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Spider Fauna in Caspian Costal Region of Iran

Sahra Ghavami

Department of Agricultural Zoology Research, Plant Pests and Diseases Research Institute,
Araneology Research Laboratory, P.O. Box 19835 173, Evin post station, Tehran, Iran

Abstract: The current study investigated spider fauna of Caspian Costal region of Iran (Guilan, Mazandaran and Golestan provinces) during 2005-2006. Spiders were collected from on the ground and under the stones and grasses by bottle, aspirator, Pitfall trap and pans and from branches, leaves and trunks of different trees and bushes by Steiner and Baggiolini method and insect net. They transferred to the laboratory and classified in 52 species and 51 genera belonged to 20 families. Thirty species, 13 genera and 2 families are reported for the first time from Iran, as follows: Family Agelenidae: *Agelena labyrinthica* (Clerck, 1757), *Cicurina* sp., Family Araneidae: *Agelenatea redii* (Scopoli, 1763), *Araniella inconspicua* (Simon, 1874), *Araniella alpica* (C.L. Koch, 1869), *Araneus diadematus* Clerck, 1757, *Cercidia* sp., *Cyclosa conica* (Pallas, 1772), *Hypsosinga sanguinea* (C.L.Koch,1845), Family Clubionidae: *Clubiona neglecta* O.P. Cambridge, 1862, Family Amaurobiidae, Family Eresidae: *Eresus* sp., *Dresserus* sp., Family Gnaphosidae: *Aphantaulax* sp., *Micaria* sp., Family Metidae: *Zygiella x-notata* (Clerck,1757), Family Miturgidae: *Cheiracanthium erraticum* (Walckenaer, 1802), *Cheiracanthium pennyi* O.P.Cambridge,1873, Family Linyphiidae: *Microlinyphia* sp., Family Lycosidae: *Alopecosa pulverulenta* (Clerck, 1757), *Pardosa amentata* (Clerck, 1757), *Pardosa agrestis* (Westring, 1861), *Pardosa monticola* (Clerck, 1757), Family Oxyopidae: *Oxyopes salticus* (Hentz, 1802), Family Philodromidae: *Philodromus cespitum* (Walckenaer, 1802), Family Pholcidae: *Psilochorus simoni* (Berland, 1911), *Pholcus phalangoides* (Fuesslin, 1775), Family Salticidae: *Salticus scenicus* (Clerck, 1757), Family Tetragnathidae: *Tetragnatha montana*, Simon, 1874, *Tetragnatha javana* (Thorell, 1890), Family Theridiidae: *Dipoena prona* (Menge, 1868), *Steatoda albomaculata* (Degeer, 1778), *Theridion impressum* C. L.Koch, *Theridion simile* C.L.Koch,1836, Family Thomisidae: *Misumena vatia* (Clerck, 1757), *Thanatus formicinus* (Clerck, 1757), *Thanatus striatus* C.L.Koch, 1845, *Xysticus cristatus* (Clerck, 1757).

Key words: Spider, Fauna, predator, Iran

INTRODUCTION

Spiders are one of the most abundant predatory groups in terrestrial ecosystems. Spiders belonged to phylum Arthropoda, class of Arachnida and order of Araneae. Order of Araneae is one of the biggest orders of Arachnida. Thirty five thousand species of spiders have been identified in the world. Two hundred and forty four species of spiders have been reported from Iran. Spiders are important Arthropod predators in natural and agricultural environments. They are carnivorous. A large number of spiders use webs to capture prey and many prey by ambush and pursuit their prey. They feed on insects and small Arthropods. Therefore, they can play an important role in pest control.

The northern part of Iran is situated in the south of the Caspian Sea. So far, the spiders in this region have not been studied. Forty three new species have been identified from this region. Twenty seven species of spiders were reported in rice fields and twelve species were recorded for the first time from Iran

(Mozaffarian *et al.*, 2000). Spiders were one of the most abundant predators in these fields (Ghavami, 2004). Forty four species and 59 genera belonging to 20 families were recorded on cotton fields. Twenty species, 13 genera and 2 families of spiders were reported as the first record of Iran. Twenty six species of spiders recorded from cotton fields in Golestan province (north of Iran) and most populations of identified species belonged to Araneidae, Clubionidae and Theridiidae families, respectively (Ghavami *et al.*, 2005). Thirty four species of spiders were reported from citrus orchards. Four species of spiders were recorded for the first time from Iran. The most abundant of spider species belonged to Linyphiidae, Salticidae and Araneidae families in these orchards, respectively (Ghavami, 2006a). Spiders fauna and abundance of olive orchards studied in northern part of Iran (Guilan, Ghazvin, Zanjan, Mazandaran and Golestan provinces) during 2002-2003. Spiders classified in 45 species and 48 genera belonging to 18 families. Twenty-two species, 10 genera and 2 families are reported for the first time from Iran. Most of the

populations of spiders belonged to Linyphiidae, Salticidae, Araneidae and Thomisidae families, respectively (Ghavami *et al.*, 2004; Ghavami, 2006b). Also, many studies have been done on spider fauna, abundance and their role in pest control in many countries. In a study, spiders were one of the most frequent predators in the European and American olive orchards. Most of the spider population in European and American olive orchards belonged to Linyphiidae family (Nieuwenhuys, 1999). The role of spiders was investigated in olive orchards in Granada, Spain. Spiders were the second most abundant predators. The most abundant spider families were Salticidae and Philodromidae. The most frequently caught species were followed by *Salticus* sp.; *Icius hamatus* and *Philodromus* sp. They were the main predators of *Prays oleae* in these orchards. They fed on egg and larvae of *P. oleae* (Morris *et al.*, 1999). Olive spiders were collected by using pitfall traps in olive groves near Viterbo, central Italy. About 70 species were found belonging to 18 families with the predominant families being Linyphiidae, Lycosidae, Dysderidae, Gnaphosidae and Theridiidae. There was only one abundant species *Lepthyphantes tenuis* together with 4 scarcer species, including *Erigone dentipalpis*, *Meioneta rurestris* and *Pachygnatha degeeri*. Other species also occurred in mid-Europe mainly in urban environments (*Dysdera crocata* and *Scytodes thoracica*) and at xerothermic sites (various species of Theridiidae, Gnaphosidae, Clubionidae, Thomisidae and Salticidae (Thaler and Zapparoli, 1993). Over 900 predators collected during 1998 and 1999 from a Portuguese organic olive orchard were subjected to a serological bioassay for *Prays oleae* predation. The highest number of predators were tested positive during the phyllophagous and antophagous generations of *P. oleae*. Ants (Formicidae) were the most common predators, followed by species belonging to Coleoptera, Hemiptera and spiders (Araneae) (Lozano *et al.*, 2000). Spiders were one of the most abundant predators. They had the largest population in olive orchards in Panama. *Eriophora fuligininea* was one of the most important spider species in these orchards (Graf and Nentwig, 2001). Spiders, ants and redbugs had the highest population in olive orchards in Green County, Mississippi. Spiders were the most important predator in these orchards (Byron and Green, 2000). Spiders were one of the most abundant predators and they had an important role in olive pest control in Italy (Vigiane, 1977). Spiders were natural enemies of *Palpita unionalis* in Italy. Spiders were one of the important predators of *P. oleae* in Italy. (Triggiani and Naples, 1971). They decreased 60-80% of *P. oleae* population in these orchards (Sacchetti, 1990). Spiders fauna were surveyed in cotton fields in

Gujarat, India. They recorded 17 species of spiders belonging to 8 families (Clubionidae, Lycosidae, Theridiidae, Thomisidae, Heteropodidae, Araneidae, Oxyopidae and Filistatidae) (Muralidharan and Chari, 1992). Spider fauna studied in unsprayed cotton grown in 2 regions of south-eastern Queens land during 1973-77. In this study, 25 species, 19 genera belonging to 10 families of spiders were identified. Of these, *Cheiracanthium mordax* L. Koch (diversum L. Koch), *Achaearanea veruculata* (Urquhart) and *Theridion* sp. made up 80-86% (Bishop, 1980). Twenty five little-known species of spiders in Norway were recorded. Six of them were reported for the first time in this country (Hauge, 1980). One hundred and twenty species of spiders were recorded, presented and discussed which were collected by pitfall traps in 12 habitats (mainly forest) in the Vassfaret region of south-eastern of Norway (Hauge and Wiger, 1980). One hundred and one species and 21 genera belonged to Araneidae family and 89 species and 21 genera belonged to Gnaphosidae family of spiders identified in cotton fields in India (Tikader, 1982). An annotated list of 32 species from 10 families of Araneae that were collected from cotton, sugarcane, groundnut, okra, cabbage and rice fields were presented in India. Oxyopidae was the most common family. *Oxyopes shewta* was found in particularly large numbers on cotton, okra and ground nut (Peter and Biswas, 1990). In this study, spider fauna were studied in Caspian costal region of Iran. The study areas lies mainly in the orchards, fields and residentials, dominated by orchards and fields situated in the plain. In addition, orchards located on higher and forests were included in the investigating locations, too.

MATERIALS AND METHODS

Study area: The study sites were: 1) Guilan: Roodbar about 65 km and Rostam Abad 50 km from Rasht 2) Mazandaran: Chaloos about 214 km and Salman Shahr about 200 km, Khoshkehbaran, 244 km, Amol about 70 km from Sari, 3) Golestan: Noudijeh, about 10 km, Chardeh, 24 km, Raamian, 73 km, Tooskaostan, 25 km, Alazeman, 20 km, Toushan, 30 km, Hashem Abad, 15 km, Fazel Abad, 30 km, Beraftan, 47 km, Nazar Abad, 20 km, Gharan Abad, 25 km, Kordkooy, 34 km, Bandar Gaz, 76 km, Azad Shahr, 15 km, Zarrin gol, 72 km, Zanghian, 5 km from Ghorghan.

Spiders sampling: Spiders were collected from branches, leaves, flowers, on the ground and under the stones and grasses by Steiner and Bajolini method, bottle, aspirator, pitfall trap and pans throughout spring, summer and

autumn during 2005-2006. Valid spider identification keys (Anonymous, 2002; Barrion and Litsinger, 1995; Borrer *et al*, 1989; Kaston, 1970; Roberts, 1985) used for species classification.

RESULTS AND DISCUSSION

In this study, 52 species and 51 genera of spiders were identified. Most species belonged to Araneidae (12) and the fewest species belonged to Agelenidae, Clubionidae, Dictynidae, Metidae, Linyphiidae and Scytodidae (1) families. The number of identified spider species in Guilan, Golestan and Mazandaran provinces were 25, 53 and 10 species and the new spider species in these provinces were 10, 30 and 4, respectively. Therefore, most species and most new species were collected from Golestan and the fewest were collected from Mazandaran provinces. Characters of identified species, materials examined and their distribution were as follows:

Family Agelenidae:

1 species and 1 genera were collected of this family

Genus *Agelena* Walckenaer, 1805

Agelena labyrinthica (Clerck, 1757)*

Diagnosis: Posterior row of eyes strongly procurved. Anterior row of eyes slightly procurved. Carapace is without gray margin. Abdomen is with central pale brown stripe and with a darker more grayish band on either side and the darker bands are with tiny white dashes or chevron marking running through them. Terminal segment of posterior spinners are clearly visible and longer than basal segment.

Material examined: Mazandaran: Salman Shahr, 10.5.2005, Khoshkehdaran, 20.3.2005, Chaloos, 22.5.2005, 14.5.2005, 5.5.2006, Golestan: 21.6.2005, 24.4.2006, 15.9.2005, Noudijeh, Raamian, Kordkooy, 11.6.2005, Guilan: 11.4.2005, Rostam Abad, 5.4.2006.

Distribution: Russia, England, Belgium, Poland, France, China and Iran.

Genus *Cicurina* Meng, 1869*

Material examined: Golestan: Gonbad, 21.6.2005, Guilan: 11.4.2005, 5.4.2006.

Distribution: Asia, Iran and Europe.

Family Araneidae:

12 species and 2 genera were collected of this family.

Species identification key of family Araneidae:

- 1-Posterior row of eyes distinctinly procurved.....2
- Posterior row of eyes distinctinly straight or recurved...3
- 2-Carapace covered with silky hairs, abdomen with horizontal yellow and black pattern.....
-*Argiope bruennichi* (Scopoli)
- Carapace covered with silky hairs, abdomen without

- horizontal yellow and black pattern, abdomen with irregular edge.....*Argiope lobata* (Pallas)
- 3-Carapace slightly attenuated anteriorly and with longitudinal median furrow, abdomen with three longitudinal bars on the posterior end, often confluent, forming a solid black rectangle, tibia III with prolateral series of long thin hairs.....
-*Mongora acalypha* (Walckenaer)
- Not as above.....4
- 4-Abdomen bright green, with a red spot dorsal next to the spinners, genitalia closely similar to *Araniella inconspicue* in scape (more wide and short).....
-*Araniella cucurbitina* (Clerck)
- Abdomen bright green, epigyne with scape originating narrower than *A. cucurbitina*.....
-*Araniella inconspicue* (Simon)
- 5-Apical part of epigyne narrower than *A. inconspicue*.....
-*Araniella alpica* (C.L.Koch)
- Not as above.....6
- 6-Abdomen with a single tubercle (hump).....
-*Cyclosa conica* (Pallas)
- Not as above.....7
- 7-Carapace lighter yellow-brown, without light margin, the width of the white abdominal stripes variable and always present, metatarsi with spines.....
-*Hypsosinga sanguinea* (C.L.Koch)
- Carapace brown with light margins, the width of white stripes variable, occasionally, may broken or absent, closely resembles *H. sanguinea* in general appearance.....*Hypsosinga pygmae* (Sundevall)
- 8-Carapace with transverse groove posteriorly, abdomen with tubercles antrolaterally, the shoulder humps near the front of the abdomen, palpe with large hook-like terminal apophysis and a median apophysis with teeth hooks, epigyne with long wrinkled scape originating front anterior border, the external sex organs of the male and female can be seen on the ventral view, both the male and female's genital openings lie inside the epigastric furrow, except that the epigynum situated in front of the female furrow.....*Araneus diadematus*, Clerck
- Not as above.....9
- 9-Abdomen as broad as long with variable color markings, some specimens with a sub triangular brown patch in the posterior hale, epigyne distinctive with scape originating anteriorly wider than *Neoscona adianta*, abdomen in males with a dark lanceolate midline mark edged, body circular, abdomen with v-sign at the front end, palpes with a long spine, color of spiders usually reddish to brown, spider very variable in color.....
-*Agalenatea redii* (Scopoli)
- Carapace with longitudinal groove posteriorly, abdomen

longer than broad, epigyne longer than wide, the scape being fused to the base and not distinctive like *Agalenatea redii*, palpe with no tibial spines, appearance coloring from gray to reddish-brown or orange with yellow-brown pattern.....
.....*Neoscona adianta* (Walckenaer)
Genus *Agalenatea* Archer, 1951
Agalenatea redii (Scopoli 1763) *
Material examined: Golestan: Raamian 21.6.2005, Gonbad, 24.4.2006.
Distribution: England, France, sued, Cornwall, Asia and Iran.
Genus *Araniella* Chamberlin and Lvie, 1942
Araniella inconspicua (Simon, 1874)*
Material examined: Golestan: Raamian, 21.6.2005, Alazeman, 24.4.2006.
Distribution: England, Belgium, Russia, Poland and Iran.
Araniella alpica (L.Koch, 1869)
Material examined: Golestan: Nodijeh, 21.6.2005.
Distribution: England, Belgium, Russia, Poland and Iran.
Araniella cucurbitina (Clerck 1757)
Material examined: Golestan: Nodijeh, 21.6.2005, 24.4.2006, Tooskaostan, 20.6.2005, 22.4.2006, Zarringol, 22.4.2006, Guilan: 10.4.2005, 5.3.2005, 11.5.2005, 4.4.2006, Mazandaran: 20.3.2005, 22.5.2005, 14.5.2005, 5.5.2006.
Distribution: England, Belgium, Russia, Poland and Iran.
Genus *Araneus* Clerck, 1757
Araneus diadematus Clerck, 1757 *
Material examined: Golestan: Nodijeh, 21.6.2005, 24.4.2006, Mazandaran: 20.3.2005, 22.5.2005, 14.5.2005, 5.5.2006.
Distribution: England, Belgium, Russia, Poland and Iran.
Genus *Argiope* Savigny, 1827
Argiope bruennichi (Scopoli, 1772)
Material examined: Golestan: Nodijeh, 21.6.2005, 24.4.2006, Tooskaostan, 26.9.2005, 20.6.2005, 22.4.2006, Guilan: 11.4.2005, 5.4.2006, Mazandaran: 20.3.2005, 22.5.2005, 14.5.2005, 5.5.2006.
Distribution: England, Belgium, Russia, Poland, Asia and Iran.
Argiope lobata (Pallas, 1772)
Material examined: Golestan: Tooskaostan, 22.4.2005.
Distribution: Asia, Iran, Meditaraneh, Egypt, Malt Island and Europe.
Genus *Cercidia* Thorell, 1869*
Material examined: Golestan: Nodijeh, 21.6.2005, 24.4.2006, Tooskaostan, 26.9.2005, 20.6.2005, 22.4.2006, Guilan: 11.4.2005, 5.4.2006.
Diagnosis: Abdomen is slightly pointed anteriorly with a dorsal abdominal scutum. There is a line of short dark spines around the anterior end of abdomen. The color of this spider is orange-red.

Distribution: Asia, Iran and Europe.
Genus *Cyclosa* Thorell, 1869
Cyclosa conica (Pallas, 1772)*
Material examined: Golestan: 21.6.2005, 24.4.2006, 15.9.2005.
Distribution: England, Belgium, Russia, Iran and Europe.
Genus *Hypsosinga* Ausserer, 1871
Hypsosinga pygmaea (Sundevall, 1831)
Material examined: Guilan: 11.4.2005, 5.4.2006.
Distribution: England, Belgium, Russia, Poland, Iran and Europe.
Hypsosinga sanguinea (C.L.Koch, 1845)*
Material examined: Golestan: Nodijeh, 21.6.2005, 24.4.2006, Tooskaostan, 26.9.2005, 20.6.2005, 22.4.2006.
Distribution: England, Belgium, Russia, Poland, Europe and Iran.
Genus *Neoscona* Simon, 1864
Neoscona adianta (Walckenaer, 1802)
Material examined: Golestan: Nodijeh, 21.6.2005, 24.4.2006, Tooskaostan, 26.9.2005, 20.6.2005, 22.4.2006.
Distribution: England, Belgium, Russia, Europe and Iran.
Genus *Mangora* O.P. Cambridge, 1889
Mangora acalypha (Walckenaer, 1802)
Material examined: Golestan: Nodijeh, 21.6.2005, 24.4.2006, Tooskaostan, 26.9.2005, 20.6.2005, 22.4.2006, Guilan: 11.4.2005, 5.4.2006.
Distribution: England, Belgium, Poland Europe, Asia and Iran.
Genus *Singa* C.L.Koch, 1836
Material examined: Golestan: Nodijeh, 21.6.2005, 24.4.2006, Tooskaostan, 26.9.2005, 20.6.2005, 22.4.2006.
Diagnosis: Anterior median eyes are large. Median ocular quadrangle is wider in front than behind.
Distribution: Asia, Iran and Europe.

Family Amaurobiidae:
Material examined: Golestan: Ramian, 26.9.2005, 20.6.2005, 22.4.2006.
Diagnosis: All of the eight eyes are light in color. There are under logs or stones where they build a messy web with an irregular shape.
Distribution: England, Russia, Poland, Europe and Iran.

Family Clubionidae:
1 species was collected of this family.
Genus *Clubiona* Latreille, 1804
Clubiona neglecta O.P. Cambridge, 1862*
Material examined: Golestan: Kordkooy, Karkandeh, 20.6.2005.
Distribution: Asia, Iran and Europe.
Diagnosis: Epigyne is square shapes with two cavities.

Family Dictynidae:

1 species was collected of this family.

Genus *Dictyna* Sundevall, 1833

Dictyna latens (Fabricius, 1775)*

Material examined: Golestan: Gonbad, 20.6.2005, Nodijeh, 21.6.2005, 24.4.2006, Tooskaostan, 26.9.2005, 20.6.2005, 22.4.2006, Guilan: 11.4.2005, 5.4.2006.

Diagnosis: Carapace is dark brown with white hairs. Abdomen is with dark brown or black markings. Tarsi or metatarsi hasn't trichobothria. Body is covering with white hairs

Distribution: England, Belgium, Russia, Poland, Europe, Asia and Iran

Family Eresidae:

2 genera were collected of this family.

Genus *Eresus* Walckenaer, 1805*

Material examined: Guilan: Roodbar, 18.6.2002, Rostam Abad, 16.6.2002.

Diagnosis: Anterior part of carapace is raised. Eyes are located one at each corner and four near the midline. Anterior legs appear black and white. The abdomen is white.

Distribution: Asia, Europe and Iran.

Genus *Dresserus* Simon, 1876 *

Material examined: Guilan: 11.4.2005, 5.4.2006.

Distribution: Asia, Iran and Europe.

Family Filistatidae:

Material examined: Guilan: 11.4.2005, 5.4.2006.

Diagnosis: The labium is fused to the sternum. The calamistrum on the females and juveniles is short and made up of only a few stiff bristles.

Distribution: Asia, Iran and Europe.

Family Gnaphosidae :

4 genera were collected of this Family.

Genus *Aphantaulax* Simon, 1878 *

Material examined: Guilan: 11.4.2005, 5.4.2006, Golestan: Chardeh, 20.6.2005, Nodijeh, 21.6.2005.

Distribution: Asia, Iran and Europe.

Genus *Scotophaeus* Simon, 1893

Material examined: Mazandaran: Salman Shahr, 10.5. 2005, Amol, 20.3.2005, 22.5.2005, 14.5.2005, 5.5.2006.

Diagnosis: Abdomen is mousy. Anterior median eyes are considerably larger than the laterals. Carapace is narrower anteriorly and furnished with long black hairs.

Distribution: Europe, Asia and Iran.

Genus *Micaria* Westring, 1851*

Material examined: Golestan: Gonbad, 20.6.2005.

Diagnosis: Anterior spinners close together and scarcely projecting from posterior end of abdomen. Small spiders

clothed with iridescent hairs and white hairs.

Distribution: Asia, Iran and Europe.

Genus *Zelotes* Gistel, 1848

Material examined: Mazandaran: Salman Shahr, 10.5. 2005, Amol, 20.3.2005, 5.5.2006, Golestan: Gonbad, 20.6.2005, Nodijeh, 21.6.2005, 24.4.2006, Tooskaostan, 26.9.2005, 20.6.2005, 22.4.2005.

Diagnosis: Carapace is markedly narrow in front and most species are dark in color or totally black. The bronchial opercula is bright yellow or orange in most species.

Distribution: Europe, Asia and Iran.

Family Linyphiidae:

1 species and 2 genera were collected of this family.

Genus *Linyphia* Latreille, 1804*

Material examined: Golestan: Gonbad, 20.6.2005, Nodijeh, 21.6.2005, 24.4.2006, Tooskaostan, 26.9.2005, 20.6.2005, 22.4.2005.

Diagnosis: Carapace is dark without median bifid stripe. Femur is without dark spots. Lateral and dorsal spines are on femur, patellae, tibia and metatarsi.

Distribution: Europe, Asia and Iran.

Genus *Microlinyphia* Gerhardt, 1928*

Material examined: Golestan: Tooskaostan, 26.9.2005, 20.6.2005, 22.4.2005.

Diagnosis: Tibia spines are 2-2-2-2 with several additional spines on femura, patellae, tibia and metatarsi.

Distribution: Europe, Asia and Iran.

Genus *Frontinella* Van Helsdingen, 1969

Frontinella fruntetorum (C.L.Koch, 1981)

Material examined: Golestan: Gonbad, 20.6.2005, Nodijeh, 21.6.2005, 24.4.2006, Tooskaostan, 26.9.2005, 20.6.2005, 22.4.2006, Guilan: 11.4.2005, 5.4.2006.

Diagnosis: The carapace is evenly brown. A pattern can be seen on the abdomen.

Distribution: Europe, Asia and Iran.

Family Lycosidae:

4 species were collected of this family.

Species identification Key of Lycosidae family:

1-Carapace with is rather elevated anteriorly, with the median band pointed anteriorly on each side of the median band near the front end a pair of roughly semicircular areas, outlined with black, leg 4 noticeably longer than the others, tarsus I without long proximal small and weak bristle.....*Pardosa agrestis* (Westring)

2-Carapace with the median band and without lateral bands, leg 4 noticeably longer than the others, legs yellow to brownish in color, males typically darker than females, with more distinct markings.....

.....*Pardosa amentata* (Clerck)

3-Carapace with the median band anteriorly and lateral bands unbroken and continue round the side of the eyes.....*Pardosa monticola* (Clerck)

4-The median light band on carapace with white hairs and contains no darker marks, the lateral bands, usually continuous but not always well-defined, abdomen small, abdominal pattern sometimes much more distinct, legs fairly long and slender, tarsi with a group of trichobothrias, two long and two short, arranged alternately.....

.....*Alopecosa pulverulenta* (Clerck)

Genus *Alopecosa* Simon, 1885

Alopecosa pulverulenta (Clerck, 1757)*

Material examined: Golestan: 15.6.2004.

Distribution: Asia, Iran and Europe.

Genus *Pardosa* C.L.Koch, 1848

Pardosa amentata-group (Clerck, 1757) *

Material examined: Golestan: Gonbad, 20.6.2005, Nodijeh, 21.6.2005, 24.4.2006, Tooskaostan, 26.9.2005, 20.6.2005, 22.4.2006.

Distribution: England, Russia, Poland and Iran.

Pardosa agrestis (Westring, 1861)*

Material examined: Golestan: Fazel Abad, Gharan Abad, Gonbad, 20.6.2005, Nodijeh, 21.6.2005, 24.4.2006, Tooskaostan, 26.9.2005, 20.6.2005, 22.4.2006, Guilan: 11.4.2005, 5.4.2006.

Distribution: England, Russia, Poland and Iran.

Pardosa monticola (Clerck, 1757)*

Material examined: Golestan: Fazel Abad, 20.6.2005, Hashem Abad, 24.4.2006.

Distribution: Russia, Poland and Iran.

Family Metidae*:

1 species was collected of this family

Genus *Zygiella* F.O.P.Cambridge, 1902

Zygiella x-notata (Clerck, 1757) *

Material examined: Golestan: 22.6.2005, 21.4.200.

Distribution: Asia, Iran and Europe.

Diagnosis: Posterior row of eyes are more nearly equidistant. Abdomen is grayish-brown whit markings.

Family Miturgidae*:

2 species were collected of this family.

Species key identification of family Miturgidae:

1-Total width of eyes group at least half the width of carapace at it widest point, chelicerae clearly visible from above, carapace with a fovea, leg IV longer than leg I, tibia I with 2 pairs of ventral spines, abdomen small, in most specimens more distend and oval, abdomen gray-brown with reddish median stripe by pale yellow, epigyne with small and round shape central cavity.....

.....*Cheiracanthium erraticum* (Walckenaer)

2-Similar in apparence to *Cheiracanthium erraticum*, epigyne with oval shape central cavity, central cavity larger than *Cheiracanthium erraticum*.....

.....*Cheiracanthium pennyi* O.P.Cambridge, 1873

Genus *Cheiracanthium* C.L.Koch. 1839

Cheiracanthium erraticum (Walckenaer, 1802)*

Material examined: Golestan: 21.6.2005, Gonbad, 15.9.2006.

Distribution: Asia, Iran and Europe.

Cheiracanthium pennyi O.P.Cambridge, 1873*

Material examined: Golestan: Gonbad, 15.9.2006, Bailer, 14.9.2006, Hivehchi, 21.4.2006.

Family Oxyopidae:

2 species were collected of this family.

Genus *Oxyopes* Latreille, 1804

Oxyopes lineatus (Latreille, 1806)

Material examined: Golestan: Beraftan, 14.9.2006.

Diagnosis: Carapace has three white stripes. One is between AME and PME eyes and two bands are around the carapace. A brown lanseonate shape with a white strip around it. They have three claws on the leg tips. They have many long strong setae.

Distribution: Belgium, Asia, Iran and Europe.

Oxyopes salticus (Hentx, 1802)*

Material examined: Geolestan: Gonbad, 16.9.2006.

Distribution: Belgium, Asia, Iran and Europe.

Diagnosis: Two brown stripes are on the sides of the abdomen. Legs have many strong setae.

Family Philodromidae:

5 species were collected of this family.

Species identification key of family Philodromidae:

1-Posterior row of eyes only slightly recurved, the medians being a little closer to the laterals than to each other, carapace light brown unicolorous, except for dark semicircular marks at the central near carapace edge, abdomen only slightly elongated, abdominal pattern often uniformly pale beige dorsally.....

.....*Philodromus rufus* (Walckenaer)

2-Body with depth of color and amount of red in the abdominal pattern, often uniformly pale beige dorsally.....*Philodromus cespitum* (Walckenaer)

3-Posterior median eyes much closer to one another than to posterior laterals, carapace light brown unicolorous, abdomen long and cylindrical, usually light brown, sometimes with darker longitudinal stripes (two stripes), the general color of spider is light gray or yellow.....*Tibellus oblongus*, Simon

4-Posterior median eyes only slightly closer to one another than to posterior laterals, abdomen only slightly elongated, overall color brownish with a pair of longitudinal mark on abdomen followed by a pair of longitudinal dark lines.....*Thanatus formicinus* (Clerck)

-Abdomen oval and slightly elongated, brown color, with a pair of longitudinal mark on abdomen followed by a pair of longitudinal dark lines.....*Thanatus striatus* C.L. Koch
Genus *Philodromus* Walckenaer, 1825

Philodromus rufus (Walckenaer, 1825)

Material examined: Golestan: Tooskaostan, Zarringol, 22.6.2005, Kordkooy, 15.9.2005, Beraftan, 24.4.2006.

Distribution: Russia, Poland, Belgium and Iran.

Philodromus cespitum (Walckenaer, 1802)*

Material examined: Golestan: Nasr Abad, 20.6.2005, Zarringol, 22.6.2005.

Distribution: Asia, Russia, Poland, Belgium, England and Iran.

Genus *Thanatus* C.L.Koch, 1845

Thanatus formicinus (Clerck, 1757)*

Material examined: Golestan: Gonbad, 16.9.2006.

Distribution: Asia, Iran and Europe.

Thanatus striatus C.L.Koch, 1845*

Material examined: Golestan: Gonbad, 22.4.2005.

Distribution: Asia, Iran and Europe.

Genus *Tibellus* Simon, 1875

Tibellus oblongus (Walckenaer, 1802)

Material examined: Golestan: Nasr Abad, 20.6.2005, Zarringol, 20.6.2005, Hashem Abad, Gonbad, Hivechi, 25.6.2005, Mazandaran: Amol, 14.5.2005, 15.9.2005, 5.5.2006.

Distribution: Asia, Russia, Poland, Belgium, England and Iran.

Family Pholcidae:

2 species were collected of this family.

Species identification key of family Pholcidae:

1-The posterior median eyes, smaller than the others, carapace, with a gray mark in the center, abdomen cylindrical, spider pale yellow with dark markings on the abdomen, legs long spindly with flexible tarsi

.....*Pholcus phalangioides* (Fuesslin)

2-Abdomen globular, spinners close to epigasteric fold, spider pale yellow.....*Psilochorus simoni* (Berland)

Genus *Psilochorus* Simon, 1893

Psilochorus simoni (Berland, 1911) *

Material examined: Golestan: Tooskaostan, Kordkooy, Chardeh, 23.6.2005, 8.6.2006, Bandar Gaz, 25.4.2006, 6.6.2006.

Distribution: Russia, Poland, Belgium, England and Iran.

Genus *Pholcus* Walckenaer, 1805

Pholcus phalangioides (Fuesslin, 1775) *

Material examined: Golestan: Chardeh, 8.6.2006, Bandar Gaz, 8.6.2006, Guilan: 11.4.2005, 6.4.2006.

Distribution: Russia, Poland, Belgium, England and Iran.

Family Salticidae:

5 species and 3 genera were collected of this family.

1-Carapace more uniformly black and abdomen with no clear illustrated pattern.....2

-Carapace no uniformly black and abdomen with clear illustrated pattern.....3

2-Legs with black streaks prolaterally and retro laterally along the length of femur and tibia 1 to 4.....

.....*Heliophanus cupreus* (Walckenaer)

-Usually only coxa 4 and part of femur 4 marked with black.....*Heliophanus flavipes* C.L. Koch.

3-Tibia 1 without ventral setae, the legs appear black and white in life, due to hairs, but often appear quite yellow in spirit, abdomen in gray with white marking, iridescent scales in the eye region.....*Salticus scenicus* (Clerck)

4-Carapace yellow with less black marking, carapace rather rounded anteriorly, small eyes of the second row not much closer to the anterior, posterior legs with numerous strong spines, abdomen yellow with dark markings.....

.....*Thyene imperialis* (Rossi)

Genus *Bianor* G. and E. Peckham, 1885

Bianor albimaculatus (Lucas, 1846)

Material examined: Guilan, 11.4.2005.

Distribution: Asia, Iran and Europe.

Genus *Evarcha* Simon, 1902

Material examined: Golestan: 13.8.2002, Guilan: Roodbar, 7.8.2003.

Diagnosis: Leg I longer than leg III.

Distribution: England, Asia, Iran and Europe.

Genus *Heliophanus* C.L.Koch, 1833

Heliophanus cupreus (Walckenaer, 1802)

Material examined: Guilan: 13.4.2005, Roodbar, 7.4.2006.

Distribution: Belgium, England, Asia and Iran.

Heliophanus flavipes C.L.Koch, 1848

Material examined: Golestan: Kordkooy, 14.9.2005, Gonbad, 24.4.2006, 6.6.2006, Guilan: 13.4.2005, Roodbar, 8.4.2006.

Distribution: Asia, Iran, Poland, Belgium and England.

Genus *Hyllus* C.L.Koch, 1846

Material examined: Guilan: Roodbar, 12.4.2005.

Distribution: Asia, Iran and Europe.

Genus *Myrmarachne* MacLeay, 1839

Material examined: Golestan: Gharan Abad, 8.4.2006.

Diagnosis: They are similar to ants. The ocular trapezium slightly broader than long.

Distribution: England, Asia and Iran.

Genus *Salticus* Latreille, 1804

Salticus scenicus (Clerck, 1757)*

Material examined: Golestan: Gharan Abad, 8.4.2006, Guilan: Roodbar, 10.4.2005, 7.4.2006.

Distribution: Poland, Belgium, England, Asia and Iran.

Genus *Thyene* Simon, 1885

Thyene imperialis (Rossi, 1846)

Material examined: Golestan: Chardeh, Zarringol, Azad Shahr, 24.4.2006, Gonbad, Hivechi, 15.9.2005, Hashem Abad, Tooskaostan, 20.6.2005, Guilan: 5.4.2006, Mazandaran: Amol, 14.5.2005, 15.9.2005, 5.5.2006.

Distribution: Asia, Iran and Europe.

Family Scytodidae:

1 species was collected of this family

Genus *Scytodes* Latreille, 1804

Scytodes thoracica, Latreille, 1804

Material examined: Golestan: 20.4.2006.

Diagnosis: Cephalothorax is yellow sloping down wards to the cephalic area forwardly inclined portion with a pair of marks. Abdomen is short and ovoid to globular with color pattern similar to carapace. Venter is yellow except black spots is on laterally. It's method of hunting is unique among spiders. The greatly enlarged abdomen contains special venom glands that can squirt sticky venom on to prey.

Distribution: Russia, Poland, Belgium, England and Iran.

Family Tetragnathidae:

3 species were collected of this family.

Species identification key of family Tetragnathidae:

1-Long abdomen and narrow, more than twice as long as wide, chelicerae very long, males a strong projecting spure on anterior surface, color of abdomen bright and rather variable with a reddish ting and silvery pigment spots.....*Tetragnatha extensa* (Linnaeus)

2-Abdomen usually slightly darker and more brownish the *T. extensa* with dark pattern.....

.....*Tetragnatha montana*, Simon

3-Carapace brown with C shape fovea, fovea brownish to red with 2 bonds in lateral of carapace, abdomen long and very narrow, color of abdomen yellow with 2 dark bonds in back.....*Tetragnatha javana* (Thorell)

Genus *Tetragnatha* Latreille, 1804

Tetragnatha extensa (Linnaeus, 1785)

Material examined: Guilan: Roodbar, 11.4.2005, 5.4.2006, Golestan: Raamian, Fazel Abad, Bandar Gaz, 22.6.2005, 17.9.2005, Zanghian, 15.9.2005, Gonbad, 6.6.2006, Hashem Abad, 17.9.2006.

Distribution: Russia, Poland, Swede, Belgium, England and Iran.

Tetragnatha montana, Simon, 1874*

Material examined: Golestan: Toshan, 15.9.2005, Hashem Abad, Raamian, Gonbad, 6.6.2006.

Distribution: Russia, Poland, Belgium, England, Europe and Iran.

Tetragnatha javana (Thorell, 1890)*

Material examined: Guilan: Roodbar, 5.4.2006, Golestan: Toshan, Kordkooy, karkandeh, 21.4.2005, Gonbad, 6.6.2006, Hashem Abad, 24.6.2005.

Distribution: Asia, Iran and Europe.

Family Theridiidae:

6 species and 1 genera were collected of this family

Species identification key of family Theridiidae:

1-Colulus and paired setae absent.....2

-Colulus and paired setae present.....3

2-Abdomen ovoid with many white and brown patterns.....*Theridion simile*, C.L.Koch

-Colulus and paired setae absent, abdomen ovoid with many white and brown patterns.....

.....*Theridion impressum* C. L.Koch

3-Abdomen ovoid and brown, carapace raised anteriorly, anterior median eyes twice as large as anterior lateral eyes; legs without spines, legs yellow-brown, suffused with black, metatarsus 1 one and a half times as long as tarsus 1.....*Dipoena prona* (Menge)

-Lateral eyes of each side at least a diameter of one apart, abdomen ovoid and checkered with white and brown spots on back, an hourglass- shaped mark on the venter.....

.....*Laterodectus tredecimgutatus* (Rossi)

4-Abdomen globular and almost black with a white line anteriorly and a median stripe dorsally and with variable pattern and legs with brown and black strips.....*Steatoda albomaculata* (Degeer)

-Abdomen with a median stripe dorsally and with variable pattern.....*Steatoda paykulliana* (Fabricius)

Genus *Dipoena* Thorell, 1869

Dipoena prona (Menge, 1868)*

Material axamined: Guilan: Roodbar, 11.4.2005, Golestan: Azad Shahr, 6.6.2006.

Distribution: Russia, Poland, Belgium and Iran.

Genus *Enoplognatha* Pavesi, 1880:

Material axamined: Guilan: Roodbar, 11.4.2005, Golestan: Azad Shahr, 6.6.2006.

Diagnosis: Male chelicerae is large, robust with conical protrusions. Female has one large tooth on chelicerae retro or anteriomargin.

Distribution: Asia, Iran and Europe.

Genus *Latrodectus* Walckenaer, 1805

Latrodectus tredecimguttatus (Rossi, 1790)

Material examined: Golestan: Hashem Abad, 23.4.2006.

Distribution: Asia, Iran, Africa, Mediteraneh, Central Asia, Ethiopian and Saudian Arabia.

Genus *Steatoda* Sandevall, 1833

Steatoda albomaculata (Degeer, 1778)*

Material axamined: Golestan: Hashem Abad, 6.6.2006, Mazandaran: Salman Shahr, Amol, 5.5.2006.

Distribution: Russia, Iran and Europe.

Steatoda paykulliana (Fabricius, 1775)*

Material examined: Golestan: Gonbad, Bailer, 16.9.2005, Hashem Abad, 6.6.2006.

Distribution: Asia, Iran and Europe.

Genus *Theridion* Walckenaer, 1805

Theridion simile, C.L.Koch, 1836*

Material examined: Golestan: Kordkooy, 15.9.2005, Guilan: 11.4.2005.

Distribution: Belgium, England, Asia and Iran.
 Genus *Theridion* Walckenaer, 1805
Theridion impressum C. L.Koch, 1881*
 Material examined: Golestan: Gonbad, Bailer, 24.4.2005, Ghareghaj, 6.6.2006.
 Distribution: Asia, Iran and Europe.

Family Thomisidae:

5 species were collected of this family.

Species identification key of family Thomisidae:

- 1-Legs 1 and 2 considerably stouter and longer than 3 and 4, lacking claw tufts and scapulae, no chelicerae teeth, spiders very crab-like in appearance.....2
 - Legs less different in thickness and length, spider less crab-like in appearance.....4
 - 2-Abdomen distinctly triangular.....3
 - Abdomen globular, oval or elongated.....11
 - 3-Lateral eyes on pronounced conical protuberances, carapace tilted slightly upwards, considerable variation occurs in the color, which may be whitish or yellow or pale brownish.....*Thomisus onustus*, Walckenaer
 - Not as above.....4
 - 4-Anterior median eyes closer to the anterior laterals than to each other and considerably smaller than anterior laterals, many strong spines present on carapace, carapace and abdomen with many dark markings.....*Xysticus cristatus* (Clerck)
 - Legs 1 and 2 much darker, the femura being uniformly dark brown and other segments annulated.....*Xysticus kochi*, Thorell
 - 5-Anterior eyes roughly equidistant and equal size, fewer and weaker spines present on carapace, two pairs of crimson spots shown on abdomen of specimen illustrated or jointed to gether to form a pair of lateral comparison lines....*Misumena vatia* (Clerck)
 - Carapace strongly convex, carapace and legs dark brown to black; abdomen yellow or with dark pattern brownish to red, claws on tarsus 1 with 6 to 12 teeth.....*Synaema globosum* (Fabricius)
- Genus *Misumena* Latreille, 1804
Misumena vatia (Clerck, 1757)
 Material examined: Guilan: Roodbar, 5.4.2006, Golestan: 6.6.2006, Soomeaehbar, Raamian, Fazel Abad, Bandar Gaz, 23.4.2005, Gonbad, 6.6.2006, Mazandaran: 15.9.2005, 7.5.2006.
 Distribution: Belgium, England, Asia and Iran.
 Genus *Synaema* Simon, 1864
Synaema globosum (Fabricius, 1775)
 Material examined: Golestan: Zarringol, Moodestan, Beraftan, Tooskaostan, 21.6.2005, Toushan, 20.4.2005, Kordkooy, 9.6.2006, Guilan: Roodbar, 11.4.2005.
 Distribution: Belgium, Russia, Mediterranean and Iran.
 Genus *Thomisus* Walckenaer, 1805

Thomisus onustus, Walckenaer, 1806
 Material examined: Golestan: Soomeaehbar, Toushan, 15.9.2005, Kordkooy, 5.6.2006, Guilan: Roodbar, 10.4.2005.
 Distribution: Russia, Poland, Belgium, England and Iran
 Genus *Xysticus* C.L.Koch, 1835
Xysticus cristatus (Clerck, 1757)*
 Material examined: Golestan: Raamian, Nodijeh, Kordkooy, 23.6.2005, Tushan, 15.9.2005, Karkandeh, 7.6.2006, Guilan: Roodbar, 11.4.2005, 8.4.2006.
 Distribution: Russia, Poland, Belgium, England and Iran.
Xysticus kochi, Thorell, 1872
 Material examined: Guilan: Roodbar, 11.4.2005, Golestan: Hashem Abad, Tooskaostan, 9.6.2006.
 Distribution: Russia, Iran and Europe.
 *Asterisks have shown new species, genera and families.

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