **Mazandran:** 1 ♂, 1 ♀, Nur, Chalandar, 12.IX.1983, HASH.; 1 ♂, 1 ♀, Amol, Rudbar, 1600 m, 20.VIII.1981, HASH.; 4 ♂♂, Harijan (Nowshahr, 36°14'N, 51°19' E), 2000 m, 28.VIII.1990, EBRA./BADII; 2 ♂♂, 2 ♀♀, Kalardasht, 3.IX.1969, ZAIRI; 1 ♂, Kalardasht, 24.VII.1976, ZAIRI; 1 ♂, Kalardasht, Rudbarak, 1500 m, 25.VII.1980, HASH./ZAIRI; 9 ♂♂, 7 ♀♀, Kalardasht, Rudbarak, Akapol, 1800 m, 1.IX.1990, EBRA./BADII; 1 ♂, Kalardasht, 8.VIII.1967, ZAIRI; 1 ♂, S Amol, Tader-sa, 950 m, 20.-21.IX.1981, PAZ.; **Golestan:** 1 ♂, Park-e-Melli-Golestan, Almeh, 1600 m, 19.-20.VII.1985, PAZ.; 1 ♀, Park-e-Melli-Golestan, Koylar, 1250 m, 23.VII.1996, EBRA./NAZ. V.; 2 specimens, Park-e-Melli-Golestan, Dasht-e-Shad, 1400 m, 23.VII.2001, GIL./GIL./MOGH.; 1 ♂ 1 ♀, Park-e-Melli-Golestan, Yakhikalan (37°25'N, 57°15'E), 1650 m, 20.VII.1996, EBRA./NAZ.V.; ♂, 1 ♀, Almeh, 1650 m, 17.-18.VII.1996, EBRA./NAZ.V.; 2 ♂♂, 2 ♀♀, Almeh, 1700 m, 25.VII.2001, GIL./MOGH./GH.; 1 ♂, 2 ♀♀, Dasht, 950 m, 27.VIII.1982, HASH.; 3 ♂♂, 2 ♀♀, Tanggol, 700 m, 24.-27.VII.1996, EBRA./NAZ.V.; 7 ♂♂, 2 ♀♀, Tang-e-Gol, 750 m, 20.VII.2001, GH./GIL./MOGH.; 1 ♂, 2 ♀♀, Tang-e-Gol, 798 m, 21.VII.2001, GIL./GIL./MOGH.; **Semnan:** 1 ♀, Schahkuh, CHRISTOPH (ZIN); **Khorassan:** 1 ♀, Siaret [north from Shirvan], 16.VIII.1887, HERZ (ZIN).

Habitat: According to observations in the Kopetdagh Mountains, the moths occurs mainly in the mountain xerophytous belt within open forests of *Juniperus* and prefer deep gorges. Moths flight is from middle July till late August, in one brood.

Euplagia splendidior (TAMS, 1922)

(colour plate 6, fig. 4)

Callimorpha quadripunctaria splendidior TAMS, 1922; Entomologist 55: 196-197 (Harir, 5300 ft., N.W.Persia ... Karind Gorge, 6000 ft., N.W.Persia ... Mungerrah Mts., near Dizful, Persia [Khuzestan]).

Callimorpha quadripunctaria PODA ssp., BRANDT, 1939; Ent. Rdsch. 39 (1/2): 24 (Dorf Comèe mit dem Berge Barn-i-Firus (2600 bis 3750 m), gelegen im Gebiet des Kuh-i-Dinar, an der Straße Ardekan-Talochosroe) [probably, on a border between Fars and Kohkiluyeh & Buyer Ahmad].

Callimorpha quadripunctaria, BAROU (1967), Entomol. et Phytopath. Appl. 26: 48 (Lorestan: Boroudjerd ... Fars: Chiraz, Estahbanat).

Euplagia splendidior, THOMAS, 1988; Nachr. Ent. Ver. Apollo NF 9 (3): 186 (Prov. Boyr Ahmadi, Yasuj; NW-Persia, Karind Gorge; Prov. Kermanschah, Kerend; Fars, Ardekan; Perse, Gottend [unknown locality! --VD]; NW-Persia, Harir; Mungerrah Mts., near Dizful [Khuzestan]; Lorestan, Dorud/Saravand; Iran, Khorasan (Patria meines Frachtens unsicher!)).

Panaxia quadripunctaria splendidior, Modarres Awal (1994), List Agric. Pests and Their Natural Enemies in Iran: 177 (Lorestan, Kordestan, Kermanshah, Fars, Balouchestan); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 200 (Lorestan, Kordestan, Kermanshah, Fars, Balouchestan).

Distribution: East Turkey, Armenia, Azerbaijan: Nakhichevan, North Iraq, Iranian Provinces: West Azarbaijan; Kordestan, Kermanshah, Lorestan, Khuzestan, Kohkiluyeh & Buyer-Ahmad, Fars, Esfahan and Markazi (fig. 21); probably, Khorasan (THOMAS, 1988). A record from Balochestan looks questionable.

Note: The type locality of the species, Harir, has the modern name Shahabad (34°18'N, 46°13' E). It is situated in Kermanshah.

Material: **West Azarbaijan**: 1 ♂, "near village Betran, on the Turkey-Persian border" (probably on the Armenian or Azarbaijan Nakhichevan territory), 9.VII.1914, NESTEROV (ZIN); 1 ♂, Ghasemlou valley (37°16'N, 45°09'E), 1650 m, 19.VII.2005, ZAHIRI, KHIABAN N. leg; **Kordestan**: 1 ♂, 35 km NE Mariwan, 1550 m, 8.-9.VII.1975, PAZ.; 1 ♂, 83 km SE Baneh, 1750 m, 5.-6.VII.1975, PAZ.; **Kermanshah**: 7 ♂♂, 11 ♀♀, Rijab (34°34'N, 46°E), 24.VII.1967, DEZ.; 1 ♀, Dalahu, Ridjab, 1050 m, 16.VIII.1996, PARCHEL/BAR./NAZ.V.; 1 ♂, 45 km NW Shahabad, Sorkhedizeh, 1320 m, 14.VII.1975, PAZ.; 2 ♀♀, the same locality, 1600 m, 2.VII.1972, MIRZ./ABAI; 1 ♂, Paveh, 5.X.1969, ABAI; **Ilam**: 1 ♂, Darehshahr, Kolm-e-Bala (33°17'N, 46°50'E), 950 m, 3.VIII.2004, GH./NEM.; **Lorestan**: 15 ♂♂, 6 ♀♀, Oshtorankouh, Kogah, 2350 m, 29-30.VII.1975, PAZ.; 1 ♂, 3 ♀♀, Kogah, 2350 m, 29.-30.VII.1975, PAZ.; 1 ♀, Gahar Lake near Mt. Oshtorankuh (33°15'N, 49°30'E), 2350 m, 29.-30.VII.1975, PAZ.; 2 ♂♂, 7 ♀♀, Parche-Kaboud (33°15'N, 49°25'E), 2800 m, 1.-2.VIII.1975, PAZ.; 15 ♂♂, 6 ♀♀, Mt. Oshtorankuh, Tian (33°26'N, 49°20'E), 2000 m, 13.VII.1969, PAZ.; 1 ♂, Aligudarz, Kamandan, 2000 m, 3.VIII.1997, BAR./MOF.; **Kohkiluyeh & Buyer Ahmad**: 3 ♂♂, 21 ♀♀, 5 km N Meymand, NW Dena Mt., 2210 m, 18.-20.VIII.1976, PAZ./BROU; 1 ♀, 20 km Yassouj-Ardakan, Tangch Sorkh, 2380 m, 16.VI.1978, PAZ./BROU; **Markazi**: 1 ♂, Ashtian, Ahu, Darreh Bidsukhteh, 2000 m, 29.VII.1997, BAR./MOF.; **Esfahan**: 2 ♀♀, Semirrom, Khafir, 2320 m, 10.VII.1978, PAZ./BROU; 1 ♂, Siwar, 2150 m, 9.VIII.1978, PAZ./BROU; 2 ♀♀, Kashan, Karkas Mt., Bidhand, 2200 m, 4.-7.VIII.1983, PAZ./HASH.; 2 ♀♀, 3 ♀♀, Akhoreh, Kuhe Zard, 2200 m, 4.VIII.1973; **Fars**: 1 ♂, 1 ♀, Shiraz, 110 km, Nowdan,

1000 m, 7.VII.1975, ABAI; 1 ♂, 1 ♀, Kakan (=Kakun?, 28°45'N, 52°55'E), 25.VII.1949, MIRZ.; 2 ♂♂, Kazeroun, Chah-Chenar, 3.-5.V.1975, ABAI; 2 ♀♀, Gavkoshak (29°38'N, 51°48'E), 28.VI.-5.VII.1975, ABAI; 1 ♀, Dena Mt., W slope, 2250 m, 18.-20.VIII.1976, BROU/PAZ.

Habitat: The species generally occurs in high altitude area above 1000 m in the Zagros Mountains. The moths are flying from late June till late August (THOMAS, 1988), in one brood; they prefer deep valleys with bushes and herbaceous plants. TAMS (1922) cited the collector of the type series, H. D. PHILL, who said: "July 13th to August 19th, 1918. In large numbers settled on leaves of trees a few feet from the ground, easy to catch; August 10th, abundant still, but more scarce; 19 August, nearly over".

***Cymbalophora rivularis* (MÉNÉTRIÉS, 1832)**

(colour plate 6, fig. 5)

Euprepia rivularis, BAROU (1967), Entomol. et Phytopath. Appl. **26**: 48 (Azarbaijan: Tabriz); MODARRES AWAI (1994), List Agric. Pests and Their Natural Enemies in Iran: 176 (East Azarbaijan); MODARRES AWAI (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 199 (East Azarbaijan).

Distribution: Central Italy, Makedonia (Skopje), North Greece, South-East Bulgaria, South Ukraine (Kherson), Turkey, Armenia, West Azerbaijan, Russia (Daghestan), North-West Iran: West and East Azarbaijan (fig. 22).

Material. West Azerbaijan: 1 ♂, Rezaiyeh, 4.IX.1969, DJAVAN; 1 ♀, Rezaiyeh, 16.IX.1973, DJ-MOGHADAM; 5 ♂♂, X.1974; 3 ♀♀, Uromieh (Rezaiyeh), X.1973, DJ-MOGHADAM; **East Azerbaijan:** 1 ♀, Tabriz, 15.VII.1959, Akhavan.

Habitat: The moths are flying mainly in late summer and autumn, usually in September and October, occasionally also in August, in one brood.

***Axiopoena maura* (EICHWALD, 1830)**

(colour plate 6, figs. 6-7)

Axiopoena maura, KOUZNETSOV (1959), Bull. Soc. Ent. Mulh. **1959**: 69 (Khach [Sistan & Baluchestan]); DANIEL (1961), Stuttg. Beitr. Naturk., **53**: 2 (Belutschistan, Sangun, 1650 m, östlich Kuh-i-Taftan); BAROU (1967), Entomol. et Phytopath. Appl. **26**: 48 (Province Centrale: Téhéran ... Azarbaijan ... Balouchestan: Saravan); MODARRES AWAI (1994), List Agric. Pests and Their Natural Enemies in Iran: 176 (Tehran, Baluchestan); MODARRES AWAI (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 199 (Tehran, Balouchestan).

Distribution: Azerbaijan (Nakhichevan: Ordubad), South Turkmenistan, Afghanistan, North-West Pakistan (Quetta), Iranian Provinces: Fars, Sistan & Baluchestan, Khorassan, Semnan, Tehran, Golestan, Qom, Esfahan, Kerman (Fig. 23).

Material. Tehran: 11 ♂♂, 1 ♀, Varamin, 27.VI.1974, DHAV.; **Qom:** 1 ♀, Wesb, 2450 m, 24.VI.1981, HASH.; **Esfahan:** 2 ♂♂, 1 ♀, Natanz, Karkas Mt., 2450 m, 21.VI.1993, MIRZ./BADI; 1 ♀, Natanz, Oureh, 2100 m, 21.VI.1988, HASH./BADI; 4 ♂♂, Kashan, Natanz, Abyanch, 2300 m, 29.VI.1981, HASH.; 5 ♀♀, Karkas Mts., Natanz, Targh county site, Mazdeh (33°24'N, 51°51'E), 2150 m, 15.VI.2005, ZAHIRI; 9 ♂♂, 3 ♀♀, Nain, Ghonudieh, 2100 m, 1.VII.1981, HASH.; 50 specimens, 8 km NE of Anarak, 33°22'N, 53°43'E, 1560 m, 31.V.2005, FIBIGER, ZAHIRI leg.; 1

specimen, Natanz, Tamch, 2000 m, 19.VI.1988, HASH./BADII; **Golestan:** 7♂♂, 2♀♀, Sulgerd, Park-e-Meli Golestan, 1150 m, 20-21.VII.1996, EBRA./NAZ.V.; 1♂, Maraveh Tapeh, Gavandar, 250 m, 30.IX.1992, EBRA./BADII; 3♀♀, Yakhikalan, P.M.Golestan, 1650 m, 20. VII.1996, EBRA./NAZ.V.; 1♂, Almc, P.M.Golestan, 1700 m, 25.VII.2001, GUL./MOGH./GH.; **Semnan:** 2♀♀, N Shahroud, Kashidar, 1250 m, 21.-22.VIII.1982, HASH.; **Khorassan:** 2♂♂, 1♀ Torbat-e-Jam, 4.VI.1980, KAFALI; 2♂♂, Akhhlamad, 1250 m, 2.IX.1980, HASH./ZAIRI; 1♂, 13 km N Birjand, 1960 m, 6.VI.1997, SAIL./PAZ./ABAI; **Fars:** 1♀, Lar, Parke Shohada, 830 m, 26.X.1997, MOGH./N.NAZ./BAR.; 2♀♀, Abadch, 20.VI.1973, ZAIRI/HASH.; **Kerman:** 1♂, 11♀♀, Shahr Babak, Tazarij, 1850 m, 10.IX.1993, EBRA./HASH.; **Sistan & Baluchestan:** 1♂, 2♀♀, Saravan, 4.VI.1957, B.EL.; 1♂, Bampour, IV.1959.

Habitat: According to observations in the Kopetdagh and Karkas Mountains, the species occurs in the semidesert and mountain xerophytous belts. The caterpillars hide in deep stone splits during daytime. The moths are flying from June till October, probably in one brood.

Axiopoena karelini MÉNÉTRIÉS, 1863

(colour plate 6, figs. 8-9)

Axiopoena maura, BRANDT (1939), Ent. Rdsch. **39** (1/2): 24 ([Fort Mian-Kotal, ca. 2000 m; gelegen an der Straße Chiraz-Kazeroun] [Fars]); BAROU (1967), Entomol. et Phytopath. Appl. **26**: 48 (Fars: Chiraz; DANIEL (1971), Ann. Naturhist. Mus. Wien **75**: 654 (W-Iran, Bala-vi-taq, Berge von Kasri-Shirín [Kermanshah]); Thomas, 1987; Nachr. Ent. Ver. Apollo NF **8** (1): 22 (Prov. Kermanshah, Umg. Kerend); MODARRIS AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 176 (East Azarbaijan, Lorestan, Fars, Kermanshah); MODARRIS AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran, Ed. 2: 199 (East Azarbaijan, Lorestan, Fars, Kermanshah).

Distribution. Russia (the West Caucasus: Sochi), Abkhasia, Georgia, Armenia, Azerbaijan (Nakhichevan), East Turkey, North Iraq. Firstly recorded from Iran: Kermanshah, Fars, Esfahan, Lorestan, Kohkiluyeh & Buyer Ahmad, Chahar Mahaal & Bakhtiari & West Azarbaijan (fig. 23).

Material: **Azarbaijan:** 1♂, VII.1943; **West Azarbaijan:** 1♂, Bazargan, 11.IX.1975, ABAI; **Lorestan:** 1♀ Aligudarz, Ghalikuh, 2500 m, 21.-22.VIII.1994, MIRZ./SAFA.; **Kermanshah:** 1♀ Rijab (34° 30'N, 46°E), 27.VII.1961, DLZ.; **Khuzestan:** 1♂, Eshkenan, 28.VI.1969; **Chahar Mahaal & Bakhtiari:** 1♀, Ardal, 1720 m, 5.IX.1991, Ebra./Badii; 1♂, Kuhrang, Cheshmeh Chalak (near Shahrekord), 29.VII.1974, HASH./ZAIRI; **Kohkiluyeh & Buyer Ahmad:** 5♂♂, 35 km from Yassuj, Dogonbadan, 2000 m, 10.IX.1971, EBRA./BADII; 2♂♂, 1♀, Yassuj, Tangeh Sorkh, 2200 m, 9.IX.1974, PAZ./HASH.; 1♂, Sisakht, Kuhgol, 2300 m, 14.IX.1998; 1♂, Tangeh Kuhgol, 2300 m, 9.IX.1991, EBRA./BADII; **Esfahan:** 1♂, Semirom, Padenah, Danguzlu, Tangeh Nevel, 2200 m, 13.IX.1991, EBRA./BADII; **Fars:** 1♂, Tangeh Bostanak (30°55'N, 50°59'E), 1700 m, 13.IX.1998, MOH./MAN.; 2♀♀, Shiraz, 12., 19. VI.1953; 1♂, Shiraz, Kamfirouz, 6.IX.1974, PAZ./HASH.; 2♀♀, Shiraz, Beiza, Djavarg, Doshman Ziari, 9.IX.1974, PAZ./HASH.; 1♂, Sissakht, Dena Mt., 2200 m, 11.IX.1974, PAZ./HASH.; 1♂, Komehr (30°26'N, 51°50'E), Margan, 2100 m, 19.-22.VIII.2000, BADII/MOGH./MOF.

Systematic notes: The specific status of *A. karelini* MÉN. was shown by DUBATOLOV (1989). Both species of the genus *Axiopoena* MÉN. differ significantly by the ♂ genitalia structure (figs.

2-3), and the hindwing underside pattern (colour plate 6, figs. 7, 9).

Habitat: The moths are flying from June till September, probably in one brood.

Lacydes spectabilis (TAUSCHER, 1806)

Distribution: Steppes and forest steppes of Europe and West Asia, East Turkey, North Iraq, Iran, Afghanistan, Caucasus, Kazakhstan, Central Asia, NW China (Xinjiang), West Mongolia (DUBATOLOV, 1996).

Lacydes spectabilis spectabilis (TAUSCHER, 1806)

(colour plate 7, fig. 10)

Distribution: Steppes and forest steppes of Europe and West Asia, Central Asia, West Mongolia, NW China (Xinjiang), Afghanistan. Firstly recorded from Iran: Tehran, Mazandran and Golestan (fig. 24).

Material: **Tehran:** 13 ♂♂, Damavand, 1910 m, 4.-11.IX.1976, RAJABI; **Mazandran:** 2 ♂♂, Kalardasht, Rudbarak, Akapol, 1800 m, 1.IX.1990, EBRA./BADII; **Golestan:** 2 ♂♂, Torkman-Sahra, Ghalagh Ghorta, 0 m, 27.-28.IX.1992, EBRA./BADII.

Lacydes spectabilis annelata (CHRISTOPH, 1887)

(colour plate 7, fig. 11)

Volgarctia (*Lacydes*) *kendevani* SCHWINGENSCHLUS, 1937, Zeil. Öst. Ent. Ver. Wien **22**: 60-61 (Kendevanpaß in 3000 m Höhe [Tehran/Mazandran]).

Volgarctia spectabilis, BRANDT (1939), Ent. Rdsch. **39** (1/2): 23 ([Fort Sine-Sefid, ca. 2200 m; gelegen an der Straße Chiraz-Kazeroon] [Fars]).

Distribution: Turkmenistan (Kopetdagh Mts.). Iran: Teheran/Mazandran (fig. 24). Specimens from Fars, cited by BRANDT (1939), might belong to the nominotypical subspecies. The population from Mazandran: Kalardasht contains specimens of both subspecies and probably is transitional.

Material: **East Azarbaijan:** 2 ♂♂, Khalatpoushan near Tabriz (38°05'N, 46°17'E), 26.VIII.1974, MASHAYEKHI; 12 ♂♂, Kaleibar, Vayeghan, 1440 m, 5.-6.VIII.1992, PARCH./BADII; **Mazandran:** 1 ♀, Ramsar, Javaher-deh, 1700 m, 8.IX.1990, EBRA./BADII; 8 ♂♂, Kalardasht, Rudbarak, Akapol, 1800 m, 1.IX.1990, EBRA./BADII; 18 ♂♂, Chalus, Kandovan, 21.VIII.1978, HASH./ZAIRI; 3 ♂♂, Nur, Baladeh, Kamarbon, 14.-15.IX.1994, ARDEH/BADII/HASH.; 1 ♂, Baladeh, Yush, 1920 m, 13.IX.1996, BADII/ARDEH/HASH.; **Golestan:** 1 ♀, Sharlogh (near Maraveh Tapeh, 37°38'N, 55°56'E), 1000 m, 25.VIII.1984, MIRZ./BROU.; 1 ♂, Almch, Park Melli Golestan, 1600 m, 1.IX.1987, PAZ.; 1 ♂, the same locality, 2.-6.X.1994, MIRZ./EBRA./BADII; 3 ♂♂, Kordkuy, Radkan, Jahan nama, 1600 m, 24.IX.1992, EBRA./BADII; **Markazi:** 1 ♂, Delijan, Jash, 1900 m, 15.IX.1991, EBRA./BADII; **Tehran:** 2 ♂♂, Rudehen, 12.IX.1972, ABAI/PAZ.; 1 ♀, 30 km N Karaj, 11.IX.1969, MIRZ./ABAI; 1 ♂, Fasham, 1450 m, 5.IX.1978, KARAJ; 1 ♂, Karaj, Dizin, 20.VIII.1978, HASH./ZAIRI; 5 ♂♂, Karaj, Azadbar, 2350 m, 27.-28.VIII.; 2 ♂♂, Tar Lake, 1700 m, 29.VIII.1992, EBRA./BADII; **Semnan:** 11 ♂♂, Shahmirzad, Kabud Darreh, 2100 m, 22.VIII.1993, EBRA./BADII; **Khorassan:** 10 ♂♂, Dareh-Gaz, Tandureh, Shekar-ab, 2100 m, 11.VIII.1993, EBRA./BADII; 3 ♂♂, Mashad, Zoshk, 1700 m, 14.-15.VIII.1993, EBRA./BADII.

Habitat: According to observations in the Kopetdagh Mountains, the species occurs throughout

all types of biotopes, from the submontane semideserts and cultivated territories up to the mountain xerophytous belt. The moths are flying from Middle August till October, occasionally from July in a single brood.

Lacydes spectabilis ssp.

Volgarctia spectabilis, BRANDT (1939), Ent. Rdsch. **39** (1/2): 23 ([Fort Sine-Sefid, ca. 2200 m; gelegen an der Straße Chiraz-Kazeroun).

Note: This is a single record of the species from South Iran; unfortunately, it is impossible to say to what subspecies it belongs. Material is probably deposited in Naturhistoriska Riksmuseet, Stockholm, Sweden.

Utetheisa pulchella (LINNAEUS, 1758)

(colour plate 7, fig. 12)

Deiopeia pulchella, BIENERT (1871), Lepidop. Ergebn. Reise Persien 1858 und 1859: 33 (Albursgebirge bei Tschehar-deh [Golestan/Semnan]); CHRISTOPH (1873), Horae Soc. Ent. Ross. **10**: 32 (Hadschyabad; Schahkuh [Golestan]); ERSCHOFF (1876), Trudy Rus. Ent. Ob. **8**: 321 (Shahrud vicinity [Semnan]); HAMPSON (1899), J. Linn. Soc. Zool. **27**: 411 (Urmi [West Azarbaijan]); LE CERF (1913), Ann. Hist. Nat. Perse Ent. **2**: 82 (Larinabad [Ilam]; Nasserin [Khuzestan]; Suse [Khuzestan]; Poucht-e-Kouh, Larounabad [Ilam]); Shchetkin, 1960; Lepidoptera of the Vakhsh Valley. Stalinabad: 243 (Mashhad [Khorassan]).

Utetheisa pulchella, BRANDT (1939), Ent. Rdsch. **39** (1/2): 23 ([Dorf Tchouroum, ca. 1000 m; gelegen a.d. Straße Kazeroun-Bouchir]); KOUZNETSOV (1959), Bull. Soc. Ent. Mulh. **1959**: 69 (Sahedan; Saravan [Sistan & Baluchestan]); DANIEL (1961), Stutt. Beitr. Naturk. **53**: 2 [Khuzistan, Shush; Belutschistan. Saravan (Shastun); Makran, Tiz bei Chahbahar bzw. Chahbaharküste; Belutschistan, Iranshar; Belutschistan, Bampur; SO-Iran (Djiroft), Anbar-Abad]; DANIEL (1965), Zeit. Wien. Ent. Ges. **50**[76] (9/10): 124 (Berge O v. Kasri-Schirin [Kermanshah]); BAROU (1967), Entomol. et Phytopath. Appl. **26**: 48 (Guilan; Rasht ... Khuzestan; Ahvaz ... Abadan ... Fars; Kazeroun ... Chiraz); KALALI (1976), J. ent. Soc. Iran **3** (1/2): 132 (Mashad: Torogh); MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 177 (East Azarbaijan, Khorasan, Gilan, Khuzestan, Fars, Gilan); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 200 (East Azarbaijan, Khorasan, Gilan, Khuzestan, Fars, Tehran).

Deiopeia tenuella, MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran: 199 (Khorasan, Fars, Tehran, Kermanshah).

Distribution. Southern and Middle Europe, Asia, north to European Russia and Kazakhstan and Chinese Xinjiang; India, Burma; also in West India. In Iran occurs throughout the whole territory of the country (fig. 25).

Material: **West Azarbaijan**: 12 specimens, Rezaiyeh & Sardasht, 1100-1650 m, 1975-1976; **Guilan**: 5 specimens, Amarlü; Lahijan; Rasht, 1000 m, 1970-1973; **Mazandran**: 36 specimens, Amol; Tonekabon; Nur (Baladeh & Panjab); Behshar & Nowshahr, 0-1940 m., 1948-1990; **Golestan**: 120 specimens, Park-e-Melli-Golestan and suburbs, 0-1650 m., 1948-1994; **Khorassan**: 4 ♂♂, Mashhad, 17.IX.-9.XI.1944, STSHETKIN (ZMMU); 13 specimens, Mashad, Cheshmeh-Gilas, 1000 m., 9.IX.1980, HASH/ZAIRI; 2 specimens, 36 km N Gonabad, 830 m, 7.VI.1977, SAE/PAZ/ABAI; **Semnan**: 1 ♂, Shahrud, Kamarcheheldokhtar, 3.XI.1982, HASIL; **Tehran**: 15 specimens, Evin; Assara; Rondehen; Damavand; Firuzkuh (Gaduk); Shahriar, 1969- 1991;

Ghazvin: 2 ♂♂, 2 ♀♀, Alamut (36°20'N, 50°43'E); Taleghan, 2200 m, 1977-1991; **Kordestan:** 11 specimens, Baneh; Ravansar, 1750-2000 m, 1975-1978; 4 specimens, Marivan, 10.VI.1969, AYAT./ZAIRI; 7 specimens, Sanandaj, Ariz, 2200 m a. s. l., 5.VII.1972, MIRZ./ABAI; **Kermanshah:** 19 specimens, Ghasr-e-Shirin; Dalahu (Rijab); Shahabad; Biston; Bidsorkh, 450-1880 m, 1974-1996; **Lorestan:** 10 specimens, Borujerd; Aligudarz; Malavi; Oshtorankuh, 430-2800 m, 1975-1994; **Ilam:** 8 specimens, Eynekhosh, 100 m, 21.XI.1995, BADIH/MIRZ.; **Esfahan:** 18 specimens, Kashan; Natanz; Semirom; Kuh-e-Karjas; Niasan; Abianeh, 820-2200 m, 1978-1991; **Qom:** 1 ♂, Lac Ghom, 17.VI.1969, M.A.B.; **Yazd:** 1 ♂, Barfkhaneh, Terezjan, 2250 m, 4.VII.1981, HASH.; 1 ♂, 1 ♀, Shir-Kuh, 3300 m, 3.VII.1981, HASH.; **Kohkiluyeh & Boyer Ahmad:** 2 ♂♂, 1 ♀, Yassouj, Tangeh Sorkh, 12-13.VI.1986, MIRZ./HASH.; 1 ♂, Yassuj, Ganjegoun (30°25'N, 51°44'E), 2190 m, 18.VI.2005, ZAHIRI/NEM.; 1 ♂, Sisakht, 2100 m, 16.VI.1986, MIRZ./HASH.; **Chahar Mahaal & Bakhtiari:** 19 specimens, Gandoman; Zardkuh; Sabzkuh, 2300-2500 m, 1976-1991; **Fars:** 75 specimens, Shiraz; Kazeroun; Abadeh; Dena Mt.; Nowdan; 770-2210 m, 1971-1996; **Kerman:** 15 specimens, Jiroft; Rafsanjan; Jebale Barez, 540-1850 m, 1961-1993; **Sistan & Baluchestan:** 1 ♂, Shaandak, 23.VI.1898, ZARUDNYI (ZIN); 6 specimens, Bampur; Saravan; Pishin, 10-1140 m, 1973-1997; 1 ♂, Tchabahar, Tiss, 6-8.IV.1973, SAF./BROU.; **Hormozgan:** 75 specimens, Minab; Jazireh Farur (Is.); Bandar Jask; Bandar Abbass; Bandar Charak; Bandar-e-Khamir (26°57'N, 55°35'E); Ghesm; Kuhe Geno; Rudan Sarzeh; Sirik; **Bushehr:** 71 specimens, Bidkhun; Bandar Taheri; Khrku; Borazjan; Omar (28°52'N, 51°17'E); Jazireh Abbassak (Is., 29°05'N, 50°50'E); Tangestan, 0-650 m, 1975-2002; Jazireh Farsi (Is.); **Khuzestan:** 1 ♂, Jazireh-e-Kharku (Is.), 10.II.2002; 80 specimens, Ahvaz; Hamidiyeh; Dezful; Shushtar; Shush; Abadan, 0-400 m., 1958-1998.

Habitat: According to observations in the Kopetdagh Mountains, the species prefers cultivated territories but occurs also in other types of biotopes from submontane deserts to the mountain xerophytous belt; in the Kohkiluyeh and Boyer Ahmad Province, it was observed in semidesert low mountains and oak forests. The moth is flying during the whole warm season, throughout the year in the southern provinces, and in warm period in northern provinces, in several broods. In autumn they become much more common.

Utetheisa lotrix (Cramer, 1779)

(colour plate 7, fig. 13)

Distribution. Tropical Africa throughout tropical and subtropical Asia (West and South Arabia, Pakistan, India, SE Afghanistan, Nepal, Sri Lanka, Burma, Indo-China, South China, Taiwan, Japan, north to Honshu; Philippines, Indonesia), New Guinea, Australia, New Caledonia and the Loyalty Islands (JORDAN, 1939). Firstly recorded from Iran: Hormozgan, Sistan & Balouchestan (fig. 26).

Material: **Hormozgan:** 1 ♂, 1 ♀, Bandar-e-Lengeh, Bostano, 0 m, 25.II.1997, NAZ.V.; 1 ♀, Sirik, 100 m, 30.IV.1996, BADIH/ARDEH/NAZ.V.; **Sistan & Baluchestan:** 3 ♂♂, 6 ♀♀, Chahbahar, Tiss, 6-8.IV.1973, SAF./BROU.; 1 ♂, the same locality, 25.XI.1997, BAR./MOF./V.NAZ.; 1 ♀, Sarbaz, Rask, 1-2.IV.1973, BROU./SAF.

Notes on systematics. The species is easily separated from the sibling *U. pulchella* L. by absence of a red spot in the tornal angle of the forewings and by a quite different male genitalia structure (Figs. 4-5).

Habitats: The moths are flying in winter and spring, from November till April.

Argina astrea (DRURY, 1773) (= *cribraria* CLERCK, 1759 [1764])

(colour plate 7, fig. 14-15)

Argina cribraria, BAROU (1967), Entomol. et Phytopath. Appl. 26: 48 (Abbassi: Minab); MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 176 (Hormozgan); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 199 (Hormozgan).

Distribution. East Africa, Madagascar, South Asia to the Himalayas, Central China and South Japan (Ryukyu Is.), Indochina, Indonesia, Australia, South-West Oceania. In Iran restricted to southernmost regions: Hormozgan Province (fig. 27).

Material. **Hormozgan**: 2 ♂♂, 1 ♀, Minab, 23.IV.1950, anonymous leg.; 1 ♀, Lengeh, Bandar-e-Lengeh, 6.IV.1950, FARU.

Habitats. Moths were collected only in April.

Arctiini

Parasemia plantaginis (LINNAEUS, 1758)

Distribution: Europe and the temperate Asia including Turkey, the Caucasus, North Iran, North-Eastern Kazakhstan, Mongolia, China, Korea, Japan, Canada, USA (DUBATOLOV, 1996).

Parasemia plantaginis caspica DANIEL, 1939

(colour plate 7, figs. 16-18)

Parasemia plantaginis caspica DANIEL (1939), Mitt. Münch. Ent. Ges. 29: [362]-363 (aus dem Nordelburs, bezettelt Elburs monts s., Tacht i Suleiman, Hecar al Tal, ..., Sârdab-Tal [Mazandran]); DE FREINA (1993), Linneana belgica 14 (3): 160 (the same locality).

Distribution: North Iran (north slope of the Alburz Mts. in Mazandran) (fig. 28).

Material: **Mazandran**: 2 ♂♂, Persia s., Elburs mts s., Tacht i Suleiman, Hecar al-Tal, 2800-3200 m, 3.VII.1936, E. PFEIFFER (TTMAB).

Notes on systematics. Very similar with subspecies from the Caucasus and Turkey, *P. p. caucasica* (MÉNÉTRIÈS, 1832) (colour plates 7, 8, figs. 19-21), but the basal dark line on the cubital vein on the hindwings is noticeably shorter, not longer than the vein Cu_2 base, the dark line on the discal vein is narrow. As in *P. p. caucasica* (MÉN.), specimens from the Alburz Mts. occur in two male colour forms, with red and yellow hindwings.

Habitat. The species probably occurs in wet mountain biotopes. The moths are flying in July.

Arctia caja (LINNAEUS, 1758)

Arctia caja, MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 176 (Caspian Sea area, Tehran, Fars and other southern and western provinces); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 199 (Caspian Sea area, Fars and other southern and western provinces).

Distribution: Europe and the temperate Asia including Turkey, the Caucasus, North Iran, the mountains of Central Asia, Afghanistan, Pakistan and North India, Mongolia, North China, Korea, Japan, South Canada, USA (DUBATOLOV, 1996). Records from Fars and southern provinces of Iran (MODARRES AWAL, 1997) seem to be questionable.

Arctia caja wiskotti STAUDINGER, [1879] 1878
(colour plate 8, fig. 23)

Distribution: Asian Turkey, Georgia, Armenia, Azerbaijan. Firstly recorded from Iran: Mazandran, Ardebil (fig. 29).

Material: **Ardebil**: 1 ♂, Ardebil, Ghotursou, I.IX.1972, BROU./ZAIRI.

Arctia caja mazandarana DUBATOLOV & ZAHIRI **subspec. nov.**
(colour plate 8, figs. 24-25)

Arctia caja, BAROU (1967), Entomol. et Phytopath. Appl. 26: 48 (Caspienne).

Material. Holotype ♂, Mazandran, Chalus, Valiabad, VII.1967 (MOAYERI). Deposited in the Hyke Mirzayans Insect Museum. Paratypes 3 ♂, the same locality, VIII.1967 (MOAYERI).

Description: Wing expanse 51 mm. The subspecies is characterized by confluence of the brown medial bands into a single large nearly semicircular spot, which includes one or two small light spots at the costa, weakly penetrating into the cell; this large spot might be fused with a smaller spot at the central part of the hind margin. The spots of the postdiscal and marginal rows are extended and touch each other. The hindwings are yellowish orange, with the pattern typical for the species.

Notes: The new subspecies occurs in the easternmost part of the species range penetrating into the Alborz Mts. From other South-West Asian subspecies it differs by yellowish-orange hindwings. In *A. c. wiskotti* STGR. (colour plate 8, fig. 26) and *A. c. pamiroalaica* STSHETKIN, 1982 (colour plate 8, fig. 27) the hindwings are yellow, without any red or orange tint. Such a yellowish-orange hindwing coloration is similar to *A. c. ossetica* DUBATOLOV, 1996 (colour plate 8, fig. 28) from SW Caucasus, *A. c. tshimgana* SHELJUZHKO, 1935 (colour plate 8, fig. 29) from West Tien Shan, and *A. c. tschiliensis* DRAUDT, 1931 (colour plate 8, fig. 30) from SE Transbaikalia and Middle Amur in Russia and North China. However, the fore spots of the medial bands on forewings in these subspecies are not fused into a single spot; in *A. c. pamiroalaica* STSHETKIN, the internal light spot in this broad brown spot in middle part of forewing is large, crossing the cell.

Habitat. The moths fly from July till September, in one brood.

Epicallia villica (LINNAEUS, 1758)

Arctia villica, MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 176 (East Azarbaijan, Tehran, Gorgan, Esfahan, Kermanshah); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 199 (East Azarbaijan, Tehran, Gorgan, Esfahan, Kermanshah).

Distribution: Europe, South Transuralia, North-West Africa, East Mediterranean, Turkey, North Iran (DUBATOLOV, 1996).

Epicallia villica marchandi (DE FREINA, 1983) (= *daralagezi* O. BANG-HAAS, i.l.)
(colour plate 9, fig. 31-32)

Arctia villica confluens, LE CERF (1913), Ann. Hist. Nat. Perse Ent. 2: 81 (Talyone [correctly – Talyan (30°40'N, 51°25'E), Kohkiluyeh & Boyer Ahmad]);

Arctia villica angelica, DANIEL (1965), Z. Wien. Ent. Ges. 50 [76] (9/10): 126 (N Iran, 7 km S v. Chalus; Iran, Derbend, 25 km N v. Teheran [Mazandran]).

Arctia villica, BAROU (1967), Entomol. et Phytopath. Appl. 26: 48 (Province Centrale: Gharaghadj ... Azarbaijan: Moghan ... Esfahan: Esfahan).

Epicallia villica marchandi, KOÇAK, SEVEN & HÜSSEYNOLU (1997), Centre for Entomological Studies Miscellaneous Papers 38: 4 (Tehran Pr., Davud Abad).

Distribution. East Turkey, South Armenia. Firstly recorded from Iran: West and East Azarbaijan, Ardebil, Kermanshah, Ghazvin, Tehran, Mazandran (fig. 30).

Material: **West Azarbaijan**: 1 ♂, Rezaiyeh, 18.-21.VI.1973, DJ-MOGHADAM; **East Azarbaijan**: 1 ♂, Miyaneh, Bozghoush Mts., Torkmanchay, Kalhor (37 42'N, 47°22'E), 12.VII.2005, ZAHIRI; **Ardebil**: 1 ♀, Moghan, 10 km Parsabad, 100 m, 23.-24.V.1997, BADI/SAFZ./NAZ.V.; 1 ♀, Sarband, Moghan, 13.V.1961, MIRZ.; **Kermanshah**: 1 ♂, Songhor, Gharaghadj, 4.VI.1949, TAGHAVI; **Ghazvin**: 1 ♂, Rudbar-e-Shahrestan (Daryabak), 36°22'N, 49°27'E; **Tehran**: 2 ♂♂, Schenschak (35°57'N, 51°20'E), 15.VII.1969, ABAI; 1 ♂, Karadj, Arangeh, Sarziarat, 1750 m, 10.-11.VII.1996, BAR./BADI; 1 ♀, Shemiran, Pas Ghaleh (45°50'N, 51°25'E), 10.VI.1971, HASH.; **Mazandran**: 1 ♂, Baladeh, Yush, 2100 m, 26.VI.1998, MOF.

Epicallia villica confluens (ROMANOFF, 1884)
(colour plate 9, fig. 33)

Arctia villica, CHRISTOPH (1873), Horae Soc. Ent. Ross. 10: 32 (Hadschyabad [Golestan]); BAROU (1967), Entomol. et Phytopath. Appl. 26: 48 (Gorgan: Gorgan).

Arctia villica konewkai, CHRISTOPH (1977), Horae Soc. Ent. Ross. 12: 205 (Asterabad; Hadschyabad [Golestan]).

Arctia villica confluens ROMANOFF, 1884, Mem. Iepidop. Ed. N. M. ROMANOFF 1: 87-88 (Astrabad; Hadschyabad [Golestan]); DANIEL (1965), Z. Wjen. Ent. Ges. 50 [76] (9/10): 127 (Elburs mont., Tacht i Suleiman, Sârdabtal; Persia s., Elbursgebirge [Mazandran]).

Distribution: South-Eastern Azerbaijan (Talysh Mts.). Iranian Caspian Provinces: Guilan, Mazandaran, Golestan, north parts of Tehran and Khorassan (fig. 30).

Material: **Guilan**: 1 ♂, Rasht, Sefidroud, 15.-21.V.1973, SCHENASI; 15 ♂♂, Astara, Km 5 of the Ardebil Road, 100 m, 26.V.1997, AFZ./BADI/NAZ.V.; **Mazandaran**: 3 ♂♂, Chalus, Valiabad, VII.1967, VIII.1967, MOAYERI; 1 ♂, Hezarcham (Chalous Road, 36°15'N, 51°12'E), VIII.1966, MOAYERI; 2 ♂♂, Siahbisheh (36°11'N, 51°19'E), 25.VI.1974, ABAI; 1 ♂, Tonekabon, Sehezar, 980 m, 21.VI.1998, MOF.; 1 ♀, Tonekabon, Dohezar, 1100 m, 9.VI.2005, NEM./ALIP./SINEV; 1 ♂, Ramsar, Dormod, 1125 m, 4.-5.VII.2000, BAR./MOF./EBRA./DEUVE; 1 ♂, Amol, Sangechal, 1200 m, 18.VI.1995, MIRZ./SAFZ./BADI; **Golestan**: 1 ♂, Astrabad [=Gorgan], 3.VI.1905, FILIPOVICH (ZIN); 1 ♀, Gorgan, 25.VI.1966, SAFAVI; 1 ♂, Park-e-Melli Golestan, Jangal-e-Golestan, Mazarli, 530 m, 19.-20.VI.1977, PAZ./ABAI; 2 ♂♂, Tange-Gol, 620 m, 23.-25.V.1986, PAZ.; 1 ♂, [Park-e-Melli-Golestan], Almehr, 1650 m, 17.-25.V.1988, PAZ.; 1 ♂, Ramian, Cheshmeh Tuska, 1350 m, 25.-27.VI.2000, BAR./MOF./DEUVE; 1 ♂, 136 km W Bodjnour, Golestan Forest, 17.V.1975,

MASCHAYEKHI; **Khorassan**: 1 ♀, Kopeh Dagh Mts., Gifon-e-oliya (37°52'N, 57°30'E), 20.V.2005, Fal./Nem.; 1 ♂, Kopehdagh, Allahakbar, 2950 m, 16.VI.1974, RADJ./PAZ.; 1 ♂, Siaret [north from Shirvan], 11.VIII.1887, HERZ (ZIN); **Esfahan**: 1 ♀, Esfahan, 12.VII.1950, SADOUGHI.

Habitat: The moths are flying in low mountains on meadows along rivers, with some trees and fully herbaceous plants, from late May till August, in one or probably in two broods.

Eucharia festiva (HUFNAGEL, 1766)

Distribution. South and Central Europe, the Near East, Transcaucasia, Iran, Uzbekistan, Kyrgyzstan, Kazakhstan, Russia, Mongolia, China (DUBATOLOV, 1996).

Eucharia festiva nivea (O. BANG-HAAS, 1927)

(colour plate 9, figs. 34-37)

Arctia festiva nivea O. BANG-HAAS, 1927, Horae Macrolepidop. 1: 75, t. 9, f. 14, 15; type localities: "Asia minor: Aintab ... Malatia ... Amasia ... Tokat".

Arctia hebe, BRANDT (1939), Ent. Rdsch. 39 (1/2): 24 ([Fort Sine-Sefid, ca. 2200 m; gelegen an der Straße Chiraz-Kazeroun] [Fars]); KALALI (1976), J. Ent. Soc. Iran 3 (1/2): 132 (Mashad: TOROQH); MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 176 (East Azarbaijan, Khorasan); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 199 (East Azarbaijan, Khorasan).

Eucharia festiva nivea, KOÇAK, SEVEN & HÜSEYİNOLU (1997), Centre for Entomological Studies Miscellaneous Papers 38: 7 (Iran Azarbayejan: Tabriz, Sharaf Khaneh).

Eucharia festiva, BAROU (1967), Entomol. et Phytopath. Appl. 26: 48 (Province Centrale: Ghazvine); MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 176 (East Azarbaijan, Zanjan); MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 199 (East Azarbaijan, Zanjan).

Distribution: The Asian Turkey, Transcaucasia. Iranian Provinces: East Azarbaijan, Ardebil, Kordestan, Kermanshah, Zanjan, Hamadan, Markazi, Tehran, Fars (Brandt, 1939), Khorassan, Kerman (fig. 31).

Material: **East Azarbaijan**: 2 ♂♂, Maragheh, 10.V.1993, 1 ♂, Maragheh, 2 ♂♂, Maragheh, 10-17.V.1993, HASH.; 2 ♂♂, "Persia, Tavriz" [Tabriz], 23.IV.1914, 2 ♀♀, the same data, 21.III., 6.IV.1914 (ANDRIEVSKH, ZIN, SZMN); **Ardebil**: 1 ♂, Moghan, 17.IX.1967, ARGHAND; **Kordestan**: 3 ♂♂, Sanandaj, Farah, 10.-15.IV.1975, HASH.; **Kermanshah**: 1 ♀, Kermanshah (=Bahtaran), 22.V.1954, VAK.; **Hamedan**: 1 ♂, Nahavand, H. SHAHBAZI; **Markazi**: 1 ♀, Saveh, Zarand, II.1984; **Tehran**: 1 ♂, Varamin, 4.V.1969, DJAV.; 11 ♂♂, Karadj, Malard, 26.IV.1974, SABZ.; 8 ♂♂, Damavand, 21.V.1976, RAJABI; 1 ♀, Evin [NW suburbs of Tehran], 8.IV.1971, GH. BARKHORDA; **Khorassan**: 1 ♂, Mashad, 1.V.1968, LAB.; **Kerman**: 1 ♂ Bardsir, 8.IV.1973, ABAI.

Systematic notes: In ♂♂, the forewing with the subbasal and/or medial bands partly or overall fused; the hindwing is rose, with two spots of the submarginal row, a discal spot, and the medial spot at costa, the latter reaching the base of vein Cu_2 . In the ♀♀ the space between the medial, subbasal and discal bands is almost dark, or these bands are more or less fused together. This subspecies differs, from the nominative one, mainly by the fusion of the subbasal, medial and discal bands. Although many studied specimens from Iran differ noticeably from the figures of

the type specimens of *E. f. nivea* (O. BANG-HAAS, 1927), it should be taken into account that there is significant individual variation in these moths within a population. For example, in Karadj, Malard there are specimens with a very light wing pattern, and other with fused bands on the forewings. Moreover, in the Euphrat River valley in Turkey (located not far from the type locality of *E. f. nivea* O. B.-H.: Aintab, Amasia, Tokat, Malatya), ♀♀ occur with an almost black space between the subbasal and discal bands, such ♀♀ could not be separated from specimens from Iran. This was a reason to attribute specimens from Iran to *E. f. nivea* O. B.-H. It should be noted that similar specimens occur in the Transcaucasian countries and in the Russian North Caucasus (North Osetia, Tsei). In any case, the subspecific status of *E. f. nivea* O. B.-H. was revalidated by KOÇAK, SEVEN & HÜSYİNOĞLU (1997).

Eucharia festiva hormozgana DUBATOLOV **subspec. nov.**

(colour plate 9, fig. 38)

Material: Holotype ♂, Iran, Hormozgan, Gouzam (probably, Gurzang near Minab), 21.IV.2000 (ISTVÁN JUHÁSZ, SZMN). Paratypes 2 ♂♂, the same data (SZMN); 1 ♂, Hormozgan, Sirik, 18.II.1998, MOF./ATA.

Description: A moderately small moths, wing expanse 40-45 mm. Wing pattern very similar to the former subspecies, but on the forewings subbasal and medial bands fused at costal one-third only. Hindwings also rose, with two spots of submarginal row, a discal spot, and medial spot at costa, the latter reaches base of vein Cu_2 .

♂ genitalia (fig. 7) have the general type characteristic for the species but apical process of valva with a noticeable broadening at base.

The new subspecies differs mainly by the male genitalia structure, the apical process of valva is noticeably broadened at its base, that strongly differs from any other subspecies studied: *E. f. festiva* (HUFNAGEL, 1766), *E. f. nivea* (O. BANG-HAAS, 1927) (fig. 6), *E. f. sartha* (STAUDINGER, 1886) (= *jilensis* F. WAGNER, 1913), *E. f. interposita* (O. BANG-HAAS, 1927), *E. f. interrogationis* (MÉNÉTRIÈS, 1863) and *E. i. collaris* (GRUM-GRSHIMAILO, [1900] 1899). It should be noted that the ♂ genitalia of all these subspecies, except for the new one, are very similar to each other, although their wings pattern is quite different.

Habitat: The moths are flying from February in southern provinces and from late April in northern provinces till late May, in one brood.

Micrarctiini

Ebertarctia nordstroemi (BRANDT, 1947)

(colour plate 10, fig. 39)

Ocnogyna nordstroemi BRANDT, 1947, Ent. Tidskr. 68: 90 (Iran, Khorassan, Kouh i Binaloud [Meched], 3300 m); EBERT (1974), Beitr. naturk. Forsch. Südwdtl. 33: 169 (Khorassan, Kouh i Binaloud [Meched]; Alle Meched, 3300 m); DARICHEVA & DUBATOLOV (1989), Izv. AN Turkmen. SSR. Ser. biol. nauk 1989 (2): 42 (Binalud Mts.).

Ebertarctia nordstroemi, DUBATOLOV (2004), Atalanta 35 (1/2): 78 (Khorassan, Kouh i Binaloud [Meched], 3300 m).

Distribution: Known only from the Kouh-i-Binaloud Mts. south from Mashhad (fig. 32).

Material. **Khorassan**: 2 ♂♂, Kouh i Binaloud (Meched), 3300 m, 20.VII 1938, coll. BRANDT (NHRS).

Habitats: The moths probably occur in high mountain xerophytous biotopes, in July.

Chelis reticulata (CHRISTOPH, 1887)

(colour plate 10, figs. 40-41)

Arctia maculosa mannerheimii, CHRISTOPH (1873), Horae Soc. Ent.Ross. 10: 32 (Hadschyabad [Golestan]); CHRISTOPH (1977), Horae Soc. Ent. Ross. 12: 205 (Schahkuh [Golestan]).

Chelis reticulata, DUBATOLOV (1988), Taxonomy of Animals of Siberia. Novosibirsk: 90-91 (Shahkuh; Gorgan [Golestan]).

Distribution: Russia (the North Caucasus), Georgia, Armenia, South Azerbaijan, including Nakhichevan, Turkey, Lebanon, South Turkmenistan (Kopetdagh Mts.) (DUBATOLOV, 1988, 1996). Iranian Provinces: Tehran, Golestan and, probably, Khorassan (fig. 33).

Material. **Tehran**: 4 ♂♂, Assara (36°05'N, 51°15'E), 40 km N Keredj, 27.VI.1971, S. B. K. GH.; **Golestan**: 2 ♀♀, Astrabad [=Gorgan] (ZIN); 1 ♂, Shakhkuh, 30.VI.1887 (HERZ, ZIN); 25 ♂♂, Park-e-Melli Golestan, Almehr, 1590 m, 6.V.1999, MOF./BAR./MAN.; 1600 m, 26-29.V.1986, PAZ.

Habitat: According to observations in the Kopet-Dagh Mountains, the species occurs in the mountain xerophytous belt within open *Juniperus* forests. The moths are flying from May till June, in one brood.

Rhyparia purpurata (LINNAEUS, 1758)

(colour plate 10, fig. 42-43)

Rhyparia purpurata, BAROU (1967), Entomol. et Phytopath. Appl. 26: 48 (Province Centrale: Karadj (?)); MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 177 (Tehran); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 200 (Tehran).

Distribution: Europe, Russia, Asia Minor, Transcaucasia, Syria, Kazakhstan, Kyrgyzstan, North China, Korea, Japan (DUBATOLOV, 1996). North Iran: East Azarbaijan, Guilan and Tehran Provinces (fig. 34).

Material: **East Azarbaijan**: 1 ♀, Kaleybar, Ghaleh Babak, 1500 m, 5.VII.1997, MOF./BAR.; **Guilan**: 6 ♂♂, 1 ♀, Eshkevar, Gilankachan (Rudsar, 37°05'N, 50°21'E), 1820 m, 27.VI.1997, BAR./MOF.

Habitat: The moths are flying from June till July, in one brood.

Spilosomini

Ocnogyna loewii (ZELLER, 1846)

(colour plate 10, fig. 44)

Distribution: North-East Africa, Rhodos Is. (Greece), Near East, Asia Minor, Armenia, Azerbaijan, Daghestan (Russia), North Iraq, Iran, South Turkmenistan, South-West Uzbekistan, South-West Tadzhikistan, North Afghanistan (DUBATOLOV, 1996).

Ocnogyna loewii armena STAUDINGER, 1871 (= ?*pallidior* CHRISTOPH, 1884)

Ocnogyna loewii, BAROU (1967), Entomol. et Phytopath. Appl. 26: 48 (Provenance non précisée); KALALI (1976), J. ent. Soc. Iran 3 (1/2): 132 (Mashad: Torogh); MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 176 (Generally distributed); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 200 (Generally distributed). *Ocnogyna armena pallidior*, DUBATOLOV (1996), Neue Ent. Nacht. 37: 63 (North Iran).

Distribution: Armenia, Azerbaijan, North Iraq, South Turkmenistan, South-West Uzbekistan, South-West Tadzhikistan, North Afghanistan. In Iran: Ardebil, Lorestan, Khuzestan, Chahar Mahaal & Bakhtiari, Tehran, North Khorassan, South of Fars, Bushehr (fig. 35).

Material: **Ardebil**: 1 ♂, Moghan, 3.XI.1968, ARGHAND; **Lorestan**: 2 ♂♂, Aligudarz, Gholikuh, Garshan, 1800 m, 29.-30.X.1990, MIRZ./BADII; **Khuzestan**: 1 ♂, Dezful, Safiabad, 80 m, 12.XI.1995, MIRZ./BADII; **Chahar Mahaal & Bakhtiari**: 1 ♂, [NE from Alkhorshir], 25.XII.1903 [not 1904 as on label! (ZARUDNYI, ZIN)]; **Tehran**: 1 ♂, Karaj, 18.XI.1970, KHEIRI; **Khorassan**: 1 ♂, Maksudabad [SE from Quchan], 8.X.1990, ZARUDNYI (ZIN); 1 ♂, Daregaz, Honarestan-e-Keshavarzi, NAZ.V.; 1 ♂ Mashad, Torogh, 3.XI.1971, ZARE; **Fars**: 380 ♂♂, Kezerun, Gavkoshak, L.T., 3.XII.1975, 17.-30.XI.1975, 17.-21.XI.1976, ABAL; 10 ♂♂, Shiraz, 19.XI.1976, ABAL, L.T.; **Bushehr**: 3 ♂♂, Borazjan, Tang-e-Faryab, 650 m, 30.XI.1996, BADII/EBRA./PARCH.; 3 ♂♂, Khormoj, 170 m, 5.XII.1996, EBRA./PARCH./BADII.

Habitat: According to observations in the Kopet-Dagh Mountains, the moths occur from semideserts in low mountains up to mountain xerophytous belt within open *Juniperus* forests. The moths are flying from middle September till November, and occasionally during the whole cold season till February of the next year. Sometimes the moths appear in late summer. The caterpillars live in large aggregates in a web nest on grass or herbs during February-April.

Watsonarctia deserta (BARTEL, 1902)

Distribution: Central and southern parts of Europe, Turkey, the Caucasus, North Kazakhstan, the mountains of Eastern Kazakhstan, China (Xinjiang), Mongolia, South Siberia east to Baikal (DUBATOLOV, 1996).

Watsonarctia deserta elbursica DUBATOLOV & ZAHIRI *subspec. nov.*

(colour plate 10, fig. 45-46, distribution map: fig. 36)

Material: Holotype ♂, Iran, Mazandran, Elburs Mts., Sefid-Ab, 36°40'N, 51°01'E, 360 m, 7.VII.1978, anonymous leg. Deposited in the Hyke Mirzayans Insect Museum. Paratype ♂, Iran, Mazandran, Elburs Mts., Siah-Bisheh, 36°13'N, 51°19'E, 2130 m, 10.VI.1966, anonymous leg.

Description: Wing expanse 30 mm. Wings pattern typical for the species; on forewings basal spot moderately large, medial band with a strong narrowing between veins Cu_2 and A, its width at costa is noticeably less than at the hind edge. Light band between costa and dark external margin considerably vary in width, including width of external prominence. Hindwings whitish-rose, with a wide grey band along external margin, broken between veins M_3 and Cu_1 .

The ♂ genitalia (fig. 8) of both specimens differ noticeably from each other by the shape of the valvae and sharpness of the saccus, nevertheless, both types fall within the infraspecific variation of the valva and saccus shapes.

According to the wing pattern, the new subspecies differs significantly from *W. d. karduchena* (DE FREINA, 1983) (colour plate 11, fig. 47), which has much more reddish hindwings in ♂. The hindwing coloration similar to *W. deserta deserta* (BARTEL, 1902) (= *sibirica* W. KOSHANTSCHIKOV, 1924) (colour plate 11, figs. 48-49) from steppes of Eurasia, however, the width of the medial band on forewings of the latter is the same on the fore and hind margins (also as in *W. d. karduchena* DE FREINA), while in the new subspecies the width on the hind margin is noticeably greater. Another subspecies from Asia, *W. d. centralasiae* (O. BANG-HAAS, 1927) (colour plate 11, fig. 50) from the East Tien Shan (within East Kazakhstan and Chinese Xinjiang) has the medial band with a less expressed central narrowing, so, the narrowest part of the band is wider than half of its width at the costal and hind margins.

Habitat. The moths are flying from June till early July.

Nebrarctia semiramis (STAUDINGER, 1891 [1892])

Distribution: East Turkey: Egin (type locality), Bitlis, Van, Häkkäri; Iran.

Nebrarctia semiramis semiramis (STAUDINGER, 1891 [1892])

(colour plate 11, fig. 51)

Lacydes semiramis elbursica, BRANDT (1939), Ent. Rdsch. 39 (1/2): 23-24 ([Fort Sine-Sefid, ca. 2200 m; gelegen an der Straße Chiraz-Kazeroun; Dorf Comèe mit dem Berge Barn-i-Firus (2600 bis 3750 m), gelegen im Gebiet des Kuh-i-Dinar, an der Straße Ardekan-Talochosroe]).

Lacydes semiramis brandti, DANIEL (1949) **syn. nov.**, Mitt. Münch. Ent. Ges. 35-39: 235 (Fars, Straße Chiraz-Kazeroun, Fort Sinesefid [=Fort Sine Sefid]; Fars, Straße Ardekan-Talochosroe, Comé).

Distribution: East Turkey: Egin (the type locality), Bitlis, Van, Hakkari; Iran: from West Azarbaijan to Balouchestan (fig. 37).

Material. **West Azarbaijan**: 2 ♂♂, 1 ♀, Khoy, 30 km from Ghotur, 1480 m, 19.VII.1976, PAZ./BROU.; 1 ♂, Rezaiyeh, Ghasemlu, 10.VI.1975, ABAI; 1 ♂, Rajan, 30 km SW Rezaiyeh, 1650 m, 24.VII.1976, PAZ./BROU.; **Chahar Mahaal & Bakhtiari**: 10 ♂♂, Ardal, Gandoman, Kuhe Kallar, 2750 m, 13.-14.VII.1982, BROU./PAZ.; 1 specimen, Gandoman, Sabzeh Kuh, 2500 m, 4.-5.VI.1989, MIRZ./BADII; **Kohkiluyeh & Buyer Ahmad**: 3 ♂♂, 1 ♀, 15 km SE Yassouj, 2050 m, 15.VI.1972, EBERT/PAZ.; 1 ♂, Kakan, Hoseynkhani (30°38'N, 51°48'E), 2100 m, 26.-27.V.1995, BADII/SAFZ./HASH.; **Lorestan**: 3 ♂♂, Osh.[torankukh] Kuh, N Kamandan, 2040 m, 22.-24.VI.1981, PAZ./BROU.; 1 ♀, Poledokhtar, Shahabad, 820 m, 4.V.1976, PAZ./BROU.; **Fars**: 1 ♀, Mamasani, Chahtut (30°02'N, 51 41'E, 2000 m), 1.-8.VI.1976, ABAI; 3 ♂♂, 1 ♀, 50 km NW Ardekan, Tangeh-Surkh, 2250 m, 16.VI.1972, EBERT/PAZUKI; **Kerman**: 7 ♂♂, Baft, Ghanat-e-Marvan, 2800 m, 23.V.1977, SAFAVI/PAZ./ABAI; **Balouchestan**: 2 ♂♂, Khash, Kousche, 2000 m., 21.V.1972, ABAI/EBERT.

Nebrarctia semiramis elbursi (DANIEL, 1937) (= *ninyas* F. WAGNER, 1937)

(colour plate 11, fig. 52)

Lacydes elbursi DANIEL, 1937, Mitt. Münch. Ent. Ges. 27: 37-3 (Persia s.; Elburs mts. s.; Tacht i Suleiman; Hecarcäl-Tal [Mazandran]).

Lacydes (Arctia) ninyas, WAGNER (1937), Z. Öst. Ent. Ver. Wien 22 (3): 22-23 (an der Ostflanke des Demavend, oberhalb der Ortschaft Rehne [Mazandran]).

Lacydes semiramis elbursi, DANIEL (1965), Z. Wien. Ent. Ges. **50**[76] (9/10): 126 (Derbend, 25 km N v. Teheran [Teheran]); BAROU (1967), Entomol. et Phytopath. Appl. **26**: 48 (Azarbaijan: Moghan); MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 176 (East Azarbaijan); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 199 (East Azarbaijan).

Lacydes semiramis, DANIEL (1949), Mitt. Münch. Ent. Ges. **35-39**: 235 (Elburs Gebirge (Persia s.), Tacht i Sulciman [Mazandran]).

Distribution: The subspecies is restricted to North Iran: Alburz Mts. (within provinces East Azarbaijan, Ardebil, Tehran, Qom and Mazandran).

Material: **East Azarbaijan**: 1 ♂, Mianeh, Bozghush, 2250 m, 29.-30.VII.1992, PARCH./BADII; **Ardebil**: 1 ♂, Moghan, 22.V.1961, MIRZ.; **Tehran**: 1 ♀, 6 Km E of Azadbr-Taleghan (36°08'N, 51°15'E), 2350 m, 21.VII.1988, MIRZ./BADII; 1 ♂, Elburs mts., Dizin, vic. Gajerah, 2600 m, 22.VII.1976, NAUMANN (ZMMU); 1 ♂, Sporthotel Dizin, 2800 m, 20.VI.1974, D. MÜTING (SZMN); 1 ♂ Dizin, 2400 m, VII.1974, WEISS (SZMN); 1 ♂, Dizin, östl. Gatchsar, 2400-2600 m, 28.VI.-11.VII.1975, HOFFMANN (SZMN); 2 ♂♂, Dizin, Velayat Rud, 2250 m, 28.VII.1994, EBRA.; 9 ♂♂, 1 ♀, Shemshak, 25.VII.1969, MIRZ./ABAI; 5 ♂♂, 1 ♀, Assara, 40 km N Keredj, 12.VI.1971, S.B.K.GH; 2 ♂♂, Evin (35°45'N, 51°26'E), L.T., 2.VI.1974; 1 ♂, Shahrestanak (35°57'N, 51°20'E), Cheshmeh-Kil-Kola, 2400 m, 20.VII.1988, MIRZ., BADII; 3 ♂♂, Karadj, Kandovan, Sarchal, 2800 m, 4.-8.VII.1977, PAZ./MORTAZAVIHA; 1 ♂, Karadj, Golha, 2050 m, 15.-16.VI.1992, EBRA./BADII; 2 ♂♂, Rudbar Ghasran, Garmabdar (35°59'N, 51°40'E), 2370 m, 28.-29.V.1991, EBRA./BADII; **Mazandran**: 13 ♂♂, Kelardasht, Vandarbon, 2100 m, 27.VI.1998, MOF.; 7 ♂♂, Baladeh, Yush, 2100 m, 26.VI.1998, MOF.; 2 ♂♂, Nur, Panjab, 1250 m, 18.VIII.1981, HASH.; 1 ♂, Chalus, Valiabad, VIII.1967, MOAYERI; 1 ♂, Amol, Rudbar, 1600 m, 20.VIII.1981, HASH.; **Qom**: 1 ♂, 8 km S Fordu, Wesb, 2320 m, 7.-8.VI.1984, PAZ./HASH.

Habitat: The moths are flying from middle June till late August, in one brood.

Cretonotos gangis (LINNAEUS, 1763)

(colour plate 12, fig. 53)

Cretonotos gangis, Mirzayans & Kalali (1970), Entomol. et Phytopath. Appl. **29**: 16 (Baloutchestan: Bampour); MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 176 (Balouchestan); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 199 (Balouchestan).

Distribution: Pakistan, India, Sri Lanka, Nepal, China, Japan (Kyusyu, Ryukyu), Indochina, Indonesia, North Australia. South Iran: Baloutchestan, Hormozgan, south regions of Kerman (fig. 38).

Material: **Kerman**: 2 ♂♂, Jiroft, 43 km North Kahnouh, 540 m, 16.V.1977, SAFAVI/PAZ.; 2 ♂♂, 1 ♀, Kahnouj, Dosary, 650 m, 10.IV.1997, BAR./BADII/SAFZ.; **Hormozgan**: 1 ♂, 21 km W Rudan Sarzc (26°25'N, 57°15'E), 200 m, 3.-4.III.1978, PAZ.; 1 ♂, 1 ♀, Sarzeh, Goldasht, 400 m, 13.IV.1994, EBRA./PARCH.; 1 ♂, Minab, 18.-22.V.1973, HASH./BROU.; 2 ♂, 23.IV.1971, SAF./ZAIRI; 1 ♂, the same locality, 5 m, 22.XI.1997, NAZ.V./BAR./MOF.; 2 ♂♂, Bandar Abbas, Siahu, 600 m, 10.-11.III.1995, SAFZ./BADII; 1 ♂, Siahu, Sikhoran, 830 m, 25.V.2001, MOF./EBRA./OSTEN; **Sistan &**

Baluchestan: 1 ♂, Ghasr-ghand, 450 m, 7.-8.XI.1991, MIRZ./BADII; 2 ♂♂, Bampur, 1961; 1 ♀, Rask, Cheraghan, 300 m, 11.-12.XII.1992, EBRA./BADII; 2 ♂♂, Nikshahr, Sahm, 490 m, 10.XI.1996, BAR./SAFZ./PARCH.; 1 ♂, Sarbaz, Sang-Masjed, 850 m, 17.XII.1992, BADII/EBRA.

Habitat: The moths are may flying during the whole warm season, in continuous broods, but all observations were made not in the hot season, from November till May.

***Creataloum arabicum* (HAMPSON, 1896) (=gracilis STAUDINGER, 1899)**

(colour plate 12, fig. 54)

Creatonotus arabica, Daniel (1961), Stutt. Beitr. Naturk. **53**: 2 (Makran, Chahbaharküste | Sistan & Baluchestan); MIRZAYANS & KALALI (1970), Entomol. et Phytopath. Appl. **29**: 16 (Abbassi: Minab); MODARRRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 176 (Hormozgan); MODARRRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 199 (Hormozgan).

Distribution: Palestina, Arabia, South Iraq; in Iran: Hormozgan, Sistan & Baluchestan on the Makran Coast (fig. 39).

Material: Hormozgan: 4 ♂♂, Dulab, Jazire Gheshm, 5.III.1999, GH./MAN.; 4 ♂♂, W Rudan Sarzeh, 200 m, 3.-4.III.1978, PAZ.; 21 km W Rudan Sarzeh, 200 m, 3.-4.III.1978, PAZ.; 16 ♂♂, 1 ♀, Jazireh Lavan (Is.), 16.-18.II.1999, MOF./BAR.; 21 ♂♂, 3 ♀♀, Jazireh Hengam (Is.), 10 m, 3.II.2001, EBRA./MOF.; 3 ♂♂, 3 ♀♀, Bandare Lengeh, Bostano, 25.II.1997, NAZ.V.; 3 ♂♂, Fariab (26°28'N, 57°15'E), 5.III.1972, MIRZ./BROU.; 2 ♂♂, Minab, 13.III.1971, AYAT./PAZ.; 6 ♂♂, Bandare Abbas, 12 km from Moghouyeh, 17.V.1975, TERME/IRANSHAHR; 1 ♂, Gohreh (27°43'N, 56°04'E), 9.III.1971, AYAT./PAZ.; 1 ♂, 5 km N Bandare Charak, 70 m, 24.IV.1977, PAZ./HASH.; 16 ♂♂, 3 ♀♀, Jazireh Larak (Is.), 23 m, 14.II.2000, EBRA./MOF.; 4 ♂♂, Geno, 300 m, 11.III.1999, MIRZ./BADII; 2 ♂♂, Geno, 450 m, 18.II.1997, NAZ.V.; 10 ♂♂, 8 ♀♀, Kamir, 60 m, 10.III.1991, MIRZ./BADII; 1 ♂, Kamir, 100 m, 4.III.1986, MIRZ./BROU.; 72 ♂♂, 14 ♀♀, Jazireh Farour (Is.), 0-20 m, 14.-15.II.1999, BAR./MOF./KAL.; **Sistan & Baluchestan:** 1 ♂, Sarbaz, Rask, 1.-2.IV.1973, BROU./SAF.; 1 ♀, Pishin, 150 m, 12.-13.II.1996, BADII/PARCH./ARDEH; 1 ♀, Tchabahar, Tiss, 2.III.1974, anonymous leg.; 2 ♂♂, Bender, Tchehbahar, 22.XII.1937, 18.I.1938, coll. BRANDT (ZIN).

Habitat: The moths are flying in the cool season, from December till May.

***Diaphora mendica* (CLERCK, 1759)**

(colour plate 12, fig. 55)

Distribution: Europe, Russia, east to Lake Baikal, Kazakhstan, Turkey, Transcaucasia, Syria, Lebanon (DUBATOLOV, 1996). First record from Iran: Guilan (fig. 40).

Material: Guilan: 3 ♂♂, Rascht, 7.-13.V.1973, SCHENASI.

Systematic notes: Specimens from Iran have a brown wing coloration and by the ♂ genitalia structure (fig. 9) have not significant distinctions from SE European, Siberian and Caucasian specimens.

Habitat: The moths are flying in May and probably in June, in one brood.

Eudiaphora turensis (ERSCHOFF, 1874)

Eudiaphora turensis kopetdaghica DUBATOLOV, 2004

(colour plate 12, fig. 56)

Diaphora turensis, KALALI (1976), J. Ent. Soc. Iran 3 (1/2): 132 (Mashad: Zoshk & Torogh); MODARRRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 176 (Khorasan); MODARRRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 199 (Khorasan).

Distribution: South and East Turkmenistan, Uzbekistan, Tadzhikistan, the mountains of Afghanistan, Kyrgyzstan (Chu and Ferghana valleys), South and East Kazakhstan, China (Xinjiang), South-West Mongolia (DUBATOLOV, 2004). North-East Iran: North Khorassan (Binaloud Mts.), Semnan (Elburs Mts., Shahkouh) (fig. 41).

Material: **Semnan**: 2 ♂♂, Shahroud, Shahkuh, Gandab, 2500 m, 1.VI.1982, HASH.; 10 ♂♂, Shahroud, Shahkouh, 2150 m, 15.VI.1974, RADJ./PAZ.; **Khorassan**: 1 ♂, 1 ♀, Zoshk, Binaloud, 2000 m, 19.VI.1974, RADJ./PAZ., 4.VI. 1971, KALALI; 2 ♂♂, Kopedagh, Allahakbar (37°20'N, 58°40'E), 2950 m, 16.VI.1974, RADJ./PAZ.

Systematic notes: DUBATOLOV (2004) published a taxonomic structure of this species. Among the morphologically distinct subspecies, *E. t. kopetdaghica* DUBATOLOV, 2004 was described from the Kopetdagh Mts. in Southern Turkmenistan, close to the border with Iran. The specimens from Iran have the ♂ genitalia, similar to this subspecies, they have the valvae gradually narrowing towards the apex, without an abrupt contraction in its apical part.

Habitat: According to observations in the Kopet-Dagh Mountains, the moths occur from gorges in low mountains up to the mountain xerophytous belt of open *Juniperus* forests. The moths are flying from late April till early July.

Spilosoma urticae (ESPER, 1789)

(colour plate 12, fig. 57)

Spilosoma urticae mandli, DANIEL, 1965, Z. Wien. Ent. Ges. 50 [76] (9/10): 125 (7 km S v. Chalus [Mazandran]).

Diacrisia urticae, BAROU (1967), Entomol. et Phytopath. Appl. 26: 48 (Azarbaijan: Moghan); MODARRRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 176 (East Azarbaijan); MODARRRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 199 (East Azarbaijan).

Distribution: Europe, South Russia, Transcaucasia, Kazakhstan, Uzbekistan, Kyrgyzstan (the Ferghana valley), China (Xinjiang, Sichuan, Jiangsu, Shanghai) (DUBATOLOV, 1996); in North Iran: East Azarbaijan, Ardebil, Guilan, Mazandaran, Tehran, Golestan (fig. 42).

Material: **Ardebil**: 4 ♂♂, 1 ♀, Moghan, 13.IX.1968, 18.IX.1969, Arghand, 10.V.1967, Damanali; 2 ♀♀, Sarband, 23.V.1961, MIRZ.; **Guilan**: 13 ♀♀, Assalem, Parihshahr, 14.V.1977, ABAI; 1 ♀, 24.VIII.1977, ABAI; 8 ♂♂, 3 ♀♀, Rasht, 30.V.1972; 7-13.V.1972; VIII.1971; 20.XI.1971, SHENASI; 19 ♀♀, Rasht, Sefidrud, 15-21.V.1973, SHENASI; 1 ♂, 15 km from Hashtpar, 31.VIII.1975, MIRZ.; 2 ♂♂, Rezvan Shahr, Shanderman, Nahalestan (37°25'N, 49°08'E), 16.V.1977, ABAI; 1 ♂, Assalem, Sheikmahal, 160 m, 28.-30.VI.1977, PAZ./MORTAZAVIHA; **Tehran**: 1 ♂, Karadj, 17.VII.1971.

L.m.; **Mazandran**: 5 ♂♂, Nur, Chalandar, 12.IX.1983; 9 ♂♂, 6 km from Nur, Rostamrud, 8.VIII.1980, PAZ./BROU.; 1 ♂, Babolsar, Kaleh, 19.-21.VI.1989, PAZ.; 7 ♂♂, Amol, Zarak, 27.VII.1980, PAZ.; 2 ♂♂, 1 ♀, Tonekabon, 3 km W Shirud, 26.IX.1981, PAZ.; 1 ♂, Shahsavar, 20.VIII.1973, ABAI; 1 ♂, Kandovan, 21.IX.1974, ABAI/BEHBA.; 2 ♂♂, Tonekabon Laboratory, V.-VIII.1983, RUDSARI; 1 ♂, Pass, Nowshahr, Alamdeh, unknown date, anonymous leg.; 1 specimen, Shahsavar Lab., 10.-11.VIII.1980, PAZ./BROU.; **Golestan**: 2 ♂♂, Park-e-Melli Golestan, Jangal-e-Golestan, Mazarli, 530 m, 19.-20.VI.1977, PAZ./ABAI; 2 ♂♂, 2 ♀♀, Gorgan Lab, L.T., VI.1974, anonymous leg.

Systematic notes: The species differs from the sibling *S. lubricipedum* (LINNAEUS, 1758) and *Hyphantria cunea* (DRURY, 1773) by short antennae branches in ♂♂ (figs. 10-12), and by the ♂ genitalia structure (figs 13-15).

Habitat: The moths are flying during the whole warm season, from May till September, probably in several broods.

Hyphantria cunea (DRURY, 1773)

(colour plate 12, fig. 58)

ABAI (2002), News Ent. Soc. Iran 14: 1 ([Lasht-Nesha and road from Rezvan-Shahr to Astara in Guilan province]).

Distribution: The original species range occupies North America, from Canada to Mexico. In 1940 it was invaded to Hungary and started to expand. Now it occurs throughout Europe east to the Volga River, in northern Turkey, Georgia, Azerbaijan, and recently penetrated into Middle Asian countries, to Turkmenistan, Kyrgyzstan and Kazakhstan. In East Asia, it occurs in Japan, North-Eastern China, and South Mongolia. First record from Iran: Guilan (fig. 43).

Material: **Guilan**: 2 ♂♂, Talesh, 10.VII.2003, ABAI leg.

Systematic notes: Although this species differs significantly by the ♂ genitalia from all the tiger moths with white wings (fig. 16-18), the identification of the imago remains somewhat difficult. From the only species from Iran with such a type of pattern, *S. urticae* Esp., it differs significantly by longer antenna branches (fig. 10-12).

Phragmatobia fuliginosa (LINNAEUS, 1758)

Distribution: Europe, North-West Africa, North Asia east to Transbaikalia, Magadan and Kamchatka, the East Mediterranean, Turkey, Caucasus, North Iraq, North Iran, Afghanistan, Central Asia, Kazakhstan, West China, Mongolia, Canada, USA (DUBATOLOV, 1996).

Phragmatobia fuliginosa paghmani LÉNEK, 1966

(colour plate 12, fig. 59)

Phragmatobia fuliginosa, DANIEL (1965), Z. Wien. Ent. Ges. 50[76] (9/10): 124 (7 km S v. Chalus [Mazandran]); KALALI (1976), J. Ent. Soc. Iran 3 (1/2): 132 (Mashad: Torogh); BAROU (1967), Entomol. et Phytopath. Appl. 26: 48 (Gorgan: Gorgan ... Mazandaran; Sari ... Guilan: Assalem); MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 177 (East Azarbaijan, Khorasan, Gilan, Mazandaran, Gorgan); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 200 (East Azarbaijan, Khorasan, Gilan, Mazandaran, Gorgan).

Distribution. Azerbaijan, North Iraq, Middle Asia, Afghanistan, China (West Xinjiang). In Iran: from West Azarbaijan through North Iran to Khorasan, south to Fars (fig. 44).

Material: **West Azarbaijan**: 6 specimens, Khoys, 30 km Ghotur, 1480 m, 19.VII.1976, PAZ./BROU.; 1 specimen, Rezaiyeh, Ghasemlu, 1440 m, 24.VII.1976, PAZ./BROU.; **East Azarbaijan**: 2 ♂♂, Ahar, Harand, 1000 m, 3.VIII.1992, PARCH./BADII; **Guilan**: 4 ♂♂, 5 km East of Bandar Pahlavi, Anzali, 28.IX.1970, EBERT/ABAI; 1 ♂, Rasht, 30.V.1972, SCHENASI; 4 ♂♂, Sefidrud, 20.X.1973, SCHENASI; 2 ♂♂, 2 ♀♀, Rasht, 0 m, 17.VI.2001, GH.; 5 ♂♂, Rasht, Sefidrud, 15-21.V.1973, SCHENASI; 1 ♀, 21.VII.1973, SCHENASI; 1 ♀, Rasht, 0 m, 29.VIII.2001, MANZ./MOF.; 2 ♂♂, Assaleh, 27.IX.1970, EBERT/ABAI; 1 ♂, Asslem, 18.VII.1982, ABAI; 2 ♂♂, Sheikhmahal, 160 m, 26.-30.VI.1977, PAZ./MORTAZ.; 1 ♂, NW from Rezvan Shahr, Parehsar (38°08'N, 49°05'E), 14.V.1977, ABAI; 2 ♂♂, 1 ♀, 11.V.1967, ABAI; 3 ♂♂, Astara, Fandoghposhteh, 726 m, 18.VI.2001, GH.; 1 ♂, 3 ♀♀, Astara, Km 5 of the Ardebil Road, 100 m, 26.V.1997, SAFZ./BADII/NAZ.V.; 3 ♂♂, 1 ♀, Rezvan Shahr, Shanderman, Nahalestan (37°25'N, 49°08'E), 16.V.1971, ABAI; 1 ♂, Hashtpar, Bek (37°48'N, 48°54'E), 5 km from Hashtpar, 570 m, 31.VIII.1975, MIRZ.; **Mazandran**: 1 ♂, 1 ♀, Kelardasht, 20.VIII.1976, ZAIRI; 1 ♀, Kelardasht, 7.VII.1969, ZAIRI; 2 ♂♂, Kelardasht, Marzanabad, 17.VII.1976, ZAIRI; 1 ♂, Kelardasht, Rudbarak, 1500 m, 25.VII.1980, HASH./ZAIRI; 1 specimen, Kandovan, 2600 m, 3.-4.VII.1995, SAFZ./LINNA./BADII; 50 specimens, Sari, Kordekheil, 45 m, 5.V.2000, BADII/EBRA./MOGH./MOF.; Sari, 0 m, 23.VI.1995, MIRZ./SAFZ./BADII; Sari, 19.VI.1966, KALALI; 1 specimen, Ramsar, Javaherdeh, Dormod, 1100 m, 10.VII.2000, BAR./EBRA./MOF./DEUVE; 1 specimen, 15 km from Tchalus, 220 m, 2.IX.1975, Mirz.; 1 specimen, Tonekabon, Dohezar, 425 m, 11.X.1995, REZ./BADII/EBRA.; 1 specimen, Tonekabon, Abbasabad Mt., 18.VII.1960, HASH./ZAIRI; 1 specimen, Tonekabon, 30.IX.1981, PAZ.; 1 specimen, Tonekabon Hght., 250 m, 22.VII.1980, HASH./ZAIRI; 1 specimen, Shabsavar, 20.VIII.1973, ABAI; 1 specimen, Schabsavar, 6.VIII.1971, GHAZIOFF; L.T., 25.VIII.1971, anonymous leg.; 16.-25.IX.1971, MOSTOFOPIUR; 1 specimen, Shabsavar Lab., 10.-11.III.1980, PAZ./BROU.; **Golestan**: 1 ♂, Golestan Forest, 100 m, 3.-6.V.1993, PAZ./BROU.; 1 ♂, Golestan, Tange-Gol, 14.-15.VII.1985, PAZ.; 1 ♂, Ramian, Gorgan, 10.VI.1968, CH.; 4 ♂♂ Park-e-Melli Golestan, Jangal-e-Golestan, Mazarli, 530 m, 19.-20.VI.1977, PAZ./ABAI; 1 specimen, Astrabad (now Gorgan) (ZIN); **Semnan**: 1 ♀, Schahkuh, 1.VII.1887, HERZ (ZIN); **Khorassan**: 1 specimen, Siaret [north from Shirvan], HERZ (ZIN); 2 specimens, Mashad, Torogh, 7.VIII.1969, SHAHROKHI; **Tehran**: 2 specimens, Taleghan, 26.-31.VII.1976, KAVIAN; 4 specimens, Damavand, Absard, 1900 m, 3.-7.VII.1978, PAZ./SABZ.; 27 specimens, Karadj, Shahdasht, 9.IV.1975, 13.-20.VI., 21.-27.VI., 8.-21.VIII.1976, RADJ.; 11 specimens, the same locality, L.T., 15., 24. & 29.IV.1976, 14.V., 24.V.-4.VI.1976, RADJ.; 3 specimens, Karadj, Malard, 20.IV.1974, 18.VIII.1971, SABZ.; 1 specimen, Firuzkuh, Zarindasht, 1980 m, 21.VIII.1984, MIRZ./BROU.; 2 specimens, Karadj, L.T., 20.IV.1972, anonymous leg.; 1 specimen, Karadj, 21.IV.1971, HODJAT; 1 specimen, Karadj, Shahdasht, 13.-20.VI.1976; 2 specimens, Shahriar (35°40'N, 51°05'E), L.T., 25.VIII.1971, anonymous leg.; 1 specimen, Evin (35°45'N, 51°26'E), L.T., 27.II.1967, anonymous leg.; **Kordestan**: 1 specimen, 83 km S Baneh, 1750 m, 5.-6.VII.1975, PAZ.; **Kermanshah**: 1 specimen, Dalahu, Ridjab (34°30'N, 46°E), 1050 m, 16.VIII.1996, PARCH./BAR./NAZ.V.; 1 specimen, Shahabad, Tcharzar, 1600 m, 1.VII.1972, MIRZ./ABAI; **Fars**: 1 specimen, Sepidan, Kumeher, Margon, 2100 m, 19.-22.VIII.2002, BADII/MOGH./MOF.; 1 specimen, Firuzabad, Mahkuyey-Olia, 1950 m, 10.-11.V.1986, MIRZ./HASH.; 1 specimen, Kezeroun, Noudan, 1100 m, 13.IX.1974, PAZ./HASCHEMI.

Habitat: The species prefers various open biotopes; it is common within ruderal biotopes also. The moths are flying during the whole warm season, from April till October, in several broods.

Phragmatobia placida (FRIVALDSZKY, 1835)

(colour plate 12, fig. 60)

Phragmatobia placida, DANIEL (1965), Z. Wien. Ent. Ges. 50[76] (9/10): 124-125 (7 km S v. Chalus; Derbend, 25 km N v. Teheran [Mazandran, Tehran]); BAROU (1967), Entomol. et Phytopath. Appl. 26: 48 (Province Centrale: Karadj); MODARRES AWAL (1994), List Agric. Pests and Their Natural Enemies in Iran: 177 (Tehran); MODARRES AWAL (1997), List Agric. Pests and Their Natural Enemies in Iran. Ed. 2: 200 (Tehran).

Distribution: Balkan Peninsula, South Crimea (Ukraine), Armenia, Turkey, Syria, Palestina, North Iraq (DUBATOLOV, 1996), North Iran: East Azarbaijan, Teheran, Mazandran (fig. 45).

Material: **East Azarbaijan**: 1 ♂, Tabriz, Gharah-choman, 1100 m, 23.VI.1985, MIRZ./PAZ.; **Tehran**: 4 ♂♂, Azadbar, Karadj (36°08'N, 51°15'E), 2400 m, 7.-9.V.1995; 2 ♂♂, Karaj, Arangeh, Saziarat, 1750 m, 10.-11.VII.1996; 6 ♂♂, Elburs Mts., Gachsar, 6 km W Azadbar (36°08'N, 51°14'E), 2635 m, 2.VI.2005, FIBIGER, ZAHIRI leg.; **Mazandran**: 1 ♂, Kandovan, 2600 m, 3.-4.VII.1995, SAEZ./BADII/LINNA.

Habitat. The moths are flying from May till July, on alpine meadows.

Phragmatobia placida mirzayansi DUBATOLOV & ZAHIRI **subspec. nov.**

(colour plate 12, fig. 61)

Material: Holotype ♂, Tehran, Karaj, Shahrestanak, Sarak, 2100 m, 31.V.1991, EBRAHIMI & BADII leg. Deposited in the Hyke Mirzayans Insect Museum. Paratypes: **Tehran**: 1 ♂, Dizin, Velayatrud, 2250 m, 30.V.1991, EBRA./BADII; 2 ♂♂, Karaj, Shahrestanak, Sarak, 2100 m, 31.V.1991, EBRA./BADII; 2 ♂♂, Rudbar-e-Ghasran, Garmabad, 2370 m, 28.-29.V.1991, EBRA./BADII.

Description: Wing expanse 43 mm. Forewings light brown with two black dots at both ends of discal vein and with a less visible very light rose dot which touches hind side of fore black dot. Often there is a very short submarginal longitudinal line at vein M_2 . Hindwing whitish with a very light rose tint, four submarginal spots on hindwing narrow, at least three times longer than wide, while in *Ph. fuliginosa* L. specimens these spots are more robust, at least twice longer than wide; in the nominotypical *Ph. placida* FRIV. such spots also elongate, but less than in the new subspecies. There are also two black dots at both ends of the discal vein. Body brown, abdomen dark brown, dorsally with two red longitudinal stripes contrasting with pale hindwings.

♂ genitalia (fig. 16). Both hitherto known *Ph. placida* FRIV. subspecies (figs. 16-17) have nearly straight valvae with broader triangular spines on both sides of valva, while in *Ph. fuliginosa paghmeni* LÉNEK the valvae are more or less curved (fig. 18), the spines are narrower than in *Ph. placida* FRIV.

Notes.: Although the pale specimens of the new subspecies look like an aberration of *Ph. fuliginosa* L., there is a well noticeable character which could separate it from the latter. In addition to the pale wing coloration, the submarginal spots on the hindwings are much narrower

than in any specimens of the former subspecies. The abdomen colouration of the new subspecies is characteristic for the species, it is dark with two red longitudinal stripes, but in the nominotypical subspecies it is not contrasting to the rose hindwings. In all *Ph. fuliginosa* L. subspecies, the abdomen is red with narrow black stripes, not contrasting with the hindwing colouration.

Habitat: The new subspecies mostly occurs in upper belts of the Alburz Mts., while the nominotypical subspecies prefer lower biotopes.

It should be noted, that several species could also be found in Iran. The European-Siberian *Spiris striata* (LINNAEUS, 1958) is known from the Talysh Mts. in Azerbaijan, 9 km from the Iranian border. The European-Central Asian-Siberian *Tyria jacobaeae* (LINNAEUS, 1758) is known from Lishk in South-Eastern Armenia (ROMANOFF, 1884), 20 km from the border with Iran, and in the Hakkari Province of Turkey (DE FREINA, 1983), less than 50 km from the border with Iran; in Azerbaijan it is known only from Gyandzha and Istissu (ZIN collection). These two species will be collected in North-Western Iran without any doubt. The European-Central Asian-Siberian *Diacrisia sannio* (LINNAEUS, 1758) was recorded also from Gyandzha suburbs (Khanlar) and Istissu in Azerbaijan (ROMANOFF, 1884), Darachichag in Eastern Armenia (Zoological Museum of the Kiev State University, Ukraine), the Transpalearctic *Spilosoma lubricipedum* (LINNAEUS, 1758) is known from the Zangezur Mts. in Armenia and Gyandzha and Khanlar in Azerbaijan, *Ocnogyna anatolica* WITT, 1980, is known from Erzurum, Tunceli, Bingol and Agri Provinces in Turkey, and the Transpalearctic *Epatolmis caesarea* (GOEZE, 1781), is known from Gyandzha in Azerbaijan (Zoological Museum of the Kiev State University, Ukraine). These species also might occur in North-West Iran.

Faunistical analysis

The areas of North-Western Iran and the Alburz (=Elburz) Mts. are characterized by the presence of West Palearctic nemoral species, like *Callimorpha dominula* L., *Euplagia quadripunctaria* PODA, *Parasemia plantaginis* L., *Watsonarctia deserta* BART., two Transpalearctic species (*Arctia caja* L., *Rhyparia purpurata* L.) and an introduced North American pest species, *Hyphantria cunea* DRURY. The Arctiinae fauna of North-Western Iran includes also some Caucasian (*Callimorpha dominula rossica* KOL.) and East Mediterranean (*Cymbalophora rivularis* MÉN., *Phragmatobia placida* FRIV.) elements. All these species do not penetrate to the southern direction into Zagros Mts. and only occasionally (like *Euplagia quadripunctaria* PODA) penetrates to the eastern direction into the Turkmen-Khorassan Mts., including Kopet-Dagh. The Arctiinae fauna of the latter includes some trans-Turanian species also, like *Eudiaphora turensis* ERSCH. and the only endemic species, *Ebertarctia nordstroemi* BRANDT. The fauna of the Zagros Mts. looks like an impoverished Transcaucasian fauna and is characterized by the presence of some common endemics, like *Euplagia splendidior* TAMS, *Axiopoena karelini* MÉN., and the East Turkish-Iranian endemic species, *Nebrarctia semiramis* STGR. The Arctiinae fauna of Central Iran is very poor and consists of only nearly the Trans-Old World *Utetheisa pulchella* L., and few xerophile species, like a Sub-Transpalearctic *Eucharia festiva* HFN., a Transturanian *Lacydes spectabilis* TAUSCH., and the endemic of the whole Iranian highland, *Axiopoena maura* EICHW. Contrary, the fauna of the southern regions of Iran consists of two variants: while on the plains of Khuzestan and Busher coast the only Trans-Old World species, *Utetheisa pulchella* L. occurs, the Arctiinae

fauna of the Hormuz Strait and the Oman Gulf consists mainly of the Paletropical (*Utetheisa lotrix* Cr., *Argina astrea* DRURY) and Oriental (*Cretonotos gangis* L.) species, which are aliens to the Palearctic fauna.

For an analysis of the faunistic distribution of the tiger-moth species within the territory of Iran, it was divided into 18 parts, which are shown on Fig. 46. This division was taken mainly from PETROV (1955). We made few changes: the Araxes River valley was isolated into a different territory (because at least one species, *Euplagia quadripunctaria* PODA is restricted in Iran to this territory); Golestan was separated from the Caspian wet forest region, the southern coast was divided into three parts: the coast of Bushehr and the coast of the Gulf of Oman, the Strait of Hormuz (several species occur in the latter territory, but not reach the Bushehr coast) and large islands of the Strait of Hormuz. All other regions correspond to the regions by PETROV (Fig. 47). Allocation of the tiger-moth species within these regions is shown on Table 1. Two more species, *Tyria jacobaeae* L. and *Spiris striata* L. were added to this table for North-West Iran, because they should occur there without any doubt. For a comparison, we add also a territory of the middle and low flow of the Indus River, as a territory with the perfect Oriental Arctiinae fauna. Unfortunately, we only extrapolate this fauna, because these are no up-to-date data on the Arctiinae fauna of Pakistan. We based on monographs of Hampson [1894, 1901], to his exact locality citation and phrase like "throughout India". Among the latter species, we declined all *Nyctemera*, *Olepa* species because they were not recorded for the Pakistan fauna in modern reviews (ORHANT, 1986, DE VOS & CERNÝ, 1999). Some essential informations about the Arctiinae species occurrence in Pakistan was taken from THOMAS (1984) and KAMALUDDIN (1997).

Table 1

Distribution of Arctiinae species in Iran and the River Indus valley

Abbreviation of the region*	NNW	NW	C	G	E	NE	TS	Z	ZF	NZK	NTQ	KR	SKh	NB	Hmt	Bmt	KzB	Oc	I	Ind
<i>Callimorpha dominula</i> L.	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Euplagia quadripunctaria</i> Poda	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Euplagia splendidior</i> Tams	1	1	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0
<i>Cymbelophora rivularis</i> Mén.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Axiopoena maura</i> Eichw.	0	0	0	1	0	1	1	0	0	0	1	1	1	1	1	1	0	0	0	0
<i>Axiopoena karelini</i> Mén.	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
<i>Tyria jacobaeae</i> L.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Spiris striata</i> L.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lacydes spectabilis</i> Tausch.	1	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0
<i>Utetheisa pulchella</i> L.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
<i>Utetheisa pulchelloides</i> Hmps.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

<i>Utetheisa loifrix</i> Cr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
<i>Argina aestrea</i> Drury	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
<i>Parasemia plantaginifis</i> L.	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Arctia caja</i> L.	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Epicalia villicca</i> L.	1	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0
<i>Eucharia festiva</i> Hfn.	1	1	0	0	1	1	0	1	1	1	1	1	0	0	1	0	0	1	0	0	0
<i>Ebertarctia nordstroemi</i> Brandt	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Chelis reticulata</i> Chr.	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Rhypania purpureta</i> L.	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ocnogyna loewii</i> Z.	1	1	0	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0
<i>Watsonarctia deserte</i> Barl.	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paramisacta moorei</i> Btl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Aloa factinea</i> Cr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Nebreactia semiramis</i> Stgr.	1	1	1	0	1	0	0	1	1	1	0	1	0	1	0	1	0	0	0	0	0
<i>Cretonolus gangis</i> L.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
<i>Cretonolus transiens</i> Wlk.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Creataloum arabicum</i> Hmps.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0
<i>Diaphora mendica</i> L.	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Eudiaphora turensis</i> Ersch.	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Spilosoma urticae</i> Esp.	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hyphantria cunea</i> Drury	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Phragmatobia fuliginosa</i> L.	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
<i>Phragmatobia plecida</i> Friv.	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Spharactia obliqua</i> Wlk.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Ameria astrous</i> Cr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total number of species	16	17	13	11	15	11	4	8	9	6	4	5	2	3	3	5	1	6	5	9	

* Geographical territories are abbreviated as: NNW – north part of the North-West Iran, the Araxes River basin; NW – North-West Iran, excluding the Araxes River basin; C – the Caspian wet forest region; G – Golestan; F – southern macroslope of the Alburz (=Elburz) Mts.; NE – the Turkmen-Khorasan mountains; TS – the Turkmen-Sakhra Transcaspiian Plain and other plains of North-East Iran; Z – South-West Iran mountain region, mainly Zagros Mts., excluding the part in Fars; ZF – Zagros Mts. in Fars; NZK – North Iran provinces Zanjan and Qazvin; NTQ – North Iranian high plains, mainly Dasht-e-Kavir within the provinces of Tehran, Qom, Semnan, Esfahan; KR – the Central Iranian mountains, mainly Kuhrud Mts.; SKh – the mountains of Southern Khorassan; NB – the mountains of Northern Baluchestan; Hmt – the mountains of Hormozgan; Bmt – the mountains of Southern Baluchestan; KzB – the plains of Khuzestan and the coast of Bushehr; Oc – the coast of the Strait of Hormuz and the Gulf of Oman; I – the islands of the Strait of Hormuz; Ind – the middle and low part of the Indus River valley.

Fig. 48

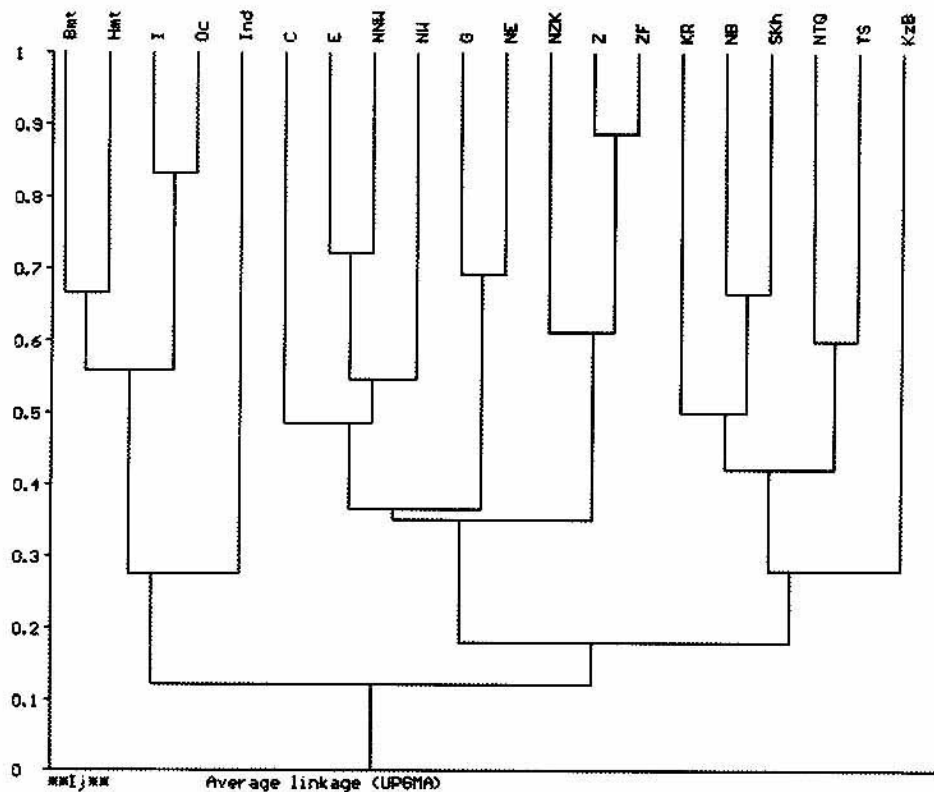


Fig 48: A dendrogramme of faunistic affinities of the Iranian areas and the river Indus valley. Abbreviations as in table 1; areas correspond to the map on Fig. 46.

The Arctiinae faunas of these studied regions were compared with the help of the JACCARD coefficient. A dendrogramme of the faunistic affinities was created by the UPGMA method and shown on fig. 48. It is clearly visible that the Iran territory is occupied by three main faunistic types: a rich Palearctic fauna (8-20 species) of western, northern and central regions, a very poor Palearctic fauna (1-4 species) of central and eastern desert and mountain regions, plains of Turkman-Sakhra (along the East Caspian coast), Khuzestan and the Busher coast, and a poor fauna (3-6 species) with predominance of the Palearctic (*Utetheisa lotrix* Cr., *Argina astrea* DRURY) and Oriental species (*Creatonotos gangis* L.) of south and south-eastern regions; the latter fall into the same branch with the Oriental fauna of the Indus River valley. Among the species list of the territory of Central-South and South-East Iran, there are only two true Palearctic species, *Axiopoena maura* EICHW. and *Eucharia festiva* HFN. but they occur only sporadically in mountains. All other species from this territory are distributed widely not in the Palearctic, but mainly in the Oriental and Afrotropical Regions. So, we propose to consider the territory of Central-South and South-Eastern Iran as a distinct zoogeographical province not of the Palearctic but of the Oriental Region, and give it the name: the Makran Zoogeographical Province. The border between the Palearctic and Oriental faunas in Iran is shown on Fig. 49.

The rest of the Palearctic territory of West and North Iran is inhabited by four faunistic types, a very rich fauna of the Transcaucasian type (16-17 species) of the north-western provinces, a rich fauna of the Caspian coast (13 species) with the presence of some forest species (*Callimorpha dominula* L., *Hyphantria cunea* DRURY), a rich fauna of the north-eastern regions with some species of the Kopetdagh-Binalud Mts. (like a Turanian *Eudiaphora turensis* ERSCH. and an endemic *Ebertartia nordstroemi* BRANDT) that do not occur in other regions of Iran, and an impoverished fauna (8-9 species) of the Transcaucasian type of the Zagros Mts. and neighbouring regions.

This zoogeographical pattern differs noticeably from that based on Rodentia (Mammalia) and published by NERONOV (1976). He analyzed 9 "zoological areas" that were recognized by N. Zarudnyi (Sarudny, 1911): South Caspian (along the coast), Khorassan, North-Western, Zagros, Central Iranian, Sistan, Balouchestan, South Coastal (along the Persian Gulf and the Gulf of Oman) and Mesopotamic. A dendrogramme of the Rodentia faunistic affinities, which was created also by the UPGMA method, shows two main differences from our one. First, the Rodentia fauna of the Zagros Mts. is very similar with that of North-Western Iran; most probably this is a characteristic feature of Rodentia distribution. And the most striking difference is, that the Rodentia fauna of the Balouchestan "zoological area" did not show noticeable particularity and was stalked on the dendrogramme with the Central Iranian branch. But the latter might be only an artifact of the UPGMA method, because after removing the Arctiinae fauna of the Indus River valley, our dendrogramme now showed much more similarities with those by NERONOV, and the Oriental Arctiinae fauna of South-East Iran is stalked with the Palearctic Central Iranian one, because both faunas are distinctly impoverished if compared with those of North and West Iran.

Acknowledgements: The authors are very grateful to the following colleagues, who enabled us to work with different museum collections: Dr. A. L. LVOVSKY and Dr. A. MATOV, Zoological Institute, St.-Petersburg, Russia, Drs. E. A. ANTONOVA and A. V. SVIRIDOV, Moscow State

University, Dr. L. RONKAY, Termesztudományi Múzeum, Állattara, Budapest, Hungary, and Dr. BERT GUSTAFSSON (Natural History Riksmuseet, Stockholm, Sweden) for the loan of the very important *Ebertarctia nordstroemi* BRANDT specimens. Many thanks to Dr. D. V. LOGUNOV (Manchester, England), Prof. J. MODOLELL (Spain) and Mr. J. GRIESHUBER (Germany) for essential help to obtain important literature, to Prof. YU. S. RAVKIN and Prof. M. G. SERGEEV (Novosibirsk, Russia) – for useful discussion, to Dr. O. KOSTERIN (Novosibirsk, Russia) – for correcting the English language of the article. We would also like to thank Mrs H. ALIPANAH (ITRD, Iran) for her useful comments on *Watsonarctia deserta elbursica* **subspec. nov.**

References

- ABAI, M. (2002): A new record of quarantine pest, *Huphantria cunea* DRURY, from Guilan province. – *News Ent. Soc. Iran* **14**: 1, Theran (In Farsi).
- BANG-HAAS, O. (1927): *Horae Macrolepidopterologie regionis palaearticae* 1: I-XXVIII, 1-128, 10 Pl. - Verlag O. Staudinger & A. Bang-Haas, Dresden-Blasewitz.
- BAROU, P. J. (1967): Contribution à la connaissance la faune des Lépidopteres de l'Iran. – *Entomologie et Phytopathologie Appliquées* **26**: 41-58, Tehran.
- BARTEL, M. (1902): Lepidopteren des südlichen Urals, gesammelt von Herrn JULIUS TIEF. – *Dt. Ent. Z. Iris* **15**: 181-230, Dresden.
- BARTEL, M. (1906): *Callimorpha philippsi*, eine neue Art aus Zentral-Asien. – *Soc. Ent.* **21** (6): 41-42, Stuttgart.
- BIENERT, T. (1871): Lepidopterologische Ergebnisse einer Reise in Persien in den Jahren 1858 und 1859. – Leipzig.
- BRANDT, W. (1939): Beiträge zur Lepidopteren-Fauna von Iran. Neue Gattungen, Arten und Formen (Macrolepidoptera). – *Ent. Rdsch.* **56**: 12-15, 23-24, 32-34, 51-61, 139-142, Stuttgart.
- BRANDT, W. (1947): A new *Ocnogyna* species from N. E. Iran (Lepidoptera: Arctiidae.). – *Entomologisk Tidskrift* **68**: 90, 1 Foto, Stockholm.
- CERF, F. LE (1913): Contribution à la faune lépidoptérologique de la Perse. – *Ann. Hist. Nat. Délégation en Perse* 2 entom., fasc. 2: 12+85 p., t. 1-2, 1 map.
- CHRISTOPH, H. (1873): Weiterer Beitrag zum Verzeichnisse der in Nord-Persien einheimischen Schmetterlinge. – *Horae Soc. Ent. Ross.* **10**: 3-55, Moscow.
- CHRISTOPH, H. (1877): Sammelergebnisse aus Nordpersien, Krasnowodsk in Turkmenien und dem Daghestan. – *Horae Soc. Ent. Ross.* **12**: 181-299, T. 5-8, Moscow.
- CHRISTOPH, H. (1887a): Diagnosen neuer Lepidopteren aus Tekke. – *Stett. Ent. Z.* **48**: 162-167, Stettin.
- CHRISTOPH, H. (1887b): In N. M. ROMANOFF, Lepidoptera aus dem Achal-Tekke-Gebiete. Dritter Theil. – *Mém. Lépid.* **3**: 50-125, T. 3-5, M. M. Stassulévitch, St.-Pétersbourg.
- CLERCK, C. (1759): *Icones Insectorum Rariorum cum nominibus eorum trivialibus, locisque e C. LINNAEI Arch. R. et Eqv. Aur. Syst. Nat. allegatis.* – *Holmiae*, 99 p., 98 pl.
- CRAMER, P. (1779): *De Uitlandsche Kapellen voorkomende in de drie Waereld-Deelen Asia, Africa en America* 2, 151 pp., CXCII t. - Amsterdam & Utrecht
- DANIEL, F. (1937): *Lacydes elbursi* sp. n. – *Mitt. Münch. Ent. Ges.* **27**: 37-38, München.
- DANIEL, F. (1939): Gedanken zu einigen Arctiiden-Formen (Lep.). – *Mitt. Münch. Ent. Ges.* **29**:

354-368, München.

- DANIEL, F. (1949) Neue palaearktische Heterocera (Lep.). – Mitt. Münch. Ent. Ges. 35-39: 235-241, Taf. 8, München.
- DANIEL, F. (1961): Die Bombyces und Sphinges einer Lepidopteren-Ausbeute aus dem Iran. – Stuttg. Beitr. Naturk. Staat. Mus. Naturk. Stuttg. 53: 1-5, Stuttgart.
- DANIEL, F. (1965): Österreichische Entomologische Iran-Afghanistan-Expeditionen. Beiträge zur Lepidopterenfauna, Teil 4. Weitere Beiträge zur Bombyces et Sphinges Fauna. – Z. Wien. Ent. Ges. 75 (9/10): 121-152, Taf. 15-18, Wien.
- DANIEL, F. (1970): Rassenanalytische Untersuchungen bei *Phragmatobia fuliginosa* L. und *Phragmatobia amurensis* Seitz (Lep. Arctiidae). – Z. ArGe. Österr. Ent. 22: 2-17, Wien.
- DANIEL, F. (1971) Österreichische Expeditionen nach Persien und Afghanistan. Beiträge zur Lepidopterenfauna. Teil 16. (3. Beitag zur Bombyces- und Sphinges-Fauna). – Ann. Naturhist. Mus. Wien 75: 651-660, T. 1-2, Wien.
- DARICHEVA, M.A. & V. V. DUBATOLOV (1989): {Fauna and ecology of the lepidopterous family Arctiidae (Lepidoptera, Arctiidae)}. – Izvestiya Akademii Nauk Turkmenskoi SSR. Ser. biologicheskikh nauk [Proceedings of the Academy of Sciences of Turkmenian SSR. Series of biological Sciences]. – Ashkhabad, 1989, No. 2: 39-44 (In Russian).
- DRAUDT, M. (1931): Arctiidae, in SEITZ, A., The Palearctic Bombyces and Sphinges. Div. I. Fauna Palearctica. Suppl. to vol. 2: 61-94, t. 5-7. - Alfred Kern, Stuttgart.
- DRURY, D. (1773): Illustrations of Natural History. Wherein are exhibited upwards of two hundred and twenty figures of exotic insects, according to their different genera; very few of which have hitherto been figured by any author, being engraved and coloured from nature, with the greatest accuracy, and under the author's own inspection, on fifty copperplates. With a particular description of each insect; interspersed with remarks and reflections on the nature and properties of many of them 2, 92 pp., 50 pl. - London.
- DUBATOLOV, V. V. (1988): [A species review of the genus *Chelis* Rbr. (Lepidoptera, Arctiidae) from the USSR fauna]. – Taksonomiya zhivotnykh Sibiri [Taxonomy of Siberian animals]. – Novosibirsk: Nauka. Siberian Branch: 80-98. (Series "New and little known species of Siberian fauna", No. 20) (In Russian).
- DUBATOLOV, V. V. (1989): [A review of the genus *Axiopoena* (Lepidoptera, Arctiidae). – Vestnik Zoologii. 1989, No. 1: 8-13. (In Russian).
- DUBATOLOV, V. V. (1990): [New taxa of tiger-moths (Lepidoptera, Arctiidae: Arctiinae) from the Palearctic. Report 2]. – Taksonomiya nasekomykh i gel'mintov [Taxonomy of insects and helminths]. – Novosibirsk: Nauka. Siberian Branch: 89-101. (Series "New and little known species of Siberian fauna", No. 22) (In Russian).
- DUBATOLOV, V. V. (1996): 3. A list of the Arctiinae of the territory of the former U.S.S.R. (Lepidoptera, Arctiidae), in DUBATOLOV V. V., Three contributions to the knowledge of palearctic Arctiinae. – Neue Ent. Nach. 37: 39-87, Marktleuthen.
- DUBATOLOV, V. V. (2004): Review of the genus *Eudiaphora* DUBAT. (Lepidoptera, Arctiidae) with description of two new subspecies from Turkmenistan. – Euroasian Ent. J. 3 (2): 151-154, colour plate II, fig. 1-12 (In Russian).
- DUBATOLOV, V. V. (2004): Some generic changes in Arctiinae from South Eurasia with description of three new genera (Lepidoptera, Arctiidae). – Atalanta 35 (1/2): 73-83, colour plate IVa, Würzburg.

- EBERT, G. (1974): Zur Taxonomie und Verbreitung der *Ocnogyna nordsroemi*-Artengruppe (Lep./Arct.). – Beitr. naturk. Forsch. SüdwDtl. 33: 169-176, Stuttgart.
- EICHWALD, E. (1830): Zoologia specialis quam expositis animalibus tum vivis, tum fossilibus postissimum Rossiae in Universum, et Poloniae in specie, in usum lectionum publicarum in Universitate Caesarea Vilnensi. Pars altera. – Typis Josephi Zawadzki, Vilnae.
- ERSCHOFF, N. (1874): Cheshuekrylye (Lepidoptera). In FEDTSCHENKO, A., Puteshestvie v Turkestan [Travel to Turkestan]. T. 2, part 5, dept. 3, 4+6+128 p., 4 pl.
- ERSCHOFF, N. (1876): [A list of Lepidoptera from the town Shahrud vicinity in Persia, which were collected by Mr. OGORODNIKOV in July 1874 in waterless, dry and forestless valley, situated in the uppland about 5,000 f. a. s. l.]. – Trudy Ruisskogo Ent. Obschestva 8: 321, (In Russian), St.-Petersburg.
- ESPER, E. J. (1782-1786): Die Schmetterlinge in Abbildungen nach der Natur mit Beschreibungen von EUGENIUS JOHANN CHRISTOPH ESPER 3. – Verlag Wolfgang Walthers, Erlangen.
- ESPER, E. J. (1789): Die Schmetterlinge in Abbildungen nach der Natur mit Beschreibungen von EUGENIUS JOHANN CHRISTOPH ESPER 3 (SUPPL.). – Verlag Wolfgang Walthers, Erlangen.
- FREINA, J. J., DE (1983): 4. Beitrag zur systematischen Erfassung der Bombyces- und Spingis-Fauna Kleinasiens. Neue Erkenntnisse über Artenspektrum, Systematik und Nomenklatur sowie Beschreibung neuer Taxa. – Mitt. Münch. Ent. Ges. 72: 57-127, München.
- FREINA, J. J., DE (1993): Contribution to the knowledge of the Balkan and West Asian populations of *Parasemia plantaginis* (LINNAEUS, 1758) with the description of a new subspecies from the Kurdistan Zagros-Range: *carbonelli* n.sp. (Lepidoptera, Arctiidae). – Linn. Belg. 14 (3): 155-164, Beersel.
- FRIVALDSZKY, J. (1835): A Balkány vidékén tett természettudományi utázasról. – A Magyar Tudós Társaság Évkönyvei 2: 235-276, Tab. I-VII, Buda.
- GRUM-GRSHIMAILO, GR. ([1890] 1889): Lepidoptera nova vei parum cognita regionis palaearticae. – Ann. Mus. Zool. Acad. Imp. Sci. 4 (1899): 455-472, St.-Petersburg.
- HAMPSON, G. F. (1894): The fauna of British India, including Ceylon and Burma. **Moths** 2: I-XXII, 1-609. – London.
- HAMPSON, G. F. (1899): Lepidoptera, II. In GÜNTER, R.T., Contributions to the Natural History of Lake Urmi, N. W. Persia and its neighbourhood. – J. Linn. Soc. Zool. 27: 345-453, London.
- HUFNAGEL, J. S. (1766): Berlinisches Magazin, oder gesammelte Schriften und Nachrichten für die Liebhaber der Erzneywissenschaft, Naturgeschichte und der angenehmen Wissenschaften überhaupt. Band 2. – Berlin.
- JORDAN, K. (1939): On the constancy and variability of the differences between the old world species of *Utetheisa* (Lepid., Arctiidae). – Novit. Zool. 41: 251-291, London & Aylesb.
- KALALI, G. H. (1976): A list of Lepidoptera from Province of Khorasan (Iran). – J. Ent. Soc. Iran 3 (1/2): 131-135, Tehran.
- KAMALUDDIN, S. (1997): A revision of the genus *Cretonotus* HÜBNER (Lepidoptera: Arctiidae: Arctiinae) from Pakistan with special reference to its systematic position. – Pakistan J. Zool. 29 (3): 245-248, Tehran.
- KOÇAK, A. O., SEVEN, S. & Y. HÜSYINOLU (1997a): Kuzey İran'da *Epicallia villica* (LINNAEUS)'nin varlığı hakkında (Lepidoptera, Arctiidae) [On the occurrence of *Epicallia villica* (LINNAEUS) in North Iran (Lepidoptera, Arctiidae)]. – Centre Ent. Stud. Misc. Papers 38: 3-5,

Ankara.

- KOÇAK, A. O., SEVEN, S. & Y. HÜSYİNOĞLU (1997b): *Eucharia festiva* ssp. *nivea* (BANG-HAAS, 1927) nin. Taksonomisi ve dağılışı hakkında (Lepidoptera, Arctiidae) [On the taxonomy and distribution of *Eucharia festiva* ssp. *nivea* (BANG-HAAS, 1927) (Lepidoptera, Arctiidae)]. – Centre Ent. Stud. Misc. Papers 38: 5-8, Ankara.
- KOLENATI, F. (1846): Lepidoptera. – Meletemata ent. V. Insecta Caucasi: 80-112, t. 18, Petropoli.
- KOUZNETSOV, V. I. (1959): Sur la faune des Lépidoptères du Sud de l'Iran. – Bull. Soc. Ent. Mulhouse 1959: 65-70, Mulhouse.
- LEDERER, J. (1871): Nachtrag zum Verzeichnisse der von Herrn Jos. HABERHAUER bei Astrabad in Persien gesammelten Schmetterlinge. – Horae Soc. Ent. Ross. 8: 3-28, 2 T, Moscow.
- LÉNEK, O. (1966): Österreichische Entomologische Iran-Afghanistan-Expeditionen. Beiträge zur Lepidopterenfauna, Teil 7. *Phragmatobia fuliginosa* L. ssp. nova *paghmani*. – Z. Wien. Ent. Ges. 51 (77) (8): 105-106, Wien.
- LINNAEUS, C. (1758): CAROLI LINNAEI Systema Naturae per Regna Tria Naturae, Secundum Classes, Ordines, Genera, Species, cum characteribus, differentiis, synonymis, locis 1 [III. Lepidoptera]: 458-542, Editio Decima, Reformata, Holmiae.
- LINNAEUS, C. (1763): Amoenitates Academicæ seu Dissertationes variae Physicæ, Medicæ, Botanicæ ante hæc seorsim, nunc collectæ et auctæ cum tabulis æneis 6, Holmiae.
- MÉNÉTRIÈS, E. (1832): Catalogue raisonné des objets de zoologie recueillis dans un voyage au Caucase et jusqu'aux frontières actuelles de la Perse entrepris par ordre de S. M. L'Empereur. -St.-Petersbourg.
- MÉNÉTRIÈS, E. (1863): Descriptions de nouvelles espèces de lépidoptères de la collection de l'Académie Impériale des Sciences. III-ème et dernière partie. – MÉNÉTRIÈS, E. Enumeratio corporum animalium Musei Imperialis Academiæ Scientiarum Petropolitaneæ. Classis Insectorum. Ordo Lepidopterorum 3: 145-161, t. 15-18, St.-Petersbourg.
- MIRZAYANS, H. & GH. H. KALALI (1970): Contribution a la connaissance la faune des Lepidopteres de l'Iran (2). – Entomologie et Phytopathologie Appliquées 29: 15-23, Tehran.
- MODARRES AWAL, M. (1994): List of Agricultural Pests and Their Natural Enemies in Iran. - Ferdowsi University Press, Tehran.
- MODARRES AWAL, M. (1997): List of Agricultural Pests and Their Natural Enemies in Iran. 2nd Edition. - Ferdowsi University Press, Tehran.
- NERONOV, V. M. (1976): A zoogeographical analysis of the rodent fauna of Iran. – Bull. Moscow Soc. Nat., Biol. Ser. 81 (2): 32-47, Moscow (In Russian).
- OBERTHÜR, CH. (1896): De la variation chez les Lépidoptères. – Étud. d'Entomol. 20, Rennes.
- ORHANT, G. (1986): Deuxieme contribution a l'etude des lépidoptères heterocerces du sud-est Asiatique (1.) Le complexe d'espèces '*ricini* Fabricius' (Arctiidae: Arctiinae). – Bull. Soc. Sci. Nat. 50: 9-22, Paris.
- PETROV, M. P. (1955): [Iran (fundamental essay)]. - Moscow (In Russian).
- PODA, N. (1761): Insecta Musei græcensis, quæ in ordines, genera et species juxta Systema Naturæ CAROLI LINNAEI digessit NICOLAUS PODA, e Societate Jesu, Philosophiæ Doctor et Matheseos Professor. - Graecii, Widmanstadii.
- Romanoff, N. M. (1884): In ROMANOFF, N. M., Les Lépidoptères de la Transcaucasie. Première partie. – Mém. l'ép. 1: 1-92, pl. 1-5, M. M. Stassulévitch, St.-Petersbourg.
- SARUDNY, N. (1911): Verzeichnis der Vögel Persiens. – J. Ornithol. 59: 185-241, Kassel.

- SCHWINGENSCHUSS, L. (1937): Weitere Neuheiten aus Nord Persien. – Z. Öster. Ent. Ver. Wien 22 (6): 57-61, t. 3, Wien.
- SHELJUZHKO, L. (1935): Einige neue und wenig bekannte Lepidopteren aus dem Westlichen Tian-Schan. – Mit. Münch. Ent. Ges. 25: 27-38, t. 3, München.
- SHUMAKOV, E. M. (1974): [Modern results of the study of the entomofauna of Iran and Afghanistan]. Sistematika i ekologiya pramokrylykh nasekomykh [Les insectes orthoptères]. - Trudy Vsesoyuznogo entomologicheskogo obshchestva [Horae Soc. Ent. Unionis Sovieticae] 57: 132-197. – Leningrad (In Russian).
- STAUDINGER, O. (1871): [Macrolepidoptera], in STAUDINGER, O. & M. WOCKE, Catalog der Lepidopteren des europäischen Faunengebiets (Edn.2). - Dresden.
- STAUDINGER, O. (1878 [1879]): Lepidopteren Kleinasiens. – Horae Soc. Ent. Ross. 14: 176-482, Moscow.
- STAUDINGER, O. (1886): Description of a new *Bombyx* allied to *Arctia caja*. – Ent. Month. Mag. 22: 258-259, London.
- STAUDINGER, O. (1891 [1892]): Eine neue *Parnassius*-Form und zwei neue paläarktische *Arctia*-Arten. – Dt. Ent. Z. Iris 4: 158-162, T. 3, Dresden.
- STAUDINGER, O. (1899): Neue Lepidopteren des palaearktischen Faunengebiets. – Dt. Ent. Z. Iris 12: 352-403, T.5, Dresden.
- STSHETKIN, YU. L. (1960): [Macrolepidoptera of the Vaksh valley (Tadzhikistan)]. Part 1. Lepidoptera Rhopalocera and Heterocera (excluding Noctuidae and Geomatridae). – Stalinabad (In Russian).
- STSHETKIN, YU. L. (1982): A New subspecies – *Arctia caja pamiroalaica* STSHETKIN, ssp. n. – from Central Asia (Lepidoptera: Arctiidae). – Izvestiya Akademii Nauk Tadzhikskoi SSR. Otdelenie biologicheskikh nauk [Proc. Acad. Sci. Tadzhik SSR. Dep. Biol. Sci.] 86 (1): 39-43, Dushanbe (In Russian).
- TAMS, W. (1922): A new *Callimorpha* from north-west Persia and Armenia. – The Entomologist 55: 196-197, London.
- TAUSCHER, A. M. (1806): Lepidopterorum novorum Russiae indigenorum observationes sex. – Mem. Soc. Nat. Moscow 1: 207-212, t. 13, Moscow.
- THOMAS, W. (1983): Eine neue *Callimorpha dominula* – Unterart aus der Osttürkei (Lep.: Arctiidae). – Entomologische Zeitschrift 93 (8): 107-110, Stuttgart.
- THOMAS, W. (1984): Zum Status von *Spilarctia montana* (GUÉRIN-MÉNÉVILLE) und *Spilarctia obliqua* (WALKER) (Lep., Arctiidae). – Nachr. Ent. Ver. Apollo N.F. 4 (4): 85-98, Frankfurt a. M.
- THOMAS, W. (1988): *Callimorpha splendidior* Tams eine einige Art (Lepidoptera, Arctiidae). – Nach. Ent. Ver. Apollo N.F. 9 (3): 177-186, Frankfurt a. M.
- VOS, R. de & K. CERNÝ (1999): A review of the Philippine species of the genus *Nyctemera* HÜBNER, [1820] with descriptions of new species and subspecies (Lepidoptera: Arctiidae, Nyctemerinae). – Nachrichten des Entomologischen Vereins Apollo N.F. 20 (2): 133-188, Frankfurt a.M.
- WAGNER, F. (1913): Neue Heteroceren aus Centralasien. – Int. Ent. Z. 7 (1): 2-4, Guben.
- WAGNER, F. (1937): Drei weitere Neuheiten aus Nord-Persien. – Z. Öster. Ent. Ver. Wien 22 (3): 21-22, t. 1, Wien.
- WALSINGHAM, M. A. & G. F. HAMPSON (1896): On moths collected at Aden and in Somaliland. –

Proc. general meetings sci. business Zool. Soc. London 1896: 257-283, pl. 10, London.
ZELLER, P. C. (1846): Beschreibung der *Trichosoma löwii* n. sp. nebst Bemerkungen über
CARRENNO's „Insecte, dont l'ordre est incertain“. – Ent. Z. Stettin 7: 5-11, Stettin.

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Colour plate 6 (p. 589)

Fig. 1: *Callimorpha dominula rossica* KOLENATI, 1846, ♂, no label, probably, from West Azarbaijan.

Fig. 2: *Callimorpha dominula philippssi* BARTEL, 1906, a series from Guilan, Mazandran and Golestan.

Fig. 3: *Euplagia quadripunctaria* (PODA, 1761), ♂, Guilan, Assalem, Abish, Gharah, 1250 m, 30.VII.1976, PAZUKI & BROUMAND leg.

Fig. 4: *Euplagia splendidior* (TAMS, 1922), ♀, Fars, Gavkoshak, 28.VI.- 5.VII.1975, ABAI leg.

Fig. 5: *Cymbalophora rivularis* (MÉNÉTRIÈS, 1832), East Azarbaijan, Tabriz, 15.VII.1959, Akhavan leg.

Figs. 6-7: *Axiopoena maura* (EICHWALD, 1830), ♂, Golestan, Park-e-melli-e-Golestan (Golestan National park), Yakhtikalan, 1650 m, 20.VII.1996, EBRAHIMI & VAZRIK NAZARI leg., upperside (6) and underside (7).

Figs 8-9: *Axiopoena karelini* MÉNÉTRIÈS, 1863, ♂, Fars, Sepidan, Komehr, Margan, 2100 m, 19.-22.VIII. 2000, BADI, MOGHADDAM & MOFIDI leg.

Colour plate 7 (p. 591)

Fig. 10: *Lacydes spectabilis spectabilis* (TAUSCHER, 1806), ♂, Golestan, Torkman-Sahra, Ghalagh Ghorta, 0 m, 27.-28.IX.1992, EBRAHIMI & BADI leg.

Fig. 11: *Lacydes spectabilis annelata* (CHRISTOPH, 1887), ♂, Mazandran, Kalardasht, Rudbarak, Akapol, 1800 m, 1.IX.1990, EBRAHIMI & BADI leg.

Fig. 12: *Utetheisa pulchella* (LINNAEUS, 1758), ♀, Hormozgan, Bandar-e-Hamir, Sayeh-Khosh.

Fig. 13: *Utetheisa lotrix* (CRAMER, 1799), ♂, Hormozgan, Bandar-e-Lengeh, Bostano, 25.II.1997, VAZRIK NAZARI leg.

Fig. 14-15: *Argina astrea* (DRURY, 1773), ♂ (14) and ♀ (15), Minab, 23.IV.1950, anonymous leg.

Figs. 16-18 [13-15]: *Parasemia plantaginis caspica* DANIEL, 1939, cotypes, ♂♂ (16-17) and ♀ (18), Elburz mts., Tacht-i-Suleiman, Hecarc-al-Valley, 2800-3200 m, 3-7.VII.1936, PFEIFFER leg. Taken from DE FREINA (1993).

Figs. 19, 20: *Parasemia plantaginis caucasica* (MÉNÉTRIÈS, 1832), 19: lectotype ♂, Alp.[es du] Cauc.[ase], probably, Mt. Elbrus vicinity; 20: ♂, Russia, Karachaevo-Cherkesia, Teberda ms., Dzhilt-kauz, ca. 2700 m, 8.-9.VII.1935, Th. WEIDIASER leg.

Colour plate 8 (p. 593)

Figs. 21, 22: *Parasemia plantaginis caucasica* (MÉNÉTRIÉS, 1832), 21: ♂, Soth-Eastern Armenia, ~10 km SSE from Kafan, Shikahoh, 3.VII.1982, M. DANILEVSKY leg.; 22: ♀, Russia, Kabardino-Balkaria, Suga-Su Gorge, 1600-1700 m, 18.-19.VII.1999, A. V. BARKALOV leg.

Fig. 23: *Arctia caja wiskotti* STAUDINGER, [1879] 1878, ♂, Ardebil, Ghotursou, 1.IX.1972, BROUMAND & ZAIRI leg.

Figs. 24-25: *Arctia caja mazandarana* DUBATOLOV & ZAHIRI **subspec. nov.**, Mazandran, Chalus, Valiabad, VII.1967, MOAYERI leg.; holotype ♂ (24), the whole type series (25).

Fig. 26: *Arctia caja wiskotti* STAUDINGER, [1879] 1878, ♂, Azerbaijan, Nakhichevan, mts Zangezur, ms. Jaglu-dara, VIII.1939, coll. L. SHELJUZHKO.

Fig. 27: *Arctia caja pamiroalaica* STSHETKIN, 1982, ♂, Tadzhikistan, Pamir, river Shakh-dara valley, locality Barvoz, 2800 m, 9.VIII.1986, ZAPRAGAЕV leg.

Fig. 28: *Arctia caja ossetica* DUBATOLOV, 1996, ♂ holotype, Russia, North Osetia, Buron, 1250 m, 10.VIII.1940, L. SHELJUZHKO leg.

Fig. 29: *Arctia caja tshimgana* SHELJUZHKO, 1935, ♂, paralectotype, Uzbekistan, West Tian Shan, Tschingan Mt., 1500 m alt., 17.VIII 1934, L. SHELJUZHKO leg.

Fig. 30: *Arctia caja tschiliensis* DRAUDT, 1931, ♂, Russia, Chita Province, SE part, river Argun valley, Nerchinskii zavod District, 5 km W from village Olochi, 29.VII.2002, V. V. DUBATOLOV leg.

Colour plate 9 (p. 595)

Fig. 31: *Epicallia villica marchandi* (DE FREINA, 1983), ♂, Mazandran, Baladeh, Yush, 2100 m, 26.VI. 1998, MOFIDI leg.

Fig. 32: *Epicallia villica marchandi* (DE FREINA, 1983), ♀, Ardebil, Moghan, 10 km Parsabad, 100 m, 23-24.V.1997, BADI, SARAFRAZI & VAZRIK NAZARI leg.

Fig. 33: *Epicallia villica confluens* ROMANOFF, 1884, ♂, Golestan, Ramian, Cheshmeh Tuska, 1350 m, 25.-27.VI.2000, BARARI, MOFODI & DEUVE leg.

Fig. 34: *Eucharia festiva nivea* (O. BANG-HAAS, 1927), ♂, Kordestan, Sanandaj, Farah, 10.-15.IV.1975, HASHEMI leg.

Fig. 35: *Eucharia festiva nivea* (O. BANG-HAAS, 1927), ♂, Ardebil, Moghan, 17.IX.1967, ARGHAND leg.

Fig. 36: *Eucharia festiva nivea* (O. BANG-HAAS, 1927), ♀, Tehran, Evin [NW suburbs of Tehran], 8.IV.1971, GH. BARKHORDA leg.

Fig. 37: *Eucharia festiva nivea* (O. BANG-HAAS, 1927), ♀, Markazi, Saveh, Zarand, II.1984, anonymous leg.

Fig. 38: *Eucharia festiva hormozgana* DUBATOLOV **subspec. nov.**, holotype ♂, Hormozgan, Gouzam, 21.IV.2000, ISTVÁN JUHÁSZ leg.

Colour plate 10 (p. 597)

Fig. 39: *Ebertarctia nordstroemi* (BRANDT, 1947), ♂, Kouh i Binaloud (Meched), 3300 m, 20.VII. 1938, coll. BRANDT.

Fig. 40: *Chelis reticulata* (CHRISTOPH, 1887), ♂, Golestan: Almeh, 26-29.V.1986, Pazuki leg.

Fig. 41: *Chelis reticulata* (CHRISTOPH, 1887), ♀, Golestan, Astrabad.

Fig. 42: *Rhyparia purpurata* (LINNAEUS, 1758), ♂, Guilan, Eshkevar, Gilanchakan, 1820 m, 27.VI. 1997, BARARI & MOFIDI leg.

Fig. 43: *Rhyparia purpurata* (LINNAEUS, 1758), ♀, East Azerbaijan, Kaleybar, Ghale Babak, 1500, 5.VII.1997, MOFIDI & BARARI leg.

Fig. 44: *Ocnohyna loewii armena* STAUDINGER, 1871, ♂, Fars, Kazeroun, Gavkoshak, 22.XI.1975, ABAI leg.

Fig. 45: *Watsonarctia deserta elbursica* DUBATOLOV & ZAHIRI **subspec. nov.**, holotype ♂, Mazandran, Elburs Mts., Sefid-Ab, 36° 40' N, 51° 01' E, 360 m, 7.VII.1978, anonymous leg.

Fig. 46: *Watsonarctia deserta elbursica* DUBATOLOV & ZAHIRI **subspec. nov.**, paratype ♂, Mazandran, Elburs Mts., Siah-Bisheh, 36°13'N, 51°19'E, 2130 m, 10.VI.1966, anonymous leg.

Colour plate 11 (p. 599)

Fig. 47: *Watsonarctia deserta karduchena* (DE FREINA, 1983), ♂, Turkey, Kayseri, 100 km W Pinarbasi, 1250 m, 36°09'E, 38°28'N, 4.V.1989, FABIAN, L. RONKAY & G. RONKAY leg.

Fig. 48: *Watsonarctia deserta deserta* (BARTEL, 1902), ♂, Russia, Orenburg Province, Sol'-Ilets District, 10 km W from village Troitsk, 24.V.2002, V. V. DUBATOLOV & E. V. NIKOLAEVA leg.

Fig. 49: *Watsonarctia deserta deserta* (BARTEL, 1902), lectotype ♂ of *sibirica* W. KOSHANTSCHIKOV, Russia, Krasnoyarsk Province, Minusinsk suburbs, Gryady, 24.V.1924, W. KOSHANTSCHIKOV leg.

Fig. 50: *Watsonarctia deserta centralasiae* (O. BANG-HAAS, 1927), types, China, Xinjiang, East Tian Shan Mts., "Juldus", by courtesy of Dr. R. YAKOVLEV; two bottom specimens almost correspond with the figures in O. BANG-HAAS (1927: Taf. 8, fig. 9-10).

Fig. 51: *Nebrarctia semiramis semiramis* (STAUDINGER, [1892] 1891), ♂♂ and a ♀; rows from up to down: 1st row: West Azarbaijan, Khoy, 30 km from Ghotur, 1480 m, 19.VII.1976, PAZUKI & BROUMAND leg.; 2nd row: Lorestan: Oshtorankukh Kuh, N Kamandan, 2040 m, 22.-24.VII.1981, PAZUKI & BROUMAND leg., Poledokhtar, Shahabad, 820 m, 4.V.1976, PAZUKI & BROUMAND leg. (♀); 3rd row: Chahar Mahal & Bakhtiari, Ardal, Gandoman, Kuhe Kallar, 2750 m, 13.-14.VII.1982, BROUMAND & PAZUKI leg.; 4th row: Kohkiluyeh & Buyer Ahmad, 15 km SE Yassouj, 2050 m, 15.VI.1972, EBERT & PAZUKI leg.; 5th row: Fars, 50 km NW Ardekan, Tangeh-Surkh, 2250 m, 16.VI.1972, EBERT & PAZUKI leg.; 6th row: Kerman, Baft, Ghanat-e-Marvan, 2800 m, 23.V.1977, SAFAVI, PAZUKI & ABAI leg.

Fig. 52: *Nebrarctia semiramis elbursi* (DANIEL, 1937), ♂, Tehran, Dizin, östl. Gatchsar, 2400-2600 m, 28.VI.-11.VII.1975, HOFFMANN leg.

Fig. 53: *Creatonotos gangis* (LINNAEUS, 1763), ♂, Kerman, Kahnouj, Dosary, 650 m, 10.IV.1997, BARARI, BADI & SARAFRAZI leg.

Colour plate 12 (p. 601)

Fig. 54: *Creataloum arabicum* (HAMPSON, 1896), ♂, Sistan & Baluchestan, Bender, Tchehbahar, 22.XII.1937, 18.I.1938, coll. BRANDT.

Fig. 55: *Diaphora mendica* (CLERCK, 1759), ♂, Guilan, Rascht, 7.-13.V.1973, SCHENASI leg.

Fig. 56: *Eudiaphora turensis* (ERSCHOFF, 1874), individual variation of the series from Semnan, Shahroud and Khorassan.

Fig. 57: *Spilosoma urticae* (ESPER, 1789), ♂, Tehran, Rudnar Ghasran, Garmadbar, 2370 m, 28-29.V.1991, EBRAHIMI & BADI leg.

Fig. 58: *Hyphantria cunea* (DRURY, 1773), ♂, Guilan, Talesh, 10.VII.2003, ABAI leg.

Fig. 59: *Phragmatobia fuliginosa paghmani* LENEK, 1966, ♂, Mazandran, Kandovan, 3.-4.VII.1995, SARAFRAZI, LINNAVORI & BADI leg.

Fig. 60: *Phragmatobia placida* ("FRIVALDSZKY, 1835), ♂, Mazandran, Kandovan, 2600 m, 3.-4.VII. 1995, SARAFRAZI, BADI & LINNAVORI leg.

Fig. 61: *Phragmatobia placida mirzayansi* DUBATOLOV & ZAHIRI **subspec. nov.**, holotype ♂ (60), Tehran, Karaj, Shahrestanak, Sarak, 2100 m, 31.V.1991, EBRAHIMI & BADI leg.

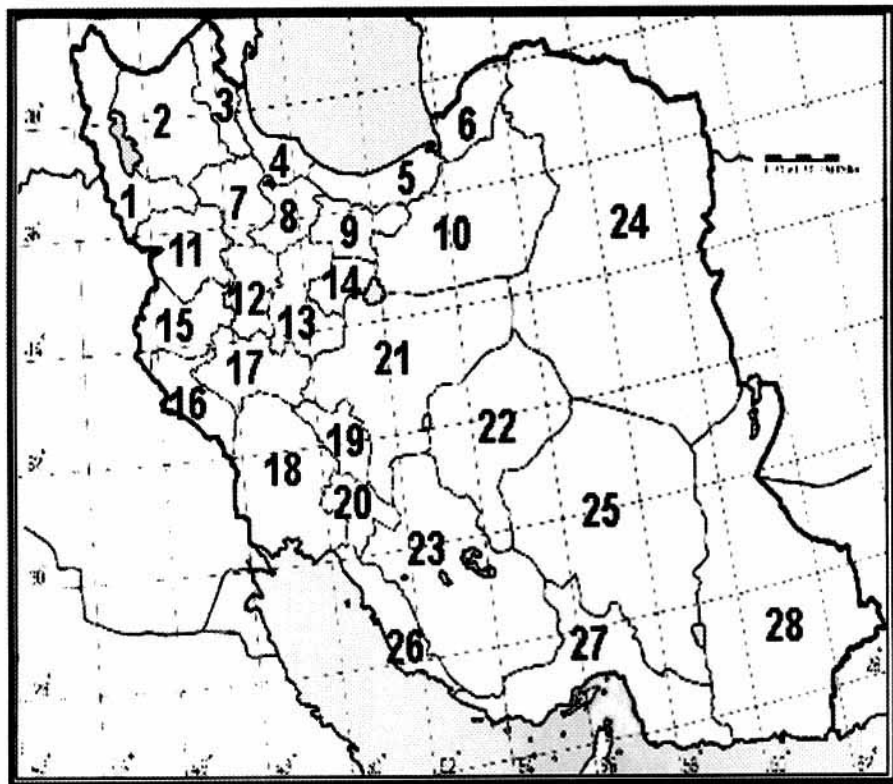


Fig. 1: Provinces of Iran. 1 - West Azarbaijan, 2 - East Azarbaijan; 3 - Ardebil, 4 - Guilan, 5 - Mazandran, 6 - Golestan, 7 - Zanjan, 8 - Ghazvin (=Qazvin), 9 - Tehran, 10 - Semnan, 11 - Kordestan, 12 - Hamadan, 13 - Markazi, 14 - Qom, 15 - Kermanshah, 16 - Ilam, 17 - Lorestan, 18 - Khuzestan, 19 - Chahar Mahaal & Bakhtiari, 20 - Kohkiluyeh & Buyer Ahmad, 21 - Esfahan, 22 - Yazd, 23 - Fars, 24 - Khorassan, 25 - Kerman, 26 - Bushehr, 27 - Hormozgan, 28 - Sistan & Balouchestan.

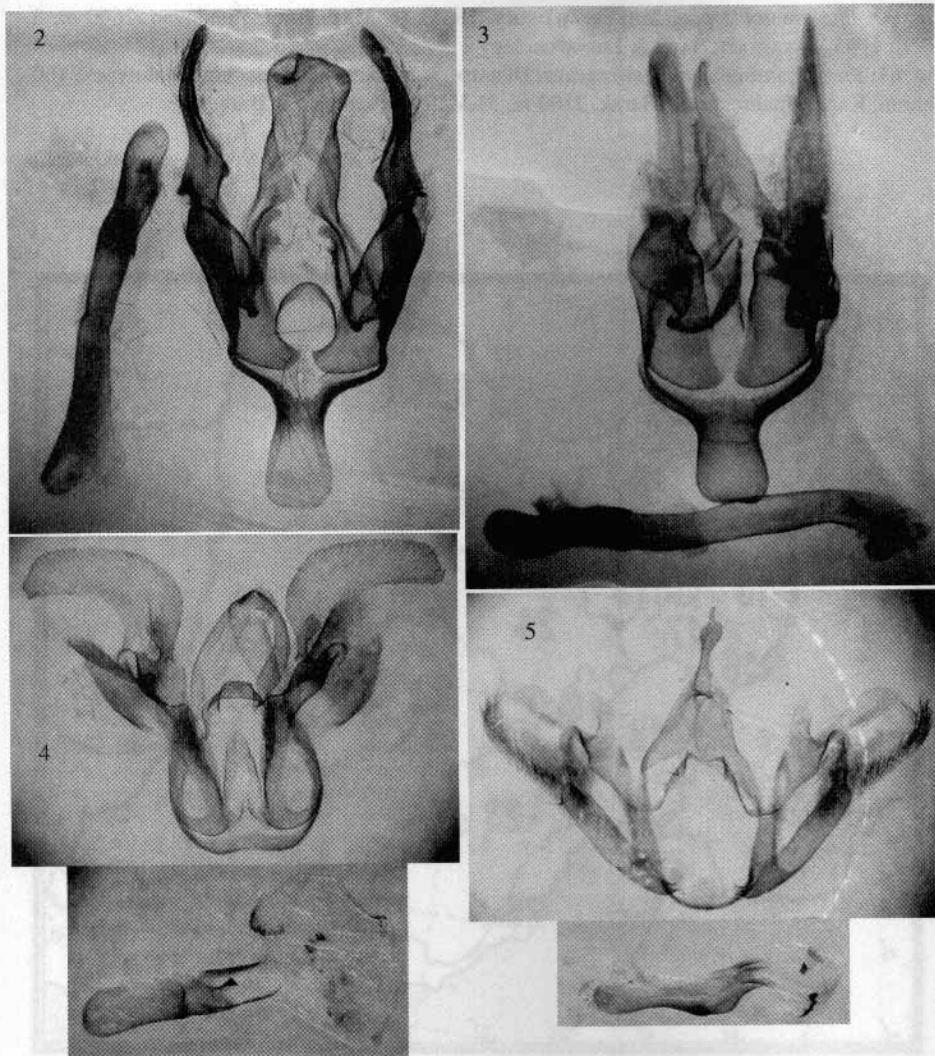


Fig. 2: ♂ genitalia of *Axiopoena maura* (EICHWALD, 1830), Golestan, Park-e-Melli-e-Golestan, Yakhtikalan, 1650 m, 20.VII.1996, EBRAHIMI & VAZRIK NAZARI leg.

Fig. 3: ♂ genitalia of *A. karelini* MÉNÉTRIÈS, 1863, Fars, Sepidan, Komehr, Margan, 2100 m, 19.-22.VIII.2000, BADI, MOGHADDAM & MOFIDI leg.

Fig. 4: ♂ genitalia of *Utetheisa pulchella* (LINNAEUS, 1758), Golestan, Torkmensahra.

Fig. 5: ♂ genitalia of *Utetheisa lotrix* (CRAMER, 1799), Balouchestan, Tchabahar, Tiss, 6.-8.IV. 1973, SAFAVI & BROUMAND leg.

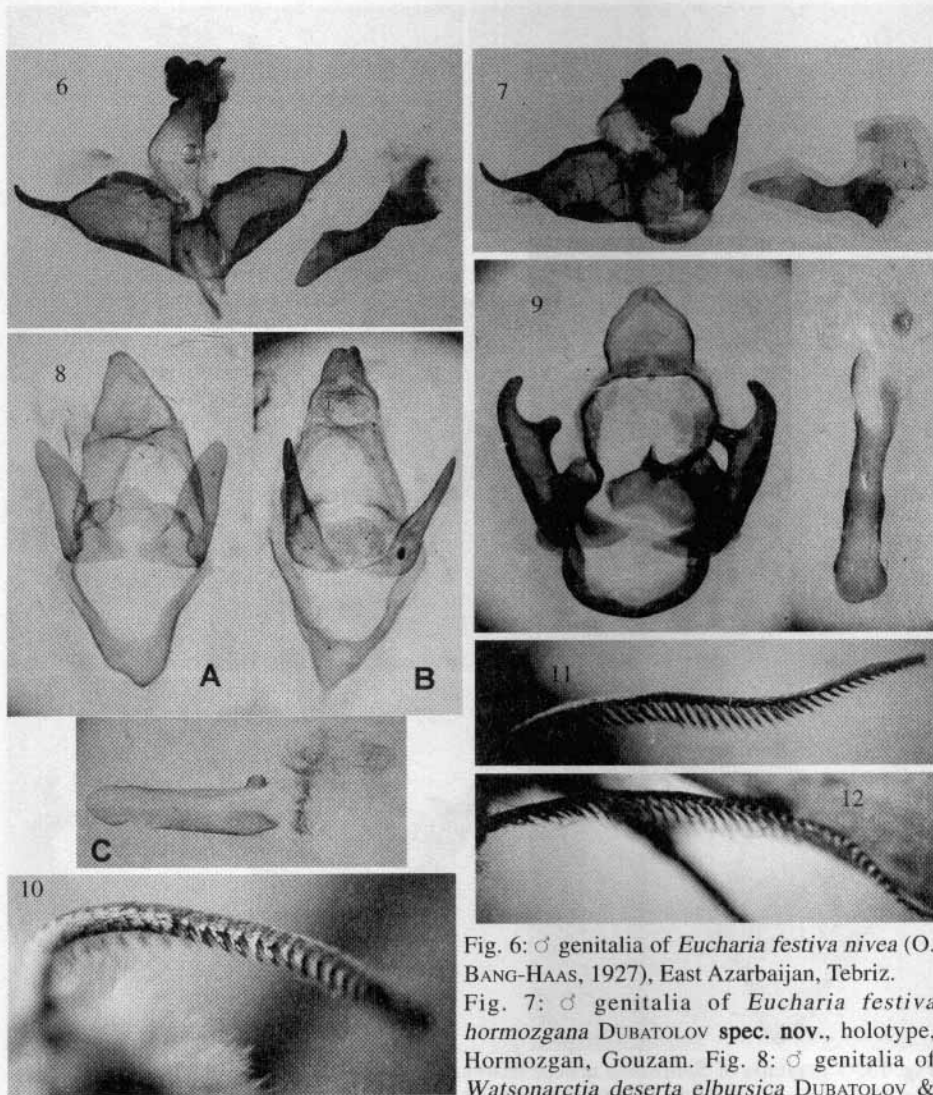


Fig. 6: ♂ genitalia of *Eucharia festiva nivea* (O. BANG-HAAS, 1927), East Azarbaijan, Tebriz.

Fig. 7: ♂ genitalia of *Eucharia festiva hormozgana* DUBATOLOV *spec. nov.*, holotype, Hormozgan, Gouzam.

Fig. 8: ♂ genitalia of *Watsonarctia deserta elbursica* DUBATOLOV &

ZAHIRI, *spec. nov.*, holotype, Mazandran, Elburs Mts., Sefid-Ab, 360 m, 7.VII.1978 (A, C), and paratype, Mazandran, Elburs Mts., Siah-Bisheh, 2130 m, 10.VI.1966 (B). General view (A, B), and eedeagus (C).

Fig. 9: ♂ genitalia of *Diaphora mendica* (CLERCK, 1759), Guilan, Rascht, 7.-13.V.1973, SCHENASI leg.

Fig. 10: ♂ antenna structure of *Spilosoma urticae* (ESPER, 1789), Azerbaijan, Lenkoran District, Kyzyl-Agach steppe plain, 9.VIII.1967, KOROLEVSKAYA leg.

Fig. 11: ♂ antenna structure of *Spilosoma lubricipedum* (LINNAEUS, 1758), Russia, West Caucasus, Cochi, Khosta, VI.1967, KOROLEVSKAYA leg.

Fig. 12: ♂ antenna structure of *Hyphantria cunea* (DRURY, 1773), Hungary, Ocsa, 11.IX.1947, Dr. ISSEKUTZ leg.

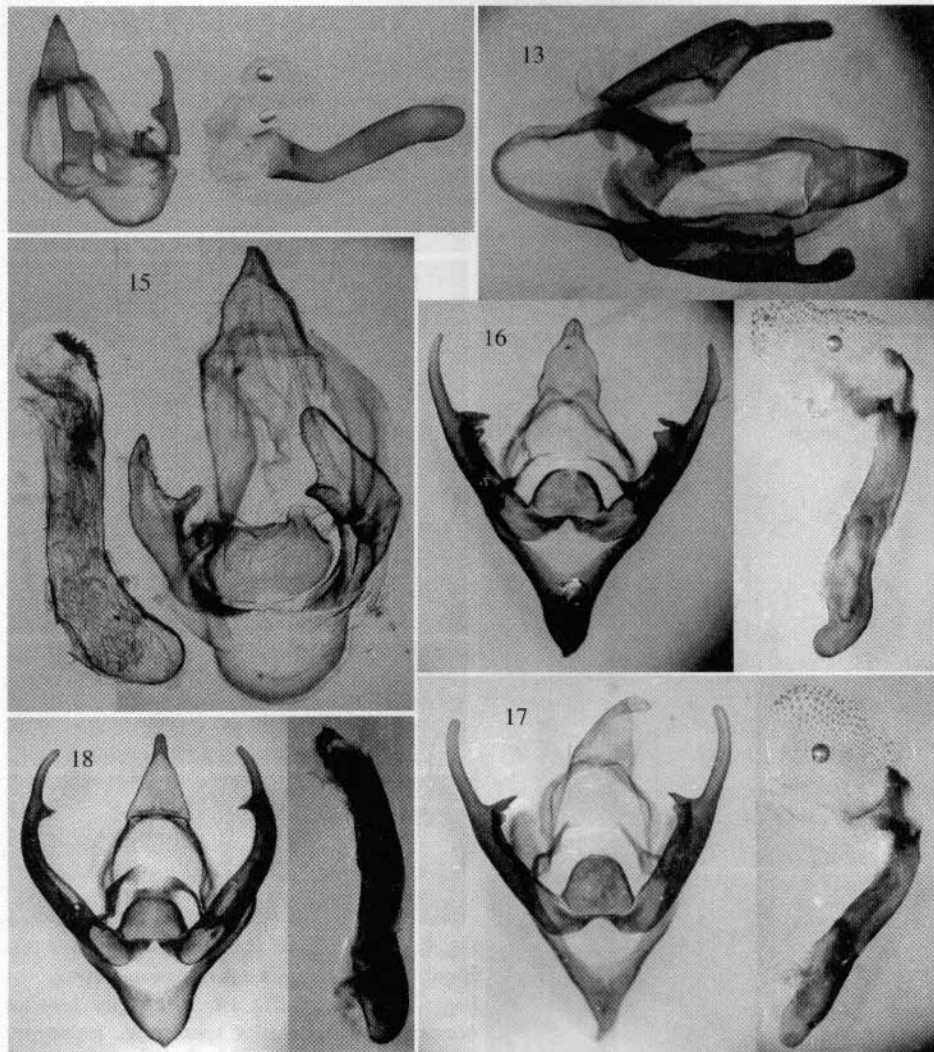
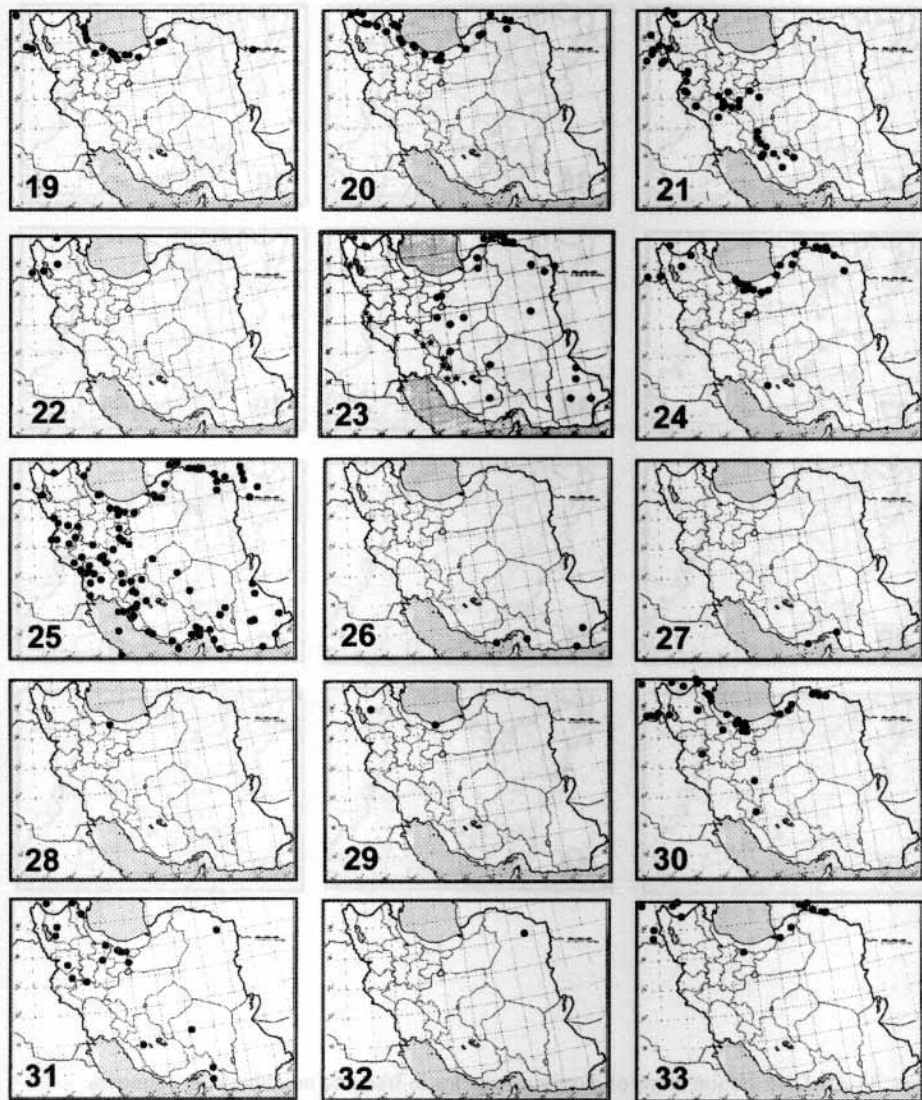
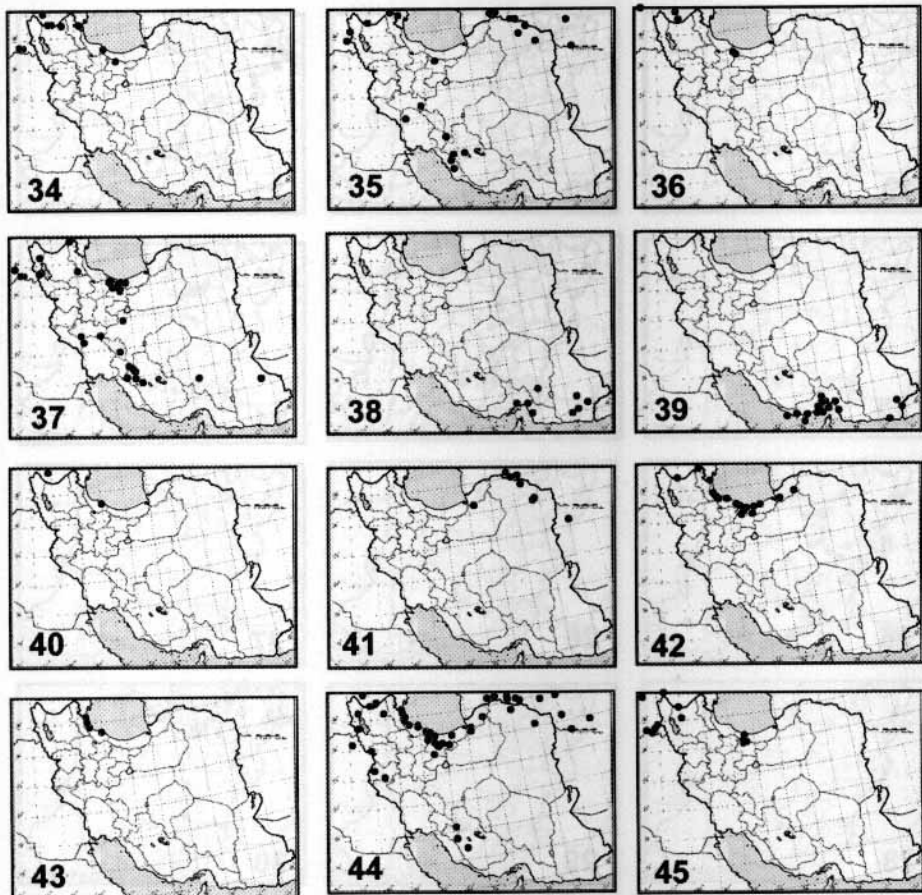


Fig. 13: ♂ genitalia of *Spilosoma urticae* (ESPER, 1789) Guilan, Talesh, 10.VII.2003, ABAI leg.
 Fig. 14: ♂ genitalia of *Spilosoma lubricipedum* (LINNAEUS, 1758), Russia, West Caucasus, Cochi, Khosta, 12.VI.1967, KOROLEVSKAYA leg. Fig. 15: ♂ genitalia of *Hyphantria cunea* (DRURY, 1773), Guilan, Talesh, 10.VII.2003, ABAI leg. Fig. 16: ♂ genitalia of *Phragmatobia placida mirzayansi* **subspec. nov.**, paratype, Tehran, Dizin, Velayatrud, 2250 m, 30.V.1991, EBRAHIMI & BADI leg.
 Fig. 17: ♂ genitalia of *Phragmatobia placida* (FRIVALDSZKY, 1835), Tehran, Karadj, Azadbar, 2400 m, 7.-9.V.1995, SARAFRAZI, BADI & Prof. LINNAVORI leg.
 Fig. 18: ♂ genitalia of *Phragmatobia fuliginosa paghmani* LÉNEK, 1966, Tehran, Karadj, Shahdasht, 8.-21.VIII.1976, RADIABI.



Figs. 19-33: Distribution maps of Arctiinae species in Iran and neighbouring countries. 19 - *Callimorpha dominula* (LINNAEUS, 1758), 20 - *Euplagia quadripunctaria* (PODA, 1761), 21 - *Euplagia splendidior* (TAMS, 1722), 22 - *Cymbalophora rivularis* (MÉNÉTRIÈS, 1832), 23 - *Axiopoena maura* (Eichwald, 1830) (rings) and *A. karelini* MÉNÉTRIÈS, 1863 (asterisks), 24 - *Lacydes spectabilis* (TAUSCHER, 1806), 25 - *Utetheisa pulchella* (LINNAEUS, 1758), 26 - *Utetheisa lotrix* (CRAMER, 1779), 27 - *Argina astrea* (DRURY, 1773), 28 - *Parasemia plantaginis* (LINNAEUS, 1758), 29 - *Arctia caja* (LINNAEUS, 1758), 30 - *Epicallia villica* (LINNAEUS, 1758), 31 - *Eucharia festiva* (HUFNAGEL, 1766), 32 - *Ebertarctia nordstroemi* (BRANDT, 1947), 33 - *Chelis reticulata* (CHRISTOPH, 1887).



Figs. 34-45: Distribution maps of Arctiinae species in Iran and neighbouring countries.

34 - *Rhyaria purpurata* (LINNAEUS, 1758), 35 - *Ocnogyna loewii* (ZELLER, 1846), 36 - *Watsonarctia deserta* (BARTEL, 1902), 37 - *Nebrarctia semiramis* (STAUDINGER, [1892] 1891), 38 - *Cretonotos gangis* (LINNAEUS, 1763), 39 - *Creataloum arabicum* (HAMPSON, 1896), 40 - *Diaphora mendica* (CLERCK, 1759), 41 - *Eudiaphora turensis* (ERSCHOFF, 1874), 42 - *Spilosoma urticae* (ESPER, 1789), 43 - *Hyphantria cunea* (DRURY, 1773), 44 - *Phragmatobia fuliginosa* (LINNAEUS, 1758), 45 - *Phragmatobia placida* (FRIVALDSZKY, 1835)

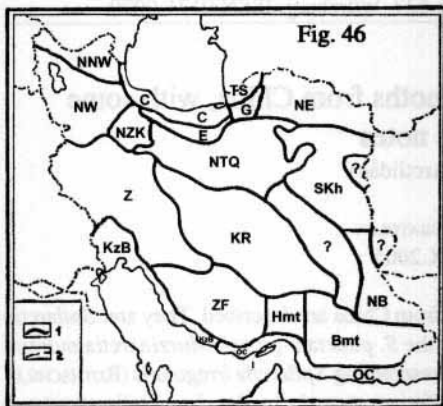


Fig. 46

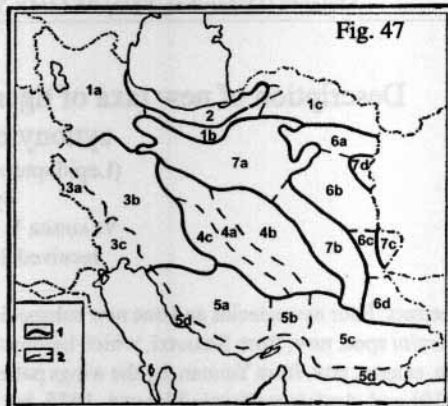


Fig. 47

Fig. 48

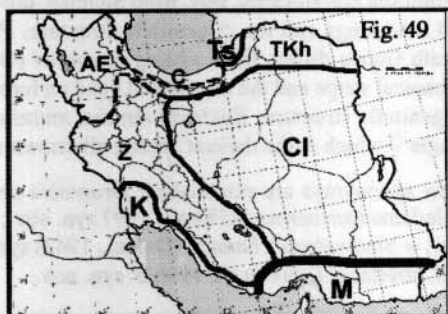
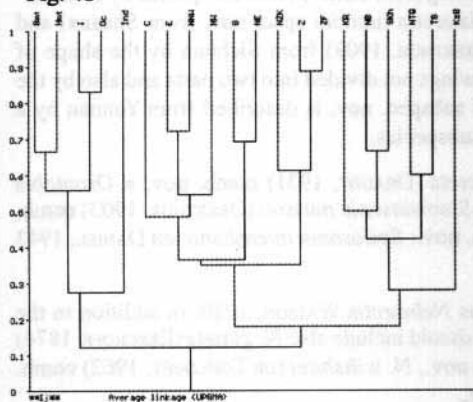


Fig. 49

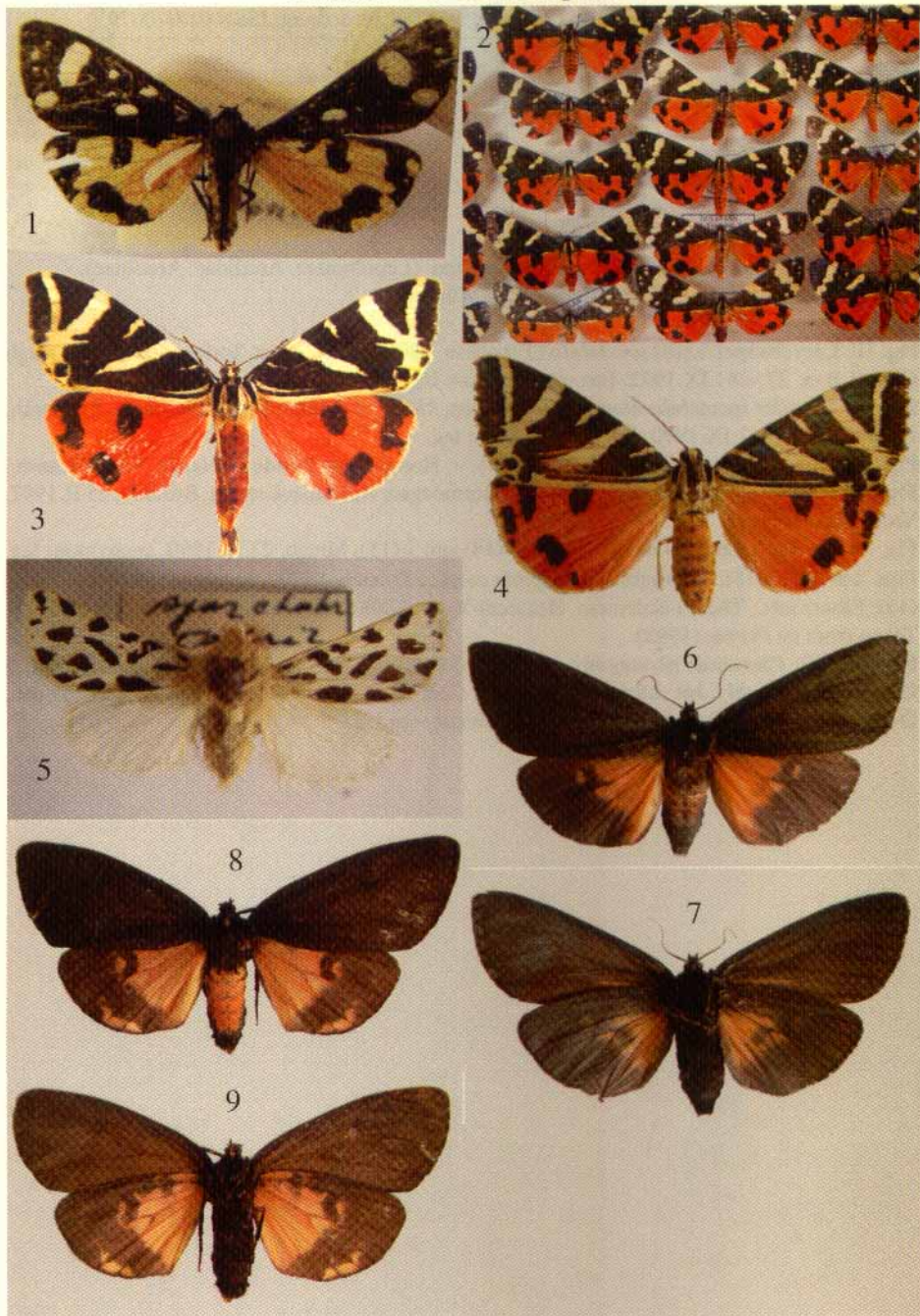
Fig. 46: Division of the Iranian territory into studied sites. Abbreviations as in Table 1. Arctiinae fauna of the Kuh-i-Lut desert, the Namaksar and Sistan hollows (areas without signs) are not studied yet.

Fig. 47: Geographical regions of Iran by PETROV (1955). 1 - borders of regions, 2 - borders of rays; 1 - North Iranian mountain region (1a - North-Western Iran, 1b - South Caspian mountains, 1c - Turkmen-Khorassan mountains), 2 - Caspian wet forest region, 3 - South-West Iranian mountain region (3a - Poshte-Kuh or Kabir-Kuh Mts., 3b - Zagros mountains, 3c - Karun Plain), 4 - Central Iranian mountain region (4a - Kuhrud mountains, 4b - Kuhbenan mountains, 4c - Gavkhan hollow), 5 - South Iranian mountain region (5a - mountains of Fars, 5b - Kuh-e-Furgun mountains, 5c - eastern part of the South Iranian mountains), 6 - East Iranian mountain region (6a - Dzham mountains, 6b - Kayen mountains, 6c - Pelengan mountains, 6d - Serhed tableland), 7 - high plains of the Iranian highland (7a - Dasht-e-Kavir desert, 7b - Dasht-e-Lut desert, 7c - Sistan hollow, 7d - Namaksar hollow).

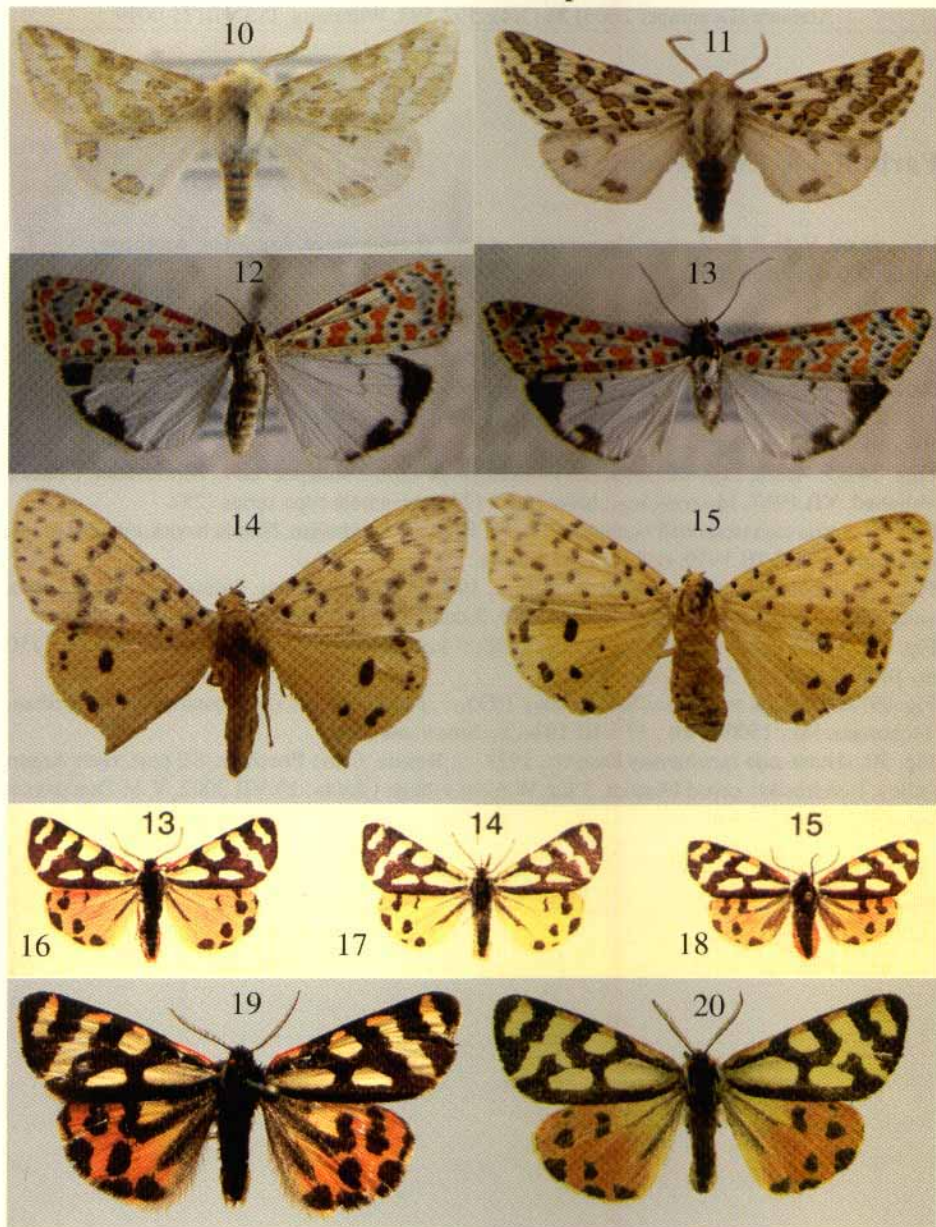
Fig. 48: A dendrogramme of faunistic affinities of the Iranian areas and the river Indus valley. Abbreviations as in table 1; areas correspond to the map on Fig. 46. (Enlarged, readable figure see p. 509.)

Fig. 49: Zoogeographical division of Iran, based on the Arctiinae distribution. Provinces of the Mediterranean Subregion of the Palearctic: AE - Azerbaijan-Elburs, C - Caspian, Z - Zagros, TKh - Turkmen-Khorasan. Provinces of the Sahara-Gobi desert Subregion of the Palearctic: Ts - Torkman-Sakhra (East Caspian) plain, K - Khuzestan-Busher coastal, CI - Central Iranian. Province of the Oriental Region: M - Makran.

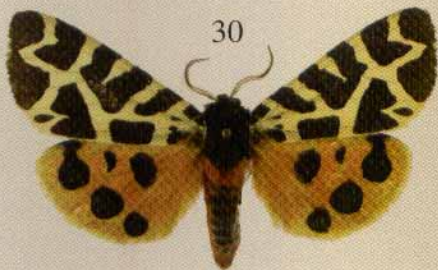
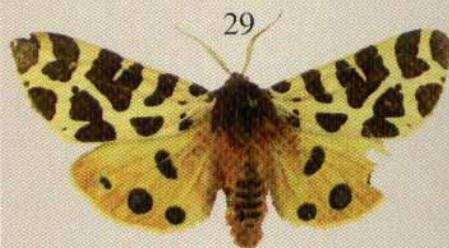
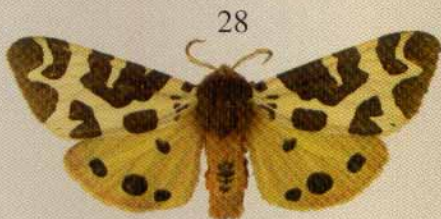
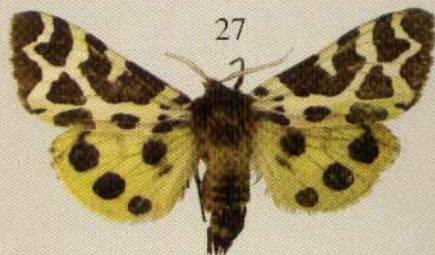
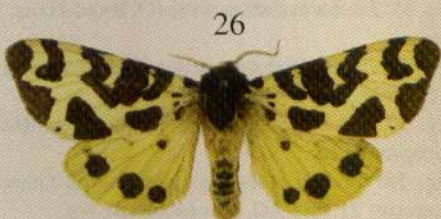
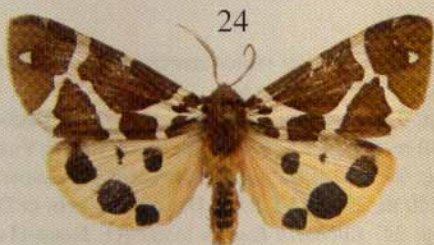
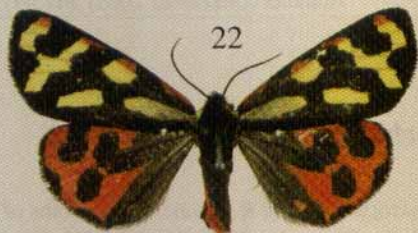
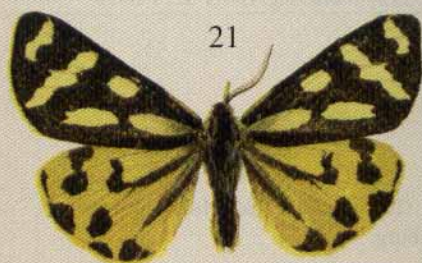
Farbtafel 6/ Colour plate 6



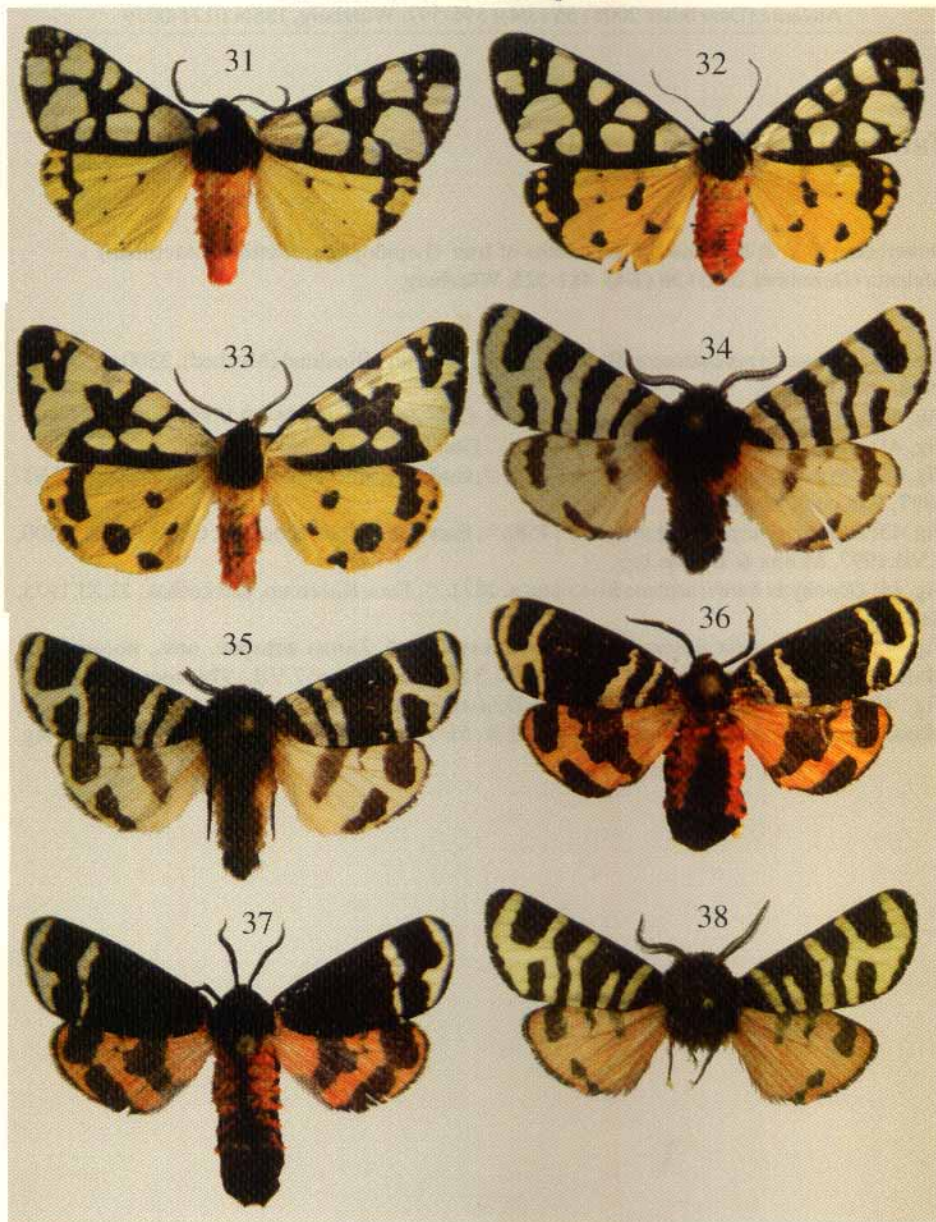
Farbtafel 7/ Colour plate 7



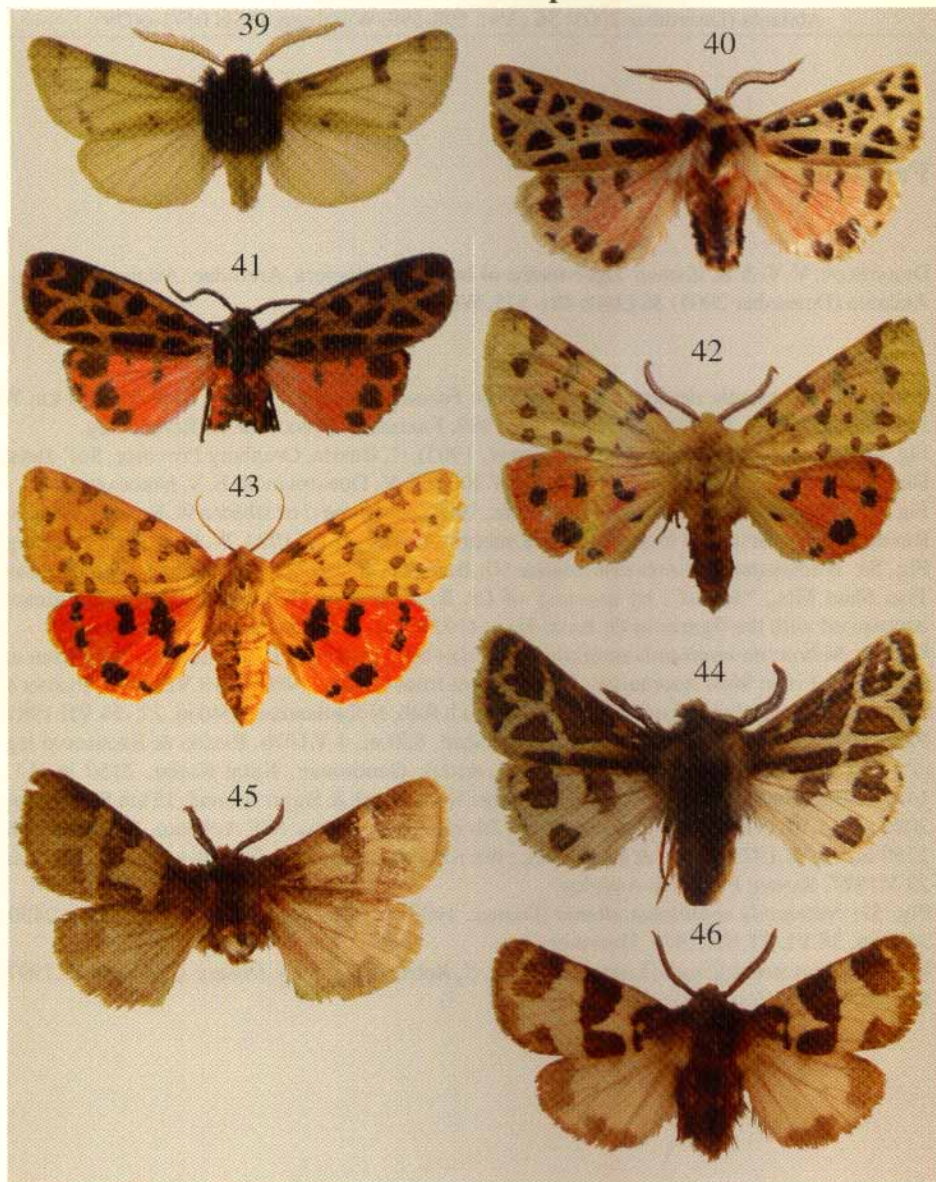
Farbtafel 8/ Colour plate 8



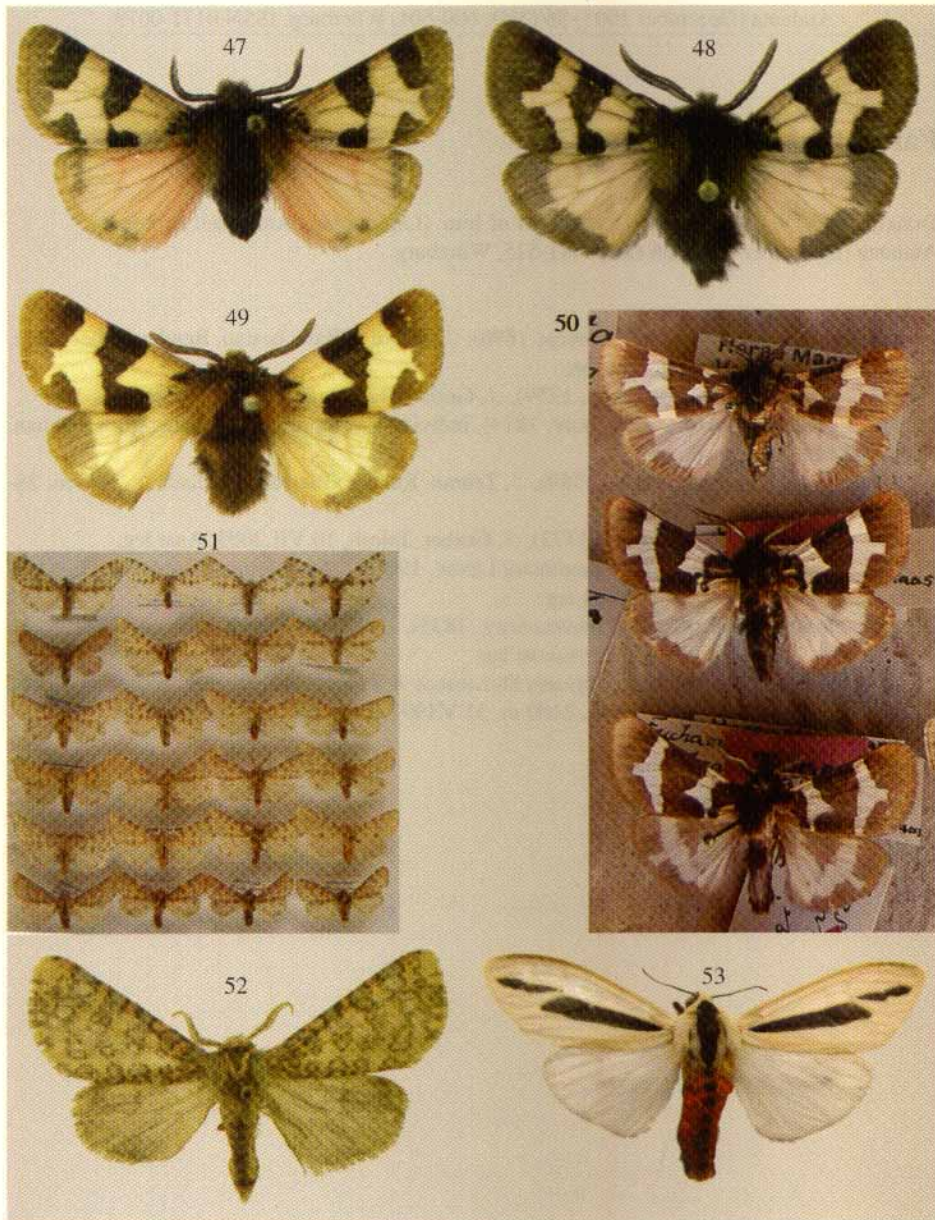
Farbtafel 9/ Colour plate 9



Farbtafel 10/ Colour plate 10



Farbtafel 11/ Colour plate 11



Farbtafel 12/ Colour plate 12

