

# Fauna of the Ladybird Beetles (Coleoptera: Coccinellidae) and their Associated Host Plants from Southern Syria

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## Abstract

The coccinellids of southern Syria were studied based on 7418 specimens collected during 2001 to 2005. Fifty-one species and subspecies belonging to 21 genera of 11 tribes and two subfamilies (Microweiseinae and Coccinellinae) were recorded. Fifteen species are recorded for the first time in Syria. Host plants species for each coccinellid species were recorded.

**Keywords:** Coccinellids, Coccinellidae, Coleoptera, systematics, Syria, host plant.

## 1. Introduction

Ladybird beetles (Coccinellidae) constitute one of the largest families of coleopterous insects, including over 6000 species (Hodek *et al.*, 2015). The overwhelming majority of lady beetles are predators, feeding of aphids, psyllids, whiteflies, mealybugs, scales, thrips, spider mites, leaf beetle larvae and other small arthropods (Kuznetsov, 1997).

The species of family Coccinellidae in the Middle East, with 61 species in Iraq (Ali *et al.*, 1990), 142 species in Iran (Biranvand *et al.*, 2016; Mesbah *et al.*, 2016), 16 species in Jordan (Alawi, 1989), 71 species in Palestine (Halperin *et al.*, 1995; Najajrah *et al.*, 2019), 35 species in Saudi Arabia (Fürsch, 1979; Raimundo and van Harten, 2000), 84 species in Turkey (Yurtsever 2001), 22 species in the United Arab Emirates (Raimundo *et al.*, 2008) and 73 species in Yemen (Raimundo and van Harten, 2000). Prior to this study, only 11 species had been recorded from southern Syria without sufficient data on their distribution or ecology (Winkler, 1927; El-Hariri, 1968 and 1971; Kabakibi, 1993; Almatni *et al.*, 1999; Bascheer and Abo Alshamat 2004; Almatni and Khalil, 2008).

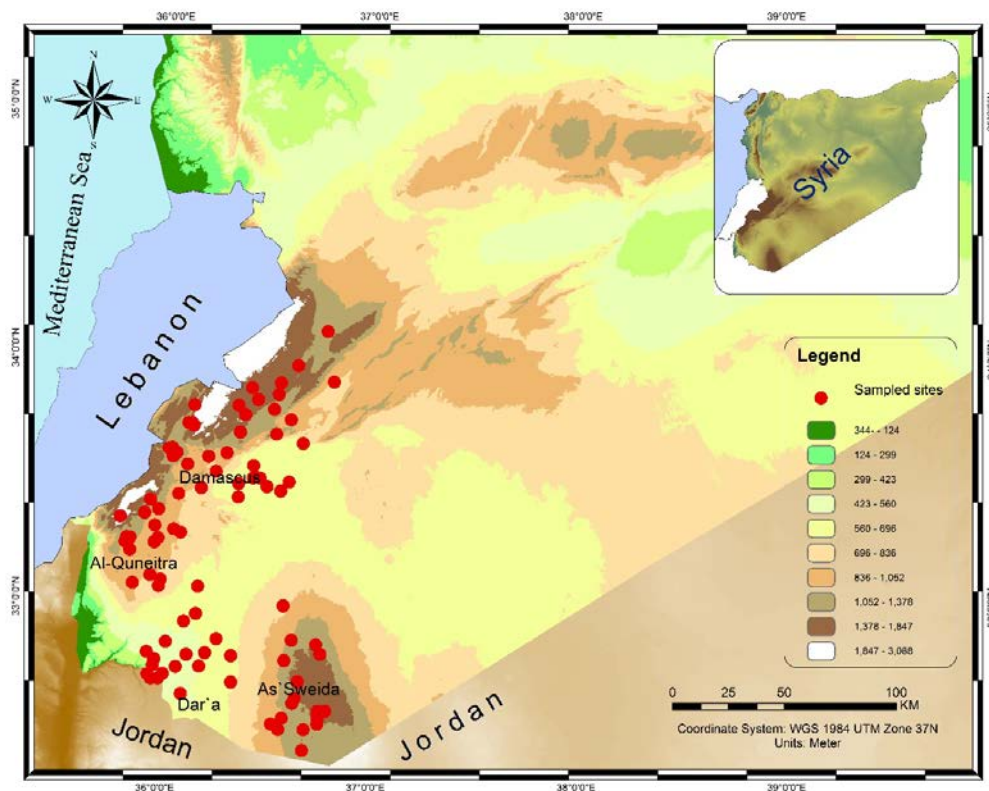
The aim of the present work is to study the biodiversity and distribution of the coccinellid beetles in southern Syria, with notes on their host plants.

## 2. Materials and methods

Sampling was conducted in southern Syria covering five Governorates (Damascus, Damascus Rural, Al-Quneitra, Dar`a and As`Sweida) located at different altitudes (280-2400m asl. (Figure 1, Table 1). A total of 7418 adult ladybirds was collected from agricultural and non-agricultural areas during three years (August 2001-July 2003), and other specimens were collected during 2004 and 2005.

Ladybird beetles were collected from branches and foliage of trees or herbaceous plants. Also, trees were shaken and insects were collected in a cloth tray with an insect net or by an aspirator. Each specimen was labeled with data about host plants, locality, and date. Specimens were preserved in 70% ethanol, and other specimens were dry mounted and preserved in collection boxes. Whole specimens were photographed by Canon camera, while genital structure were extracted (Tegmen and penis, for the males and the spermatheca for the females), boiled in 10% KOH, washed in water, different concentrations of alcohol 70%, 95% and 100%, and xylene, then mounted on slides and drawn using camera lucida. Specimens are deposited at the Department of Animal Biology, Damascus University.

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**Figure 1:** Collecting localities with their coordinates.

Species identification was carried out using different taxonomic keys and taxonomic references (Dauguet, 1949; Chapin, 1965; Fürsch, 1967a; 1979, 1989; Iablokoff-Khnzorian, 1971, 1982; Hodek, 1973; Gourreau, 1974; Chazeau *et al.*, 1974; Leeper 1975; Uygun 1981, Uygun and Fürsch, 1981; Canepari, 1983; Canepari *et al.*, 1985; Klausnitzer and Klausnitzer, 1986; Raimundo and Alves, 1986; Majerus and Kearns, 1989; Duverger, 1991; Kuznetsov, 1997; Raimundo and van Harten, 2000; Le Monnier and Livory, 2003). Identification of most species was confirmed by Prof. Dr. Helmut Fürsch (Passau University, Germany).

**Table 1:** Collecting localities with their coordinates.

localities	Latitude	Longitude	Localities	Latitude	Longitude
Airport Street	33° 28' 36"	36° 21' 48"	Kulaiaa	33° 17' 12"	36° 03' 30"
Ahmadia	33° 28'	36° 30'	Maalula	33° 50' 21"	36° 32' 57"
Ajami	32° 42'	35° 57'	Ma`adamiyeh Al-sham	33° 27' 21"	36° 11' 06"
Addimass	33° 33'	36° 07'	Maissalon	33° 35' 44"	36° 03' 49"
Al-Dumayr	33° 38' 37"	36° 40' 11"	Masehara	33° 06'	35° 57'
Al-Harra	33° 03' 24"	35° 59' 33"	Mashkok	32° 24' 23"	36° 41' 37"
Al-Hameh	33° 35'	36° 13'	Mugr Almeer	33° 18'	35° 58'
Al-Kafr	32° 36' 56"	36° 39' 16"	Mzireeb	32° 42' 13"	36° 01' 21"
Alqraya	32° 32' 06"	36° 35' 39"	Nahaj	32° 41'	36° 00'
Al-Qutayfeh	33° 44' 17"	36° 36' 35"	Nahta	32° 46' 56"	36° 20' 46"
Annashabyeh	33° 30'	36° 28'	Namer	32° 47' 28"	36° 13' 18"
Ashiphonieh	33° 33'	36° 26'	Nasseria	33° 52' 99"	36° 48' 49"
Attall	33° 35' 55"	36° 18' 15"	Ophania	33° 12'	35° 51'
Attawani	33° 46' 43"	36° 30' 99"	Orman	32° 30' 49"	36° 45' 49"
Assaida Zainab	33° 25' 19"	36° 21' 51"	Orman Mountain	32° 31' 54"	36° 45' 54"
Assal Alwared	33° 51' 48"	36° 25' 10"	Qanawat	32° 46'	36° 36'

To assess the occurrence and preference of coccinellid species on plant hosts, we measured species richness (total number of species recorded), species incidence (the number of plant host at which a species occurred). The number of coccinellid species was plotted against the number of plant hosts to distinguish specialist (coccinellids occurring on less than 10 plant hosts) vs. generalist species (those occurring on over 30 plant hosts). To assess the preferred plant hosts (plants on which more than 15 coccinellid occurred) the number of plant hosts was plotted against the total number of coccinellids.

Table 1. cont

Autaiba	33° 29' 12"	36° 36' 22"	Qatana	33° 25' 50"	36° 04' 38"
Azzabadani	33° 42' 26"	36° 08' 36"	Rankus	33° 45' 16"	36° 23' 23"
Baka	32° 29' 22"	36° 34' 42"	Rankus Mountain	33° 47' 30"	36° 21' 25"
Barad	32° 30' 38"	36° 32' 36"	Sabsaba	33° 05'	36° 00'
Beqaasem	33° 24' 14"	35° 56' 37"	Sad alaa'in	32° 35' 43"	36° 38' 34"
Beer Ajam	33° 04'	35° 52'	Sahm al-joulan	32° 47' 24"	35° 56' 35"
Beet jen- Mazraa	33° 15'	35° 51'	Salkhad	32° 29' 24"	36° 41' 59"
Bludan	33° 43'	36° 07'	Sanameen	33° 03' 32"	36° 10' 48"
Bludan Mountain	33° 43'	36° 08'	Serghaya	33° 47' 21"	36° 08' 37"
Damascus (Qasioun)	33° 31' 23"	36° 15' 15"	Sarkha	33° 53' 10"	36° 33' 31"
Dar`a	32° 36' 90"	36° 06' 40"	Sasaa	33° 15'	35° 59'
Deir Al-ashairr	33° 34' 49"	36° 02' 44"	Saura	32° 59' 16"	36° 35' 27"
Deir Atyeh	34° 05' 48"	36° 46' 42"	Sehaileia	32° 55'	36° 07'
Dorin	33° 14'	35° 58'	Shahba	32° 51'	36° 38'
Durbol	33° 21'	35° 55'	Sheikh Saad	32° 50'	36° 02'
Ein alarab	32° 41'	36° 40'	Sheikh Miskin	32° 47'	36° 08'
Erneh	33° 20'	35° 48'	Seydnaya	33° 41'	36° 22'
Fakiia	32° 56' 55"	36° 10' 24"	Southern Al-Qutayfeh	33° 40' 44"	36° 32' 27"
Ghoujygoujyat Mont.	32° 32' 57"	36° 45' 51"	Taamri Mountain	32° 33' 54"	36° 45' 52"
Hadar	33° 15'	35° 50'	Tafas	32° 44'	36° 05'
Haran Al-awameed	33° 27'	36° 34'	Taima	32° 50'	36° 45'
Houch arab	33° 49'	36° 27'	Tal Shihab	32° 41'	35° 58'
Izraa	32° 50' 56"	36° 15' 89"	Tal-loz	32° 34'	36° 48'
Jeelin	32° 45' 45"	35° 58' 46"	Tarba	32° 47' 44"	36° 46' 19"
Jeesrin	33° 30'	36° 26'	Trounja	33° 14' 40"	35° 50' 48"
Jubata Al-Khashab	33° 13' 56"	35° 49' 36"	Wadi Al-Qaren	33° 36' 44"	36° 01' 31"
Kafr- Hawar	33° 22'	35° 59'	Wadi Jeelin	32° 44' 13"	35° 58' 27"
Kanaker	33° 16' 28"	36° 05' 28"	Wadi Shihab	32° 41'	35° 58'
Karak	32° 40' 31"	36° 20' 57"	Yabrud	33° 57' 24"	36° 38' 23"
Kharabo	33° 30' 08"	36° 27' 19"	Zarzar	33° 36' 54"	36° 02' 30"
Kherbeet Gazaleh	32° 44' 13"	36° 11' 41"	Zeizon	32° 42'	35° 57'

### 3. Results

Fifty-one species and subspecies belonging to 21 genera representing 11 tribes within two subfamilies were recorded from southern Syria. Fifteen species are new records to Syria (Table 2). Higher taxonomic classification and scientific names were followed according to those in Kovár (2007), Ślipiński (2007), Seago *et al.* (2011) and Robertson *et al.* (2015).

Table 2. List of coccinellid species in Southern Syria.

Species	No. of sites	Total No. collected specimens
Subfamily Microweiseinae		
Tribe Microweiseini		
<i>Pharoscymnus ovoideus</i> Sicard, 1929	38	272
<i>Pharoscymnus setulosus</i> (Chevrolat, 1861)*	1	1
Subfamily Coccinellinae		
Tribe Coccidulini		
<i>Cryptolaemus montrouzieri</i> Mulsant, 1853	3	6
<i>Lindorus lophantae</i> (Blaisdell, 1892)*	4	80

Tribe Diomini		
<i>Diomus rubidus</i> (Motschulsky, 1837)	1	1
Tribe Hyperaspidini		
<i>Hyperaspis (Hyperaspis) femorata</i> (Motschulsky, 1837)*	1	2
<i>Hyperaspis (Hyperaspis) histeroides</i> (Faldermann, 1837)*	8	12
<i>Hyperaspis (Hyperaspis) syriaca</i> Weise, 1885	1	16
Tribe Scymnini		
<i>Clitostethus arcuatus</i> (Rossi, 1794)	3	40
<i>Nephus (Bipunctatus) bipunctatus</i> (Kugelann, 1794)*	32	97
<i>Nephus (Bipunctatus) includens</i> (Kirsch, 1870)	2	2
<i>Nephus (Nephus) ludyi</i> (Weise, 1879)*	11	115
<i>Nephus (Nephus) merkli</i> Fürsch, 1994*	8	115
<i>Nephus (Nephus) quadrimaculatus</i> Herbst, 1783	29	265
<i>Nephus (Sidis) caucasicus</i> Weise, 1929*	1	1
<i>Nephus (Sidis) hiecki</i> Fürsch, 1965*	2	2
<i>Nephus (Sidis) kreissli</i> Fürsch & Uygun, 1980*	4	27
<i>Scymnus (Mimopullus) pharaonis</i> Motschulsky, 1851	39	317
<i>Scymnus (Mimopullus) flagellisiphonatus</i> Fürsch, 1969	17	26
<i>Scymnus (Mimopullus) flavicollis</i> Redtenbacher, 1844	26	416

<i>Scymnus (Mimopullus) marinus</i> Mulsant, 1850	11	109
<i>Scymnus (Parapullus) abietis</i> (Paykull, 1798)*	2	2+
<i>Scymnus (Pullus) apetzii</i> Mulsant, 1846*	34	403
<i>Scymnus (Pullus) auritus</i> Thunberg, 1795*	4	5
<i>Scymnus (Pullus) fraxini</i> Mulsant, 1850*	2	62
<i>Scymnus (Pullus) subvillosus</i> (Goeze, 1777)	30	316
<i>Scymnus (Pullus) syriacus</i> (Marseul, 1868)	28	250
<i>Scymnus (Scymnus) bivulnerus</i> Capra & Fürsch, 1967	16	52
<i>Scymnus (Scymnus) frontalis</i> (Fabricius, 1787)	2	60
<i>Scymnus (Scymnus) interruptus</i> (Goeze, 1777)	13	111
<i>Scymnus (Scymnus) nubilus</i> Mulsant, 1850	31	279
<b>Tribe Stethorini</b>		
<i>Stethorus (Stethorus) gilvifrons</i> (Mulsant, 1850)	48	1368
<b>Tribe Chilocorini</b>		
<i>Chilocorus bipustulatus</i> (Linnaeus, 1758)	7	42
<i>Exochomus octosignatus</i> (Gebler, 1830)*	1	1
<i>Exochomus quadripustulatus</i> (Linnaeus, 1758)	4	54
<i>Exochomus undulatus</i> (Weise, 1878)	2	2
<i>Parexochomus nigromaculatus</i> (Goeze, 1777)	10	24
<i>Parexochomus pubescens</i> (Küster, 1848)	4	6
<b>Tribe Platynaspini</b>		
<i>Platynaspis luteorubra</i> (Goeze, 1777) *	8	14
<b>Tribe Noviini</b>		
<i>Novius cardinalis</i> (Mulsant, 1850)	4	16
<b>Tribe Tychthaspini</b>		
<i>Anisosticta novemdecimpunctata</i> (Linnaeus, 1758)*	1	1
<b>Tribe Coccinellini</b>		
<i>Adalia (Adalia) bipunctata</i> (Linnaeus, 1758)	6	61
<i>Adalia (Adalia) decempunctata</i> (Linnaeus, 1758)	13	37
<i>Coccinella (Coccinella) septempunctata</i> Linnaeus, 1758	39	330
<i>Coccinella (Spilota) undecimpunctata aegyptica</i> Reiche, 1861	40	152
<i>Harmonia quadripunctata</i> (Pontoppidan, 1763)	10	59
<i>Hippodamia (Adonia) variegata</i> (Goeze, 1777)	56	1042
<i>Oenopia conglobata</i> (Linnaeus, 1758)	41	618
<i>Oenopia oncina</i> (Olivier, 1808)*	5	6
<i>Propylea quatuordecimpunctata</i> (Linnaeus, 1758)	8	121
<i>Psyllobora (Thea) vigintiduopunctata</i> (Linnaeus, 1758)	1	2
Total	94	7418

\* new record for Syria

### Family Coccinellidae Latreille, 1807

#### Subfamily Microweiseinae Leng, 1920

##### Tribe Microweiseini Leng, 1920

#### *Pharoscyrnus ovoideus* Sicard, 1929 (Figs. 2A and 3A)

**Material examined (272): Damascus Rural:** Attall, (1), 26.9.2001; (1), 8.5.2002; (1), 26.6.2002; (2), 5.9.2002. Wadi Al-Qaren, (4), 19.8.2001; (1), 19.9.2001; (7), 5.9.2002. Yabrud, (2), 25.10.2001; (1), 8.8.2002; (3), 11.9.2002. Sasaa, (5), 13.8.2001; (4), 3.10.2001; (1), 20.3.2002; (5), 2.5.2002; (4), 31.7.2002; (3), 12.9.2002.

Kulaiaa, (1), 7.8.2002. Beqaasem, (2), 21.9.2001; (6), 11.7.2002; (1), 29.8.2002. Muqr Almeer, (1), 26.8.2003. Addimass, (4), 5.9.2002; (9), 17.9.2002; (6), 30.4.2003. Al Hameh, (1), 14.6.2003. Sarkha, (1), 26.9.2001; (4), 11.9.2002; (1), 21.5.2003. Seydnaya, 11: (9), 2.8.2001; (2), 21.5.2003. Al-Qutayfeh, (8), 8.8.2002. Annashabyeh, (4), 28.8.2001; (2), 21.11.2001; (5), 24.7.2002; (2), 27.7.2002. Kharabo, (3), 22.8.2001; (1), 26.9.2001; (1), 25.10.2001; (1), 23.5.2002; (1), 11.7.2002; (2), 25.5.2003; (4), 2.7.2003. Ma`adamiyeh Al-sham, (1), 7.10.2001; (2), 6.12.2001; (1), 6.3.2002; (1), 12.4.2002; (16), 30.8.2002; (3), 9.9.2002; (15), 4.10.2002; (1), 1.11.2002; (1), 4.12.2002; (1), 16.1.2003; (1), 13.3.2003; (1), 6.7.2003; (2), 11.7.2003; (2), 23.7.2003; (1), 27.7.2003; (5), 9.8.2003; (3), 13.8.2003. **Damascus:** Qasioun, (3), 13.5.2003. **Al-Quneitra:** Beer Ajam, (1), 20.3.2002; (2), 12.9.2002; (1), 2.10.2002; (1), 19.3.2003. Jubata Al-Khashab, (1), 10.4.2002; (4), 16.5.2002; (2), 11.7.2002; (3), 29.8.2002; (2), 26.8.2003. Hadar, (6), 31.7.2002. Trounja, (1), 29.8.2002. Ophania, (1), 10.9.2001. **As`Sweida:** Al-Kafir, (1), 11.5.2003. Ein alarab 12: (2), 7.8.2001; (2), 29.8.2001; (1), 21.8.2002; (6), 23.10.2002; (1), 2.6.2003. Orman mountain, (1), 27.9.2001. Orman, (1), 21.8.2002. Qanawat, (1), 20.9.2001; (2), 11.4.2002. Taima, (12), 11.9.2001. Mashkok, (1), 20.9.2001. Alqrayya (2), 20.9.2001. **Dar`a:** Jeelin 4: (2), 30.8.2001; (1), 24.10.2001; (1), 3.7.2002. Wadi Jeelin, (1), 25.4.2002; (1), 22.8.2002. Zeizon, (3), 2.10.2002; (1), 13.11.2002; (2), 23.4.2003. Ajami (1), 18.7.2002. Kherbeet Gazaleh, (1), 7.2.2002. Nahaj, (1), 24.10.2001. Sehaileia, (2), 26.9.2001. Fakiia, (1), 28.3.2002. Al-Harra, (4), 4.9.2001; (4), 2.10.2002; (1), 13.11.2002.

**Remarks:** It was recorded from Egypt, Jordan, Palestine and Syria (Alfieri, 1976; Halperin *et al.*, 1995; Kovár, 2007).

**Host species:** *Amygdalus* sp., *Cedrus libani*, *Citrus* sp., *Crataegus* sp., *Cupressus* sp., *Ficus carica*, *Juglans regia*, *Medicago sativa*, *Morus alba*, *Quercus calliprinos*, *Olea europaea*, *Phaseolus vulgaris*, *Pinus* sp., *Pistacia vera*, *Punica granatum*, *Prunus armeniaca*, *Prunus persica*, *Pyrus communis*, *Schinus molle*, *Solanum melongena*, *Zea mays*, and thistle plants.

#### *Pharoscyrnus setulosus* (Chevrolat, 1861) (Figs. 2B and 3B)

**Material examined (1): Damascus Rural:** Southern Al-Qutayfeh, (1), 15.8.2001.

**Remarks:** Known from Spain, North Africa, the Middle East, and Yemen (Raimundo and van Harten, 2000, Kovár, 2007). This species is recorded for the first time in Syria.

**Host species:** *Pinus* sp.

#### Subfamily Coccinellinae Latreille, 1807

##### Tribe Coccidulini Mulsant, 1846

#### *Cryptolaemus montrouzieri* Mulsant, 1853 (Figs. 2C and 3C).

**Material examined (6): Dar`a:** Wadi Jeelin (1), 24.10.2001; (1), 28.3.2002. Zeizon, (1), 24.10.2001; (1), 25.4.2002. Wadi Shihab, (2), 13.5.2003.

**Remarks:** This species have a wide range of distribution worldwide (Uygun, 1981). It feeds on scale insects. It was introduced to Syria in 1995 for controlling some pest on citrus trees such *Planococcus citri* in the

Syrian Coast. Abboud *et al.* (2020) reported that this species predates on *Protopulvinaria pyriformis*.

**Host species:** *Inula viscosa* and *Rubus idaeus*.

***Lindorus lophanthae* (Blaisdell, 1892) (Figs. 2D and 3D)**

**Material examined (80): Damascus Rural:** Sasaa, (1), 13.8.2001. **Dar`a:** Wadi Jeelin, 5: (2), 9.5.2002; (2), 29.5.2002; (1), 3.7.2002. Serghaya, (1), 3.10.2002. **As`Sweida:** Ein alarab, (5), 27.9.2001; (18), 18.10.2001; (13), 29.11.2001; (1), 3.4.2002; (2), 17.7.2002; (1), 1.8.2002; (20), 21.8.2002; (11), 10.9.2002; (2), 23.10.2002.

**Remarks:** This species have a wide range of distribution almost worldwide (Raimundo and van Harten 2000), with records from Turkey, Jordan and Palestine (Uygun, 1981; Allawi, 1989; Halperin *et al.*, 1995). This species represents a new record to Syria.

**Host species:** *Citrus* sp., *Cupressus* sp. and *Nerium oleander*.

**Tribe Diomini R. D. Gordon, 1999**

***Diomus rubidus* (Motschulsky, 1837) (Figs. 2E and 3E)**

**Material examined (1): Damascus Rural:** Attall, (1), 27.12.2001.

**Remarks:** Fürsch (1979) recognized three subspecies for this form. Listed by El Hariri (1971) as *Scymnus rubidus* in Syria. Jalilvand *et al.* (2014) found that this species predates on *Planococcus vovae* in Iran.

**Host species:** *Rubus idaeus*.

**Tribe Hyperaspini Mulsant, 1846**

***Hyperaspis (Hyperaspis) femorata* (Motschulsky, 1837) (Figs. 2F and 3F)**

**Material examined (2): As`Sweida:** Taamri Mountain, (2), 21.6.2002.

**Remarks:** This species is distributed in the Caucasus, Armenia, Ukania (Iablokoff-Khznorian, 1971) and Bulgaria (Canepari *et al.*, 1985). This species is recorded for the first time in Syria. Aslan and Uygun (2005) reported this species from Turkey to feed on aphids.

**Host species:** *Achillea* sp.

***Hyperaspis (Hyperaspis) histeroides* (Faldermann, 1837) (Figs. 2G and 3G)**

**Material examined (12): Damascus Rural:** Rankus, (1), 11.9.2002. **As`Sweida:** Qanawat, (1), 19.6.2002. Ghoujygujyat Mountain, (1), 1.8.2002; (1), 29.4.2003, Orman Mountain, (2), 4.7.2002; (1), 4.8.2003. **Taamri Mountain,** (2), 28.6.2003; (1), 4.7.2003. **Al-Quneitra:** Beer Ajam, (1), 27.6.2002. Masehara, (1), 13.8.2001.

**Remarks:** This species is distributed in the Caucasus, Kazakhstan and Armenia (Iablokoff-Khznorian, 1971). Reported previously from As-Sweida preying on the almond curl leaf aphid, *Brachycaudus amygdalinus* (Almatni and Khalil, 2008).

**Host species:** *Achillea* sp., *Amygdalus* sp., *Cucurbita pepo*, *Ficus carica*, and *Quercus calliprinos*.

***Hyperaspis (Hyperaspis) syriaca* Weise, 1885 (Figs. 2H and 3H)**

**Material examined (16): Dar`a:** Wadi Jeelin, (4), 9.5.2002; (1), 29.5.2002; (2), 3.7.2002; (9), 22.8.2002.

**Remarks:** This species is known from Palestine, Syria and Lebanon (Iablokoff-Khznorian, 1971).

**Host species:** *Vitex agnus-castus*.

**Tribe Scymnini Mulsant, 1846**

***Clitostethus arcuatus* (Rossi, 1794) (Figs. 2I and 3I).**

**Material examined (40): Damascus Rural:** Attall, (1), 25.10.2001; (20), 20.11.2002. Ma`adamiyeh Al-sham, (4), 6.3.2002; (1), 4.10.2002; (3), 1.11.2002; (1), 4.12.2002; (1), 5.2.2003; (4), 6.3.2003; (2), 9.4.2003; (1), 23.6.2003; (1), 11.7.2003. **Damascus:** Damascus, (1), 20.10.2002.

**Remarks:** This species is known from Europe, the Caucasus and Turkey (Uygun 1981). Reported from the Coastal regions of Syria on whiteflies (Al Jundi and Ahmad, 1999) and Palestine (Halperin *et al.*, 1995).

**Host species:** *Citrus* sp., *Morus alba*, *Phaseolus vulgaris* and *Punica granatum*.

***Nephus (Bipunctatus) bipunctatus* (Kugelann, 1794) (Figs. 2J and 3J)**

**Material examined (97): Damascus Rural:** Attall, (2), 26.9.2001; (2), 25.10.2001; (3), 5.9.2002. Wadi Al-Qaren, (1), 5.9.2002; (1), 10.7.2002. Yabrud, (1), 11.9.2002. Sasaa, (6), 3.10.2001; (2), 12.9.2002; (3), 26.8.2003. Kulaiaa, (1), 7.8.2002. Hadar, (1), 12.9.2002; (1), 26.8.2003. Beet-jen Mazraa Mazraa, (1), 3.10.2001; (1), 26.8.2003. Erneh, (1), 11.7.2002. Beqaasem, (1), 29.8.2002, Rankus Mountain, (4), 11.9.2002, Sarkha, (2), 26.9.2001; (3), 11.9.2002. Al-Qutayfeh, (4), 8.8.2002. Qatana, (1), 14.8.2003. Kharabo, (2), 2.4.2003; (2), 6.8.2003. Serghaya, (1), 5.9.2002. Ma`adamiyeh Al-sham, (2), 30.8.2002; (3), 9.9.2002; (2), 4.10.2002; (2), 11.7.2003; (2), 13.8.2003. **As`Sweida:** Al-Kafr, (1), 18.10.2001; (1), 23.10.2002. Ein alarab, (1), 17.7.2002. Orman, (1), 27.9.2001. Orman Mountain, (1), 9.4.2003. Taamri Mountain, (1), 8.8.2003. Qanawat, (1), 11.9.2001; (1), 20.9.2001; (2), 13.3.2002; (1), 21.8.2002. Shahba, (1), 13.3.2002. Salkhad, (1), 22.11.2001. Taima, (2), 11.9.2001. Alqrayya, (2), 10.9.2001, **Dar`a:** Wadi Jeelin, (1), 7.2.2002; (1), 22.8.2002. Zeizon, (1), 22.8.2002; (1), 13.11.2002. Sheikh Miskin, (2), 22.7.2003. Sahn al-joulan, (10), 4.9.2001. **Al-Quneitra:** Beer Ajam, (2), 12.9.2002; (2), 2.10.2002; (1), 19.3.2003. Trounja, (1), 29.8.2002.

**Remarks:** This is a Palaearctic species with a wide range of distribution in Central Asia, North Africa reaching Japan (Gourreau, 1974; Kuznetsov, 1997). Reported previously from As-Sweida preying on the almond curl leaf aphid, *Brachycaudus amygdalinus* (Almatni and Khalil, 2008).

**Host species:** *Amygdalus* sp., *Prunus armeniaca*, *Cedrus libani*, *Citrus* sp., *Ficus carica*, *Hibiscus esculentus*, *Malus communis*, *Morus alba*, *Phaseolus vulgaris*, *Pinus* sp., *Populus* sp., *Prunus* sp., *Prunus avium*, *Prunus vulgaris*, *Punica granatum*, *Pyrus communis*, *Quercus calliprinos*, *Urtica* sp., *Vitex agnus-castus*, *Vitis vinifera*, and thistle plants.

***Nephus (Bipunctatus) includens* (Kirsch, 1870) (Figs. 2K and 3K)**

**Material examined (2): Dar`a:** Wadi Jeelin, (1), 7.2.2002. Sahn al-joulan, (1), 4.9.2001.

**Remarks:** This species is distributed in some the Mediterranean area and Saudi Arabia (Uygun, 1981). Listed in Syria by El Hariri (1968) and recorded from the Coastal area on *Planococcus citri* (Aslan, 2001). It has been recorded as a predator of the mealybug *Nipaeococcus viridis* on different hosts in Iran (Fallahzadeh *et al.*, 2013).

Other species of this genus in Iran were found to prey on *Planococcus vovae* (Jalilvand *et al.*, 2014).

***Nephus (Nephus) ludyi* (Weise, 1879) (Figs. 2L and 3L)**

**Material examined (115): Damascus Rural:** Erneh, (1), 29.8.2002. Beqaasem, (1), 29.8.2002. Wadi Al-Qaren, (9), 17.11.2001; (3), 19.9.2001; (2), 5.9.2002; (3), 14.3.2002. **Al-Quneitra:** Jubata Al-Khashab, (3), 8.11.2001; (1), 20.12.2001; (3), 20.3.2002; (4), 28.2.2002; (2), 10.4.2002; (2), 25.4.2002. Beer Ajam, (6), 20.3.2002. **As`Sweida:** Al-Kafir, (11), 20.9.2001; (10), 18.10.2001; (31), 29.11.2001; (1), 21.3.2002; (3), 24.4.2002; (1), 17.7.2002; (1), 1.8.2002; (1), 29.11.2002; (1), 12.12.2002. Ein alarab, (1), 17.7.2002; (1), 1.8.2002; (1), 21.8.2002. Ghoujygujyat Mountain, (1), 22.10.2002; (2), 4.8.2003. Orman Mountain, (3), 4.8.2003. Taamri Mountain, (1), 5.8.2003. Qanawat, (2), 20.9.2001; (1), 13.3.2002; (1), 3.4.2002; (1), 11.4.2002.

**Remarks:** This species is known from southern France and the Mediterranean region (Gourreau, 1974). Recorded from Jordan (Allawi, 1989). This species is recorded for the first time in Syria.

**Host species:** *Amygdalus* sp., *Prunus armeniaca*, *Juglans regia*, *Malus communis*, *Prunus avium*, *Prunus vulgaris*, *Pyrus communis* and *Quercus calliprinos*.

***Nephus (Nephus) merkli* Fürsch, 1994 (Figs. 2M and 3M)**

**Material examined (115): Damascus Rural:** Seydnaya, (3), 21.5.2003. Qatana, (2), 14.8.2003. Attall, (7), 26.9.2001; (4), 25.10.2001; (1), 21.11.2001; (1), 10.7.2002. Kharabo, (46), 22.8.2001; (4), 26.9.2001; (10), 25.10.2001; (3), 21.11.2001; (2), 27.3.2002; (2), 11.7.2002; (1), 24.7.2002; (9), 8.8.2002; (2), 11.9.2002; (2), 25.9.2002; (4), 9.10.2002. Ma`adamiyeh Al-sham, (1), 4.10.2002; (1), 1.11.2002; (1), 23.6.2003; (1), 6.7.2003; (2), 23.7.2003; (1), 9.8.2003; (1), 13.8.2003. **Dar`a:** Wadi Jeelin, (1), 3.7.2002; (1), 18.7.2002. Zeizon, (1), 23.4.2003. **Al-Quneitra:** Masehara, (1), 13.8.2001.

**Remarks:** Described originally from Palestine (Fürsch, 1994), and very similar to *Nephus quadrimaculatus pictus*. This species is recorded for the first time in Syria.

**Host species:** *Citrus* sp., *Cupressus* sp., *Ficus carica*, *Juglans regia*, *Ligustrum* sp., *Morus alba*, *Nerium oleander*, *Olea europaea*, *Prunus avium*, *Punica granatum*, *Solanum melongena*, *Urtica* sp. and *Zea mays*.

***Nephus (Nephus) quadrimaculatus* Herbst, 1783 (Figs. 2N and 3N)**

**Material examined (265): Damascus Rural:** Beet-jen Mazraa, (3), 10.4.2002. Durbol, (1), 29.8.2002. Beqaasem, (3), 21.9.2001; (4), 20.9.8.2002. Wadi Al-Qaren, 12: (2), 17.11.2001; (8), 19.8.2001; (2), 19.9.2001. Sasaa, (1), 13.8.2001; (2), 2.5.2002; (1), 12.9.2002. Kulaiaa, (5), 7.8.2002. Addimass, (1), 30.4.2003. Qatana, (1), 14.8.2003. Attall, (13), 3.9.2001; (12), 26.9.2001; (10),

25.10.2001; (2), 21.11.2001; (1), 27.12.2001; (1), 14.3.2002; (1), 26.6.2002; (11), 10.7.2002; (25), 5.9.2002; (1), 24.8.2003. Kharabo, (1), 25.10.2001; (1), 21.11.2001; (1), 27.3.2002; (1), 25.9.2002; (11), 2.7.2003. Ma`adamiyeh Al-sham, (1), 6.12.2001; (1), 6.3.2002; (1), 30.8.2002; (1), 4.10.2002; (1), 1.11.2002; (1), 11.7.2003; (3), 23.7.2003; (5), 27.7.2003; (1), 9.8.2003. **Al-Quneitra:** Masehara, (1), 13.8.2001. Jubata Al-Khashab, (1), 20.3.2002; (4), 28.2.2002; (5), 16.4.2003; (1), 26.8.2003. Hadar, (5), 10.9.2001. Ophania, (1), 10.9.2001. Beer Ajam, (8), 20.3.2002; (5), 12.9.2002; (3), 2.10.2002; (2), 19.3.2003. **As`Sweida:** Al-Kafir, (2), 18.10.2001; (1), 9.5.2002; (1), 17.7.2002. Ein alarab, (1), 6.6.2002; (1), 23.10.2002. Orman Mountain, (12), 27.9.2001; (1), 21.8.2002. Orman, (1), 4.7.2002. Taamri Mountain, (1), 5.8.2003. Qanawat, (1), 12.8.2001; (3), 20.9.2001; (1), 13.3.2002. Shahba, (4), 23.3.2002. Salkhad, (7), 22.11.2001. Baka, (1), 20.9.2001. Taima, (4), 11.9.2001. Alqrayya, (12), 20.9.2001. **Dar`a:** Wadi Jeelin, (3), 21.9.2001; (2), 24.10.2001; (4), 22.11.2001; (2), 7.2.2002; (1), 29.5.2002; (5), 3.7.2002; (2), 18.7.2002; (9), 22.8.2002. Zeizon, (1), 20.12.2001; (1), 25.4.2002; (3), 2.10.2002.

**Remarks:** This is a Palaearctic species (Gourreau, 1974). Listed by El Hariri (1971) as *Scymnus quadrimaculatus pictus* in Syria. Reported from Palestine, the Golan Heights, Mount Hermon and Lebanon (Canepari and Tedeschi, 1977; Halperin *et al.*, 1995). It feeds on scale insects (Klausnitzer and Klausnitzer, 1986).

**Host species:** *Amygdalus* sp., *Citrus* sp., *Cupressus* sp., *Ficus carica*, *Juglans regia*, *Morus alba*, *Nerium oleander*, *Olea europaea*, *Prunus vulgaris*, *Pinus* sp., *Pistacia vera*, *Phaseolus vulgaris*, *Populus* sp., *Prunus armeniaca*, *Prunus avium*, *Punica granatum*, *Pyrus communis*, *Quercus calliprinos*, *Rubus idaeus*, *Schinus molle*, and thistle plants.

***Nephus (Sidis) caucasicus* Weise, 1929 (Figs. 2O and 3O)**

**Material examined (1): Damascus Rural:** Attall, (1), 27.12.2001.

**Remarks:** This species is recorded for the first time in Syria. Previously recorded from Turkey and the Caucasus (Fürsch, 1965).

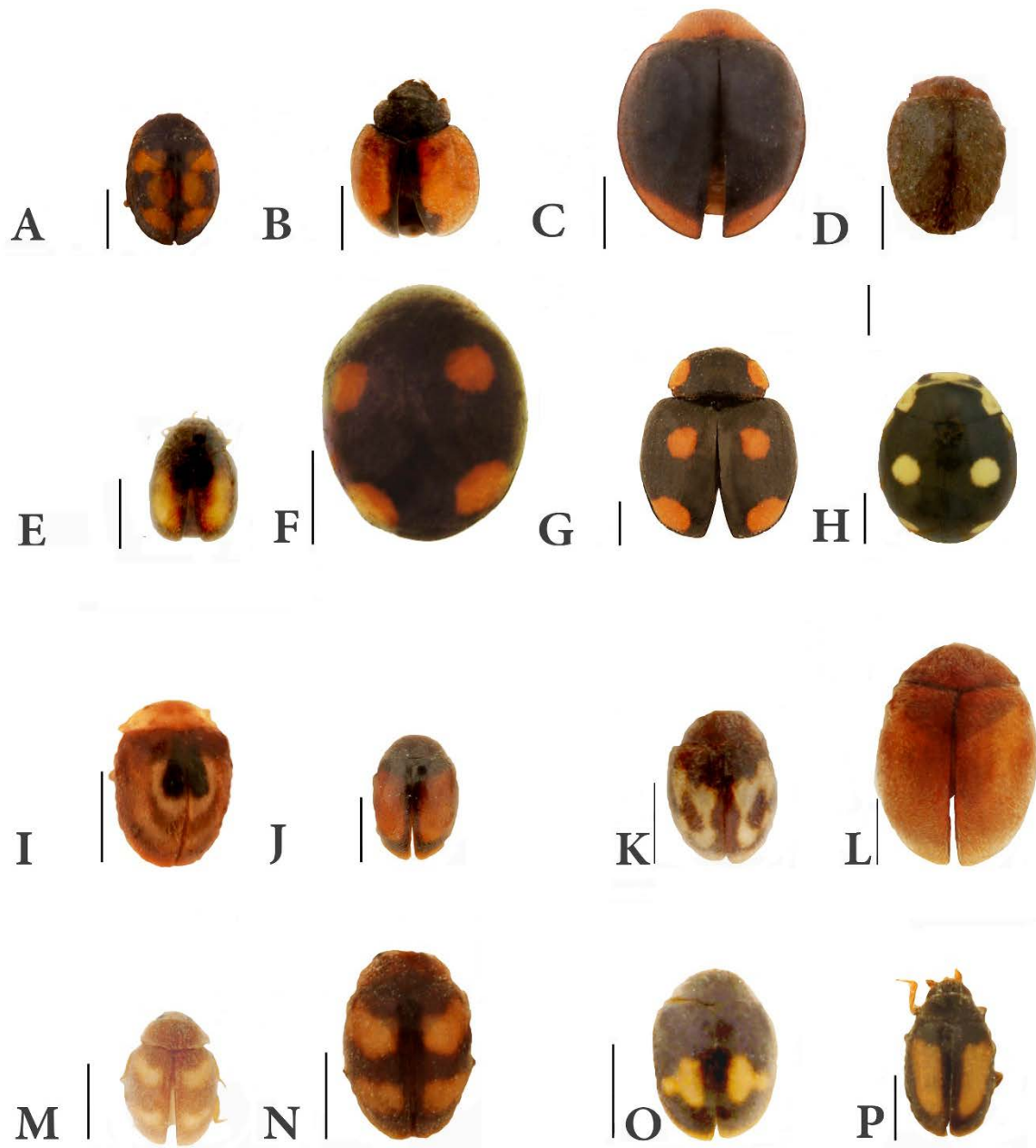
**Host species:** *Urtica* sp.

***Nephus (Sidis) hiecki* Fürsch, 1965 (Figs. 2P and 3P)**

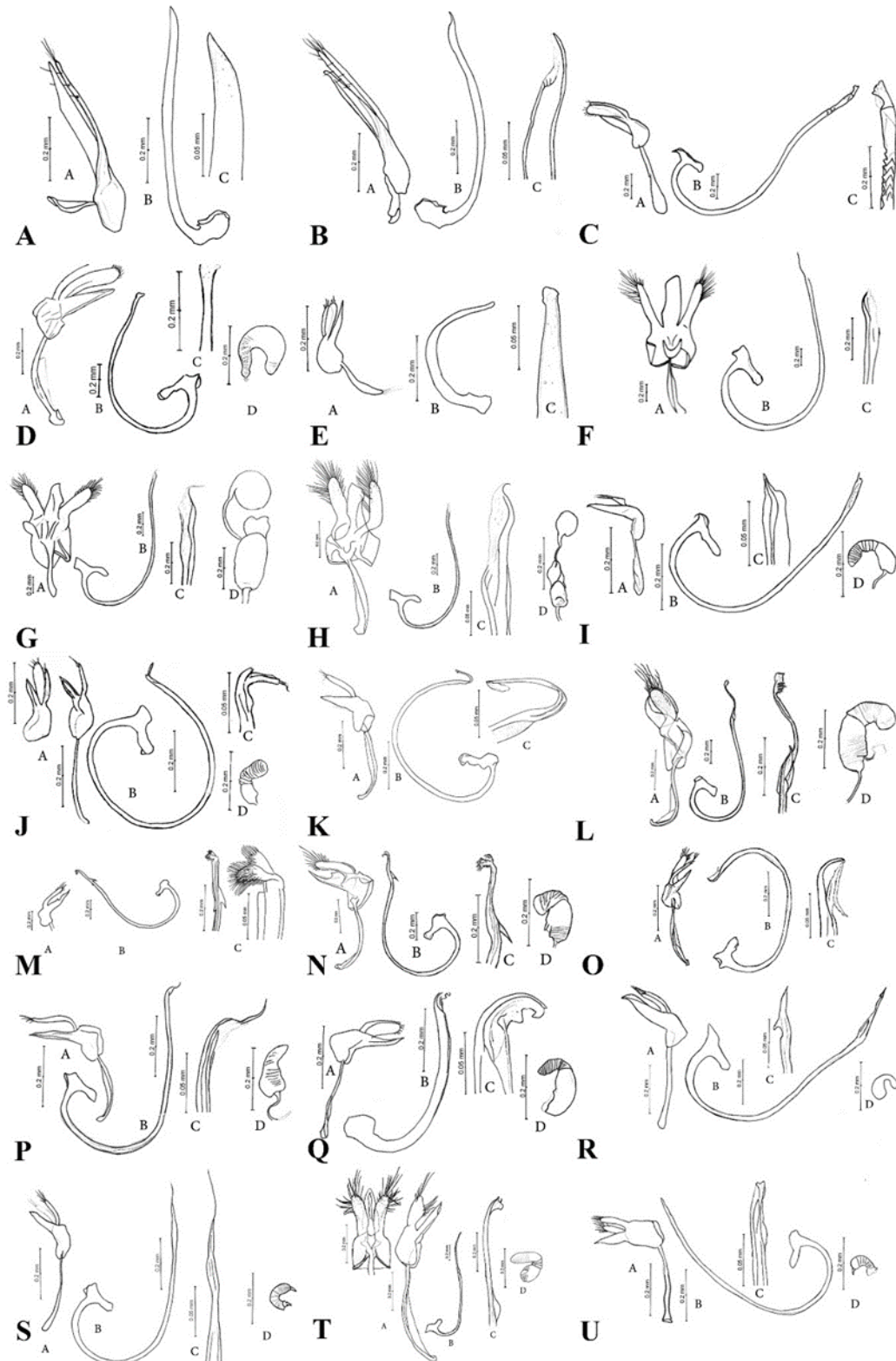
**Material examined (2): Damascus Rural:** Jeerzin, (1), 29.12.2002. **Dar`a:** Zeizon, (1), 20.12.2001.

**Remarks:** This species is recorded for the first time in Syria. This species is widely distributed throughout southern Europe and the Middle East (Raimundo and van Harten, 2000), with records from Lebanon and Palestine on *Pseudococcus citri* (Fürsch, 1967b).

**Host species:** *Urtica* sp.



**Figure 2:** A. *Pharoscymnus ovoideus*. B. *Pharoscymnus setulosus*. C. *Cryptolaemus montrouzieri*. D. *Lindorus lophantae*. E. *Diomus rubidus*. F. *Hyperaspis (Hyperaspis) femorata*. G. *Hyperaspis (Hyperaspis) histeroideus*. H. *Hyperaspis (Hyperaspis) syriaca*. I. *Clitostethus arcuatus*. J. *Nephus (Bipunctatus) bipunctatus*. K. *Nephus (Bipunctatus) includens*. L. *Nephus (Nephus) ludyi*. M. *Nephus (Nephus) merkli*. N. *Nephus (Nephus) quadrimaculatus*. O. *Nephus (Sidis) caucasicus*. P. *Nephus (Sidis) hiekei*. Scale bar=1 mm.



**Figure 3:** A. *Pharoscyrmnus ovoideus*. B. *Pharoscyrmnus setulosus*. C. *Cryptolaemus montrouzieri*. D. *Lindorus lophantae*. E. *Diomus rubidus*. F. *Hyperaspis (Hyperaspis) femorata*. G. *Hyperaspis (Hyperaspis) histeroides*. H. *Hyperaspis (Hyperaspis) syriaca*. I. *Clitostethus arcuatus*. J. *Nephus (Bipunctatus) bipunctatus*. K. *Nephus (Bipunctatus) includens*. L. *Nephus (Nephus) ludyi*. M. *Nephus (Nephus) merkli*. N. *Nephus (Nephus) quadrimaculatus*. O. *Nephus (Sidis) caucasicus*. P. *Nephus (Sidis) hiekei*. Q. *Nephus (Sidis) kreissli*. R. *Scymnus (Mimopullus) pharaonis*. S. *Scymnus (Mimopullus) flagellisiphonatus*. T. *Scymnus (Mimopullus) flavicollis*. U. *Scymnus (Mimopullus) marinus*. Key to darwings: A= Tegmen, B= Penis, C= Penis apex, D= Spermatheca.



***Nephus (Sidis) kreissli* Fürsch and Uygun, 1980 (Figs. 4A and 3Q)**

**Material examined (27): Damascus Rural:** Attall, (2), 26.9.2001; (1), 25.10.2001; (1), 21.11.2001; (4), 14.3.2002; (9), 8.5.2002; (2), 26.6.2002; (1), 5.9.2002. Ma`adamiyeh Al-sham, (1), 23.6.2003. **Dar`a:** Wadi Jeelin, (1), 22.11.2001; (1), 18.7.2002; (1), 22.8.2002. Zeizon, (1), 22.8.2002; (2), 23.4.2003.

**Remarks:** This species is recorded for the first time in Syria. This species was known from Turkey (Fürsch and Uygun, 1980).

**Host species:** *Citrus* sp., *Ficus carica*, *Inula viscosa*, *Malus communis*, *Morus alba*, *Nerium oleander*, *Punica granatum*, *Populus* sp., *Rubus idaeus*, *Urtica* sp. and *Vitex agnus-castus*.

***Scymnus (Mimopullus) pharaonis* Motschulsky, 1851 (Figs. 4B and 3R)**

**Material examined (317): Damascus Rural:** Wadi Al-Qaren, (6), 19.9.2001; (1), 5.9.2002; (8), 10.7.2002; (1), 15.6.2002; (1), 17.11.2002. Yabrud, (1), 8.8.2002. Kharabo, (1), 26.9.2001; (2), 25.10.2001. Ma`adamiyeh Al-sham, (3), 6.12.2001; (4), 28.6.2002; (11), 30.8.2002; (8), 9.9.2002; (10), 4.10.2002; (2), 1.11.2002; (1), 23.6.2003; (10), 11.7.2003; (2), 23.7.2003; (1), 13.8.2003. Sasaa, (1), 3.10.2002; (3), 12.9.2002. Kulaiaa, (17), 7.8.2002. Dorin, (1), 10.7.2002. Beet-jen Mazraa, (5), 3.10.2001; (1), 8.11.2001; (1), 7.8.2002. Erneh, (7), 21.9.2001. Beqaasem, (2), 21.9.2001; (1), 11.7.2002; (3), 29.8.2002. Muqr Almeer, (1), 26.8.2003. Kafr- Hawar, (1), 7.8.2002. Deir Al-ashairr, (1), 17.9.2002. Addimass, (1), 17.9.2002. Al-Qutayfeh, (3), 8.8.2002. Qatana, (2), 14.8.2003. Assaida Zainab, (1), 13.3.2002. Ashiphonieh, (1), 25.9.2002. Attall, (1), 26.9.2001; (2), 26.6.2002; (3), 10.7.2002; (1), 20.11.2002. **As`Sweida:** Al-Kafr, (3), 20.9.2001; (2), 29.11.2001. Ein alarab, (1), 7.8.2001; (2), 17.7.2002; (1), 1.8.2002. Orman, (1), 27.9.2001; (3), 4.7.2002, (3), 17.7.2002; (1), 6.6.2003. Ghoujygujyat Mountain, (1), 4.7.2002; (4), 1.8.2002; (2), 21.8.2002; (1), 10.9.2002; (4), 23.10.2002; (3), 4.8.2003. Taamri Mountain, (1), 17.7.2002; (2), 4.7.2003; (1), 14.7.2003; (4), 25.7.2003; (7), 5.8.2003; (4), 8.8.2003. Orman Mountain, (4), 4.8.2003. Qanawat, (2), 11.9.2001; (12), 20.9.2001; (1), 19.6.2002; (3), 1.8.2002; (3), 21.8.2002. Shahba, (1), 19.6.2002. Alqrayya, (14), 20.9.2001. **Dar`a:** Jeelin, (9), 3.7.2002, Wadi Jeelin, (4), 18.7.2002; (1), 22.8.2002. Zeizon, (1), 29.5.2002; (1), 22.8.2002; (2), 2.10.2002; (2), 13.11.2002; (1), 19.3.2003. Mzireeb, (1), 9.5.2002. Nahaj, (9), 4.10.2001; (5), 24.10.2001. Tafas, (1), 4.9.2001. Sahm al-joulan, (12), 4.9.2001. Namer, (3), 20.6.2002. **Al-Quneitra:** Beer Ajam, (2), 20.3.2002; (1), 27.6.2002; (9), 12.9.2002; (10), 2.10.2002. Jubata Al-Khashab, (1), 10.9.2001; (1), 20.3.2002; (1), 10.4.2002. Hadar, (2), 31.7.2002; (9), 12.9.2002; (1), 26.8.2003.

**Remarks:** Its distribution range extends from Central Asia to North Africa to Europe (Gourreau, 1974; Uygun, 1981). *Scymnus (Mimopullus) araraticus* Iablokoff-Khnzorian, 1969 is now considered a synonym for *S. pharaonis* (Kovář 2007). It was recorded by Almatni and Khalil (2008).

**Host species:** *Aloysia citrodora*, *Amygdalus* sp., *Prunus armeniaca*, *Cedrus libani*, *Citrus* sp., *Cupressus* sp., *Faba vulgaris*, *Ficus carica*, *Hibiscus esculentus*,

*Juglans regia*, *Lonicera japonica*, *Malus communis*, *Medicago sativa*, *Morus alba*, *Olea europaea*, *Pinus* sp., *Phaseolus vulgaris*, *Pistacia vera*, *Platanus orientalis*, *Populus* sp., *Prunus avium*, *Prunus mahaleb*, *Prunus persica*, *Punica granatum*, *Pyrus communis*, *Quercus calliprinos*, *Triticum* sp. and thistle plants.

***Scymnus (Mimopullus) flagellisiphonatus* Fürsch, 1969 (Figs. 4C and 3S)**

**Material examined (26): Al-Quneitra:** Beer Ajam, (2), 20.3.2002. Jubata Al-Khashab, (1), 25.4.2002; (1), 16.5.2002. Trounja, (1), 10.4.2002. Masehara, (1), 2.5.2002. **Damascus Rural:** Attall, (1), 26.9.2001. Beet-jen Mazraa, (1), 10.4.2002. Kharabo, (1), 23.5.2002. Serghaya, (1), 30.5.2002, Ma`adamiyeh Al-sham, (1), 12.4.2002; (1), 13.8.2003. **As`Sweida:** Al-Kafr, (1), 9.5.2002, Orman, (1), 4.7.2002. Ghoujygujyat Mountain, (1), 4.7.2002. Qanawat, (5), 11.4.2002. **Dar`a:** Jeelin, (1), 10.8.2001; (1), 3.7.2002. Wadi Jeelin, (1), 28.3.2002. Zeizon, (1), 10.4.2002, Sabsaba, (2), 10.4.2002.

**Remarks:** Known from the Mediterranean Region (Uygun, 1981) and recorded from Wadi Al Qaren in Syria by Kabakibi (1993). It feeds on aphids (Canepari, 1991).

**Host species:** *Amygdalus* sp., *Juglans regia*, *Medicago sativa*, *Pinus* sp., *Pistacia vera*, *Prunus avium*, *Punica granatum* and *Quercus calliprinos*.

***Scymnus (Mimopullus) flavicollis* Redtenbacher, 1844 (Figs. 4D and 3T)**

**Material examined (416): Damascus Rural:** Kharabo, (3), 22.8.2001; (1), 26.9.2001; (1), 25.10.2001; (1), 15.5.2002; (23), 23.5.2002; (6), 5.6.2002; (8), 11.7.2002; (2), 24.7.2002; (5), 11.9.2002; (3), 25.9.2002; (6), 9.10.2002; (13), 25.5.2003; (10), 2.7.2003; (2), 6.8.2003. Serghaya, (6), 7.11.2001; (4), 10.7.2002; (14), 24.7.2002; (18), 14.8.2002; (20), 5.9.2002; (21), 17.9.2002; (12), 3.10.2002; (3), 7.11.2002; (1), 10.4.2003; (1), 22.5.2003; (7), 26.6.2003; (12), 29.7.2003. Ma`adamiyeh Al-sham, (1), 23.5.2002; (10), 28.6.2002; (7), 30.8.2002; (2), 9.9.2002; (4), 4.10.2002; (2), 1.11.2002; (3), 19.5.2003; (13), 23.6.2003; (19), 11.7.2003; (8), 23.7.2003; (1), 9.8.2003; (3), 13.8.2003. Yabrud, (2), 25.10.2001. Sasaa, (1), 31.7.2002; (1), 12.9.2002. Dorin, (2), 10.7.2002. Beet-jen Mazraa, (2), 7.8.2002; (6), 29.8.2002. Zarzar, (3), 19.9.2001. Al Hameh, (9), 14.6.2003. Azzabadani, (2), 27.6.2002. Sarkha, (1), 26.6.2002. Qatana, (3), 5.7.2002. Airport Street, (1), 28.8.2001. Haran Al-awameed, (3), 24.7.2002. Assaida Zainab, (6), 11.9.2001; (2), 18.10.2001. Ashiphonieh, (2), 25.9.2002. Attall, (5), 26.9.2001; (1), 25.10.2001; (8), 26.6.2002; (26), 10.7.2002; (1), 5.9.2002. **As`Sweida:** Ein alarab, (3), 28.6.2002; (3), 1.8.2002; (1), 23.10.2002; (5), 4.8.2003. Orman, (1), 27.9.2001; (18), 4.7.2002; (1), 11.7.2002; (5), 17.7.2002; (2), 12.6.2003. Orman Mountain, (1), 4.7.2002. **Dar`a:** Wadi Jeelin, (1), 22.11.2001; (1), 22.8.2002. Jeelin, (2), 3.7.2002. Namer, (3), 20.6.2002. **Al-Quneitra:** Beer Ajam, (3), 12.9.2002; (1), 2.10.2002. Hadar, (1), 10.9.2002. Trounja, (1), 28.2.2002.

**Remarks:** Recorded from Iran, Palestine and the Golan Heights (Ahmadi and Yazdani 1993; Halperin *et al.*, 1995). Listed for Syria by El Hariri (1968 and 1971).

**Host species:** *Althaea officinalis*, *Amygdalus* sp., *Prunus armeniaca*, *Capsicum annum*, *Cedrus libani*,

*Citrus* sp., *Cucumis melo*, *Cucurbita pepo*, *Cydonia vulgaris*, *Dacus carota*, *Elaeagnus angustifolia*, *Euphorbia* sp., *Ficus carica*, *Foeniculum vulgare*, *Glycyrrhiza glabra*, *Hypericum trinquetifolium*, *Inula viscosa*, *Juglans regia*, *Malus communis*, *Medicago sativa*, *Morus alba*, *Nerium oleander*, *Oncium* sp., *Phaseolus vulgaris*, *Populus* sp., *Prunus avium*, *Prunus mahaleb*, *Punica granatum*, *Pyrus communis*, *Quercus calliprinos*, *Rosa* sp., *Rubus idaeus*, *Solanum melongena*, *Schinus molle*, *Triticum* sp., *Urtica* sp., *Zea mays*, and thistle plants.

***Scymnus (Mimopullus) marinus* Mulsant, 1850 (Figs. 4E and 3U)**

**Material examined (109): Damascus Rural:** Ma`adamiyeh Al-sham, (2), 6.12.2001; (3), 28.6.2002; (5), 30.8.2002; (4), 9.9.2002; (8), 4.10.2002; (13), 1.11.2002; (5), 4.12.2002; (1), 5.2.2003; (6), 11.7.2003; (2), 23.7.2003; (2), 13.8.2003. Assaida Zainab, (1), 13.3.2002. **As`Sweida:** Taamri Mountain, (4), 6.6.2003; (6), 20.6.2003; (5), 4.7.2003; (1), 14.7.2003; (4), 25.7.2003; (9), 5.8.2003; (6), 8.8.2003. Orman, (3), 6.6.2003. Ghoujgoujyat Mountain, (2), 12.6.2003. Shahba, (1), 19.6.2002; (3), 11.12.2002. Barad, (1), 18.10.2001. Baka, (1), 20.9.2001. Taima, (7), 11.9.2001. Tal-loz, (3), 12.8.2001. **Dar`a:** Wadi Jeelin, (1), 22.11.2001.

**Remarks:** This species is recorded for the first time in Syria. It is distributed in Europe and North Africa (Gourreau, 1974) and was recorded from Palestine (Halperin *et al.*, 1995). *Scymnus mediterraneus* Iablokoff-Khnzorian, 1972 is considered as a synonym (Kovář, 2007).

**Host species:** *Aloisia citrodora*, *Amygdalus* sp., *Biota orientalis*, *Citrus* sp., *Cupressus* sp., *Faba vulgaris*, *Juglans regia*, *Olea europaea*, *Pinus* sp., *Pistacia vera*, *Phaseolus vulgaris*, *Prunus armeniaca*, *P. avium* and *Punica granatum*.

***Scymnus (Parapullus) abietis* (Paykull, 1798) (Figs. 4F and 5A)**

**Material examined (2): Damascus Rural:** Wadi Al-Qaren, (1), 19.8.2001. **As`Sweida:** Orman, (1), 17.7.2002.

**Remarks:** This species is recorded for the first time in Syria. Distribution of this species extends from Europe, North Africa to Mongolia and the Russian Far East (Gourreau, 1974, Kuznetsov, 1997; Kovář, 2007).

**Host species:** *Pinus* sp. and *Quercus calliprinos*.

***Scymnus (Pullus) apetzii* Mulsant, 1846 (Figs. 4G and 5B)**

**Material examined (403): Damascus Rural:** Kharabo, (1), 22.8.2001; (1), 26.9.2001; (1), 25.10.2001; (11), 23.5.2002; (1), 5.6.2002; (2), 11.7.2002; (5), 24.7.2002; (1), 11.9.2002; (7), 25.9.2002; (4), 9.10.2002; (9), 25.5.2003; (8), 2.7.2003; (3), 6.8.2003. Serghaya, (2), 7.11.2001; (2), 30.5.2002; (1), 27.6.2002; (4), 10.7.2002; (6), 24.7.2002; (22), 14.8.2002; (17), 15.9.2002; (32), 17.9.2002; (18), 3.10.2002; (1), 7.11.2002; (1), 10.4.2003; (1), 22.5.2003; (6), 26.6.2003; (13), 29.7.2003. Ma`adamiyeh Al-sham, (12), 28.6.2002; (3), 30.8.2002; (1), 9.9.2002; (1), 4.10.2002; (1), 19.5.2003; (7), 23.6.2003; (11), 11.7.2003; (3), 23.7.2003; (1), 9.8.2003. Wadi Al-Qaren, (2), 10.7.2002. Sasaa, (1), 2.5.2002; (1), 12.6.2002; (2), 31.7.2002. Kulaiaa, (1), 7.8.2002. Dorin, (1), 24.8.2003. Beet-jen Mazraa, (2), 7.8.2002; (6), 29.8.2002. Erneh, (2), 11.7.2002. Beqaasem, (1),

21.9.2001; (1), 11.7.2002. Muqr Almeer, (1), 26.8.2003. Zarzar, (2), 19.9.2001. Deir Al-ashairr, (1), 17.10.2001. Al-Hameh, (7), 16.4.2003. Azzabadani, (5), 27.6.2002; (1), 14.6.2003. Al-Qutayfeh, (3), 8.8.2002. Qatana, (2), 14.8.2003. Ashiphonieh, (1), 25.9.2002. Attall, (3), 26.9.2001; (2), 25.10.2001; (3), 8.5.2002; (3), 26.6.2002; (20), 10.7.2002; (2), 5.9.2002; (7), 14.8.2003. **As`Sweida:** Ein alarab, (1), 27.9.2001; (7), 28.6.2002; (2), 4.7.2002; (15), 1.8.2002; (4), 23.10.2002; (3), 22.7.2003; (8), 4.8.2003. Orman Mountain, (1), 1.8.2001; (7), 1.8.2002. Orman, (1), 27.9.2001; (1), 24.6.2002; (21), 4.7.2002; (1), 17.7.2002; (1), 10.7.2002; (1), 12.6.2003. Taamri Mountain, (1), 1.8.2002, Ghoujgoujyat Mountain, (5), 23.10.2002. Qanawat, (1), 18.10.2001; (1), 13.3.2002; (1), 1.8.2002. Alqrayya, (1), 20.9.2001. **Dar`a:** Jeelin, (2), 3.7.2002. Wadi Jeelin, (2), 3.7.2002. Zeizon, (1), 29.5.2002; (1), 22.8.2002. Sheikh Miskin, (2), 30.8.2001; (1), 27.5.2003. Nahaj, (3), 4.10.2001. Namer, (1), 26.6.2002. **Al-Quneitra:** Beer Ajam, (2), 12.9.2002. Jubata Al-Khashab, (1), 26.8.2003.

**Remarks:** This species has a wide range of distribution in Central Europe, the Mediterranean Region, including North Africa and Middle Asia (Gourreau, 1974). It recorded by Almatni and Khalil (2008).

**Host species:** *Althaea officinalis*, *Amygdalus* sp., *Prunus armeniaca*, *Capsicum annum*, *Cedrus libani*, *Citrus* sp., *Cucumis melo*, *Cucurbita pepo*, *Cydonia vulgaris*, *Dacus carota*, *Elaeagnus angustifolia*, *Euphorbia* sp., *Ficus carica*, *Foeniculum vulgare*, *Glycyrrhiza glabra*, *Hypericum trinquetifolium*, *Inula viscosa*, *Juglans regia*, *Malus communis*, *Medicago sativa*, *Morus alba*, *Nerium oleander*, *Oncium* sp., *Phaseolus vulgaris*, *Populus* sp., *Prunus avium*, *Prunus mahaleb*, *Punica granatum*, *Pyrus communis*, *Quercus calliprinos*, *Rosa* sp., *Rubus idaeus*, *Solanum melongena*, *Schinus molle*, *Triticum* sp., *Urtica* sp., *Zea mays*, and thistle plants.

***Scymnus (Pullus) auritus* Thunberg, 1795 (Figs. 4H and 5C)**

**Material examined (5): Al-Quneitra:** Jubata Al-Khashab, (1), 16.5.2002. **Damascus Rural:** Wadi Al-Qaren, (2), 5.9.2002. Sasaa, (1), 12.9.2002. Erneh, (1), 11.7.2002.

**Remarks:** This species is recorded for the first time in Syria. It is distributed in the largest part of temperate Eurasia (Gourreau, 1974; Kovář, 2007). Uygun (1981) reported this species from Turkey It feeds on aphids.

**Host species:** *Amygdalus* sp., *Malus communis* and *Quercus calliprinos*.

***Scymnus (Pullus) fraxini* Mulsant, 1850 (Figs. 4I and 5D)**

**Material examined (62): Al-Quneitra:** Beer Ajam, (25), 12.9.2002; (17), 2.10.2002. Jubata Al-Khashab, (4), 10.9.2001; (1), 8.11.2001; (8), 25.4.2002; (5), 16.5.2002; (1), 31.7.2002; (1), 29.8.2002.

**Remarks:** This species is recorded for the first time in Syria. Reported in the Balkans and other parts of Europe (Gourreau, 1974).

**Host species:** *Quercus calliprinos*.

***Scymnus (Pullus) subvillosus* (Goeze, 1777) (Figs. 4J and 5E)**

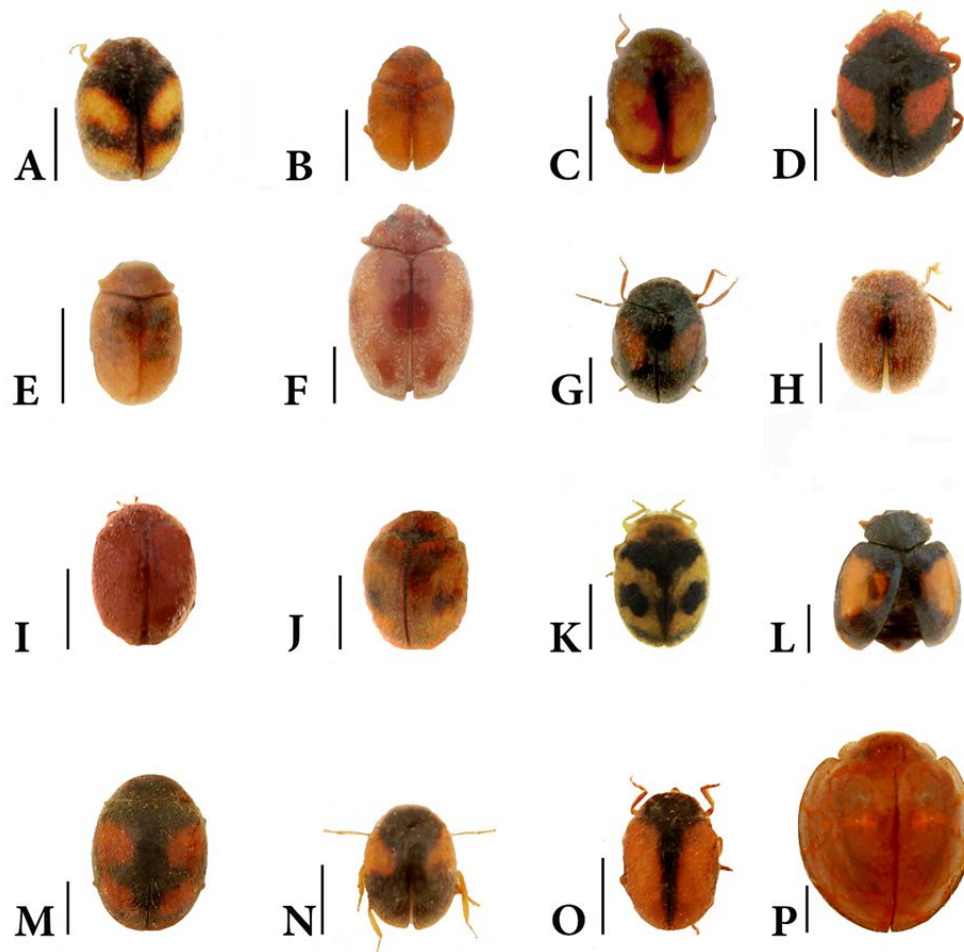
**Material examined (316): Damascus Rural:** Wadi Al-Qaren, (1), 19.9.2002; (2), 5.9.2002. Nasseria, (1),

5.6.2002. Beet-jen Mazraa, (1), 10.4.2002; (1), 7.8.2002. Erneh, (2), 11.7.2002. Beqaasem, (1), 21.9.2001. Deir Al-ashairr, (4), 17.10.2001; (1), 28.11.2002. Addimass, (1), 30.4.2003. Rankus Mountain (1), 21.5.2003. Attall, (1), 10.7.2002. Kharabo, (4), 22.8.2001; (2), 25.10.2001; (1), 21.11.2001; (2), 23.5.2002; (1), 11.7.2002; (3), 8.8.2002; (1), 9.10.2002; (1), 27.11.2002; (3), 13.5.2003; (3), 25.5.2003; (2), 2.7.2003. Serghaya, (1), 5.9.2002. Ma`adamiyeh Al-sham, (4), 23.5.2002; (1), 4.12.2002; (1), 9.4.2003. **Al-Quneitra:** Beer Ajam, (6), 20.3.2002; (1), 27.6.2002; (1), 12.9.2002; (2), 19.3.2003. Jubata Al-Khashab, (1), 20.3.2002; (1), 10.4.2002; (2), 25.4.2002; (2), 16.5.2002; (1), 16.4.2003. Trounja, (1), 10.4.2002. **As`Sweida:** Al-Kafr, (11), 18.10.2001; (20), 29.11.2001; (11), 24.4.2002; (6), 9.5.2002; (3), 6.6.2002; (1), 17.7.2002; (4), 23.10.2002; (3), 11.5.2003; (1), 12.6.2003. Ein alarab, (4), 9.5.2002; (2), 28.6.2002; (1), 4.7.2002; (4), 17.7.2002; (4), 1.8.2002; (1), 10.9.2002; (2), 12.6.2002. Orman Mountain, (3), 11.4.2002; (1), 9.4.2003. Orman, (4), 21.6.2002; (3), 24.6.2002; (12), 4.7.2002; (6), 17.7.2002; (8), 6.6.2003; (3), 4.8.2003. Taamri Mountain, (1), 21.6.2002; (1), 17.7.2002; (1), 1.8.2002; (2), 21.8.2002; (3), 6.6.2003; (1), 20.6.2003; (1), 28.6.2003; (6), 4.7.2003; (12), 14.7.2003; (6), 25.7.2003; (1), 5.8.2003; (2), 8.8.2003. Ghoujygujyat Mountain, (2), 4.7.2002; (9), 23.10.2002; (4), 4.8.2003. Qanawat, (7),

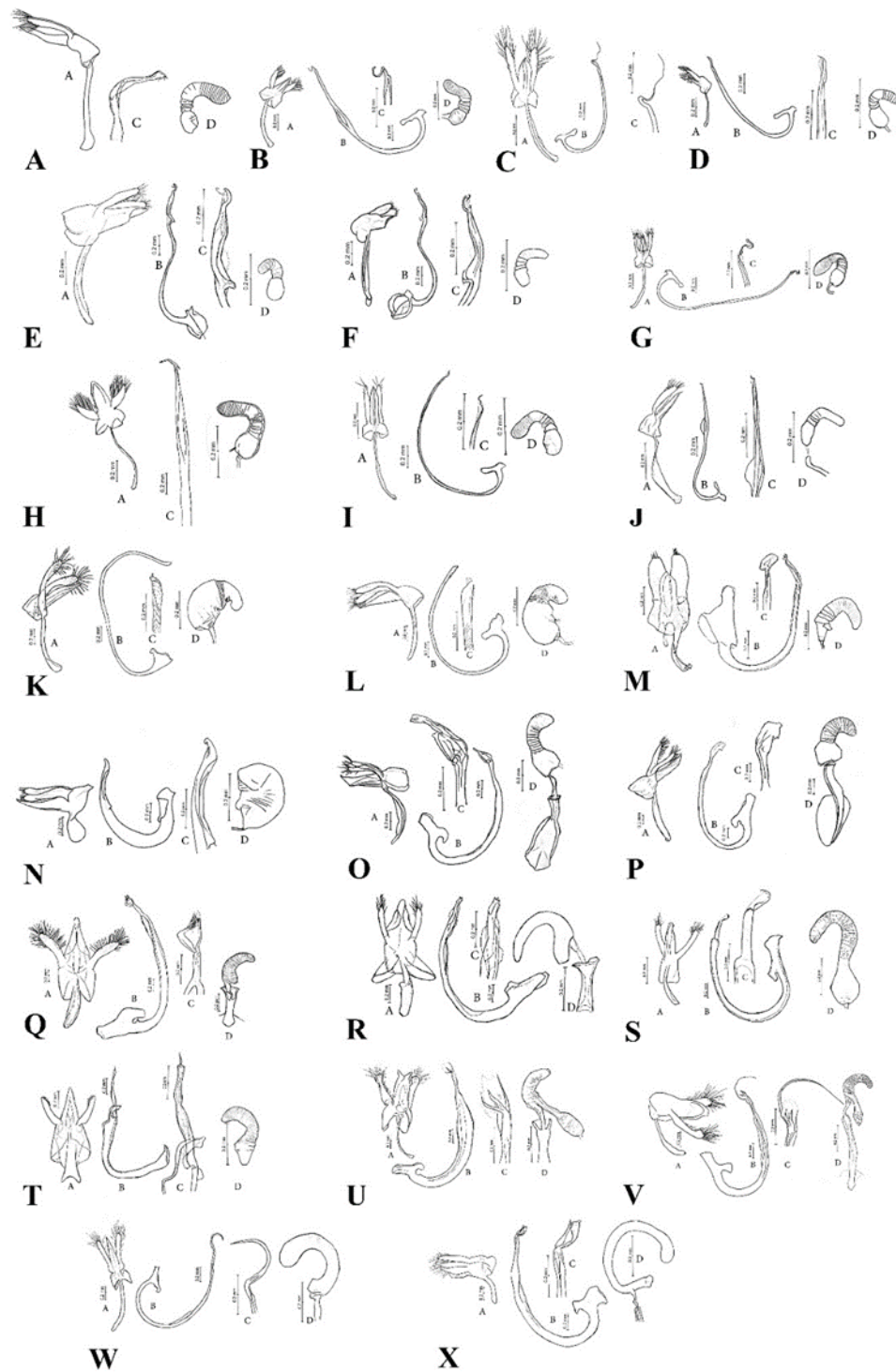
11.9.2001; (3), 20.9.2001; (4), 18.10.2001; (10), 13.3.2002; (4), 3.4.2002; (14), 11.4.2002; (2), 9.5.2002; (1), 6.6.2002; (2), 19.6.2002; (1), 1.8.2002. Shahba, (5), 13.3.2002; (1), 11.4.2002; (1), 11.12.2002. Salkhad, (1), 22.11.2001. **Dar`a:** Jeelin, (1), 18.7.2002. Zeizon, (1), 21.3.2002; (1), 29.5.2002. Sheikh Miskin, (2), 20.6.2002; (4), 27.5.2003; (10), 22.7.2003. Nahaj, (1), 4.10.2001; (2), 24.10.2001. Fakiia, (1), 28.3.2002. Sahn al-joulan (2), 4.9.2001.

**Remarks:** Recorded from the Mediterranean Region, Central Europe to North Africa and eastwards to western Asia (Uygun, 1981; Fürsch, 1989; Raimundo and van Harten, 2000). Recorded from Mount Hermon and the Golan Heights (Halperin *et al.*, 1995) and from Wadi Al Qaren (Kabakibi, 1993).

**Host species:** *Amygdalus* sp., *Cedrus libani*, *Citrus* sp., *Cucumis melo*, *Cupressus* sp., *Euphorbia* sp., *Eucalyptus camaldulensis*, *Ficus carica*, *Galium* sp., *Hypericum trinquetifolium*, *Juglans regia*, *Ligustrum* sp., *Malus communis*, *Medicago sativa*, *Morus alba*, *Nerium oleander*, *Pinus* sp., *Prunus armeniaca*, *Prunus spinosa*, *P. mahaleb*, *Prunus persica*, *Punica granatum*, *Pyrus communis*, *Quercus calliprinos*, *Robinia pseudoacacia*, *Rubus idaeus*, *Spartium junceum*, *Zea mays*, and thistle plants.



**Figure 4:** A. *Nephus (Sidis) kreissli*. B. *Scymnus (Mimopullus) pharaonis*. C. *Scymnus (Mimopullus) flagellisiphonatus*. D. *Scymnus (Mimopullus) flavicollis*. E. *Scymnus (Mimopullus) marinus*. F. *Scymnus (Parapullus) abietis*. G. *Scymnus (Pullus) apetzii*. H. *Scymnus (Pullus) auritus*. I. *Scymnus (Pullus) fraxini*. J. *Scymnus (Pullus) subvillosus*. K. *Scymnus (Pullus) syriacus*. L. *Scymnus (Scymnus) bivulnerus*. M. *Scymnus (Scymnus) frontalis*. N. *Scymnus (Scymnus) interruptus*. O. *Scymnus (Scymnus) nubilus*. P. *Chilocorus bipustulatus*. Scale bar= 1 mm.



**Figure 5:** A. *Scymnus (Parapullus) abietis*. B. *Scymnus (Pullus) apetzi*. C. *Scymnus (Pullus) auritus*. D. *Scymnus (Pullus) fraxini*. E. *Scymnus (Pullus) subvillosus*. F. *Scymnus (Pullus) syriacus*. G. *Scymnus (Scymnus) bivulnerus*. H. *Scymnus (Scymnus) frontalis*. I. *Scymnus (Scymnus) interruptus*. J. *Scymnus (Scymnus) nubilus*. K. *Exochomus octosignatus*. L. *Exochomus quadripustulatus*. M. *Platynaspis luteorubra*. N. *Novius cardinalis*. O. *Adalia (Adalia) bipunctata*. P. *Adalia (Adalia) decempunctata*. Q. *Coccinella (Coccinella) septempunctata*. R. *Coccinella undecimpunctata*. S. *Harmonia quadripunctata*. T. *Hippodamia (Adonia) variegata*. U. *Oenopia conglobata*. V. *Oenopia oncina*. W. *Propylea quatuordecimpunctata*. X. *Psyllobora (Thea) vigintiduopunctata*. Key to darwings: A= Tegmen, B= Penis, C= Penis apex, D= Spermatheca.

***Scymnus (Pullus) syriacus* (Marseul, 1868) (Figs. 4K and 5F)**

**Material examined (250): Damascus:** Damascus, (1), 13.5.2003. **Damascus Rural:** Wadi Al-Qaren, (1), 20.3.2002. Yabrud, (3), 8.8.2002; (1), 11.9.2002. Sasaa, (1), 12.9.2002. Beet-jen Mazraa, (1), 3.10.2001; (1),

8.11.2001; (5), 7.8.2002; (4), 29.8.2002. Erneh, (1), 21.9.2001. Muqr Almeer, (3), 26.8.2003. Addimass, (2), 5.9.2002. Al Hameh, (1), 14.6.2003. Azzabadani, (2), 27.6.2002. Al-Qutayfeh, (9), 15.8.2001; (5), 8.8.2002. Qatana, (3), 14.8.2003. Autaiba, (1), 8.8.2002. Attall, (15), 26.9.2001; (7), 25.10.2001; (7), 26.6.2002; (18),

10.7.2002; (2), 5.9.2002; (4), 24.8.2003. Kharabo, (1), 22.8.2001; (1), 25.10.2001; (1), 23.5.2002; (1), 11.9.2002; (1), 25.9.2002. Ma`adamiyeh Al-sham, (2), 6.12.2001; (3), 6.3.2002; (1), 12.4.2002; (3), 23.5.2002; (4), 9.9.2002; (2), 4.10.2002; (1), 1.11.2002; (2), 4.12.2002; (1), 5.2.2003; (2), 9.4.2003; (7), 23.6.2003; (27), 11.7.2003; (12), 23.7.2003; (4), 27.7.2003; (10), 13.8.2003. **Al-Quneitra:** Beer Ajam, (1), 2.10.2002. Masehara, (2), 13.8.2001. **Dar`a:** Wadi Jeelin, (1), 24.10.2001; (2), 22.11.2001; (1), 7.2.2002; (2), 9.5.2002; (2), 22.8.2002. Zeizon, (1), 8.8.2001; (4), 10.4.2002; (1), 25.4.2002; (1), 9.5.2002; (1), 29.5.2002; (1), 18.7.2002; (2), 18.12.2002; (3), 19.3.2003; (3), 23.4.2003. Sheikh Miskin, (1), 27.5.2003. Sheikh Saad, (1), 13.11.2002. Nahaj, (10), 4.10.2001; (3), 24.10.2001. Sahm al-joulan, (1), 4.9.2001. Namer, (2), 20.6.2002. **As`Sweida:** Al-Kafr, (1), 29.11.2001; (2), 1.8.2002; (1), 29.11.2002. Ein alarab, (1), 29.11.2001; (1), 9.5.2002; (1), 1.8.2002; (1), 10.9.2002; (1), 23.10.2002. Shahba, (4), 23.3.2002; (5), 11.4.2002; (1), 19.6.2002; (1), 11.12.2002.

**Remarks:** This species is distributed in the Middle East with reports from Syria, Egypt, Iraq, Turkey and Palestine (Uygun, 1981; Halperin *et al.*, 1995). Listed for Syria by El Hariri (1971). Recorded from northern Syria by Ka`ada (2002). In Iran, it has been recorded as a predator of two mealybugs (*Planococcus ficus* and *Phenacoccus solenopsis*) on different hosts (Fallahzadeh *et al.*, 2013).

**Host species:** *Aloysia citrodora*, *Cedrus libani*, *Citrus* sp., *Elaeagnus angustifolia*, *Ficus carica*, *Hibiscus esculentus*, *Inula viscosa*, *Juglans regia*, *Morus alba*, *Nerium oleander*, *Olea europaea*, *Pinus* sp., *Populus* sp., *Punica granatum*, *Prunus armeniaca*, *Prunus avium*, *Prunus mahaleb*, *Pyrus communis*, *Quercus calliprinos*, *Rubus idaeus*, *Solanum melongena*, *Tamarix orticulatus*, *Vitis vinifera* and *Zea mays*.

**Scymnus (Scymnus) bivulnerus Capra and Fürsch, 1967 (Figs. 4L and 5G)**

**Material examined (52): Damascus Rural:** Wadi Al-Qaren, (1), 5.9.2002; (1), 10.7.2002. Yabrud, (1), 25.10.2001. Ma`adamiyeh Al-sham, (1), 28.6.2002; (1), 30.8.2002; (1), 19.5.2003; (4), 23.6.2003; (5), 11.7.2003; (4), 23.7.2003. Nasseria, (1), 5.6.2002. Sasaa, (2), 3.10.2002; (1), 2.5.2002; (6), 26.8.2003. Beet-jen Mazraa, (2), 26.8.2003. Erneh, (1), 11.7.2002; (1), 29.8.2002. Deir Al-ashairr, (5), 17.10.2001. Azzabadani, (2), 17.10.2001. Attawani, (2), 26.6.2002. **As`Sweida:** Ein alarab, (2), 17.7.2002. Orman, (1), 22.9.2002; (2), 4.7.2002. Orman Mountain, (1), 21.8.2002; (1), 4.8.2003. Ghoujygujyat Mountain, (2), 29.4.2003. Qanawat, (1), 6.6.2002.

**Remarks:** Known from Central and Southern Europe (Gourreau, 1974). Recorded from Palestine (Halperin *et al.*, 1995). Listed by El Hariri (1968) for Syria.

**Host species:** *Amygdalus* sp., *Citrus* sp., *Cucurbita pepo*, *Daucus carota*, *Eriobotrya japonica*, *Euphorbia* sp., *Faba vulgaris*, *Petrocelinum crispum*, *Populus* sp., *Punica granatum*, *Rubus idaeus*, *Zea mays* and thistle plants.

**Scymnus (Scymnus) frontalis (Fabricius, 1787) (Fig. 4M and 5H)**

**Material examined (60): Damascus Rural:** Kharabo, (4), 22.8.2001; (2), 26.9.2001; (1), 27.11.2001; (2), 23.5.2002; (1), 5.6.2002; (5), 11.7.2002; (1), 24.7.2002;

(26), 11.9.2002; (5), 25.9.2002; (1), 9.10.2002; (1), 25.5.2003; (4), 2.7.2003. Serghaya, (1), 10.7.2002; (1), 24.7.2002; (2), 14.8.2002; (2), 3.10.2002; (1), 7.11.2002.

**Remarks:** This species is known from Central Asia, West Europe, the Middle East and North Africa (Kuznetsov, 1997). It was listed by El Hariri (1971) in Syria.

**Host species:** *Galium* sp., *Malus communis*, *Medicago sativa*, *Morus alba*, *Triticum* sp., *Urtica* sp., *Zea mays*, and thistle plants.

**Scymnus (Scymnus) interruptus (Goeze, 1777) (Figs. 4N and 5I)**

**Material examined (111): Damascus Rural:** Yabrud, (1), 25.10.2001; (2), 26.6.2002. Deir Al-ashairr, (3), 11.6.2002. Al-Hameh, (2), 14.6.2003. Azzabadani, (3), 27.6.2002. Sarkha, (1), 26.6.2002; (1), 11.9.2002. Al-Qutayfeh, (4), 8.8.2002. Qatana, (4), 5.7.2002. Assaida Zainab, (3), 18.10.2001. Ashiphonieh, (1), 25.9.2002. Attall, (5), 26.9.2001; (1), 25.10.2001; (2), 8.5.2002; (11), 26.6.2002; (24), 10.7.2002. Kharabo, (5), 23.5.2002; (1), 11.7.2002; (2), 25.9.2002; (3), 9.10.2002; (3), 2.4.2003; (6), 25.5.2003; (10), 2.7.2003; (1), 6.8.2003. Serghaya, (1), 10.4.2003. Ma`adamiyeh Al-sham, (1), 28.6.2002; (1), 4.7.2002; (3), 23.6.2003; (5), 11.7.2003; (1), 13.8.2003.

**Remarks:** Known from Central Europe, North Africa and the Middle East (Canepari, 1991). Recorded from northern Syria by Ka`ada (2002).

**Host species:** *Amygdalus* sp., *Citrus* sp., *Cucurbita pepo*, *Elaeagnus angustifolia*, *Ficus carica*, *Galium* sp., *Juglans regia*, *Malus communis*, *Medicago sativa*, *Morus alba*, *Phaseolus vulgaris*, *Populus* sp., *Punica granatum*, *Rosa* sp., *Rubus idaeus*, *Solanum melongena*, *Triticum* sp., *Urtica* sp., *Zea mays*, and thistle plants.

**Scymnus (Scymnus) nubilus Mulsant, 1850 (Figs. 4O and 5J)**

**Material examined (279): Damascus Rural:** Sasaa, (3), 3.10.2002; (1), 7.8.2002; (1), 26.8.2003. Kulaiaa, (2), 7.8.2002. Dorin, (3), 10.7.2002. Zarzar, (1), 14.6.2003. Deir Al-ashairr, (1), 11.6.2002. Qatana, (3), 5.7.2002. Autaiba, (5), 24.7.2002. Assaida Zainab, (8), 18.10.2001; (1), 3.4.2002. Ashiphonieh, (2), 25.9.2002. Attall, (1), 26.9.2001; (6), 26.6.2002; (4), 10.7.2002. Kharabo, (1), 22.8.2001; (2), 25.10.2001; (2), 27.12.2001; (1), 4.5.2002; (2), 15.5.2002; (7), 23.5.2002; (2), 5.6.2002; (15), 11.7.2002; (5), 24.7.2002; (2), 8.8.2002; (3), 11.9.2002; (10), 25.9.2002; (20), 9.10.2002; (1), 29.12.2002; (2), 25.5.2003; (4), 2.7.2003; (1), 6.8.2003. Ma`adamiyeh Al-sham, (1), 23.5.2002; (2), 28.6.2002; (2), 9.9.2002; (1), 1.11.2002; (1), 4.12.2002; (2), 19.5.2003; (30), 23.6.2003; (25), 11.7.2003; (15), 23.7.2003; (5), 13.8.2003. **Al-Quneitra:** Jubata Al-Khashab, (1), 16.5.2002. **As`Sweida:** Ein alarab, (3), 7.8.2001. Ghoujygujyat Mountain, (1), 4.7.2002. Qanawat, (1), 21.8.2002. Saura, (3), 11.6.2002. **Dar`a:** Jeelin, (1), 10.8.2001; (1), 18.7.2002. Wadi Jeelin, (1), 29.5.2002; (3), 3.7.2002; (14), 22.8.2002. Zeizon, (1), 9.5.2002; (3), 29.5.2002; (3), 16.6.2003. Izraa, (1), 27.9.2001. Sheikh Miskin, (4), 20.6.2002; (10), 22.7.2003. Sheikh Saad, (2), 12.5.2003. Karak, (1), 22.8.2002. Nahta, (6), 22.8.2002. Nahaj, (1), 24.10.2001. Sehaileia, (1), 20.6.2002. Tafas, (2), 25.7.2002. Sahm al-joulan, (3), 4.9.2001. Wadi Shihab, (2), 13.5.2003. Namer, (4), 20.6.2002.

**Remarks:** This species have a wide range of distribution in the Mediterranean Region (Raimundo and van Harten, 2000). Listed by El Hariri (1971) and the Golan Heights (Halperin *et al.*, 1995) in Syria. It feeds on aphids and scale insects. In Iran, it has been recorded as a predator of two mealybugs (*Nipaeococcus viridis* and *Maconellicoccus hirsutus*) on different hosts (Fallahzadeh *et al.*, 2013).

**Host species:** *Citrus* sp., *Cucumis sativus*, *Cucurbita pepo*, *Cupressus* sp., *Cydonia vulgaris*, *Euphorbia* sp., *Ficus carica*, *Foeniculum vulgare*, *Hibiscus esculentus*, *Juglans regia*, *Medicago sativa*, *Morus alba*, *Nerium oleander*, *Olea europaea*, *Pinus* sp., *Populus* sp., *Prunus armeniaca*, *Prunus vulgaris*, *Punica granatum*, *Quercus calliprinos*, *Solanum melongena*, *Triticum* sp., *Tamarix articulatus*, *Urtica* sp., *Vitis vinifera*, *Vitex agnus-castus*, *Zea mays* and thistle plants.

### Tribe Stethorini

#### *Stethorus* (*Stethorus*) *gilvifrons* (Mulsant, 1850)

**Material examined (1368):** **Al-Quneitra:** Beer Ajam, (5), 12.9.2002; (3), 2.10.2002. Jubata Al-Khashab, (2), 10.9.2001; (1), 31.7.2002; (1), 29.8.2002. Hadar, (4), 31.7.2002; (3), 12.9.2002. Masehara, (2), 13.8.2001. **Damascus Rural:** Attall, (1), 26.9.2001; (7), 25.10.2001; (4), 21.11.2001; (1), 27.12.2001; (3), 14.3.2002; (4), 4.4.2002; (1), 8.5.2002; (1), 10.7.2002; (6), 5.9.2002; (7), 20.11.2002; (2), 24.8.2003. Wadi Al-Qaren, (1), 17.11.2001; (3), 5.9.2002. Yabrud, (7), 8.8.2002; (5), 11.9.2002. Sasaa, (4), 13.8.2001; (3), 3.10.2001; (5), 20.3.2002; (7), 2.5.2002; (2), 16.5.2002; (2), 12.6.2002; (1), 7.8.2002; (7), 12.9.2002. Beet-jen Mazraa, (5), 3.10.2001; (1), 7.8.2002; (3), 29.8.2002. Erneh, (7), 21.9.2001; (8), 29.8.2002. Beqaasem, (5), 21.9.2001; (2), 11.7.2002; (1), 29.7.2002. Muqr Almeer, (1), 26.8.2003. Zarzar, (2), 19.9.2001. Deir Al-ashairr, (9), 17.9.2002. Azzabadani, (2), 17.10.2001. Kharabo, (5), 26.9.2001; (8), 25.10.2001; (3), 21.11.2001; (2), 27.12.2001; (6), 23.5.2002; (5), 11.9.2002; (15), 25.9.2002; (18), 9.10.2002; (9), 27.11.2002; (2), 29.12.2002; (3), 9.2.2003; (12), 2.4.2003; (1), 2.7.2003; (2), 6.8.2003. Serghaya, (50), 19.9.2001; (42), 17.10.2001; (9), 7.11.2001; (2), 18.4.2002; (1), 4.5.2002; (1), 10.7.2002; (22), 24.7.2002; (63), 14.8.2002; (39), 5.9.2002; (24), 17.9.2002; (18), 3.10.2002; (16), 7.11.2002; (1), 26.6.2003; (14), 29.7.2003. Ma'adamiyeh Al-sham, (3), 23.5.2002; (46), 30.8.2002; (8), 9.9.2002; (36), 4.10.2002; (30), 1.11.2002; (39), 4.12.2002; (13), 16.1.2003; (8), 5.2.2003; (1), 13.3.2003; (1), 9.4.2003; (1), 23.6.2003. Houch arab (1), 3.9.2001. Assal Alwarded, (14), 26.9.2001. Rankus Mountain, (1), 11.9.2002. Sarkha, (8), 26.9.2001; (31), 11.9.2002. Maalula (4), 2.8.2001. Seydnaya, (1), 2.8.2001. Qatana, (2), 14.8.2003. Ahmadiya, (1), 25.9.2001. Assaida Zainab, (1), 11.9.2001. Jeerlin, (3), 29.12.2002; (5), 9.2.2003. Ashiphonieh, (51), 25.9.2002. Annashabyeh, (2), 21.11.2001; (1), 24.7.2002. **Damascus:** Qasioun, (3), 13.5.2003. **As`Sweida:** Al-Kafr, (8), 20.9.2001. Ein alarab, (28), 7.8.2001; (30), 29.8.2001; (29), 27.9.2001; (6), 18.10.2001; (1), 1.8.2002; (17), 21.8.2002; (48), 10.9.2002; (20), 23.10.2002. Orman Mountain, (18), 1.8.2001; (23), 12.8.2001; (20), 29.8.2001; (15), 27.8.2001; (1), 11.4.2002; (1), 1.8.2002; (49), 10.9.2002; (1), 4.8.2003. Orman, (20), 29.8.2001; (6), 4.7.2002; (6),

17.7.2002. Taamri Mountain, (2), 17.7.2002; (1), 21.8.2002(2), 5.8.2003; (1), 8.8.2003. Ghoujygujyat Mountain, (16), 1.8.2002; (33), 21.8.2002; (10), 10.9.2002; (10), 23.10.2002; (7), 22.10.2003. Qanawat, (1), 12.8.2001; (3), 11.9.2001; (1), 20.9.2001. Taima, (4), 11.9.2001. Tal-loz, (2), 12.8.2001. Mashkok, (1), 20.9.2001. **Dar`a:** Wadi Jeelin, (5), 21.9.2001; (3), 22.11.2001; (4), 7.2.2002; (3), 25.4.2002. Jeelin, (3), 24.10.2001; (5), 3.7.2002. Zeizon, (4), 8.8.2001; (1), 22.8.2002. Mzireeb, (1), 6.8.2001. Sheikh Saad, (2), 13.11.2002. Nahaj, (18), 4.10.2001; (16), 24.10.2001. Sahm al-joulan, (3), 4.9.2001.

**Remarks:** Distributed in the East Mediterranean Region, covering India, Pakistan, Afghanistan, the Caucasus, Turkey, Iran and Saudi Arabia (Gourreau, 1974; Uygun, 1981; Raimundo and van Harten, 2000).

**Host species:** *Aloysia citrodora*, *Amygdalus* sp., *Capsicum annum*, *Citrus* sp., *Cucurbita pepo*, *Cupressus* sp., *Eriobotrya japonica*, *Eucalyptus camaldulensis*, *Ficus carica*, *Glycyrrhiza glabra*, *Helianthus annuus*, *Hibiscus esculentus*, *Inula viscosa*, *Juglans regia*, *Ligustrum* sp., *Lonicera* sp., *Malus communis*, *Medicago sativa*, *Morus alba*, *Olea europaea*, *Parietaria judaica*, *Phaseolus vulgaris*, *Pinus* sp., *Populus* sp., *Prunus armeniaca*, *Pyrus communis*, *Pistacia vera*, *Prunus avium*, *Prunus mahaleb*, *Prunus vulgaris*, *Punica granatum*, *Quercus calliprinos*, *Rosa* sp., *Rubus idaeus*, *Schinus molle*, *Solanum melongena*, *Urtica* sp., *Vitis vinifera*, and *Zea mays*.

### Tribe Chilacorini Mulsant, 1846

#### *Chilocorus bipustulatus* (Linnaeus, 1758) (Fig. 4P)

**Material examined (42):** **Al-Quneitra:** Jubata Al-Khashab (1), 29.8.2002. **Damascus Rural:** Ma'adamiyeh Al-Sham, (9) 9.9.2002; (15) 13.8.2003; (4) 24.8.2003; (3) 15.8.2004. Addimass, (1), 17.9.2002; (1), 3.4.2003. Airport Street (1), 28.8.2001. Attall (1), 15.8.2002. **As`Sweida:** Ein alarab, (1), 1.8.2002; (2), 10.9.2002; (1), 23.10.2002. **Dar`a:** Wadi Jeelin, (1), 7.2.2002; (1), 29.5.2002.

**Remarks:** This species has a wide range of distribution covering India, Pakistan, China, Mongolia, Russia and Western Europe (Poorani, 2004), with records from northern Syria and the coastal regions (Lababidi and Zepter, 1995; Al Jundi and Ahmad, 1999) and Damascus (Bascheer and Abo Alshamat, 2004). It feeds on scale insects and aphids. Lababidi and Zebitz (1995) reported it feeding on the pistachio psyllid *Agonoscena targionii* Lich. in northern Syria.

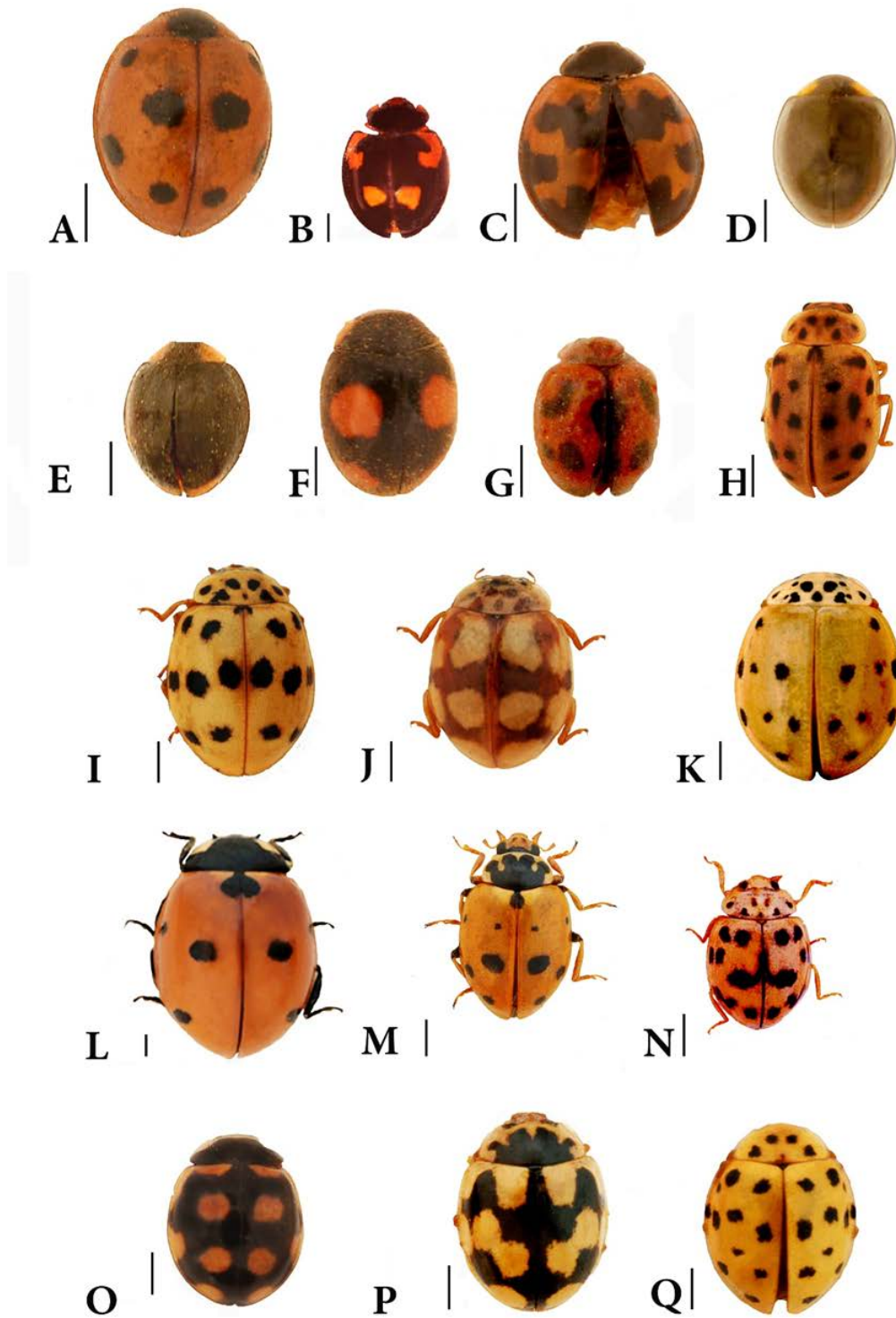
**Host species:** *Biota orientalis*, *Citrus* sp., *Cupressus* sp., *Olea europaea*, *Pinus* sp., *Populus* sp., *Pyrus communis*, and *Quercus calliprinos*.

#### *Exochomus octosignatus* (Gebler, 1830) (Figs. 5K and 6A)

**Material examined (1):** **Damascus Rural:** Bludan Mountain, (1), 14.6.2003.

**Remarks:** This species is recorded for the first time in Syria. It was listed under the genus *Brumus*. Distribution of this species extends from Siberia to the Eastern Mediterranean (Duverger, 1991). Uygun (1981) recorded this species to feed on scale insects in Turkey.

**Host species:** Species of family Asteraceae.



**Figure 6:** A. *Exochomus octosignatus*. B. *Exochomus quadripustulatus*. C. *Exochomus undulatus*. D. *Parexochomus nigromaculatus*. E. *Parexochomus pubescens*. F. *Platynaspis luteorubra*. G. *Novius cardinalis*. H. *Anisosticta novemdecimpunctata*. I. *Adalia (Adalia) bipunctata*. J. *Adalia (Adalia) decempunctata*. K. *Harmonia quadripunctata*. L. *Coccinella (Coccinella) septempunctata*. M. *Hippodamia (Adonia) variegata*. N. *Oenopia conglobata*. O. *Oenopia oncina*. P. *Propylea quatuordecimpunctata*. Q. *Psyllobora (Thea) vigintiduopunctata*. Scale bar = 1 mm.

***Exochomus quadripustulatus* (Linnaeus, 1758) (Figs. 5L and 6B)**

**Material examined (54): Damascus Rural:** Wadi Al-Qaren, (4), 19.8.2001; (1), 17.11.2001; (1), 14.3.2002; (2), 19.2.2003. **Al-Quneitra:** Beer Ajam, (2), 20.3.2002; (3), 19.3.2003. Jubata Al-Khashab, (2), 28.2.2002; (3), 25.4.2002; (14), 16.5.2002; (10), 16.4.2003; (1),

26.8.2003; (4), 2.5.2005. **As`Sweida:** Al-Kafr, (4), 23.10.2002; (1), 12.12.2002; (2), 11.5.2003.

**Remarks:** This species is distributed from India, Mangolia, Middle East to Russian Far East and Western Europe (Kuznetsov, 1997; Poorani, 2004; Kovář, 2007). In Syria, it was listed by El Hariri (1968) and recorded from Wadi Al Qaren by Kabakibi (1993), from As`Sweida by

Almatni *et al.* (1999) and from Damascus by Bascheer and Abo Alshamat (2004).

**Host species:** *Amygdalus* sp. and *Quercus calliprinos*.

***Exochomus undulatus* Weise, 1878 (Fig. 6C)**

**Material examined (2): Damascus Rural:** Rankus, (1), 6.7.2004. Wadi Al-Qaren, (1), 14.3.2002.

**Remarks:** This species is known from the southern states of the former Soviet Union, Turkey, Iran, Palestine and Egypt (Alfieri, 1976; Uygun, 1981, Moodi, 1994; Halperin *et al.*, 1995). In Syria, it was listed by El Hariri (1968). Uygun (1981) recorded it feeding on scale insects and aphids in Turkey. Jalilvand *et al.* (2014) found that this species predates on *Planococcus vovae* in Iran.

**Host species:** *Amygdalus* sp. and *Quercus calliprinos*.

***Parexochomus nigromaculatus* (Goeze, 1777) (Fig. 6D)**

**Material examined (24): Damascus Rural:** Wadi Al-Qaren, (1), 19.9.2001; (2), 5.9.2002. Jeerin, (1), 29.12.2001. **Al-Quneitra:** Masehara, (1), 13.8.2001. **As`Sweida:** Al-Kafr (1), 18.10.2001. Taamri Mountain, (1), 21.6.2002. Orman Mountain, (1), 21.8.2002; (1), 8.8.2003. Qanawat, (2), 12.8.2001. **Dar`a:** Izraa (4), 27.9.2001. Sheikh Miskin, (8), 30.8.2001. Sanameen, (1), 6.8.2001.

**Remarks:** This species has a wide range of distribution in South and Central Europe, Africa and Asia (Raimundo and van Harten 2000). This species was recorded previously from Syria by El Hariri (1971) and from the Golan Heights (Halperin *et al.*, 1995). Jalilvand *et al.* (2014) found that this species predates on *Phenacoccus* sp. in Iran.

**Host species:** *Achillea* sp., *Cucumis melo*, *Cucurbita pepo*, *Daucus carota*, *Nerium oleander*, *Quercus calliprinos* and *Urtica* sp.

***Parexochomus pubescens* (Küster, 1848) (Fig. 6E)**

**Material examined (6): Damascus Rural:** Jeerin, (3), 9.2.2003. Attall, (1), 24.8.2003. Kharabo, (1), 23.5.2002. **Dar`a:** Wadi Shihab, (1), 13.5.2003.

**Remarks:** This is widely distributed species with a range extending from India, Middle East, reaching westwards to Spain, with records from Egypt, Palestine, Syria, Saudi Arabia and Yemen (Raimundo and van Harten, 2000; Poorani, 2004).

**Host species:** *Tamarix articulata*, *Triticum* sp. and *Urtica* sp.

**Tribe Platynaspini Mulsant, 1846**

***Platynaspis luteorubra* (Goeze, 1777) (Figs. 5M and 6F)**

**Material examined (14): Damascus Rural:** Kharabo, (1), 22.8.2001; (1), 11.7.2002; (1), 24.7.2002; (1), 6.8.2003. Qatana, (1), 5.7.2002. Attall, (1), 10.7.2002. **As`Sweida:** Ein alarab (1), 22.7.2003. Orman Mountain (1), 27.9.2001. Ghoujygujyat Mountain, (1), 4.7.2002; (2), 29.4.2003. Shahba, (1), 13.3.2002. **Dar`a:** Zeizon, (2), 8.8.2001.

**Remarks:** Halperin *et al.* (1995) reported *Platynaspis luteorubra* as a rare species in the Golan Heights and Palestine. This is a Palearctic species with a range extending from North Africa, Europe, and the Middle East reaching the Caucasus (Uygun, 1981).

**Host species:** *Malus communis*, *Medicago sativa*, *Morus alba*, *Pinus* sp., *Punica granatum*, *Rosa* sp., and *Zea mays*.

**Tribe Noviini Mulsant, 1850**

***Novius cardinalis* (Mulsant, 1850) (Figs. 5N and 6G)**

**Material examined (16): Damascus Rural:** Attall, (1), 25.10.2001; (1), 27.12.2001. Ma`adamiyeh Al-sham, (1), 15.2.2002; (1), 23.5.2002; (1), 16.1.2003; (1), 5.2.2003; (1), 13.3.2003; (1), 9.4.2003; (1), 23.6.2003; (1), 11.7.2003; (1), 13.8.2003. **Dar`a:** Wadi Jeelin, (1), 7.2.2002; (2), 25.4.2002. Zeizon, (1), 25.4.2002; (1), 27.5.2002.

**Remarks:** This species has a world-wide distribution (Uygun, 1981). Listed previously from Syria (El Hariri, 1968). Recorded by Al Jundi and Ahmad (1999) from the coastal regions.

**Host species:** *Citrus* sp., *Faba vulgaris*, *Punica granatum*, and *Rubus idaeus*.

**Tribe Tythaspidini Crotch, 1874**

***Anisosticta novemdecimpunctata* (Linnaeus, 1758) (Fig. 6H)**

**Material examined (1): Dar`a:** Nahta, (1), 22.8.2002.

**Remarks:** This species is widely distributed in Europe, Central Asia and the Middle East (Uygun, 1981; Kuznetsov, 1997; Kovář, 2007). This species is recorded for the first time in Syria.

**Host species:** *Zea mays*.

**Tribe Coccinellini Latreille, 1807**

***Adalia (Adalia) bipunctata* (Linnaeus, 1758) (Figs. 5O and 6I)**

**Material examined (61): Damascus Rural:** Kafr-Hawar, (1), 7.8.2002. Al-Hameh, (2), 14.6.2003. Jeerin, (30), 29.12.2002; (3), 9.2.2003. Attall, (3), 26.6.2002. Kharabo, (2), 22.8.2001; (1), 25.10.2001; (1), 23.5.2002; (1), 11.7.2002; (1), 24.7.2002; (1), 8.8.2002; (3), 11.9.2002; (1), 25.9.2002; (3), 9.10.2002; (2), 2.4.2003; (2), 25.5.2003; (1), 2.7.2003; (1), 6.8.2003. Ma`adamiyeh Al-Sham, (1), 23.5.2002. **As`Sweida:** Orman Mountain, (1), no date.

**Remarks:** This species has a world-wide distribution (Harde, 1999; Poorani, 2004). In Syria, it was listed by El Hariri (1968). Recorded from Damascus by Bascheer and Abo Alshamat (2004) and from As`Sweida by Almatni *et al.* (1999).

**Host species:** *Ficus carica*, *Juglans regia*, *Malus communis*, *Medicago sativa*, *Morus alba*, *Populus* sp., *Punica granatum*, *Rubus idaeus*, *Salix* sp., *Solanum melongena*, *Triticum* sp., *Urtica* sp., and *Zea mays*.

***Adalia (Adalia) decempunctata* (Linnaeus, 1758) (Figs. 5P and 6J)**

**Material examined (37): Al-Quneitra:** Beer Ajam, (2), 27.6.2002; (1), 2.10.2002. **Damascus Rural:** Wadi Al-Qaren, (4), 10.7.2002. Sarkha, (5), 26.6.2002; (1), 11.9.2002. Beqaasem, (1), 11.7.2002. Kafr Hawar, (1), 7.8.2002. **As`Sweida:** Al-Kafr, (1), 17.7.2002; (2), 23.10.2002. Orman, (1), 24.6.2002; (3), 11.7.2002; (1), 17.7.2002. Taamri Mountain, (1), 4.7.2003. Ghoujygujyat Mountain, (1), 4.7.2003. Qanawat, (2), 6.6.2002. Sad alain, (9), 17.7.2002. **Dar`a:** Zeizon, (1), 9.5.2002.

**Remarks:** It is distributed throughout the Palearctic region, North Africa reaching Japan (Harde, 1999; Uygun,



1981). Previous records from Syria include the coastal region (Al Jundi and Ahamd, 1999), Mount Hermon (Halperin *et al.*, 1995), North Syria (Aswad, 1998) and listed by El Hariri (1968).

**Host species:** *Amygdalus* sp., *Inula viscosa*, *Juglans regia*, *Quercus calliprinos*, *Robinia pseudoacacia*, *Salix* sp., *Pinus* sp., *Populus* sp., and *Prunus vulgaris*.

***Coccinella (Coccinella) septempunctata* Linnaeus, 1758 (Figs. 5Q and 6L)**

**Material examined (330): Al-Quneitra:** Beer Ajam, (1), 27.6.2002. Jubata Al-Khashab, (12), 12.6.2002; (8), 11.7.2002; (3), 31.7.2002, (2), 26.8.2003. **Damascus:** Qasioun, (6), 13.5.2003. **Damascus Rural:** Kharabo, (1), 22.8.2001; (1), 21.11.2001; (1), 6.2.2002; (2), 18.4.2002; (8), 15.5.2002; (9), 23.5.2002; (1), 5.6.2002; (1), 24.7.2002; (1), 11.9.2002; (1), 2.4.2003; (1), 21.4.2003; (2), 13.5.2003; (3), 25.5.2003; (1), 6.8.2003; (6) 13.5.2005. Yabrud, (1), 25.10.2001; (1), 4.4.2002; (4), 8.5.2002. Sasaa, (1), 2.5.2002; (10), 16.5.2002. Beet-jen Mazraa, (6), 8.11.2001; (5), 16.5.2002. Qatana, (1), 5.7.2002; (1), 28.2.2002. Deir Al-ashairr, (2), 11.6.2002. Bludan, (2), 14.6.2003. Rankaus, (1), 10.6.2003. Maalula, (1), 8.5.2002. Attawani, (1), 20.11.2002. Autaiba, (6), 6.2.2002; (1), 9.2.2003. Deir Atyeh, (4), 21.5.2003. Annashabyeh, (1), 28.8.2001. Attall, (3), 3.9.2001; (6), 25.10.2001; (3), 27.12.2001; (2), 14.3.2002; (1), 4.4.2002; (2), 20.11.2002; (6), 19.2.2003; (1), 7.5.2003. Serghaya, (4), 19.9.2001; (10), 7.11.2001; (2), 6.12.2001; (7), 4.5.2002; (8), 30.5.2002; (12), 11.6.2002; (2), 27.6.2002; (1), 17.9.2002; (4), 3.10.2002; (4), 7.11.2002; (2), 22.5.2003. Ma'adamiyeh Al-sham, (1), 24.11.2001; (2), 19.4.2002; (2), 24.4.2002; (1), 1.5.2002; (1), 23.5.2002; (1), 19.7.2002; (1), 1.11.2002; (1), 4.12.2002; (3), 19.5.2003; (1), 23.6.2003; (1), 23.7.2003. **As'Sweida:** Al-Kafr, (3), 12.6.2003. Ein alarab, (2), 9.5.2002; (16), 6.6.2002; (1), 19.6.2002; (1), 23.10.2002; (5), 2.6.2003. Orman Mountain, (3), 11.4.2002; (1), 6.6.2002; (2), 12.6.2003. Taamri Mountain, (2), 17.4.2002; (1), 17.7.2002. Ghoujygujyat Mountain, (2), 4.7.2002; (1), 12.6.2003. Qanawat, (1), 29.11.2001; (1), 13.3.2002 (1), 11.4.2002; (1), 9.5.2002; (1), 6.6.2002. Shahba, (2), 29.11.2001; (4), 13.3.2002; (1), 11.4.2002; (3), 11.5.2003. Tarba, (1), 11.9.2001. Saura, (1), 13.3.2002. **Dar'a:** Wadi Jeelin, (1), 9.5.2002. Zeizon, (6), 22.11.2001; (4), 7.2.2002; (1), 10.4.2002; (1), 25.4.2002; (1), 29.5.2002; (1), 18.12.2002; (1), 16.6.2003. Mzireeb, (1), 20.12.2001; (1), 25.4.2002; (4), 9.5.2002; (3), 16.5.2002; (1), 18.12.2002. Sheikh Saad, (8), 12.5.2003. Ajami, (3), 13.11.2002. Sehaileia, (1), 20.6.2002. Tafas (1), 22.11.2001; (4), 25.7.2002. Dar'a, (3), 6.5.2003. Wadi Shihab, (2), 13.5.2003. Namer, (10), 15.4.2002.

**Remarks:** This species has a world-wide distribution (Zhou *et al.*, 1995). In Syria, it was listed by El Hariri (1968) and collected from Wadi Al Qaren by Kabakibi (1993), from As'Sweida by Almatni *et al.* (1999) and from Damascus by Bascheer and Abo Alshamat (2004). It feeds on aphids. Lababidi and Zebitz (1995) reported it feeding on the pistachio psyllid *Agonoscena targionii* Lich. in northern Syria.

**Host species:** *Acer* sp., *Achillea* sp., *Amygdalus* sp., *Anthemis* sp., *Beta vulgaris*, *Cardus pycnocephalus*, *Centaurea* sp., *Chenopodium* sp., *Citrus* sp. *Cucumis sativus*, *Cucurbita pepo*, *Cupressus* sp., *Diplotaxis ercoides*,

*Elaeagnus angustifolia*, *Faba vulgaris*, *Foeniculum vulgare*, *Hibiscus esculentus*, *Hordeum* sp., *Inula viscosa*, *Juglans regia*, *Malus communis*, *Medicago sativa*, *Morus alba*, *Nerium oleander*, *Onobrychus* sp., *Ononis spinosa*, *Onopordum syriacum*, *Quercus calliprinos*, *Petroselinum crispum*, *Pinus* sp., *Punica granatum*, *Prunus avium*, *Prunus armeniaca*, *Prunus vulgaris*, *Pyrus communis*, *Rosa* sp., *Rubus idaeus*, *Tamarix orticulatus*, *Triticum* sp., *Urtica* sp., *Vicia sativa*, *Vitis vinifera*, and *Zea mays*.

***Coccinella (Spilota) undecimpunctata aegyptica* Reiche, 1861 (Figs. 5R)**

**Material examined (152): Damascus:** Damascus, (1), 16.6.2002; (1), 13.5.2003. **Damascus Rural:** Kharabo, (2), 22.8.2001; (2), 25.10.2001; (2), 15.5.2002; (4), 23.5.2002; (2), 5.6.2002; (2), 11.7.2002; (1), 13.5.2003; (1), 25.5.2003. Serghaya, (1), 27.6.2002. Ma'adamiyeh Al-Sham, (8), 24.4.2002; (5), 23.5.2002; (4), 19.5.2003; (1), 11.7.2003. Yabrud, (5), 8.5.2002. Nasseria, (2), 5.6.2002. Kanaker, (3), 4.9.2001. Zarzar, (1), 14.6.2003. Deir Al-ashairr, (1), 17.10.2001. Bludan, (2), 14.6.2003. Assal Alwared, (1), 26.9.2001. Rankus Mountain, (1), 21.5.2003. Rankaus, (6), 10.6.2003. Al-Dumayr, (15), 15.8.2001. Qatana, (1), 5.7.2002. Seydnaya, (5), 21.5.2003. Ahmadiya, (10), 23.5.2002. Autaiba, (8), 10.7.2001; (1), 28.8.2001; (6), 2.8.2004. Assaida Zainab, (2), 11.9.2001. Deir Atyeh, (1), 21.5.2003. Annashabyeh, (14), 28.8.2001. Attall, (1), 3.9.2001; (1), 7.5.2003. **As'Sweida:** Al-Kafr, (1), 12.6.2003. Ein alarab, (1), 2.6.2003. Orman Mountain, (1), 23.6.2002; (1), 16.5.2003. Ghoujygujyat Mountain, (1), 4.7.2002. Taamri Mountain, (1), 6.6.2003; (1), 25.7.2003. Orman, (1), 6.6.2003. Qanawat, (2), 29.11.2001. Sad alaaain, (1), 12.5.2003. **Dar'a:** Jeelin, (2), 10.8.2001. Zeizon, (1), 24.10.2001. Sheikh Miskin, (1), 27.5.2003. Mzireeb, (2), 6.8.2001; (1), 20.12.2001. Sheikh Saad, (1), 12.5.2003. Shagara, (1), 9.7.2002. Tafas, (3), 25.7.2002. Daraa, (3), 6.5.2003. Shihab, (1), 25.7.2002. Namer, (1), 15.4.2002.

**Remarks:** Known from Europe, Asia and Africa (Rainundo and van Hartenl 2000). In Syria, recorded by Al Jundi and Ahmad (1999) as a predator for aphids on citrus tree in the coastal regions and recorded from As'Sweida by Almatni *et al.* (1999). It was listed by El Hariri (1968) from Syria.

**Host species:** *Amygdalus* sp., *Beta vulgaris*, *Carthamus tinctorius*, *Cerasus avium*, *Citrus* sp., *Crataegus* sp., *Cucumis sativus*, *Cupressus* sp., *Eriobotrya japonica*, *Euphorbia* sp., *Faba vulgaris*, *Foeniculum vulgare*, *Gossypium* sp., *Hordeum* sp., *Juglans regia*, *Malus communis*, *Morus alba*, *Medicago sativa*, *Nerium oleander*, *Pinus* sp., *Pisum sativum*, *Prunus armeniaca*, *Punica granatum*, *Pyrus communis*, *Solanum melongena*, *Triticum* sp., *Vicia sativa* and *Zea mays*.

***Harmonia quadripunctata (Pontoppidan, 1763) (Figs. 5S and 6K)***

**Material examined (59): Damascus Rural:** Zarzar, (1), 30.4.2003; (1), 14.6.2003. Maissalon, (4), 30.4.2003. Addimass, (1), 15.5.2002; (2), 30.4.2003. Kafr Hawar, (1), 7.8.2002. **Al-Quneitra:** Trounja 7: (1), 28.2.2002; (5), 29.8.2002; (1), 16.4.2003; (1), 12.6.2002. **As'Sweida:** Al-Kafr, (1), 23.10.2002, Ein alarab, (7), 4.7.2002; (3), 17.7.2002; (9), 1.8.2002; (8), 21.8.2002; (2), 10.9.2002; (3), 23.10.2002; (3), 2.6.2003. Ghoujygujyat Mountain,

(2), 1.8.2002; (1), 23.10.2002. Taamri Mountain, (1), 25.7.2003. Orman Mountain, (1), 4.8.2003.

**Remarks:** Known from Europe throughout Central Asia and the Middle East (Allawi, 1989; Canepari, 1991; Halperin *et al.*, 1995; Harde, 1999). It was recoded by Al Jundi and Ahmad (1999) as a predator for aphids on citrus tree in the coastal regions.

**Host species:** *Amygdalus* sp., *Cedrus libani*, *Cupressus* sp., *Galium* sp., *Pinus* sp., *Prunus avium*, *Prunus vulgaris*, *Quercus calliprinos* and *Rosa damascena*.

***Hippodamia (Adonia) variegata* (Goeze, 1777) (Figs. 5T and 6M)**

**Material examined (1042): Damascus Rural:** Attall, (25), 3.9.2001; (4), 26.9.2001; (2), 27.12.2001; (4), 4.4.2002; (2), 8.5.2002; (1), 26.6.2002; (11), 10.7.2002; (3), 20.11.2002; (7), 7.5.2002. Kharabo, (1), 22.8.2001; (1), 26.9.2001; (6), 25.10.2001; (3), 21.11.2001; (1), 6.2.2002; (5), 4.5.2002; (11), 15.5.2002; (102), 23.5.2002; (6), 5.6.2002; (11), 11.7.2002; (6), 24.7.2002; (1), 8.8.2002; (24), 11.9.2002; (5), 25.9.2002; (3), 9.10.2002; (3), 25.5.2003; (6), 2.7.2003; (8), 6.8.2003; (2), 13.5.2005. Serghaya, (7), 19.9.2001; (19), 17.10.2001; (25), 7.11.2001; (2), 6.12.2001; (1), 18.4.2002; (2), 30.5.2002; (17), 11.6.2002; (16), 27.6.2002; (14), 10.7.2002; (11), 24.7.2002; (15), 14.8.2002; (2), 5.9.2002; (6), 17.9.2002; (8), 3.10.2002; (15), 7.11.2002; (2), 9.1.2003; (1), 10.4.2003; (2), 26.6.2003; (3), 29.7.2003. Ma'adamiyeh Al-sham, (1), 6.12.2001; (1), 20.1.2002; (12), 19.4.2002; (2), 1.5.2002; (15), 23.5.2002; (6), 28.6.2002; (2), 19.7.2002; (1), 9.9.2002; (2), 16.1.2003; (4), 5.2.2003; (3), 13.3.2003; (8), 19.5.2003; (4), 23.6.2003; (7), 11.7.2003; (2), 23.7.2003; (1), 13.8.2003. Yabrud 14: (4), 2.8.2001; (1), 26.9.2001; (8), 25.10.2001; (1), 11.9.2002. Kanaker, (1), 4.9.2001. Sasaa, (13), 3.10.2001; (1), 12.6.2002. Kulaiaa, (4), 7.8.2002. Dorin, (12), 10.7.2002; (5), 24.8.2003. Beet-jen Mazraa 4: (1), 1.8.2001; (3), 8.11.2001. Erneh (4), 11.7.2002; Zarzar, (7), 19.9.2001; (1), 14.6.2003. Deir Al-ashairr, (12), 17.10.2001; (8), 28.11.2001; (17), 11.6.2002. Al-Hameh, (5), 14.6.2003. Azzabadani, (3), 17.10.2001; (1), 28.11.2001; (6), 27.6.2002. Bludan, (4), 14.6.2003. Houch arab, (2), 3.9.2001. Rankaus, (6), 21.5.2003; (10), 10.6.2003. Attawani, (1), 20.11.2002. Al-Dumayr, (1), 15.8.2001. Qatana, (19), 5.7.2002. Ahmadiya, (3), 25.9.2002. Airport Street, (2), 21.11.2001. Autaiba, (1), 6.2.2002; (1), 24.7.2002. Haran Al-awameed, (1), 24.7.2002. Assaida Zainab, (9), 11.9.2001; (1), 3.4.2002. Deir Atyeh, (1), 21.5.2003. Jeerain, (21), 29.12.2002; (1), 9.2.2003. Ashiphonieh, (6), 25.9.2002. Annashabyeh, (10), 28.8.2001. **Damascus:** Damascus, (9), 13.5.2003. **As'Sweida:** Al-Kafr, (1), 1.8.2002; (1), 12.6.2003. Ein alarab, (1), 21.11.2001; (2), 29.11.2001; (1), 19.6.2002; (5), 17.7.2002; (8), 1.8.2002; (1), 23.10.2002; (2), 2.6.2003. Orman Mountain, (1), 21.11.2001; (4), 4.7.2002; (14), 27.9.2002; (1), 1.8.2002; (2), 21.8.2002; (1), 12.6.2003. Taamri Mountain, (2), 17.4.2002; (3), 6.6.2003; (1), 13.6.2003; (1), 28.6.2003; (1), 4.7.2003; (2), 25.7.2003. Orman, (15), 21.6.2002; (6), 4.7.2002; (1), 17.7.2002; (4), 22.6.2002; (1), 11.7.2002; (4), 25.5.2003; (1), 6.6.2003. Ghoujygujyat Mountain, (3), 10.9.2002; (1), 21.8.2002; (4), 23.10.2002; (2), 29.4.2003; (1), 12.6.2003. Sad alain, (6), 17.7.2002. Qanawat, (9), 12.8.2001; (3), 29.8.2001; (1), 11.9.2001; (8), 18.10.2001;

(10), 15.5.2002; (1), 19.6.2002; (5), 1.8.2002; (8), 21.8.2002; (5), 4.8.2005; **Dar'a:** Shahba, (1), 16.5.2001; (1), 13.3.2002; (1), 11.12.2002; (1), 11.5.2003. Jeelin, (15), 10.8.2001; (3), 30.8.2001; (6), 18.7.2002. Wadi Jeelin, (2), 21.9.2001; (1), 22.11.2002; (1), 25.4.2002; (4), 9.5.2002; (1), 2.10.2002. Zeizon, (9), 8.8.2001; (3), 24.10.2001; (18), 22.11.2001; (3), 20.12.2001; (5), 10.4.2002; (1), 9.5.2002; (2), 29.5.2002; (1), 16.6.2003. Izraa, (6), 27.9.2001. Sheikh Miskin, (6), 30.8.2001; (1), 20.6.2002; (2), 27.5.2003; (4), 22.7.2003. Mzireeb, (4), 6.8.2001; (7), 20.12.2001; (2), 25.4.2002; (4), 9.5.2002; (3), 16.5.2002; (1), 25.7.2002. Sheikh Saad, (1), 12.5.2003. Ajami, (2), 13.11.2002. Nahta, 2: (1), 6.8.2002; (1), 22.8.2002. Sehaileia, (1), 20.6.2002. Tafas 23: (2), 4.9.2001; (13), 22.11.2001; (8), 25.7.2002. Dar'a, (6), 6.5.2003. Shihab, (1), 25.7.2002. Wadi Shihab, (1), 13.5.2003. Namer, (1), 20.6.2002.

**Remarks:** This species has a wide range of distribution extending from the Russian Far East across Asia southward to India and the Middle East to Europe and North Africa and occurs also in South Africa (Kuznetsov, 1997; Raimundo and van Harten, 2000). Listed from Syria by El Hariri (1968). Recorded by Al Jundi and Ahmad (1999) from the coastal regions. Its principal food is aphids. Özden *et al.* (2006) reported this species from Cyprus feeding on aphids and mites. Lababidi and Zebitz (1995) reported it feeding on the pistachio psyllid *Agonoscena targionii* Lich. in northern Syria.

**Host species:** *Acer* sp., *Agropyron repens*, *Amygdalus* sp., *Anabasis* sp., *Beta vulgaris*, *Carthamus tinctorius*, *Cedrus libani*, *Citrus* sp., *Crataegus* sp., *Cucurbita pepo*, *Cucumis melo*, *Cupressus* sp., *Diplotaxis ercoides*, *Elaeagnus angustifolia*, *Eriobotrya japonica*, *Euphorbia* sp., *Faba vulgaris*, *Ferula hermonis*, *Ficus carica*, *Galium* sp., *Glycyrrhiza glabra*, *Helianthus innuus*, *Hibiscus esculentus*, *Hordeum* sp., *Hypericum trinquetifolium*, *Inula viscosa*, *Juglans regia*, *Malus communis*, *Malva* sp., *Medicago sativa*, *Nerium oleander*, *Ocimum* sp., *Petrocelinum crispum*, *Papaver syriacum*, *Pinus* sp., *Pistacia vera*, *Populus* sp., *Punica granatum*, *Prunus mahaleb*, *Prunus vulgaris*, *Pyrus communis*, *Quercus calliprinos*, *Rosa* sp., *Rubus idaeus*, *Sinapis alba*, *Solanum melongena*, *Spartium junceum*, *Triticum* sp., *Urtica* sp., and *Zea mays*.

***Oenopia conglobata* (Linnaeus, 1758) (Figs. 5U and 6N)**

**Material examined (618): Damascus Rural:** Attall, (3), 3.9.2001; (3), 25.10.2001; (1), 14.3.2002; (1), 8.5.2002; (3), 26.6.2002; (3), 10.7.2002; (2), 7.5.2003. Kharabo, (14), 22.8.2001; (1), 26.9.2001; (5), 25.10.2001; (1), 21.11.2001; (4), 23.5.2002; (1), 5.6.2002; (1), 11.7.2002; (3), 24.7.2002; (9), 8.8.2002; (3), 11.9.2002; (1), 25.9.2002; (4), 9.10.2002; (1), 29.12.2002; (1), 2.4.2003; (5), 13.5.2003; (7), 25.5.2003; (9), 6.8.2003; (1), 9.5.2002. Serghaya, (2), 19.9.2001; (5), 17.10.2001; (3), 7.11.2001; (1), 18.4.2002; (4), 4.5.2002; (5), 15.5.2002; (3), 30.5.2002; (1), 11.6.2002; (14), 5.9.2002; (23), 17.9.2002; (22), 3.10.2002; (17), 7.11.2002; (17), 10.4.2002; (6), 22.5.2003; (3), 29.7.2003. Ma'adamiyeh Al-sham, (1), 23.5.2002; (4), 28.6.2002; (7), 19.7.2002; (5), 30.8.2002; (15), 9.9.2002; (1), 4.12.2002; (1), 9.4.2003; (1), 19.5.2003; (7), 23.6.2003; (6), 6.7.2003; (25), 11.7.2003; (7), 23.7.2003; (6), 13.8.2003. Wadi Al-Qaren, (6), 10.7.2002; (2), 14.3.2002; (1), 19.2.2003.

Yabrud, (7), 2.8.2001; (1), 26.9.2001; (1), 4.4.2002; (1), 26.6.2002; (8), 8.8.2002; (6), 11.9.2002. Kulaiaa, (2), 7.8.2002, Beet-jen Mazraa, (14), 7.8.2002; (11), 29.8.2002. Erneh, (5), 11.7.2002. Beqaasem, (1), 21.9.2001; (4), 11.7.2002; (1), 29.7.2002, Muqr Almeer, (2), 16.4.2003. Kafr- Hawar, (1), 7.8.2002. Zarzar, (1), 19.9.2001; (1), 28.11.2001; (4), 30.4.2003; (1), 14.6.2003. Deir Al-ashairr, (9), 17.10.2001; (3), 28.11.2001; (4), 11.6.2002; (4), 17.9.2002. Addimass, (1), 10.7.2002; (10), 5.9.2002; (3), 17.9.2002; (2), 30.4.2003. Al-Hameh, (2), 14.6.2003. Azzabadani, (14), 27.6.2002; (1), 14.6.2003. Rankaus, (6), 10.6.2003. Sarkha, (25), 26.6.2002; (6), 11.9.2002; (6), 21.5.2003. Seydnaya, (7), 2.8.2001; (4), 26.6.2002. Qatana, (1), 14.8.2003. Deir Atyeh, (4), 21.5.2003. Jeerlin, (2), 29.12.2002. Ashiphonieh, (1), 25.9.2002. Annashabyeh, (1), 28.8.2001. **Damascus:** Qasioun, (14), 13.5.2003. **Al-Quneitra:** Jubata Al-Khashab, (2), 20.3.2002; (1), 28.2.2002; (2), 16.5.2002; (2), 26.8.2003; (3), 22.5.2004. Hadar, (2), 10.9.2001; (2), 31.7.2002; (1), 12.9.2002. Beer Ajam, (2), 12.9.2002; (1), 2.10.2002. **As`Sweida:** Al-Kafr, (1), 18.10.2001; (1), 29.11.2001; (2), 9.5.2002; (5), 6.6.2002; (1), 1.8.2002; (10), 23.10.2002; (5), 11.5.2003; (2), 12.6.2003. Shahba, (1), 13.3.2002; (1), 11.12.2002. Ein alarab, (1), 28.6.2002; (2), 4.7.2002; (2), 17.7.2002; (1), 10.9.2002. Orman Mountain, (3), 11.4.2002. Orman, (1), 30.5.2002; (3), 21.6.2002; (1), 4.7.2002; (1), 11.7.2002; (2), 17.7.2002. Ghoujygujyat Mountain, (1), 10.9.2002, (1), 4.8.2003. Taamri Mountain, (2), 25.7.2003; (1), 8.8.2003. Qanawat, (1), 11.9.2001; (1), 13.3.2002; (4), 11.4.2002; (1), 9.5.2002; (1), 17.7.2002; (2), 1.8.2002. **Dar`a:** Shihab, (1), 25.7.2002. Wadi Shihab, (1), 13.5.2003. Zeizon, (1), 21.3.2002; (1), 28.3.2002; (4), 10.4.2002; (2), 25.4.2002; (10), 9.5.2002; (4), 29.5.2002. Nahaj, (6), 4.10.2001.

**Remarks:** This species has a wide range across Europe, North Africa to the Far East and North America (Kuznetsov, 1997). In Syria, it was recorded from the Golan Heights, Mount Hermon, Wadi Al Qaren, As`Sweida and northern Syria (Kabakibi, 1993; Halperin *et al.*, 1995; Almatni *et al.*, 1999; Ka`ada, 2002). Jalilvand *et al.* (2014) found that this species predates on *Planococcus ficus* in Iran.

**Host species:** *Acer* sp., *Aloysia citrodora*, *Amygdalus* sp., *Biota orientalis*, *Cedrus libani*, *Citrus* sp., *Cupressus* sp., *Cydonia vulgaris*, *Elaeagnus angustifolia*, *Eriobotrya japonica*, *Eucalyptus camaldulensis*, *Faba vulgaris*, *Ficus carica*, *Glycyrrhiza glabra*, *Hibiscus esculentus*, *Inula viscosa*, *Juglans regia*, *Ligustrum* sp., *Medicago sativa*, *Morus alba*, *Nerium oleander*, *Olea europaea*, *Prunus armeniaca*, *Prunus vulgaris*, *Pinus* sp., *Pistacia vera*, *Populus* sp., *Prunus avium*, *Prunus mahaleb*, *Punica granatum*, *Pyrus communis*, *Quercus calliprinos*, *Robinia pseudoacacia*, *Rosa* sp., *Rubus idaeus*, *Salix* sp., *Solanum melongena*, *Ulmus campestris*, *Urtica* sp., *Vitis vinifera* and *Zea mays*,

#### ***Oenopia oncina* (Olivier, 1808) (Figs. 5V and 6O)**

**Material examined (6): Damascus Rural:** Deir Al-ashairr, (1), 17.10.2001; (1), 11.6.2002. Bludan, (1), 14.6.2003. Rankus Mountain, (1), 21.5.2003, Rankaus, (1), 10.6.2003. **Dar`a:** Wadi Shihab, (1), 13.5.2003.

**Remarks:** This species is distributed in the Eastern Mediterranean extending to Central Asia (Iablokoff-

Khznorian, 1982). This species represents a new record to Syria.

**Host species:** *Amygdalus* sp., *Medicago sativa*, *Onobrychus* sp. and *Punica granatum*.

#### ***Propylea quatuordecimpunctata* (Linnaeus, 1758) (Figs. 5W and 6P)**

**Material examined (121): Damascus Rural:** Qatana, (1), 5.7.2002. Ahmadiya, (1), 25.9.2002. Assaida Zainab, (2), 11.9.2001; (3), 13.3.2002. Jeerlin, (3), 9.2.2003. Ashiphonieh, (1), 25.9.2002, Attall, (7), 3.9.2001; (2), 4.4.2002; (1), 8.5.2002; (1), 26.6.2002; (18), 10.7.2002; (6), 15.7.2005. Kharabo, (1), 22.8.2001; (1), 26.9.2001; (2), 25.10.2001; (1), 15.5.2002; (9), 23.5.2002; (7), 11.7.2002; (3), 24.7.2002; (1), 8.8.2002; (8), 25.9.2002; (13), 9.10.2002; (3), 2.4.2003; (10), 25.5.2003; (3), 2.7.2003; (3), 6.8.2003. Ma`adamiyeh Al-sham, (3), 28.6.2002; (3), 19.7.2002; (1), 19.5.2003; (1), 23.6.2003; (1), 11.7.2003; (1), 23.7.2003.

**Remarks:** This is a Trans-Palaeartic species with wide range of distribution through Europe, across Asia reaching Korea and Japan (Iablokoff-Khznorian, 1982). Regionally, it was recorded from Lebanon and Palestine (Talhook, 1961; Halperin *et al.*, 1995). Recorded by Al Jundi and Ahmad (1999) from the coastal regions, and from Damascus by Bascheer and Abo Alshamat (2004).

**Host species:** *Cucumis sativus*, *Cucurbita pepo*, *Cydonia vulgaris*, *Faba vulgaris*, *Foeniculum vulgare*, *Hordium vulgare*, *Juglans regia*, *Medicago sativa*, *Morus alba*, *Populus* sp., *Punica granatum*, *Solanum melongena*, *Triticum* sp., *Urtica* sp., and *Zea mays*.

#### ***Psyllobora (Thea) vigintiduopunctata* (Linnaeus, 1758) (Figs. 5X and 6Q)**

**Material examined (2): Damascus Rural:** Attall, (2), 3.9.2001.

**Remarks:** This is a Palaeartic species with a wide distribution in Europe (Harde, 1999). Aslan and Uygun (2005) reported this species from Turkey on aphids. This species was listed by El Hariri (1968) from Syria. Recorded from northern Syria and the coastal regions by Ka`ada (2002) and Younes *et al.* (2015).

**Host species:** *Vitis vinifera*.

#### **Association of coccinellids with their host plants**

The coccinellids in southern Syria are associated with 90 plant species, number of plants per species of coccinellid ranged between considered 1 and 45 ( $12.72 \pm 13.04$ , Average  $\pm$  STDEV). 29 coccinellid species were found on fewer than 10 plants, thus specialists; whereas seven species were found on more than 30 plant species and were considered generalists (Figure 7). Generalist species include (from highest to lowest number of plant hosts): *Coccinella septempunctata*, *Oenopia conglobata*, *Coccinella undecimpunctata*, *Stethorus gilvifrons*, *Scymnus apetzi*, *Hippodamia variegata*, and *Scymnus flavicollis*.

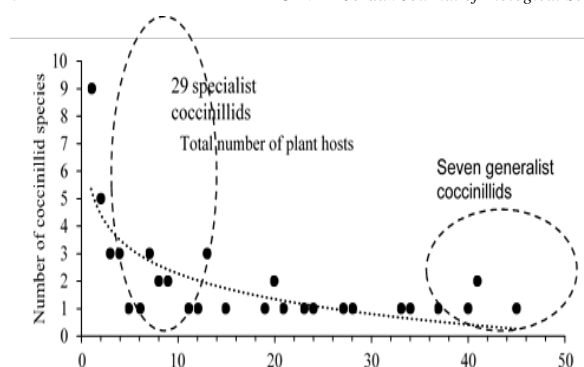


Figure 7. Occurrence of coccinellid species on plant hosts.

On the other hand, the number of coccinellid species per plant host ranged between 1 and 26 different species  $7.07 \pm 6.87$  (Average  $\pm$  STDEV). With 54 plant species (60% of all plants) had  $\leq 5$  different coccinillids, whereas, 18 plants (20% of all plants) had 15-26 different coccinillids (Figure 8). These preferred plants include (from highest to lowest number of coccinillids): *Punica granatum*, *Quercus calliprinos*, *Amygdalus* sp., *Citrus* sp., *Juglans regia*, *Morus alba*, *Zea mays*, *Pinus* sp., *Urtica* sp., *Medicago sativa*, *Ficus carica*, *Populus* spp., *Rubus idaeus*, *Malus communis*, *Pyrus communis*, *Cupressus* sp., *Prunus avium*, and *Prunus armeniaca*. Additionally, at least 75 species of these plant hosts have agricultural value including *Punica granatum*, *Amygdalus* sp., *Malus communis*, *Pyrus communis*, *Morus alba*, and *Citrus* sp.

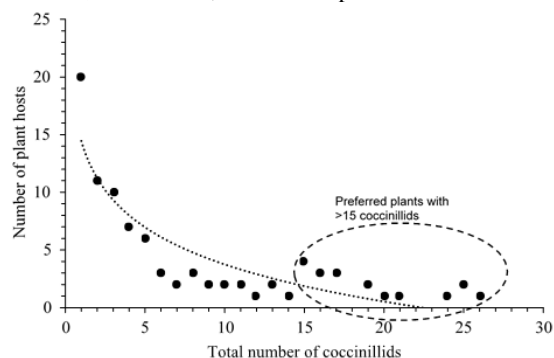


Figure 8. Diversity of coccinellid species on plant hosts.

#### 4. Discussion

In this study, a total of 51 species were recorded. Fifteen are new records for Syria (Table 2). This high number of new records is not surprising, due to the paucity of systematic studies on the coccinellid fauna of Syria. Within the Middle East, Turkey enjoys the highest number of coccinillids reaching up to 84 species (Yurtsever, 2001), followed by Palestine with 71 species (Halperin *et al.*, 1995; Najajrah *et al.*, 2019). The number of coccinillids species of Syria is higher than those recorded from Jordan, Saudi Arabia, and the United Arab Emirates with species 16, 35, and 22 respectively (Fürsch, 1979; Allawi, 1989; aimundo and van Harten, 2000).

*Stethorus gilvifrons* and *Hippodamia variegata* were the most abundant species, and constituted 18.5% and 14% of the collected specimens respectively. The former species was very efficient predator, essentially feeding on mites. Aslan and Uygün (2005) reported this species from Turkey on aphids. Also, it feeds on all stages of the whitefly *Bemisia tabaci* (Al-Duhawi *et al.*, 2006).

Based on species incidences among sites, three groups of species may be distinguished: there are 19 rare or "satellite" species which were recorded from less than 10 localities with low abundance; 5 modal species found at an intermediate number of sites over larger areas, and 13 ubiquitous "core" species recorded from more than 40 sites with 152-1368 specimens per species (Table 3). Five species (*A. novemdecimpunctata*, *D. rubidus*, *E. octosignatus*, *N. caucasicus* and *P. setulosus*) are considered as very rare species, since only one specimen of each was collected. *Hippodamia variegata*, *Stethorus gilvifrons*, *Oenopia conglobata*, *Coccinella undecimpunctata aegyptica*, *Coccinella septempunctata* and *Scymnus pharaonis* respectively, are widely distributed in the study area.

More coccinellid species were collected in agricultural areas (47 species) than in non-agricultural areas (28 species). Only four species (*E. undulatus*, *E. octosignatus*, *E. quadripustulatus* and *S. fraxini*) were found in non-agricultural areas and were not found in agricultural areas.

Over ninety plant species were identified as hosts for these beetles; some plants have economic value, as fruit trees, crops, woods or ornamentals. The coccinillids on apple, citrus, almond, cherry and other fruit trees were identified. Since Syria is an agricultural country with a wide range of crops, the high diversity of coccinillids in Syria suggests the importance of these insects as biological control agents against harmful agricultural pests.

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#### Disclosure statement

No potential conflict of interest was reported by the authors.

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