

New Addition to Sawflies (Hymenoptera: Symphyta) from Hyrcanian Forests in Northern Iran

M. Khayrandish^{1*}, and S. Farahani²

ABSTRACT

The sawfly fauna (Hymenoptera: Symphyta) was studied in Hyrcanian Forests. The specimens were collected using Malaise traps during March to November 2016. Thirty-seven species of Symphyta were obtained from forest areas in Golestan and Mazandaran Provinces. Among them, five species were recorded for the first time from Iran: *Fenella minuta* (Dahlbom, 1835), *Hoplocampa chrysorrhoea* (Klug, 1816), *Nematus glaphyropus* Dalla Torre, 1882, *Macrophya ribis* (Schrank, 1781) and *Phylloecus niger* (M. Harris, 1779). The genus *Fenella* is newly recorded from Iran. General discussion is given for the sawfly fauna of Iran.

Keywords: Genus *Fenella*, Pest management, Sawfly fauna.

INTRODUCTION

Sawflies are the insects of the suborder Symphyta within the order Hymenoptera. Symphyta is cosmopolitan with more than 8000 extant species of 8 superfamilies, 14 families, and 800 genera (Aguilar *et al.*, 2013). Sawflies are small to large sized insects and recognizable from other members of Hymenoptera by very little or no constriction between the first and second abdominal segments and the forewing with numerous closed cells and veins. Sawfly larvae are phytophagous (except the parasitic family Orussidae). They feed on various trees and shrubs and can cause significant economic damage to agricultural crops and forests. Some species, especially in family Tenthredinidae, are gall makers and internal feeders of leaves and fruits. Cephid larvae have the habit of boring into stalks and stems and siricid and xiphydriid larvae feed on wood and tunnel in the substrate (Viitasaari, 2002).

The suborder Symphyta is represented in West Palaearctic by more than 1350 species of the Tenthredinidae and about 440 species of other families (Taeger *et al.*, 2010). The first published record of Iranian Symphyta was that by Konow (1888) who described "*Allantus persa* n. sp." [= *Tenthredo excellens* (Konow, 1886)] from Persien. Recently, several comprehensive studies have been done on sawflies in North of Iran by Khayrandish *et al.* (2015, 2012, 2019), who described two new species to science. In the checklist of Iranian sawflies, 178 species belonging to 60 genera of 9 families were listed (Khayrandish *et al.*, 2017). However, Iranian fauna of Symphyta has been insufficiently elucidated yet, and further studies are needed to increase our knowledge on the taxonomy of Symphyta for pest management and biodiversity conservation. As part of an ongoing comprehensive research on the sawfly in the forests of Iran, we surveyed the fauna of Symphyta species in Hyrcanian Forests.

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MATERIALS AND METHODS

The northern region of Iran is characterized by great variation in plant community composition due to significant topographical and climatic changes. In terms of biodiversity, this region is remarked as the end parts of two major biodiversity hotspots. The southern slopes of the Alborz Mountains including Tehran, Alborz, and Qazvin Provinces are situated in the Irano-Anatolian hotspot, whereas the northern slopes, where Gilan, Golestan, and Mazandaran Provinces are the eastern extension of the Caucasus biodiversity hotspot (Myers *et al.*, 2000).

Sawflies were collected by Malaise traps during March to November, 2016, in Golestan and Mazandaran Provinces in the northern slopes of Alborz Mountains (Figures 1 and 2). Fifteen Malaise traps were installed at various locations of forests for eight months. The collection bottles were filled with 70% ethanol and 30% water mixture. Samples were collected approximately once a month and the collection bottles were replaced with fresh ones. The localities, habitats, sampling dates, and geographic coordinates for each specimens were recorded.

RESULTS

Thirty-seven species were recognized in Hyrcanian Forests. Five species, *Fenella minuta* (Dahlbom, 1835), *Hoplocampa chrysorrhoea* (Klug, 1816), *Nematus glaphyropus* Dalla Torre, 1882, *Macrophya ribis* (Schrank, 1781), and *Phylloecus niger* (M. Harris, 1779), are recorded for Iranian fauna for the first time. The genus *Fenella* is newly recorded from Iran.

Family Argidae

1- *Arge cingulata* (Jakowlew, 1891)
Material examined: (1♂), IRAN, Mazandaran Province, Kiasar, Haftkhal, (36° 17' 18" N 53° 23' 43" E), 861 m a. s. l., 14.V.2016–09.VI.2016, 1♂; Leg: S. Farahani.

Distribution in Iran: Alborz, Gilan and Mazandaran Provinces (Khayrandish *et al.*,

2017); Alborz, Kermanshah, Kerman and Tehran Provinces (Khayrandish and Ebrahimi, 2018).

General distribution: East Palaearctic (Taeger *et al.*, 2010); Iran, Tajikistan, Turkestan and Uzbekistan (Ushinskij, 1936; Benson, 1968).

Larval host plants: Unknown.

2- *Sterictiphora angelicae* (Panzer, 1799)

Material examined: (1♀), IRAN, Golestan Province, Shamooshak, (36° 43' 55" N 54° 16' 53" E), 492 m a. s. l., 27.VII.2016–21.VIII.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Iran, without locality details (Koch, 1988); Gilan Province (Khayrandish *et al.*, 2017); Golestan Province (present study).

General distribution: West Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Rubus* spp. (Rosaceae) (Taeger *et al.*, 1998).

3- *Sterictiphora caspica* Koch, 1988

Material examined: (3♂♂), IRAN, Mazandaran Province, Kiasar, Haftkhal, (36° 17' 18" N 53° 23' 43" E), 861 m, 08.IV.2016–25.IV.2016, 2♂♂, 25.IV.2016–15.V.2016, 1♂; Leg: S. Farahani.

Distribution in Iran: Gilan and Mazandaran Provinces (Khayrandish *et al.*, 2017).

General distribution: West Palaearctic (Taeger *et al.*, 2010).

Larval host plants: Unknown.

Family Cephidae

4- *Calameuta filiformis* (Eversmann, 1847)

Material examined: (4♀♀), IRAN, Golestan Province: Loveh Forest (37° 20' 43" N, 55° 40' 40" E), 753 m a. s. l., 11.IV.2016–14.V.2016, 1♀; Kordkuy: Derazno Forest (36°40'06" N, 54°08'03" E), 2179 m a. s. l., 16.V.2016–12.VI.2016, (1♀); Mazandaran Province: Sari, Pahneh Kola, Salardeh (36° 27' 14" N, 53° 06' 01" E), 180 m a. s. l., 25.IV.2016–15.V.2016, 1♀, Mazandaran, Kiasar-Semnan Road, Alikola: (36° 13' 13" N, 53° 39' 23" E), 1633 m a. s. l., 25.IV.2016–15.V.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Northern Iran: East Azerbaijan and Gilan Provinces (Khayrandish *et al.*, 2017); Golestan and Mazandaran Provinces (present study).

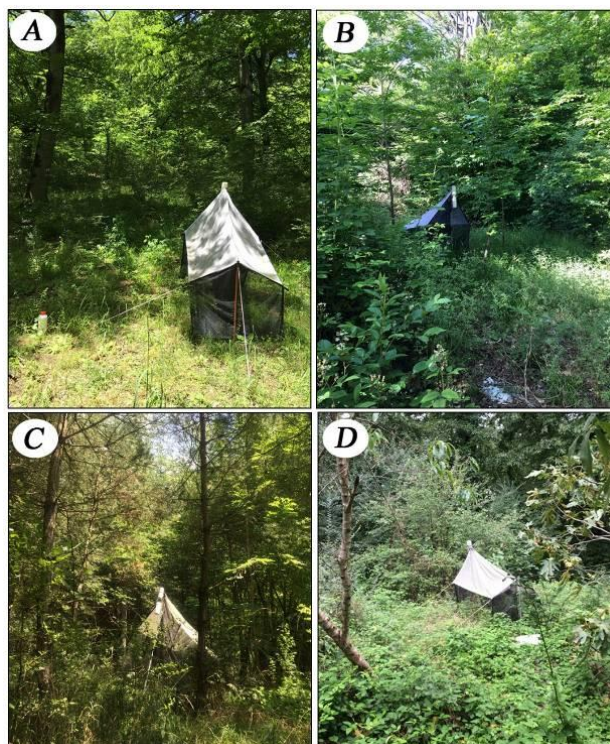


Figure 1. The habitats in which specimens were collected by Malaise traps, Golestan Province: (A) Lovhe, (B) Shamooshak; Mazandaran Province: (C) Haftkhal, (D) Savilasht.



Figure 2. Map of Iran. Red and blue points indicate the study sites in Golestan and Mazandaran Provinces, respectively.

General distribution: Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Phragmites australis* (Cavanilles) *Phalaris arundinacea* Linnaeus, *Arrhenatherum elatius* (Linnaeus), *Elytrigia repens* (Linnaeus) and *Calamagrostis epigejos* (Linnaeus) (Poaceae) (Taeger *et al.*, 1998).

5- *Calameuta grombaczewskii* (Jakowlew, 1891)

Material examined: (2♀♀), IRAN, Golestan Province, Shastkola Forest, (36° 45' 29" N 54° 23' 12" E), 424 m a. s. l., 12.IV.2016–13.V.2016, 2♀♀; Leg: S. Farahani.

Distribution in Iran: Alborz, Golestan, Qazvin and Mazandaran Provinces (Khayrandish *et al.*, 2017).

General distribution: East Palaearctic (Taeger *et al.*, 2010); Iran, Turkmenistan (Taeger and Blank, 2011); Tajikistan, Turkmenistan and Uzbekistan (Ushinskij, 1936).

Larval host plants: Unknown.

6- *Phylloecus niger* (M. Harris, 1779)*

Synonyms: *Sirex niger* M. Harris, 1779; *Astutus satyrus* Panzer, 1801; *Cerobactrus major* Costa, 1860; *Cephus brachypterus* Damianitsch, 1866; *Cephus glabellifer* Thomson, 1871; *Cephosoma syringae* Gradl, 1881; *Phylloecus cruciatus* Costa, 1894. Note: The generic name of this species was *Hartigia* in Taeger *et al.* (2010), but *Hartigia* is currently treated as a synonym of *Phylloecus* (Liston and Prous, 2014).

Material examined: (1♀), IRAN, Mazandaran Province, Kiasar-Semnan Road, Alikola, (36° 13' 13" N, 53° 39' 23" E), 1633 m a. s. l., 25.IV.2016–15.V.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: New record for Iranian fauna.

General distribution: Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Rubus idaeus* Linnaeus, *Rosa canina* Linnaeus, *Rosa corymbifera* Borkhausen, *Rosa pendulina* Linnaeus, *Rosa sherardii* Davies and *Rubus fruticosus* Linnaeus (Rosaceae) (Taeger *et al.*, 1998).

Family Tenthredinidae

Subfamily Allantinae

7- *Allantus didymus* (Klug, 1818)

Material examined: (2♀♀, 30♂♂), IRAN, Golestan Province: Loveh Forest, (37° 20' 43" N, 55° 40' 40" E), 753 m a. s. l., 15.V.2016–12.VI.2016, 1♂; Tuskestan, (36°46'33" N, 54°34'58" E), 500 m a. s. l., 12.IV.2016–13.V.2016, 1♂; 15.V.2016–12.VI.2016, 2♂♂, 05.VII.2016–25.VII.2016, 2♂♂; Shamooshak, (36° 43' 55" N, 54° 16' 53" E), 492 m a. s. l., 12.IV.2016–14.V.2016, 3♂♂, 15.V.2016–12.VI.2016, 1♂, 27.VII.2016–21.VIII.2016, 1♀, 3♂♂, 22.VIII.2016–26.IX.2016, 1♂; Shastkola Forest, (36° 47' 24" N 54° 21' 54" E), 263 m a. s. l., 12.IV.2016–13.V.2016, 1♀, 3♂♂, 12.VI.2016–03.VII.2016, 1♂, 15.V.2016–13.VI.2016, 5♂♂, 05.VII.2016–22.VIII.2016, 2♂♂; Mazandaran Province: Kiasar, Alamdardeh, Savilasht, (36° 21' 23" N, 53° 14' 55" E), 387 m a. s. l., 25.IV.2016–15.V.2016, 2♂♂; Savilasht, (36° 21' 21" N, 53° 14' 50" E), 396 m, 15.V.2016–25.V.2016, 1♂, 5.IX.2016–27.IX.2016, 1♂; Haftkhal, (36° 17' 18" N, 53° 23' 43" E), 861 m a. s. l., 15.V.2016–25.V.2016, 1♂, 25.V.2016 – 15.VI.2016, 1♂; Alikola, (36° 13' 13"N, 53° 39' 23" E), 1633 m a. s. l., 5.IX.2016–27.IX.2016, 1♂; Leg: S. Farahani.

Distribution in Iran: Alborz, Gilan, Qazvin and Mazandaran Provinces (Khayrandish *et al.*, 2017); Golestan Province (present study).

General distribution: West Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Rosa* Linnaeus (Berland, 1947; Zhelochovtsev and Zinovjev, 1993; Liston, 1995); *Sanguisorba minor* Scopoli, *Rosa* spp. and *Rubus* spp. (Lacourt, 1999); *S. minor* Scopoli (Liston, 2004); *Rosa* spp. and *Rubus* spp. are not confirmed as hosts (Taeger *et al.*, 1998).

8- *Allantus laticinctus* (Serville, 1823)

Material examined: (4♀♀), IRAN, Golestan Province: Shamooshak, (36° 43' 55" N, 54° 16' 53" E), 492 m a. s. l., 12.IV.2016–14.V.2016, 1♀; Shastkola Forest, (36° 47' 24" N, 54° 21' 54" E), 263 m, 12.VI.2016–3.VII.2016, 1♀; Mazandaran Province, Sari, Pahnehkola, Salardeh (36° 27' 14" N, 53° 06' 01" E), 180 m a. s. l., 25.IV.2016–15.IV.2016, 1♀; Kiasar, Haftkhal (36° 17' 18" N, 53° 23' 43" E), 861 m, 25.IV.2016–15.V.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Gilan, Qazvin and Mazandaran Provinces (Khayrandish *et al.*, 2017); Golestan Province (present study).

General distribution: Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Rosa* Linnaeus (Liston, 1995).

9- *Allantus viennensis* (Schrank, 1781)

Material examined: (2♀♀, 1♂), IRAN, Mazandaran, Kiasar-Semnan Road, Alikola, (36° 13' 14" N, 53° 39' 24" E), 1624 m a. s. l., 25.IV.2016–15.V.2016, 1♀, 1♂; Alikola, (36°13'13"N, 53°39'23"E), 1633 m a. s. l., 15.V.2016–25.V.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Northern provinces, Alborz, Gilan, Qazvin, Mazandaran and Tehran Provinces (Khayrandish *et al.*, 2017); Gilan and Golestan Provinces (Khayrandish and Ebrahini, 2018).

General distribution: Palaearctic, Nearctic (Taeger *et al.*, 2010).

Larval host plants: *Rosa* spp. and *Rubus* spp. (Rosaceae) (Berland, 1947; Zhelochovtsev and Zinovjev, 1993; Liston, 1995; Lacourt, 1999). This species lives on several species of *Rosa* but *Rubus* is not confirmed as host (Taeger *et al.*, 1998).

10- *Ametastegia alabastria* (Konow, 1898)

Material examined: (11♀♀, 9♂♂), IRAN, Golestan Province: Tuskestan, (36° 46' 33" N, 54° 34' 58" E), 500 m a. s. l., 15.V.2016–12.VI.2016, 1♀; 12.VI.2016–4.VII.2016, 1♀; Shamooshak, (36°43'55" N, 54°16'53" E), 492 m a. s. l., 12.IV.2016–14.V.2016, 1♀, 15.V.2016–12.VI.2016, 1♀, 22.VIII.2016–26.IX.2016, 1♀, 2♂♂, 26.IX.2016–26.X.2016, 2♂♂; Shastkola Forest, (36° 47' 24" N, 54° 21' 54" E), 263 m, 15.V.2016–12.VI.2016, 1♂, 26.IX.2016–3.XII.2016, 3♀♀; Shastkola Forest, (36° 45' 29" N, 54° 23' 12" E), 424 m, 15.V.2016–12.VI.2016, 2♀♀, 2♂♂, 26.IX.2016–3.XII.2016, 1♀; Mazandaran Province: Kiasar, Alamdardeh, Savilasht, (36° 21' 21" N, 53° 14' 50" E), 396 m, 25.IV.2016–15.V.2016, 1♂; 15.V.2016–25.V.2016, 1♂; Alikola, (36° 13' 13" N, 53° 39' 23" E), 1,633 m, 5.IX.2016–27.IX.2016, 1♂; Leg: S. Farahani.

Distribution in Iran: Gilan and Mazandaran Provinces (Khayrandish *et al.*, 2015); Mazandaran Province (Khayrandish and

Ebrahini, 2018); Golestan Province (present study).

General distribution: West Palaearctic (Taeger *et al.*, 2010).

Larval host plants: Unknown.

11- *Ametastegia persica* Khayrandish, Talebi & Blank, 2015

Material examined: (3♀♀, 8♂♂), IRAN, Golestan Province: Loveh Forest (37° 20' 43" N, 55°40'40 E), 753 m, 22.VIII.2016–27.IX.2016, 1♀; Tuskestan, (36° 46' 33" N, 54° 34' 58" E), 500 m, 12.VI.2016–4.VII.2016, 1♂, 25.VII.2016–21.VIII.2016, 1♀, 1♂; Shamooshak, (36° 43' 55" N, 54° 16' 53" E), 492 m, 12.IV.2016–14.V.2016, 3♂♂; Shastkola Forest, (36° 45' 29" N, 54° 23' 12" E), 424 m, 26.VII.2016– 26.IX.2016, 1♂; Mazandaran Province: Kiasar, Alamdardeh, Savilasht (36° 21' 21" N, 53° 14' 50" E), 396 m, 5.VIII.2016–5.IX.2016, 1♂; Haftkhal (36° 17' 18" N, 53° 23' 43" E), 861 m a. s. l., 25.IV.2016–15.V.2016, 1♀; 5.VIII.2016–5.IX.2016, 1♂; Leg: S. Farahani.

Distribution in Iran: Gilan and Mazandaran Provinces (Khayrandish *et al.*, 2015, Khayrandish and Ebrahini, 2018); Golestan Province (present study).

General distribution: Iran (Khayrandish *et al.*, 2015).

Larval host plants: Unknown.

12- *Athalia cordata* Serville, 1823

Material examined: (3♀♀, 3♂♂), IRAN, Golestan Province: Tuskestan (36° 46' 33" N, 54° 34' 58" E), 500 m, 26.IX.2016–26.X.2016, 1♀; Shamooshak, (36° 43' 55" N, 54° 16' 53" E), 492 m, 15.V.2016–12.VI.2016, 1♀, 1♂, 22.VIII.2016–26.IX.2016, 1♂, 26.IX.2016–26.X.2016, 1♂; Mazandaran Province: Kiasar, Haftkhal (36° 17' 18" N, 53° 23' 43" E), 861 m, 15.V.2016–25.V.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: East Azerbaijan, Gilan and Mazandaran Provinces (Khayrandish *et al.*, 2017); East Azerbaijan, Kerman, Mazandaran and West Azerbaijan Provinces (Khayrandish and Ebrahini, 2018); Golestan Province (present study).

General distribution: West Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Ajuga reptans* Linnaeus (Lamiaceae), *Antirrhinum* Linnaeus and *Plantago* Linnaeus (Plantaginaceae) (Liston, 1995); Labiatae and Plantaginaceae

(Zhelochovtsev and Zinovjev, 1993); *Ajuga* spp., *Antirrhinum* spp., *Misopates orontium* (Linnaeus) (Plantaginaceae), *Teucrium scorodonia* Linnaeus (Lamiaceae), *Plantago* spp. (Lacourt, 1999).

Misopates orontium, *Antirrhinum majus* Linnaeus, *Ajuga reptans* Linnaeus, and *Plantago* are confirmed as hosts for *Athalia cordata* and other species are not clear (Taeger *et al.*, 1998).

13- *Athalia liberta* (Klug, 1815)

Material examined: (1♀), IRAN, Golestan Province: Loveh Forest (37° 20' 43" N, 55° 40' 40" E), 753 m a. s. l., 11.IV.2016–14.V.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Southwest of Iran, Alborz, Qazvin, Gilan, Golestan and Mazandaran Provinces (Khayrandish *et al.*, 2017); Gilan, Mazandaran and West Azerbaijan (Khayrandish and Ebrahimi, 2018).

General distribution: Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Sisymbrium* spp., *Alliaria petiolata* (M.Bieberstein) and *Cardamine* spp. (Brassicaceae) (Berland, 1947; Zhelochovtsev and Zinovjev, 1993; Liston, 1995; Lacourt, 1999). *Arabidopsis thaliana* (Linnaeus), *Alliaria petiolata*, *Cardamine hirsuta* Linnaeus, *Sisymbrium officinale* (Linnaeus) are as hosts for *A. liberta*, but other species of *Cardamine* and *Sisymbrium* are not confirmed (Taeger *et al.*, 1998).

Subfamily Blennocampinae

14- *Halidamia affinis* (Fallen, 1807)

Material examined: (1♀), IRAN, Golestan Province: Shastkola Forest, (36° 47' 24" N, 54° 21' 54" E), 263 m a. s. l., 12.IV.2016–13.V.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Mazandaran Province (Khayrandish *et al.*, 2017); Golestan Province (present study).

General distribution: West Palaearctic, Nearctic (Taeger *et al.*, 2010).

Larval host plants: *Galium aparine* Linnaeus and *G. mollugo* Linnaeus (Rubiaceae) (Berland, 1947; Benson, 1952; Zhelochovtsev and Zinovjev, 1993; Liston, 1995; Taeger *et al.*, 1998; Lacourt, 1999).

Subfamily Heterarthrinae

15- *Caliroa* sp. nr *varipes* (Klug, 1816)

Material examined: (1♀), IRAN, Mazandaran Province, Kiasar-Semnan Road, Alikola, (36° 13' 14" N 53° 39' 24" E), 1624 m a. s. l., 15.5.1395 – 14.6.1395, 1♀; Leg: S. Farahani.

Distribution in Iran: Mazandaran Province (Khayrandish *et al.*, 2017).

16- *Fenella minuta* (Dahlbom, 1835)*

Synonyms: *Phyllotoma minuta* Dahlbom, 1835; *Fenella voighti* Hering, 1932.

Material examined: (1♀), IRAN, Mazandaran Province: Kiasar, Haftkhal (36° 17' 18" N, 53° 23' 43" E), 861 m a. s. l., 25.IV.2016–15.V.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: New record for Iranian fauna.

General distribution: West Palaearctic (Taeger *et al.*, 2010); Austria, Czech Republic, Denmark, France, Germany, Greece, Hungary, Kyrgyzstan, Luxemburg, Poland, Russia, Slovakia, Spain, Sweden and Switzerland (Taeger and Blank, 2011).

Larval host plants: *Geranium sylvaticum* Linnaeus (Geraniaceae) (Taeger *et al.*, 1998)

Remark: Genus *Fenella* is recorded for the first time from Iran.

17- *Heterarthrus microcephalus* (Klug, 1818)

Material examined: (1♀), IRAN, Golestan Province: Shamooshak (36° 43' 55" N, 54° 16' 53" E), 492 m a. s. l., 27.VII.2016–21.VIII.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Qazvin Province (Khayrandish *et al.*, 2017); Golestan Province (present study).

General distribution: Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Salix pentandra* Linnaeus, *S. caprea* Linnaeus, *S. phylicifolia* Linnaeus, *S. alba* Linnaeus, *S. viminalis* Linnaeus, *S. aurita* Linnaeus, *S. myrsinifolia* Salisbury, *S. repens* Linnaeus, *S. cinerea* Linnaeus, *S. fragilis* Linnaeus, *S. purpurea* Linnaeus, *S. triandra* Linnaeus (Salicaceae) (Taeger *et al.*, 1998; Lacourt, 1999).

18- *Metallus beckeri* (Konow, 1904)

Material examined: (1♀), IRAN, Golestan Province: Shastkola Forest (36° 47' 24" N, 54°

21° 54" E), 263 m a. s. l., 12.IV.2016–13.V.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Gilan Province (Khayrandish *et al.*, 2017); Golestan Province (present study)

General distribution: West Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Rubus idaeus* Linnaeus and *R. crataegifolius* Bertoloni (Rosaceae) (Lacourt, 1999).

Subfamily Nematinae

19- *Cladius pectinicornis* (Geoffroy, 1785)

Material examined: (13♀♀, 43♂♂), IRAN, Golestan Province: Tuskestan (36° 46' 33" N, 54° 34' 58" E), 500 m a. s. l., 15.V.2016–12.VI.2016, 1♀, 1♂, 25.VII.2016–21.VIII.2016, 1♂; Shamooshak, (36° 43' 55" N, 54° 16' 53" E), 492 m a. s. l., 12.IV.2016–14.V.2016, 1♂, 15.V.2016–12.VI.2016, 4♂♂, 12.VI.2016–3.VII.2016, 12♂♂, 5.VII.2016–25.VII.2016, 1♀, 27.VII.2016–21.VIII.2016, 2♀♀, 9♂♂; Shastkola Forest (36° 47' 24" N, 54° 21' 54" E), 263 m a. s. l., 15.V.2016–12.VI.2016, 1♀, 5.VII.2016–22.VIII.2016, 2♀♀, 1♂; Mazandaran Province: Kiasar, Alamdardeh, Savilasht (36° 21' 23" N, 53° 14' 55" E), 387 m a. s. l., 14.VI.2016–9.VII.2016, 1♀, 2♂; 9.VII.2016–4.VIII.2016, 2♂; Savilasht (36° 21' 21" N, 53° 14' 50" E), 396 m a. s. l., 8.IV.2016–25.IV.2016, 3♂, 25.IV.2016–15.V.2016, 1♀, 15.V.2016–25.V.2016, 1♀, 25.V.2016–15.VI.2016, 1♂, 9.VII.1395–4.VIII.2016, 1♂; 5.VIII.1395–4.IX.2016, 1♀, 1♂; Haftkhal (36° 17' 18" N, 53° 23' 43" E), 861 m a. s. l., 25.IV.2016–15.V.2016, 1♀, 2♂♂, 9.VII.1395–4.VIII.2016, 1♂, 5.VIII.1395–4.IX.2016, 1♂, 5.IX.2016–27.IX.2016, 1♀; Kiasar-Semnan Road, Alikola (36° 13' 13" N, 53° 39' 23" E), 1633 m a. s. l., 15.VI.2016–9.VII.2016, 1♀; 5.IX.2016–27.IX.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Northern Iran, Alborz, Gilan, Qazvin, and Mazandaran Provinces (Khayrandish *et al.*, 2017); Gilan and Golestan Provinces (Khayrandish and Ebrahimi, 2018).

General distribution: Palaearctic, Nearctic, Oriental (Taeger *et al.*, 2010).

Larval host plants: *Rosa* Linnaeus, *Fragaria* Linnaeus, *Potentilla palustris* Linnaeus, *Filipendula ulmaria* (Linnaeus), *Sanguisorba minor* Scopoli, *Alchemilla vulgaris* Linnaeus (Rosaceae), *Lamiastrum galeobdolon* (Linnaeus) (Lamiaceae) (Berland, 1947; Benson, 1958; Zhelochovtsev and Zinovjev, 1993; Liston, 1995; Lacourt, 1999); ?*Filipendula ulmaria* (Linnaeus), ?*Galeobdolon luteum* (Hudson) (Rosaceae), ?*Sanguisorba minor* Scopoli, ?*Alchemilla vulgaris* Linnaeus, ?*Fragaria* Linnaeus, ?*Potentilla palustris* Linnaeus, *Rosa hybrida* Linnaeus, *Rosa luciae* Franchet and Rochebrune, *Rosa multiflora* Thunberg, *Rosa wichuraiana* Crepin, *Rosa canina* Linnaeus, *Rosa acicularis* Lindley (Rosaceae) (Taeger *et al.*, 1998); *Rosa* Linnaeus (Liston and Späth, 2005)

20- *Hoplocampa chrysorrhoea* (Klug, 1816)*

Synonyms: *Tenthredo chrysorrhoea* Klug, 1816; *Hoplocampa chrysorrhoea* var. *nigrita* Enslin, 1914.

Material examined: (1♀), IRAN, Mazandaran Province: Kiasar-Semnan Road, Alikola, (36° 13' 13" N, 53° 39' 23" E), 1633 m a. s. l., 8.IV.2016–25.IV.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: New record for Iranian fauna.

General distribution: West Palaearctic (Taeger *et al.*, 2010); Austria, Belgium, Cyprus, Czech Republic, Denmark, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Luxemburg, Netherlands, Poland, Russia, Slovakia, Spain, Switzerland and Ukraine (Taeger and Blank, 2011).

Larval host plants: *Prunus spinosa* Linnaeus (Taeger *et al.*, 1998) and perhaps *Crataegus monogyna* Jacquin (Rosaceae) (Liston *et al.*, 2015).

21- *Nematus glaphyropus* Dalla Torre 1882*

Material examined: (1♀), IRAN, Golestan Province: Loveh Forest (37° 20' 43" N, 55° 40' 40" E), 753 m a. s. l., 5.VII.2016–25.VII.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: New record for Iranian fauna.

General distribution: West Palaearctic (Taeger *et al.*, 2010); Croatia, Germany, Italy and Switzerland (Taeger and Blank, 2011).

Larval host plants: Unknown.

22- *Nematus persicus* (Beneš, 1981)

Synonyms: *Craesus persicus* Beneš, 1981;
Note: *Craesus* is currently treated as a synonym of *Nematus* (Prous *et al.*, 2014).

Material examined: (1♂), IRAN, Golestan Province: Shamooshak (36°43'55"N, 54°16'53"E), 492 m a. s. l., 12.VI.2016–3.VII.2016, 1♂; Leg: S. Farahani.

Distribution in Iran: Northern Iran, Alborz, Gilan and Mazandaran Provinces (Khayrandish *et al.*, 2017); Mazandaran and Tehran Provinces (Khayrandish and Ebrahimi, 2018); Golestan Province (present study).

General distribution: West Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Alnus subcordata* C.A. von Meyer (Beneš, 1981).

23- *Pristiphora pallidiventris* (Fallén, 1808)

Material examined: (2♀♀, 1♂), IRAN, Mazandaran Province: Kiasar, Haftkhal (36° 17' 18" N, 53° 23' 43" E), 861 m a. s. l., 8.IV.2016–25.IV.2016, 2♀♀, 25.IV.2016–15.V.2016, 1♂; Leg: S. Farahani.

Distribution in Iran: Gilan and Mazandaran Provinces (Khayrandish *et al.*, 2017).

General distribution: Palaearctic, Nearctic (Taeger *et al.*, 2010).

Larval host plants: *Rubus idaeus* Linnaeus, *Filipendula* Miller, *Geum urbanum* Linnaeus, *Potentilla* Linnaeus (Rosaceae) and *Ribes* Linnaeus (Grossulariaceae) (Taeger *et al.*, 1998).

24- *Stauronematus platycerus* (Hartig, 1840)

Synonyms: *Pristiphora platycerus* (Hartig, 1840); Note: *Stauronematus* is treated as a separate genus from *Pristiphora* (Prous *et al.*, 2014).

Material examined: (1♀, 2♂♂), IRAN, Golestan Province, Shamooshak, (36° 43' 55" N, 54° 16' 53" E), 492 m a. s. l., 15.V.2016–12.VI.2016, 1♀, Mazandaran Province: Kiasar, Alamdardeh, Savilasht, (36° 21' 23" N, 53° 14' 55" E), 387 m a. s. l., 25.IV.2016–15.V.2016, 2♂♂; Leg: S. Farahani.

Distribution in Iran: Northern Provinces, Alborz, Gilan, Golestan, Isfahan, Markazi, Mazandaran and Tehran Provinces (Khayrandish *et al.*, 2017); Mazandaran Province (Khayrandish and Ebrahimi, 2018).

General distribution: Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Populus tremula* Linnaeus, *P. italica* (Du Roi) Moench, *P. sieboldii* Miquel

and *Salix alopochroa* Kimura (Salicaceae) (Taeger *et al.*, 1998).

Subfamily Selandriinae

25- *Aneugmenus coronatus* (Klug, 1818)

Material examined: (3♀♀, 2♂♂), IRAN, Golestan Province: Shamooshak, (36° 43' 55" N, 54° 16' 53" E), 492 m a. s. l., 22.VIII.2016–26.IX.2016, 1♀; Mazandaran Province: Kiasar, Haftkhal, (36° 17' 19" N, 53° 23' 43" E), 856 m a. s. l., 25.V.2016–15.VI.2016, 1♂, 15.VI.2016–9.VII.2016, 2♀♀, 1♂; Leg: S. Farahani.

Distribution in Iran: Gilan and Mazandaran Provinces (Khayrandish *et al.*, 2017, Khayrandish and Ebrahimi, 2018); Golestan Province (present study).

General distribution: Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Dryopteris filix-mas* (Linnaeus) (Dryopteridaceae), *Aspidium Swartz* (Tectariaceae), *Athyrium filix-femina* (Linnaeus) (Athyriaceae), *Pteridium aquilinum* (Linnaeus) (Dennstaedtiaceae) (Taeger *et al.*, 1998).

26- *Nesoselandria morio* (Fabricius, 1781)

Material examined: (3♀♀), IRAN, Golestan Province: Shamooshak, (36° 43' 55" N, 54° 16' 53" E), 492 m a. s. l., 12.VI.2016–4.VII.2016, 1♀, 05.VII.2016–25.VII.2016, 1♀, 22.VIII.2016–26.IX.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Gilan and Mazandaran Provinces (Khayrandish *et al.*, 2017); Golestan Province (present study).

General distribution: Palaearctic, Nearctic, Oriental (Taeger *et al.*, 2010).

Larval host plants: *Brachythecium reflexum* Schimper (Brachytheciaceae), *Plagiothecium denticulatum* (Hedwig) (Plagiotheciaceae), *Polytrichum commune* Hedwig (Polytrichaceae), *Sanionia uncinata* (Hedwig) (Amblystegiaceae), *Ceratodon purpureus* (Hedwig) (Ditrichaceae), *Dicranum scoparium* Hedwig (Dicranaceae), *Hedwigia ciliata* Hedwig (Hedwigiaceae), *Plagiomnium cuspidatum* (Hedwig) (Mniaceae), *Pseudobryum cinclidioides* (Huebener) (Mniaceae); and eggs have been observed on *Stellaria media* (Linnaeus) (Caryophyllaceae), *Veronica chamaedrys* Linnaeus

(Plantaginaceae), *Veronica officinalis* Linnaeus (Plantaginaceae), *Chenopodium album* Linnaeus (Chenopodiaceae), *Fragaria vesca* Linnaeus (Rosaceae), *Myosotis arvensis* (Linnaeus) (Boraginaceae), *Polygonum aviculare* Linnaeus (Polygonaceae), *Ceratodon purpureus* (Hedwig) Bridel (Ditricaceae), *Dicranum scoparium* Hedwig (Dicranaceae), *Hedwigia ciliata* (Hedwig) P. Beauvois (Hedwigiaceae), *Plagiomnium cuspidatum* (Hedwig) and *Pseudobryum cinclidioides* (Huebener) (Mniaceae) (Taeger *et al.*, 1998)

Subfamily Tenthredininae

27- *Macrophya alboannulata* (Costa, 1859)

Material examined: (3♀♀, 1♂), IRAN, Mazandaran Province: Kiasar, Alamdardeh, Savilasht, (36° 21' 23" N, 53° 14' 55" E), 387 m a. s. l., 8.IV.2016–25.IV.2016, 1♂; 25.IV.2016–15.V.2016, 1♀; Haftkhal, (36°17'18"N, 53°23'43"E), 861 m a. s. l., 8.IV.2016–25.IV.2016, 1♀; Haftkhal, (36° 17' 19" N 53° 23' 43" E), 856m a. s. l., 8.IV.2016–6.2.1395, 1♀; Leg: S. Farahani.

Distribution in Iran: Northern Iran, Gilan: Golestan and Mazandaran Provinces (Khayrandish *et al.*, 2017); East Azerbaijan and Mazandaran Provinces (Khayrandish and Ebrahimi, 2018).

General distribution: West Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Sambucus nigra* Linnaeus, *S. racemosa* Linnaeus and *S. ebulus* Linnaeus (Adoxaceae) (Liston, 1995; Taeger *et al.*, 1998; Lacourt, 1999).

28- *Macrophya annulata* (Geoffroy, 1785)

Material examined: (2♂♂), IRAN, Golestan Province, Shamooshak (36° 43' 55" N, 54° 16' 53" E), 492 m a. s. l., 12.IV.2016–14.V.2016, 1♂; Mazandaran Province: Sari, Pahnehkola, Salardeh, (36° 27' 11" N, 53° 06' 00" E), 184 m a. s. l., 8.IV.2016–25.IV.2016, 1♂; Leg: S. Farahani.

Distribution in Iran: Iran without locality details (Schedl, 1987); Northern Iran, Gilan, Lorestan and Mazandaran Provinces (Khayrandish *et al.*, 2017); Golestan Province (Khayrandish and Ebrahimi, 2018).

General distribution: Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Origanum vulgare* Linnaeus (Lamiaceae); *Potentilla reptans* Linnaeus, *Rosa* Linnaeus and *Rubus* Linnaeus (Rosaceae) (Taeger *et al.*, 1998).

29- *Macrophya arpaklena* Ushinskij, 1936

Material examined: (2♂♂), IRAN, Mazandaran Province: Kiasar, Alamdardeh, Savilasht, (36° 21' 21" N, 53° 14' 50" E), 396 m a. s. l., 25.IV.2016–15.V.2016, 2♂♂; Leg: S. Farahani.

Distribution in Iran: Northern Iran: Gilan and Mazandaran Provinces (Khayrandish *et al.*, 2017); East Azerbaijan, Gilan and Golestan Provinces (Khayrandish and Ebrahimi, 2018).

General distribution: Palaearctic (Taeger *et al.*, 2010).

Larval host plants: Unknown.

30- *Macrophya blanda* (Fabricius, 1775)

Material examined: (13♀♀), IRAN, Golestan Province: Shastkola Forest (36° 47' 24" N, 54° 21' 54" E), 263 m a. s. l., 12.IV.2016–13.V.2016, 1♀; Mazandaran Province: Sari, Pahnehkola, Salardeh (36° 27' 11" N, 53° 06' 00" E), 184 m a. s. l., 8.IV.2016–25.IV.2016, 1♀; 25.IV.2016–15.V.2016, 1♀; Kiasar, Haftkhal, (36° 17' 18" N, 53° 23' 43" E), 861 m a. s. l., 25.IV.2016–15.V.2016, 7♀♀; 15.V.2016–25.V.2016, 1♀; Haftkhal, (36° 17' 19" N, 53° 23' 43" E), 856 m a. s. l., 25.IV.2016–15.V.2016, 1♀; 25.V.2016–15.VI.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Northern Iran, Alborz, Gilan, Qazvin and Mazandaran Provinces (Khayrandish *et al.*, 2017); Khuzestan and Mazandaran Provinces (Khayrandish and Ebrahimi, 2018); Golestan Province (present study).

General distribution: Palaearctic (Taeger *et al.*, 2010).

Larval host plants: Unknown

31- *Macrophya diversipes* (Schrank, 1782)

Material examined: (4♀♀), IRAN, Golestan Province: Shamooshak (36° 43' 55" N, 54° 16' 53" E), 492 m a. s. l., 12.IV.2016–14.V.2016, 2♀♀; Mazandaran Province: Sari, Pahnehkola, Salardeh (36°27'14"N, 53°06'01"E), 180 m a. s. l., 25.IV.2016–15.V.2016, 1♀; Kiasar-Semnan Road, Alikola, (36° 13' 14" N, 53° 39' 24" E), 1624 m a. s. l., 25.V.2016–15.VI.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Iran without locality details (Muche, 1972); Northern Iran, Alborz, Gilan, Lorestan and Mazandaran Provinces (Khayrandish *et al.*, 2017); Golestan, Isfahan, Khuzestan and Qazvin Provinces (Khayrandish and Ebrahimi, 2018).

General distribution: Palaearctic (Taeger *et al.*, 2010).

Larval host plants: *Fragaria* sp. (Rosaceae) (Çalmaşur and Özbek, 2004).

32- *Macrophya longitarsis* Konow, 1898

Material examined: (2♀♀), IRAN, Golestan Province: Shamooshak (36° 43' 55" N, 54° 16' 53" E), 492 m a. s. l., 12.IV.2016–14.V.2016, 1♀; Mazandaran Province: Kiasar, Alamdardeh, Savilasht, (36° 21' 21" N, 53° 14' 50" E), 396 m a. s. l., 25.IV.2016–15.V.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Northern Iran, Gilan, Lorestan and Mazandaran Provinces (Khayrandish *et al.*, 2017); Golestan Province (present study).

General distribution: West Palaearctic (Taeger *et al.*, 2010).

Larval host plants: Unknown

33- *Macrophya ribis* (Schrank, 1781)*

Material examined: (1♀), IRAN, Golestan Province: Loveh Forest (37° 20' 43" N, 55° 40' 40" E), 753 m a. s. l., 12.VI.2016–4.VII.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: New record for Iranian fauna.

General distribution: West Palaearctic (Taeger *et al.*, 2010); Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Great Britain, Hungary, Italy, Luxemburg, Macedonia, Netherlands, Norway, Poland, Romania, Russia, Slovakia, Spain, Sweden, Switzerland, Ukraine, and Yugoslavia (Taeger and Blank, 2011).

Larval host plants: *Sambucus nigra* Linnaeus, *S. racemosa* Linnaeus and *S. ebulus* Linnaeus (Adoxaceae) (Taeger *et al.*, 1998).

34- *Tenthredo distinguenda* (Stein, 1885)

Material examined: (5♀♀), IRAN, Golestan Province: Shamooshak (36° 43' 55" N, 54° 16' 53" E), 492 m a. s. l.,

12.IV.2016–14.V.2016, 2♀♀; Mazandaran Province: Sari, Pahnehkola, Salardeh (36° 27' 11" N, 53° 06' 00" E), 184 m a. s. l., 8.IV.2016–25.IV.2016, 1♀; Kiasar-Semnan Road, Alikola (36° 13' 14" N, 53° 39' 24" E), 1624 m a. s. l., 25.IV.2016–15.V.2016, 1♀; Alikola, (36° 13' 13" N, 53° 39' 23" E), 1633 m a. s. l., 25.V.2016–15.VI.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Iran without locality details (Taeger, 1991); Northern Iran, Gilan Province (Khayrandish *et al.*, 2017); East Azerbaijan (Khayrandish and Ebrahimi, 2018); Golestan Province (present study).

General distribution: West Palaearctic (Taeger *et al.*, 2010).

Larval host plants: Unknown,

35- *Tenthredo longipes* (Konow, 1886)

Material examined: (1♀), IRAN, Mazandaran Province: Kiasar, Haftkhal (36° 17' 18" N, 53° 23' 43" E), 861 m a. s. l., 25.IV.2016–15.V.2016, 1♀; Leg: S. Farahani.

Distribution in Iran: Iran without locality details (Taeger, 1988); Northern Iran, Gilan and Mazandaran Provinces (Khayrandish *et al.*, 2017); Mazandaran Province (Khayrandish and Ebrahimi, 2018).

General distribution: Palaearctic (Taeger *et al.*, 2010).

Larval host plants: Unknown.

36- *Tenthredo vestita* André, 1881

Material examined: (1♀, 1♂), IRAN, Mazandaran Province: Kiasar-Semnan Road, Alikola (36° 13' 13" N, 53° 39' 23" E), 1633 m a. s. l., 15.V.2016–25.V.2016, 1♀, 1♂; Leg: S. Farahani.

Distribution in Iran: Gilan and Golestan Provinces (Khayrandish *et al.*, 2017); East Azerbaijan and Mazandaran Provinces (Khayrandish and Ebrahimi, 2018).

General distribution: West Palaearctic (Taeger *et al.*, 2010).

Larval host plants: Unknown.

37- *Tenthredopsis ornata* (Serville, 1823)

Material examined: (28♀♀, 99♂♂), IRAN, Golestan Province: Loveh Forest (37° 20' 43" N, 55° 40' 40" E), 753 m a. s. l., 11.IV.2016–14.V.2016, 2♀♀, 2♂♂;

Tuskestan (36° 46' 33" N, 54° 34' 58" E), 500 m a. s. l., 12.IV.2016–13.V.2016, 1♀, 2♂♂; Shamooshak (36° 43' 55" N, 54° 16' 53" E), 492 m a. s. l., 12.IV.2016–14.V.2016, 2♀♀, 23♂♂; Kordkuy, Derazno Forest (36° 40' 06" N, 54° 08' 03" E), 2,179 m, 16.V.2016–12.VI.2016, 1♂; Shastkola Forest (36° 47' 24" N, 54° 21' 54" E), 263 m a. s. l., 12.IV.2016–13.V.2016, 1♂; Mazandaran Province: Sari, Pahnehkola, Salardeh (36° 27' 11" N, 53° 06' 00" E), 184 m a. s. l., 08.IV.2016–25.IV.2016, 6♀♀; Kiasar, Alamdardeh, Savilasht, (36° 21' 21" N, 53° 14' 50" E), 396 m a. s. l., 08.IV.2016–25.IV.2016, 1♀, 1♂; Haftkhal (36° 17' 18" N, 53° 23' 43" E), 861 m a. s. l., 8.IV.2016–25.IV.2016, 2♂♂, 25.IV.2016–15.V.2016, 8♀♀, 5♂♂; Haftkhal (36° 17' 19" N, 53° 23' 43" E), 856 m a. s. l., 08.IV.2016–25.IV.2016, 1♂; 25.IV.2016–15.V.2016, 1♂; Kiasar-Semnan Road, Alikola (36° 13' 14" N, 53° 39' 24" E), 1624 m a. s. l., 25.IV.2016–15.V.2016, 2♀♀, 16♂♂; 15.V.2016–25.V.2016, 2♀♀; 25.V.2016–15.VI.2016, 1♀; Alikola, (36° 13' 13" N, 53° 39' 23" E), 1633 m a. s. l., 25.V.2016–15.VI.2016, 3♀♀, 44♂♂; Leg: S. Farahani.

Distribution in Iran: Iran without locality details (Lacourt, 1999); Alborz, Gilan, Golestan and Mazandaran Provinces (Khayrandish *et al.*, 2017); East Azerbaijan and Golestan Provinces (Khayrandish and Ebrahimi, 2018).

General distribution: West Palaearctic

(Taeger *et al.*, 2010).

Larval host plants: *Brachypodium silvaticum* (Hudson) (Poaceae) (Lacourt, 1999).

DISCUSSION

According to previous studies, 182 species of Symphyta (18 species of Argidae, 9 species of Cephidae, 5 species of Cimbicidae, 7 species of Megalodontesidae, 2 species of Orussidae, 3 species of Pamphiliidae, 2 species of Siricidae, 2 species of Xiphydriidae and 134 species of Tenthredinidae) have been reported from Iran, till now (Mallach, 1931; Gussakovskij, 1935; Zirngiebl, 1956; Benson, 1968; Beneš, 1981; Chevin, 1985; Koch, 1988; Beneš and Abai, 1991; Ebrahimi, 1995; Shahrokhi and Zare, 1995; Modarres Awal, 1997; Shinohara, 1997; Taeger, 2002; Wei, 2008; Shahmohammadi *et al.*, 2008; Abai, 2009; Taeger and Blank, 2011; Khayrandish *et al.*, 2012; Khosravi *et al.*, 2014; Khayrandish *et al.*, 2015, 2017, in press; Khayrandish and Ebrahimi, 2018). The present study increased the total number of Symphyta species to 187.

The Tenthredinidae are the most abundant in Iran. The ratio of the family to the whole sawflies is 63.93% in genus number and 73.80% in species number. The second was the Cephidae (9.83%) in genus number and the Argidae (9.62%) in species number (Table 1).

Table 1. Abundance of sawflies (Hymenoptera: Symphyta) in Iran.

Family	Genera		Species	
	Number	Percentage	Number	Percentage
Argidae	4	6.55	18	9.62
Cephidae	6	9.83	10	5.35
Cimbicidae	3	4.92	5	2.67
Megalodontesidae	1	1.64	7	3.74
Orussidae	2	3.27	2	1.07
Pamphiliidae	3	4.92	3	1.60
Siricidae	2	3.27	2	1.07
Tenthredinidae	39	63.93	138	73.80
Xiphydriidae	1	1.64	2	1.07
Symphyta	61	100	187	100

Table 2. Abundance of sawflies (Hymenoptera: Symphyta) in each Provinces of Iran.

Iranian Provinces	Number of taxa		
	Family	Genus	Species
Alborz (North of central, 5833 km ²)	5	23	43
Ardabil (Northwest, 17800 km ²)	2	4	5
East Azerbaijan (Northwest, 45650 km ²)	4	9	20
Fars (South, 122608 km ²)	4	7	9
Gilan (North, 14042 km ²)	8	38	79
Golestan (Northeast, 20367 km ²)	4	21	44
Hamadan (West, 19368 km ²)	1	1	1
Isfahan (Central, 107029 km ²)	2	4	6
Kerman (Southeast, 180726 km ²)	2	3	3
Kermanshah (West, 24998 km ²)	2	3	5
Khuzestan (Southwest, 64055 km ²)	1	2	3
Kohgiluyeh & Boyer-Ahmad (Southwest, 15504 km ²)	3	3	3
Kordestan (West, 29137 km ²)	1	2	2
Lorestan (West, 28294 km ²)	6	11	18
Markazi (West of central, 29127 km ²)	2	4	4
Mazandaran (North of central, 23833 km ²)	5	36	80
Qazvin (Northwest, 15567 km ²)	4	16	31
Razavi Khorasan (Northeast, 118884 km ²)	3	5	6
Semnan (Northeast of central, 97491 km ²)	1	1	2
Sistan and Baluchestan (Southeast, 181785 km ²)	2	2	2
South Khorasan (East, 151913 km ²)	1	1	1
Tehran (North of central, 18814 km ²)	4	16	23
West Azerbaijan (Northwest, 37437 km ²)	2	5	6
Zanjan (Northwest, 21773 km ²)	1	1	1

The abundance of sawflies of each province is given in Table 2. Mazandaran Province with 80 recorded species has the highest diversity followed by Gilan, Golestan, and Alborz Provinces with 79, 44 and 43 species, respectively. Hamadan, South Khorasan, and Zanjan Provinces have the lowest number of recorded species (one species) (Table 2).

Because the studied specimens were collected by Malaise traps, the biology of the recorded species is unknown. However, the present study shows the approximate period of adult flight of these species and will be available to advance the investigation on the management of forest sawflies. Taking into account the present and earlier reports, the number of Symphyta species adds up to 44 species in Golestan, 80 species in Mazandaran, and 135 species in Hyrcanian Forests.

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REFERENCES

1. Abai, M. 2009. *Pests of Forest Trees and Shrubs of Iran*. Iranian Research Institute of Plant Protection, Tehran, 220 PP.
2. Aguiar, A., Deans, A. R., Engel, M. S., Forshage, M., Huber, J. T., Jennings, J. T., Johnson, N. F., Lelej, A. S., Longino, T., Lohrmann, T., Miko, I., Ohl, M., Rasmussen, C., Taeger, A. and Yu, D. S. K. 2013. Order Hymenoptera. *Zootaxa*, **3703(1)**: 51–62. doi:10.11646/zootaxa.3703.1.

3. Beneš, K. and Abai, M. 1991. A New Species of *Croesus* injurious to Birch in Iran (Hymenoptera: Tenthredinidae). *Acta Entomol. Bohemoslov.*, **88**: 253–263.
4. Beneš, K. 1981. *Croesus persicus* sp. n. from Iran (Hymenoptera: Tenthredinidae). *Acta Entomol. Bohemoslov.*, **78**: 177–182.
5. Benson, R. B. 1951. Hymenoptera, Symphyta. *Handbooks for the Identification of British Insects*, **6(2a)**: 1–49.
6. Benson, R. B. 1952. Hymenoptera, Symphyta. *Handbooks for the Identification of British Insects*, **6(2b)**: 51–137.
7. Benson, R.B. 1958. Hymenoptera, Symphyta. *Handbooks for the Identification of British Insects*, **6(2c)**: 139–252+(6) PP.
8. Benson, R. B. 1962. A Revision of the Athaliini (Hymenoptera: Symphyta). *Bull. Br. Mus. (Nat. Hist.). Entomol. Series*, **11**: 333–382.
9. Benson, R. B. 1968. Hymenoptera from Turkey, Symphyta. *Bull. Br. Mus. (Nat. Hist.). Entomol. Series*, **22(4)**: 111–207.
10. Berland, L. 1947. Hyménoptères Tenthredoïdes. *Faune de France*, **47**: 1–493.
11. Çalmaşur, Ö. and Özbek, H. A. 2004. Contribution to the Knowledge of the Fauna of Tenthredinidae (Symphyta: Hymenoptera) of Turkey. Part I: The Subfamily Tenthredininae. *Turk. J. Zool.*, **28**: 37–54.
12. Chevin, H. 1985. Contribution à la Faune de l'Iran 26. Hyménoptères Symphytes. *Nouv. Rev. d'Entomol. Nouv. Série*, **1(1984)**: 347–351.
13. Ebrahimi, E. 1995. Three New Records of Symphyta from Iran. *Proceedings of the 12th Iranian Plant Protection Congress*, 337 PP.
14. Gussakovskij, V. V. 1935. Insectes Hyménoptères, Chalastogastra 1. *Fauna SSSR*, **2(1)**: 1–453.
15. Khayrandish, M., Talebi, A. A., Blank, S. M. and Fathipour, Y. 2012. Study of Common Sawflies of the Genus *Ametastegia* (Hymenoptera: Tenthredinidae) in North of Iran with Two New Species Records. *Proceedings of the 20th Iranian Plant Protection Congress*, 161 PP.
16. Khayrandish, M., Talebi, A. A., Blank, S. M. and Fathipour, Y. 2015. Study on the Genus *Ametastegia* Costa (Hymenoptera: Tenthredinidae) in Northern Iran with the Description of a New Species. *J. Insect Biodivers. Syst.*, **1(1)**: 17–32.
17. Khayrandish, M., Talebi, A. A. and Blank, S. M. 2017. Checklist of Sawflies (Hymenoptera: Symphyta) from Iran. *J. Insect Biodivers. Syst.*, **3(3)**: 165–227.
18. Khayrandish, M., Talebi, A. A., Fathipour, Y. and Blank, S. M. 2019. The sawflies (Hymenoptera: Symphyta) of Northern Iran, with Description of a New Species. *Zootaxa* (in press).
19. Khayrandish, M. and Ebrahimi, E. 2018. Sawflies (Hymenoptera: Symphyta) of Hayk Mirzayans Insect Museum with Four New Records for the Fauna of Iran. *Jour. Ent. Soc. Iran*, **37(4)**: 381–404.
20. Khosravi, R. Jalai Sendi, J., Ebrahimi, E. and Blank, S. M. 2014. First Record of *Cladius (Priophorus) rufipes* Serville, 1823 (Hymenoptera: Tenthredinidae) from Iran. *Jour. Ent. Soc. Iran*, **33(4)**: 73–75.
21. Koch, F. 1988. Die Gattung *Sterictiphora* Billberg (Insecta: Hymenoptera: Symphyta: Argidae). *Entomol. Abh.*, **52(2)**: 29–61.
22. Konow, F. W. 1888. Die Blattwespengattung *Allantus* Jur. *Dtsch. Entomol. Z.*, **32**: 209–220.
23. Lacourt, J. 1999. Répertoire des Tenthredinidae Ouest-Paléarctiques (Hymenoptera: Symphyta). *Mémoires de la SEF*, **3**: 1–432.
24. Liston, A. D. 1995. *Compendium of European Sawflies. List of Species, Modern Nomenclature, Distribution, Food Plants, Identification Literature*. Chalastost Forestry, Gottfrieding, 190 PP.
25. Liston, A. D. 2004. The Hostplant and Larva of *Allantus didymus* (Klug, 1818) (Hymenoptera: Tenthredinidae). *Dtsch. Entomol. Z.*, **114(2)**: 50–51.
26. Liston, A. D. and Prous, M. 2014. Sawfly Taxa (Hymenoptera, Symphyta) Described by Edward Newman and Charles Healy. *Zookeys*, **398**: 83–98.
27. Liston, A. D. and Späth, J. 2005. New Data on the Sawfly Fauna of Corsica with the Description of a New Species *Pontania cyrnea* sp. nov. (Hymenoptera: Symphyta). *Nachr.bl. Bayer. Entomol.*, **54(1–2)**: 2–7.
28. Liston, A. D., Jacobs, H. J. and Prous, M. 2015. The Sawflies of Crete (Hymenoptera:

- Symphyta). *Dtsch. Entomol. Z.*, **62(1)**: 65–79.
29. Mallach, N. 1931. Beitrag zur Kenntnis der Insektenfauna Nordpersiens. *Entomol. Nachrbl.*, **5**: 81–82.
 30. Modarres Awal, M. 1997. *List of Agricultural Pests and Their Natural Enemies in Iran*. Ferdowsi University Press, Mashad, 429 PP.
 31. Muche, W.H. 1972. Beitrag zur Kenntnis der *Netocia hungarica* Herbst und *Kaukasischer blattwespen* am Maschuk. *Entomol. Nachr. (Dresden)*, **16(6)**: 66–68.
 32. Myers, N., Mittermeier, R. A., Mittermeier, C. G., da Fonseca, G. A. B. and Kent, J. 2000. Biodiversity Hotspots for Conservation Priorities. *Nature*, **403**: 853–858. doi:10.1038/35002501
 33. Prous, M., Blank, S. M., Goulet, H., Heibo, H., Liston, A., Malm, T., Nyman, T., Schmidt, S., Smith, D. R., Vårdal, H., Viitasaari, M., Vikberg, V. and Taeger, A. 2014. The Genera of Nematinae (Hymenoptera: Tenthredinidae). *J. Hymenopt. Res.*, **40**: 1–69.
 34. Quinlan, J. and Gauld, I. D. 1981. Symphyta (except Tenthredinidae) Hymenoptera, new edition. *Handbooks for the Identification of British Insects*, **6(2a)**: 1–67.
 35. Shahrokhi, M. B. and Zare, A. 1995. The Biology of Barberry Sawfly, *Syrista parreyssi* Spinola (Hymenoptera: Cephidae), in Khorasan Province. *Proceedings of the 12th Iranian Plant Protection Congress*, Karaj, 270 PP.
 36. Shahmohammadi, D., Sadeghi, S. E., Melika, G. and Ali, B. 2008. Report of *Tremex fuscicornis* (Hymenoptera: Siricidae) from Iran. *Jour. Ent. Soc. Iran*, **27(2)**: 11–12. (in Persian with English Summary)
 37. Schedl, W. 1987. Die Pflanzenwespen (Hymenoptera: Symphyta) des Landesmuseums Joanneum in Graz. Teil 6: Tenthredinoidea: Familie Tenthredinidae, Unterfamilie Tenthredininae. *Mitt. Abt. Zool. Landesmus. Joanneum.*, **40**: 1–23.
 38. Shinohara, A. 1997. New or Noteworthy Distribution Records of Six Palaeartic Species of Pamphiliid Sawflies (Hymenoptera). *Bull. Natl. Mus. Nat. Sci. Ser. A Zool.*, **23(1)**: 69–72.
 39. Taeger, A. 1988. Zweiter Beitrag zur Systematik der Blattwespengattung *Tenthredo* (s. str.). (Hymenoptera: Symphyta: Tenthredinidae). *Beitr. Entomol.*, **38(1)**: 103–153.
 40. Taeger, A. 1991. Vierter Beitrag zur Systematik der Blattwespengattung *Tenthredo* Linnaeus. Die Untergattung *Zonuledo* Zhelochovtsev, 1988 (Hymenoptera: Tenthredinidae). *Entomofauna. Z. Entomol.*, **12(23)**: 373–398.
 41. Taeger, A. 2002. The Megalodontesidae of Europe (Hymenoptera: Symphyta). In: Viitasaari, M. (Ed.), *Sawflies (Hymenoptera: Symphyta) I. A Review of the Suborder, the Western Palaeartic Taxa of Xyeloidea and Pamphilioidea*. Tremex, Helsinki, PP. 461–480.
 42. Taeger, A., Altenhofer, E., Blank, S. M., Jansen, E., Kraus, M., Pschorn-Walcher, H. and Ritzau, C. 1998. Kommentare zur Biologie, Verbreitung und Gefährdung der Pflanzenwespen Deutschlands (Hymenoptera: Symphyta). In: *“Pflanzenwespen Deutschlands (Hymenoptera: Symphyta)”*, (Eds.): Taeger, A. and Blank, S.M. *Kommentierte Bestandsaufnahme*. Goecke & Evers, Keltern, PP. 49–135.
 43. Taeger, A. and Blank, S. M. 2011. *ECatSym—Electronic World Catalog of Symphyta (Insecta: Hymenoptera)*. Program Version 3.10, Data Version 38 (07.12.2011). Digital Entomological Information, Müncheberg. Available from: <http://www.sdei.de/ecatsym.index.html> (accessed 3 January 2013).
 44. Taeger, A., Blank, S. M. and Liston, A. D. 2010. World Catalog of Symphyta (Hymenoptera). *Zootaxa*, **2580**: 1–1064.
 45. Ushinskij, A. V. 1936. Materialy k Faune Tenthredinodea Turkmenskoj SSR. *Byulleten turkmenskoy zoologicheskoy stantsii, Ashkhabad and Baku*, **1**: 103–115.
 46. Viitasaari, M. 2002. The Suborder Symphyta of the Hymenoptera. I. A review of the suborder, the Western Palaeartic taxa of Xyeloidea and Pamphilioidea. In: *“Sawflies (Hymenoptera: Symphyta)”*, (Ed.): Viitasaari, M. Tremex, Helsinki, pp. 12–174.
 47. Wei, M. 2008. On the Genus *Syrista* Konow, with the Description of a New Species from China (Hymenoptera: Cephidae). *Entomol. News*, **118(5)**: 450–458.

48. Zhelochovtsev, A. N. and Zinovjev, A. G. 1993. Order Hymenoptera Suborder Symphyta (Chalastogastra). (Translation of the Book from 1988). In: "Keys to the Insects of the European Part of the USSR: Vol. III Hymenoptera, Sixth Part" (Opredelitel' Nasekomykh Evropeiskoi Chasti SSSR, Tom III, Pereponchatokrylye, Shestaia Chast'), (Ed.): Medvedev, G. S. Oxonian, New Delhi, PP. 1-387.
49. Zirngiebl, L. 1956. Blattwespen aus Iran. *Mitt. Munch. Entomol. Ges.*, **46**: 322-326.
50. Zombori, L. 1981. The European genera of Selandriinae and Dolerinae (Hymenoptera: Symphyta, Tenthredinidae). *Acta Zool. Acad. Sci. Hung.*, **27 (3-4)**: 443-450.
51. Zombori, L. 1982a. The European Genera of Blennocampinae (Hymenoptera: Symphyta Tenthredinidae). *Acta Zool. Acad. Sci. Hung.*, **28 (1-2)**: 183-192.
52. Zombori, L. 1982b. The European genera of Tenthredininae (Hymenoptera: Symphyta, Tenthredinidae). *Acta Zool. Acad. Sci. Hung.*, **28 (3-4)**: 455-460.
53. Zombori, L. 1984. The European Genera of Nematinae (Hymenoptera: Symphyta: Tenthredinidae). *Acta Zool. Hung.*, **30(3-4)**: 545-550.

داده های جدید از زنبورهای تخم‌ریز اره‌ای در جنگلهای هیرکانی شمال ایران

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چکیده

فون زنبورهای تخم‌ریز اره‌ای (Hymenoptera: Symphyta) در جنگلهای هیرکانی مطالعه شد. نمونه‌ها با استفاده از تله‌های مالیز از فروردین تا مهرماه 1395 جمع‌آوری شدند. ۳۷ گونه زنبور تخم‌ریز اره‌ای از نواحی جنگلی استان‌های گلستان و مازندران جمع‌آوری و شناسایی گردید. از میان آنها ۵ گونه برای اولین بار از ایران گزارش می‌شوند: *Fenella minuta* (Dahlbom, 1835)، *Nematus glaphyropus* Dalla، *Hoplocampa chrysorrhoea* (Klug, 1816)، *Phylloecus niger* (M. و *Macrophya ribis* (Schrank, 1781) Torre, 1882، *Fenella* جنس Harris, 1779). یک رکورد جدید برای ایران می‌باشد. بحث و بررسی کلی درباره‌ی فون زنبورهای تخم‌ریز اره‌ای ایران آورده شده است.