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A faunal study of whiteflies (Hemiptera: Aleyrodidae) and their parasitoids in Guilan province, Iran

**Nasrin SHAHBAZVAR, Ahad SAHRAGARD, Shahab MANZARI,
Reza HOSSEINI & Jalil HAJIZADEH**

Abstract

The fauna of whiteflies (Hemiptera: Sternorrhyncha: Aleyrodidae) and their parasitoids were studied in Guilan province, Iran. A total of 18 whitefly species belonging to 8 genera from the subfamily Aleyrodinae were collected and identified, of which two species, *Bemisia takahashii* (DANZIG) and *Pealius rubi* TAKAHASHI, are newly recorded from Iran. Also, 8 hymenopteran species belonging to 2 genera from Aphelinidae, as well as one species from Eulophidae were reared as their parasitoids.

Key words: Aleyrodidae, Aphelinidae, Eulophidae, parasitoids, fauna, new record, Guilan, Iran.

Introduction

Whiteflies are small insects (1-3 mm in body length) belonging to the order Hemiptera, suborder Sternorrhyncha, superfamily Aleyrodoidea and family Aleyrodidae (MARTIN et al. 2000). MARTIN & MOUND (2007) catalogued the whiteflies of the world and listed 1556 species in 161 genera from three subfamilies, Aleurodicinae, Aleyrodinae and Udamoselinae. The subfamily Aleurodicinae is primarily distributed in New World and includes 118 species in 18 genera; the subfamily Aleyrodinae is worldwide in distribution and includes 1424 species in 148 genera, and the subfamily Udamoselinae includes 2 South American species in a single genus *Udamoselis* (EVANS 2008). The generic classification of the Aleyrodidae is based on the structure of the fourth larval instar, the so-called pupal case, not on the structure of adults. This is of the great advantage that the pupal cases are sessile, so it is possible to collect and identify host plants with insects (MOUND & HALSEY 1978). Whiteflies cause damage to plants by feeding on phloem sap. The importance of whiteflies as economic pests seems to expand continually (BYRNE & BELLOWS 1991). Presently, three whitefly species, viz. *Bemisia tabaci* (GENNADIUS), *Trialeurodes vaporariorum* (WESTWOOD), and *T. abutiloneus* (HALDEMAN) are known to be vectors of plant viruses, of which *B. tabaci* is the most important. This species associates with more than 100 viral diseases in the tropics and subtropics (NAULT 1997). Hymenopteran parasitoids of whiteflies belong to six families: Aphelinidae, Eulophidae, Pteromalidae, Signiphoridae and Encyrtidae from the superfamily Chalcidoidea, and Platygastriidae from the superfamily Platygastroidea. These are known to be either facultative or obligate parasitoids of whiteflies (HERNÁNDEZ-SUÁREZ et al. 2003)

The whitefly fauna of Iran has poorly been studied. There are a number of publications on Iranian whiteflies in different regions (e.g. KIRIUKHIN 1947; ZARRABI 1991, 1998a, 1998b; ZARRABI & DAVID 2001; MANZARI 2005; MANZARI & ALEMANSOOR 2005; MANZARI & MOGHADDAM 2005; SHAHBAZVAR et al. 2010). In the current study, 18 whitefly species including two new records, as well as 9 hymenopteran species as their parasitoids are reported from Guilan province, Iran. The information on distribution and host plants for each whitefly species is also provided.

Materials and methods

In order to study the fauna of whiteflies in Guilan province, the specimens were collected from different localities during 2007-2009. Field-collected puparia were slide-mounted and Canada balsam was employed as the permanent mounting medium. Also, reared parasitoids for several of these whitefly species were collected and identified. Specimens were deposited at Hayk Mirzayans Insect Museum (HMIM), Insect Taxonomy Research Department, Iranian Research Institute of Plant Protection, P.O. Box 1454, Tehran 19395, Iran.

Results

Aleurochiton acerinus HAUPT, 1934

Material examined: Iran, Guilan province: Talesh, Asalem, Nav-e Bala, 1580 m, N = 37° 38' 39", E = 48° 39' 39", 27.x.2008, ex: *Acer cappadocicum* (Aceraceae), (N. Shahbazvar, 223); Talesh, Asalem, 112 m, N = 37° 42' 14", E = 48° 56' 27", 27.x.2008, ex: *A. cappadocicum* (Aceraceae), (N. Shahbazvar, 225).

Distribution: Austria, Czech Republic, England, Germany, Hungary, Iran, Poland, USSR, Yugoslavia (EVANS 2008).

Aleurochiton pseudoplatani VISNYA, 1936

Material examined: Iran, Guilan province: Langarud, 4 m, N = 37° 11' 16.6", E = 50° 09' 33.3", 27.vi.2008, ex: *Acer velutinum* (Aceraceae), (N. Shahbazvar, 100); Rasht, Khomam, Kateh Sar, -3 m, N = 37° 22' 5.3", E = 49° 41' 25.6", 27.viii.2008, ex: *A. velutinum* (Aceraceae), (N. Shahbazvar, 127); Rasht, Kuchesfahan, Kenarsar Bozorg, 66 m, N = 37° 20' 4.8", E = 49° 49' 32.4", 27.viii.2008, ex: *A. velutinum* (Aceraceae), (N. Shahbazvar, 132); Shaft, Emamzadeh-Ebrahim, 125 m, N = 37° 03' 22.7", E = 49° 24' 40.3", 28.viii.2008, ex: *A. velutinum* (Aceraceae), (N. Shahbazvar, 137); Fuman, Ghaleh Roudkhan, 346 m, N = 37° 04' 17.8", E = 49° 14' 53.8", 30.viii.2008, ex: *A. velutinum* (Aceraceae), (N. Shahbazvar, 144); Fuman, Gasht-e-Roudkhan, 705 m, N = 37° 03' 49.1", E = 49° 14' 19", 03.ix.2008, ex: *A. velutinum* (Aceraceae), (N. Shahbazvar, 151); Fuman, Gasht-e-Roudkhan, 110 m, N = 37° 07' 04", E = 49° 13' 22", 03.ix.2008, ex: *A. velutinum* (Aceraceae), (N. Shahbazvar, 163); Rasht, Pir Bazar, -12 m, N = 37° 20' 24", E = 49° 31' 14", 17.x.2008, ex: *A. velutinum* (Aceraceae), (N. Shahbazvar, 175); Bandar-e Anzali, -15 m, N = 37° 28' 16", E = 49° 27' 42", 20.x.2008, ex: *A. velutinum* (Aceraceae), (N. Shahbazvar, 187); Rasht, Lakan, 14 m, N = 37° 11' 35", E = 49° 34' 42", 24.x.2008, ex: *A. velutinum* (Aceraceae), (N. Shahbazvar, 209); Talesh, Haviq, 1 m, N = 38° 09' 29", E = 48° 52' 43", 25.x.2008, ex: *A. velutinum* (Aceraceae); Talesh, Lisar, 24 m, N = 37° 58' 6.5", E = 48° 53' 54", 25.x.2008, ex: *A. velutinum* (Aceraceae), (N. Shahbazvar, 217); Talesh, Asalem, Nav Rud, -2 m, N = 37° 43' 21", E = 49° 02' 10", 27.x.2008, ex: *A. velutinum* (Aceraceae), (N. Shahbazvar, 226); Astara, Gila Deh, 679 m, N = 38° 23' 13", E = 48° 38' 55", 1.xi.2008, ex: *A. velutinum* (Aceraceae), (N. Shahbazvar, 235); Rudsar, Kalachay, -10 m, N = 37° 04' 44", E = 50° 23' 43", 13.xi.2008, ex: *A. velutinum* (Aceraceae), (N. Shahbazvar, 244); Rasht, Lakan, 14 m, N = 37° 11' 35", E = 49° 34' 42", 16.xi.2008, ex: *A. velutinum* (Aceraceae), (N. Shahbazvar, 249); Rasht, Sangar, 96 m, N = 37° 10' 42", E = 49° 41' 38", 25.vi.2009, ex: *Acer* sp. (Aceraceae), (N. Shahbazvar, 252).

Distribution: Austria, Czech Republic, Germany, Hungary, Iran, Lebanon, Netherlands, USSR (EVANS 2008).

Parasitoid collected:

***Encarsia sophia* (GIRAULT & DODD, 1915)**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Talesh, Asalem, Nav Rud, -2 m, N = 37° 43' 21", E = 49° 02' 10", 27.x.2008, ex: *Aleurochiton pseudoplatanoi* on *Acer velutinum* (Aceraceae), (N. Shahbazvar, 226).

***Encarsia protransvena* VIGGIANI, 1985**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Fuman, Gasht-e-Roudkhan, 110 m, N = 37° 07' 04", E = 49° 13' 22", 03.ix.2008, ex: *Aleurochiton pseudoplatani* on *Acer velutinum* (Aceraceae), (N. Shahbazvar, 163); Rasht, Pir Bazar, -12 m, N = 37° 20' 24", E = 49° 31' 14", 17.x.2008, ex: *Aleurochiton pseudoplatani* on *Acer velutinum* (Aceraceae), (N. Shahbazvar, 175).

***Aleuroclava kharazii* MANZARI & SHAHBAZVAR, 2010**

This species has recently been described from Iran by SHAHBAZVAR et al. (2010).

M a t e r i a l e x a m i n e d : Holotype, Iran, Guilan province: Astara, -27 m, N = 37° 24' 44", E = 48° 52' 34", 1.xi.2008, ex: *Nerium oleander* (Apocynaceae), (N. Shahbazvar, 232); Paratype, Talesh, Asalem, 131 m, N = 37° 09' 83", E = 48° 32' 88", 3.xi.2008, ex: *Crataegus monogyna* (Rosaceae), (N. Shahbazvar, 219).

D i s t r i b u t i o n : Iran (SHAHBAZVAR et al., 2010).

***Aleyrodes* sp. cf. *elevatus* SILVESTRI, 1934**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Astaneh-ye-Ashrafiyeh, Kiyashahr, Ziba Kenar, 11 m, N = 37° 25' 60", E = 49° 14' 18", 27.xiii.2008, ex: *Lythrum salicaria* (Lythraceae), (N. Shahbazvar, 128); Fuman, Ghaleh Roudkhan, 430 m, N = 37° 04' 5.5", E = 49° 14' 39.2", 30.xiii.2008, ex: Rosaceae, (N. Shahbazvar, 150).

Parasitoid collected:

***Encarsia inaron* (WALKER, 1839)**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Fuman, Ghaleh Roudkhan, 430 m, N = 37° 04' 5.5", E = 49° 14' 39.2", 30.xiii.2008, ex: *Aleyrodes* sp. cf. *elevatus* on Rosaceae, (N. Shahbazvar, 150).

***Aleyrodes lonicerae* WALKER, 1852**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Rasht, Emamzadeh-Hashem, Kocha, 116 m, N = 37° 05' 29.7", E = 49° 37' 42.5", 22.xiii.2008, ex: *Violaceae*, (N. Shahbazvar, 117); Rasht, Emamzadeh-Hashem, Siah Roud, Harkian, 87 m, N = 37° 05' 27.3", E = 49° 37' 42.5", 22.xiii.2008, ex: *Rubus* sp. (*Rosaceae*), (N. Shahbazvar, 118); Astanehye-Ashrafiyeh, Kiyashahr, 11 m, N = 37° 25' 15", E = 49° 56' 56", 27.xiii.2008, ex: *Rubus* sp. (*Rosaceae*), (N. Shahbazvar, 133); Shaft, 35 m, N = 37° 12' 31.3", E = 49° 26' 7.4", 28.xiii.2008, ex: *Cucumis sativa* (*Cucurbitaceae*), (N. Shahbazvar, 142); Fuman, Ghaleh Roudkhan, 705 m, N = 37° 03' 49.1", E = 49° 14' 19", 30.xiii.2008, ex: *Rosaceae*, (N. Shahbazvar, 147); Fuman, Ghaleh Roudkhan, 430 m, N = 37° 04' 5.5", E = 49° 14' 39.2", 30.xiii.2008, ex: *Viola* sp. (*Violaceae*), (N. Shahbazvar, 149); Fuman, Ghaleh Roudkhan, 705 m, N = 37° 03' 49.1", E = 49° 14' 19", 30.xiii.2008, ex: unknown, (N. Shahbazvar, 155); Rudsar, Rahim Abad, Ziyaz, 681 m, N = 36° 52' 0.0", E = 50° 13' 0.0", 19.x.2008, ex: unknown, (N. Shahbazvar, 182); Rasht, Sarawan, 97 m, N = 37° 01' 49", E = 49° 37' 49", 24.x.2008, ex: *Geum* sp. (*Rosaceae*), (N. Shahbazvar, 207); Talesh, Haviq, 1 m, N = 38° 09' 29", E = 48° 52' 43", 25.x.2008, ex: *Viola alba* (*Violaceae*), (N. Shahbazvar, 218); Talesh, Asalem, 670 m, N = 37° 40' 99", E = 48° 48' 45", 27.x.2008, ex: *Lonicera* sp. (*Caprifoliaceae*), (N. Shahbazvar, 227); Talesh, Asalem, Nav Rud, 549 m, N = 37° 40' 72.3", E = 48° 47' 97.7", 7.xi.2008, ex: *Lonicera* sp. (*Caprifoliaceae*), (N. Shahbazvar, 229).

D i s t r i b u t i o n : Austria, England, Finland, France, Germany, Hungary, Iran, Israel, Italy, Poland, Portugal, Russia, Sweden, Switzerland, Turkey, USSR, Yugoslavia, Korea (EVANS 2008).

Parasitoid collected:

***Encarsia inaron* (WALKER, 1839)**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Fuman, Ghaleh Roudkhan, 430 m, N = 37° 04' 5.5", E = 49° 14' 39.2", 30.xiii.2008, ex: *Aleyrodes lonicerae* on *Viola* sp. (*Violaceae*), (N. Shahbazvar, 149); Fuman, Ghaleh Roudkhan, 705 m, N = 37° 03' 49.1", E = 49° 14' 19", 30.xiii.2008, ex: *Aleyrodes lonicerae* on unknown host plant, (N. Shahbazvar, 155).

***Euderomphale chelidonii* ERDÖS, 1966**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Rasht, Emamzadeh-Hashem, Kocha, 116 m, N = 37° 05' 29.7", E = 49° 37' 42.5", 22.xiii.2008, ex: *Aleyrodes lonicerae* on *Violaceae*, (N. Shahbazvar, 117); Rasht, Sarawan, 97 m, N = 37° 01' 49", E = 49° 37' 49", 24.x.2008, ex: *Aleyrodes lonicerae* on *Geum* sp. (*Rosaceae*), (N. Shahbazvar, 207).

***Aleyrodes prolella* (LINNAEUS, 1758)**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Shaft, 649 m, N = 37° 01' 10", E = 49° 26' 19", 28.xiii.2008, ex: *Chelidonium majus* (Papaveraceae), (N. Shahbazvar, 229); Fuman, Ghaleh Roudkhan, 705 m, N = 37° 03' 49.1", E = 49° 14' 19", 30.viii.2008, ex: *Atropa belladonna* (Solanaceae), (N. Shahbazvar, 145); Talesh, Asalem, Nav Rud, 549 m, N = 37° 40' 72.3", E = 48° 47' 97.7", 7.xi.2008, ex: *Lonicera* sp. (Caprifoliaceae), (N. Shahbazvar, 229).

D i s t r i b u t i o n : Worldwide (EVANS 2008).

***Aleyrodes* sp. cf. *zygia* DANZIG, 1966**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Fuman, Ghaleh Roudkhan, 705 m, N = 37° 03' 49.1", E = 49° 14' 19", 30.xiii.2008, ex: *Euphorbia* sp. (Euphorbiaceae), (N. Shahbazvar, 148); Shaft, Emamzadeh-Eshagh, 626 m, N = 37° 02' 60", E = 49° 19' 22", 2.ix.2008, ex: *Euphorbia* sp. (Euphorbiaceae), (N. Shahbazvar, 155').

Parasitoid collected:

***Encarsia inaron* (WALKER, 1839)**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Shaft, Emamzadeh-Eshagh, 626 m, N = 37° 02' 60", E = 49° 19' 22", 2.ix.2008, ex: *Aleyrodes* sp. cf. *zygia* on *Euphorbia* sp. (Euphorbiaceae), (N. Shahbazvar, 155').

***Bemisia afer* (PRIESNER & HOSNY, 1934) s.l.**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Rasht, 48 m, 75m, N = 37° 11' 45.1", E = 49° 38' 26.1", 20.x.2008, ex: *Morus alba* (Moraceae), (N. Shahbazvar, 107); Rasht, Sarawan, 75m, N = 37° 02' 28", E = 49° 38' 15", 24.x.2008, ex: *Rubus* sp. (Rosaceae), (N. Shahbazvar, 117); Shaft, Emamzadeh-Ebrahim, 649 m, N = 37° 01' 10", E = 49° 26' 19", 28.xiii.2008, ex: *Chelidonium majus* (Papaveraceae), (N. Shahbazvar, 144).

D i s t r i b u t i o n : Brazil, Egypt, France, Iran, Israel, Italy, Sicily, Spain, Cameroon, Chad, Congo, Guinea, Ivory Coast, Kenya, Madagascar, Mulawi, Niger, Nigeria, Sierre Leon, South Africa, Sudan, Uganda, Zaire, China, Korea, India, Pakistan, Australia, New Guinea (EVANS 2008).

***Bemisia* sp. cf. *carpini* (KOCH, 1857)**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Talesh, Asalem, 112 m, N = 37° 42' 14", E = 48° 56' 27", 27.x.2008, ex: *Ulmus* sp. (Ulmaceae), (N. Shahbazvar, 224).

***Bemisia dentata* (DANZIG, 1969)**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Astara, Gila Deh, 679 m, N = 38° 23' 13", E = 48° 38' 55", 1.xi.2008, ex: *Rosa* sp. (Rosaceae), (N. Shahbazvar, 234).

D i s t r i b u t i o n : France, Iran, Netherlands, USSR (EVANS 2008).

***Bemisia shinanoensis* KUWANA, 1922**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Rasht, Sarawan, 7 m, N = 37° 02' 28", E = 49° 38' 15", 22.xiii.2008, ex: *Parrotia persica* (Hamamelidaceae), (N. Shahbazvar, 116); Rasht, 4 m, N = 37° 16' 46", E = 49° 35' 09", 2.xi.2008, ex: *Morus alba* (Moraceae), (N. Shahbazvar, 240); Shaft, Ahmad Sargurab, Alisara, 325 m, N = 37° 03' 24", E = 49° 17' 38", 2.xi.2008, ex: *Pterocarya fraxinifolia* (Juglandaceae), (N. Shahbazvar, 242); Rudsar, Siyahkal, 34 m, N = 37° 09' 13", E = 49° 52' 11", 13.x.2008, ex: *M. alba* (Moraceae), (N. Shahbazvar, 247).

D i s t r i b u t i o n : Iran, Japan (EVANS 2008).

***Bemisia tabaci* (GENNADIUS, 1889)**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Rudsar, Chaboksar, Sarwlat, 19 m, N = 36° 56' 59.6", E = 50° 32' 52.5", 20.xiii.2008, ex: unknown, (N. Shahbazvar, 113); Rudsar, Chaboksar, Sarwlat, 19 m, N = 36° 56' 59.6", E = 50° 32' 52.5", 20.xiii.2008, ex: *Cucurbita maxima* (Cucurbitaceae), (N. Shahbazvar, 114); Rasht, Emamzadeh-Hashem, Siah Roud, Harkian, 87 m, N = 37° 05' 27.3", E = 49° 37' 42.3", 22.xiii.2008, ex: *Rubus* sp. (Rosaceae), (N. Shahbazvar, 118); Astanehye-Ashrafiyeh, Kiyashahr, Ziba Kenar, 11 m, N = 37° 25' 60", E = 49° 52' 22", 27.xiii.2008, ex: *Lythrum salicaria* (Lythraceae), (N. Shahbazvar, 128); Rasht, Kuchesfahan, Kenarsar Bozorg, 66 m, N = 37° 20' 4.8", E = 49° 49' 32.4", 27.xiii.2008, ex: *Abutilon teophrasti* (Malvaceae), (N. Shahbazvar, 129); Rasht, Kuchesfahan, Kenarsar Bozorg, 66 m, N = 37° 20' 4.8", E = 49° 49' 32.4", 27.xiii.2008, ex: *Rubus* sp. (Rosaceae), (N. Shahbazvar, 130); Astanehye-Ashrafiyeh, Kiyashahr, 11 m, N = 37° 25' 15", E = 49° 56' 56", 27.xiii.2008, ex: *Rubus* sp. (Rosaceae), (N. Shahbazvar, 133); Shaft, Choobar, 377 m, N = 37° 16' 30", E = 49° 23' 18", 28.xiii.2008, ex: *Euphorbia* sp. (Euphorbiaceae), (N. Shahbazvar, 141); Rezvanshahr, Parreh Sar, Gisoom, 13 m, N = 37° 39' 03", E = 49° 01' 35", 3.ix.2008, ex: *Euphorbia* sp. (Euphorbiaceae), (N. Shahbazvar, 157); Bandar-e Anzali, Chapar Khaneh, -10 m, N = 37° 25' 47", E = 49° 38' 45", 18.x.2008, ex: *C. maxima* (Cucurbitaceae), (N. Shahbazvar, 177); Rudsar, Rahim Abad, Ziyaz, 681 m, N = 36° 52' 0.0", E = 50° 13' 0.0", 19.x.2008, ex: *Lamium album* (Lamiaceae), (N. Shahbazvar, 184); Rasht, Pir Bazar, -12m, N = 37° 20' 24", E = 49° 31' 14", 20.x.2008, ex: *Rubus* sp. (Rosaceae), (N. Shahbazvar, 194); Rezvanshahr, Ziyabar, 0 m, N = 37° 24' 32", E = 49° 14' 18", 23.x.2008, ex: *Rubus* sp. (Rosaceae), (N. Shahbazvar, 198); Sowmaeh Sara, Chomesghal, -9 m, N = 37° 21' 59", E = 49° 21' 44", 23.x.2008, ex: *Rubus* sp. (Rosaceae), (N. Shahbazvar, 203); Rasht, Lakan, Salkisar, 42m, N = 37° 10' 35", E = 49° 34' 22", 24.x.2008, ex: *Rubus* sp. (Rosaceae), (N. Shahbazvar, 210); Shaft, Ahmad Sargurab, Siyah Mazgi, 600 m, N = 37° 01' 03", E = 49° 16' 12", 2.xi.2008, ex: *Clerodendron bungei* (Verbenaceae), (N. Shahbazvar, 234).

D i s t r i b u t i o n : Worldwide (EVANS 2008).

Parasitoid collected:

***Encarsia pergandiella* HOWARD, 1907**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Rasht, Kuchesfahan, Kenarsar Bozorg, 66 m, N = 37° 20' 4.8", E = 49° 49' 32.4", 27.xiii.2008, ex: *Bemisia tabaci* on *Abutilon teophrasti* (Malvaceae), (N. Shahbazvar, 129).

***Eretmocerus mundus* MERCET, 1931**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Guilan: Rasht, Kuchesfahan, Kenarsar Bozorg, 66 m, N = 37° 20' 4.8", E = 49° 49' 32.4", 27.xiii.2008, ex: *Bemisia tabaci* on *Rubus* sp. (Rosaceae), (N. Shahbazvar, 130).

***Bemisia takahashii* (DANZIG, 1966)**

This species is newly recorded from Iran.

M a t e r i a l e x a m i n e d : Iran, Guilan province: Rasht, Lakan, Eskadeh, 131 m, N = 37° 09' 83", E = 49° 32' 88", 26.x.2008, ex: *Crataegus monogyna* (Rosaceae), (N. Shahbazvar, 219); Astara, Heyran, 785 m, N = 38° 22' 19", E = 48° 38' 53", 1.xi.2008, ex: *Crataegus* sp. (Rosaceae), (N. Shahbazvar, 233); Rudsar, -3 m, N = 36° 58' 0.0", E = 49° 43' 0.0", 13.xi.2008, ex: *Crataegus* sp. (Rosaceae), (N. Shahbazvar, 248).

D i s t r i b u t i o n : Maritime Territory (USSR), Korea (EVANS 2008).

***Bulgarialeurodes cotesii* (MASKELL, 1896)**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Astara, Heyran, 785 m, N = 38° 22' 19", E = 48° 38' 53", 1.xi.2008, ex: *Rosa lutea* (Rosaceae), (N. Shahbazvar, 236); Talesh, Lisar, Khotbe Sara, 6m, N = 37° 59' 73.5", E = 48° 54' 20.4", 1.xi.2008, ex: *R. lutea* (Rosaceae), (N. Shahbazvar, 237).

D i s t r i b u t i o n : Afganistan, Bulgaria, Iran, Rumania, Turkmenistan, USSR, Yugoslavia, Pakistan (EVANS 2008).

***Dialeurodes citri* (ASHMEAD, 1885)**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Lahidjan, 1 m, N = 37° 12' 33", E = 50° 0' 02", 27.vi.2008, ex: *Citrus aurantium* (Rutaceae), (N. Shahbazvar, 102); Langarud, 4 m, N = 37° 11' 16.6", E = 50° 09' 33.3", 27.vi.2008, ex: *C. aurantium* (Rutaceae), (N. Shahbazvar, 103); Rasht, Sangar, 42 m, N = 37° 11' 44.9", E = 49° 38' 26", 27.vi.2008, ex: *Euonymus japonicus* (Euphorbiaceae), (N. Shahbazvar, 104); Lahidjan, 50 m, N = 37° 11' 41.1", E = 50° 01' 0.8", 18.viii.2008, ex: *Citrus sinensis* (Rutaceae), (N. Shahbazvar, 106); Lahidjan, Chayjan, -3 m, N = 37° 01' 49", E = 50° 27' 20", 18.viii.2008, ex: *C. aurantium* (Rutaceae), (N. Shahbazvar, 107); Rasht, 48 m, N = 37° 11' 45.1", E = 49° 38' 26.1", 16.viii.2008, ex: *C. aurantium* (Rutaceae), (N. Shahbazvar, 108); Langarud, Kumeleh, 14 m, N = 37° 08' 39", E = 50° 10' 26.8", 20.viii.2008, ex: *C. sinensis* (Rutaceae), (N. Shahbazvar, 109); Langarud, Amlash, 13 m, N = 37° 05' 51", E = 50° 11' 01", 20.viii.2008, ex: *Ligustrum vulgare* (Oleaceae), (N. Shahbazvar, 110); Langarud, Amlash, 13 m, N = 37° 05' 51", E = 50° 11' 01", 20.viii.2008, ex: *C. sinensis* (Rutaceae), (N. Shahbazvar, 111); Rudsar, Kalachay, Vajargah, Siahkalroud, 63 m, N = 37° 01' 15.5", E = 50° 26' 23.9", 20.viii.2008, ex: *C. sinensis* (Rutaceae), (N. Shahbazvar, 115); Rasht, Kuchefahan, 48 m, N = 37° 11' 45.1", E = 49° 38' 26.1", 27.viii.2008, ex: *C. sinensis* (Rutaceae), (N. Shahbazvar, 126); Shaft, Choobar, 377 m, N = 37° 16' 30", E = 49° 23' 18", 28.viii.2008, ex: *C. sinensis* (Rutaceae), (N. Shahbazvar, 143); Fuman, Gasht, 86 m, N = 37° 10' 15", E = 49° 15' 55", 3.ix.2008, ex: *C. aurantium* (Rutaceae), (N. Shahbazvar, 159); Fuman, Gasht-e-Roudkhan, 110 m, N = 37° 07' 04", E = 49° 13' 22", 3.ix.2008, ex: *Ligustrum vulgare* (Oleaceae), (N. Shahbazvar, 161); Fuman, Gasht-e-Roudkhan, 110 m, N = 37° 07' 04", E = 49° 13' 22", 3.ix.2008, ex: *Lonicera* sp. (Caprifoliaceae), (N. Shahbazvar, 162); Fuman, Gasht-e-Roudkhan, 3 m, N = 37° 17' 45", E = 49° 13' 18", 12.x.2008, ex: *C. aurantium* (Rutaceae), (N. Shahbazvar, 188); Rezvanshahr, 15 m, N = 37° 32' 53", E = 49° 07' 26", 23.x.2008, ex: *Punica granatum* (Punicaceae), (N. Shahbazvar, 199); Rezvanshahr, 15 m, N = 37° 32' 53", E = 49° 07' 26", 23.x.2008, ex: *C. medica* (Rutaceae), (N. Shahbazvar, 200); Hashtpar, Kish Dibi, -12 m, N = 37° 50' 21", E = 48° 48' 57", 25.x.2008, ex: *Ligustrum sinense* (Oleaceae), (N. Shahbazvar, 216); Astara, -27 m, N = 38° 24' 44", E = 48° 52' 34", 1.xi.2008, ex: *Evonymus japonica* (Celastraceae), (N. Shahbazvar, 231); Rudsar, -3 m, N = 36° 58' 0", E = 49° 43' 0", 13.xi.2008, ex: *C. aurantium* (Rutaceae), (N. Shahbazvar, 246); Rudsar, Deylaman, Lunak water fall, 619 m, N = 37° 02' 14", E = 49° 53' 23", 27.vi.2009, ex: *C. Sinensis* (Rutaceae), (N. Shahbazvar, 253).

D i s t r i b u t i o n : USA, Bahamas, Bermuda, Cuba, Dominican Republic, El Salvador, Haiti, Honduras, Mexico, Panama, Puerto Rico, Afganistan, France, Greece, Iran, Italy, Portugal, Sicily, Turkey, China, Hong Kong, Korea, Japan, Macau, Taiwan, India, Pakistan, Philippines, Thailand, Guam, Hawaii (EVANS 2008).

***Pealius rubi* TAKAHASHI, 1936**

This species is newly recorded from Iran.

M a t e r i a l e x a m i n e d : Iran, Guilan province: Rasht, Sarawan, 75 m, N = 37° 02' 28", E = 49° 38' 15", 24.x.2008, ex: *Rubus* sp. (Rosaceae), (N. Shahbazvar, 206); Talesh, Asalem, Nav-e Bala, 1540 m, N = 37° 38' 39", E = 48° 38' 39", 27.x.2008, ex: *Rosa canina* (Rosaceae), (N. Shahbazvar, 228); Talesh, Asalem, Nav-e Bala, 549 m, N = 37° 40' 72.3", E = 48° 47' 97.7", 7.xi.2008, ex: *Lonicera* sp. (Caprifoliaceae), (N. Shahbazvar, 229).

D i s t r i b u t i o n : Japan, Korea, Taiwan (EVANS 2008).

***Trialeurodes packardi* (MORRILL, 1903)**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Rasht, Pir Bazar, -12 m, N = 37° 20' 24", E = 49° 31' 14", 20.x.2008, ex: *Fragaria vesca* (Rosaceae), (N. Shahbazvar, 192); Hashtpar, Kish Dibi, -12 m, N = 37° 50' 21", E = 48° 48' 57", 25.x.2008, ex: *Acer* sp. (Aceraceae), (N. Shahbazvar, 215).

D i s t r i b u t i o n : Canada, USA, Hungary, Iran, Korea (EVANS 2008).

***Trialeurodes vaporariorum* (WESTWOOD, 1856)**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Lahidjan, 1 m, N = 37° 12' 33", E = 50° 0' 02", 27.vi.2008, ex: *Conyza canadensis* (Asteraceae), (N. Shahbazvar, 101); Rasht, Sangar, 42 m, N = 37° 11' 44.9", E = 49° 38' 26", 27.vi.2008, ex: *Cucurbita maxima* (Cucurbitaceae), (N. Shahbazvar, 105); Langarud, Kumeleh, 14 m, N = 37° 8' 39", E = 50° 10' 26.8", 20.viii.2008, ex: *Citrus sinensis* (Rutaceae), (N. Shahbazvar, 112); Rudsar, Chaboksar, Sarwlat, 19 m, N = 36° 56' 59.6", E = 50° 32' 52.5", 20.viii.2008, ex: *C. maxima* (Cucurbitaceae), (N. Shahbazvar, 114); Rudbar, Rostam Abad, Tutkabon, 360 m, N = 36° 43' 44.8", E = 49° 24' 32.8", 22.viii.2008, ex: *Cucurbita sativa* (Cucurbitaceae), (N. Shahbazvar, 119); Rudbar, Loyeh, 250 m, N = 36° 50' 7.2", E = 49° 26' 0.9", 22.viii.2008, ex: *Abutilon teophrasti* (Malvaceae), (N. Shahbazvar, 120); Rasht, Emamzadeh-Hashem, 360 m, N = 37° 0' 39", E = 49° 34' 55", 24.viii.2008, ex: *A. teophrasti* (Malvaceae), (N. Shahbazvar, 121); Rasht, Emamzadeh-Hashem, 160 m, N = 37° 0' 39", E = 49° 34' 55", 24.viii.2008, ex: *C. sativa* (Cucurbitaceae), (N. Shahbazvar, 122); Rasht, Emamzadeh-Hashem, Diz Koh, 163 m, N = 37° 0' 36", E = 49° 34' 29", 24.viii.2008, ex: *Trichosanthes anguina* (Cucurbitaceae), (N. Shahbazvar, 123); Rasht, Emamzadeh-Hashem, Diz Koh, 163 m, N = 37° 0' 36", E = 49° 34' 29", 24.viii.2008, ex: *A. teophrasti* (Malvaceae), (N. Shahbazvar, 124); Rasht, Kuchesfahan, 125 m, N = 37° 11' 45.1", E = 49° 38' 26.1", 27.viii.2008, ex: *A. teophrasti* (Malvaceae), (N. Shahbazvar, 125); Rasht, Kuchesfahan, 66 m, N = 37° 11' 45.1", E = 49° 38' 26.1", 27.viii.2008, ex: *C. maxima* (Cucurbitaceae), (N. Shahbazvar, 131); Rasht, 48 m, N = 37° 11' 45.1", E = 49° 38' 26.1", 27.viii.2008, ex: *Erodium ciconium* (Geraniaceae), (N. Shahbazvar, 133); Rasht, Khoshkebijar, -7 m, N = 37° 22' 41", E = 49° 45' 29", 26.viii.2008, ex: *C. sativa* (Cucurbitaceae), (N. Shahbazvar, 134); Rasht, Shaft, Molla Sara, 49 m, N = 37° 09' 53.8", E = 49° 23' 56.2", 28.viii.2008, ex: *Phaseolus vulgaris* (Fabaceae), (N. Shahbazvar, 140); Fuman, Gasht, 86 m, N = 37° 10' 15", E = 49° 15' 55", 3.ix.2008, ex: (Boraginaceae), (N. Shahbazvar, 158); Fuman, Gasht, 86 m, N = 37° 10' 15", E = 49° 15' 55", 3.ix.2008, ex: *A. teophrasti* (Malvaceae), (N. Shahbazvar, 160); Shaft, Ahmad Sargurab, 141 m, N = 37° 7' 36", E = 49° 21' 54", 3.ix.2008, ex: *Helianthus annuus* (Asteraceae), (N. Shahbazvar, 164); Fuman, Masuleh, Bala Makelvan, 268 m, N = 37° 10' 60", E = 49° 12' 58", 4.ix.2008, ex: *Cucurbita citrullus* (Cucurbitaceae), (N. Shahbazvar, 165); Fuman, Masuleh, 989 m, N = 37° 09' 35", E = 48° 59' 33", 4.ix.2008, ex: *C. citrullus* (Cucurbitaceae), (N. Shahbazvar, 166); Astanehye-Ashrafiyeh, -7 m, N = 37° 15' 54", E = 49° 56' 40", 16.x.2008, ex: *A. teophrasti* (Malvaceae), (N. Shahbazvar, 170); Astanehye-Ashrafiyeh, -7 m, N = 37° 15' 54", E = 49° 56' 40", 16.x.2008, ex: *Phaseolus vulgaris* (Fabaceae), (N. Shahbazvar, 171); Astanehye-Ashrafiyeh, -7 m, N = 37° 15' 54", E = 49° 56' 40", 16.x.2008, ex: *Rubenia pseudoacacia* (Fabaceae), (N. Shahbazvar, 172); Astanehye-Ashrafiyeh, -7 m, N = 37° 15' 54", E = 49° 56' 40", 16.x.2008, ex: *Solanum melongena* (Solanaceae), (N. Shahbazvar, 173); Rasht, Pir Bazar, -12 m, N = 37° 20' 24", E = 49° 31' 14", 17.x.2008, ex: *Helianthus tuberosus* (Asteraceae), (N. Shahbazvar, 176); Bandar-e Anzali, Chapar Khaneh, -10 m, N = 37° 25' 47", E = 49° 38' 45", 18.x.2008, ex: *C. maxima* (Cucurbitaceae), (N. Shahbazvar, 177);

Bandar-e Anzali, Sangachin, -27 m, N = 37° 30' 27", E = 49° 18' 19", 18.x.2008, ex: *A. teophrasti* (Malvaceae), (N. Shahbazvar, 178); Bandar-e Anzali, Sangachin, -27 m, N = 37° 30' 27", E = 49° 18' 19", 18.x.2008, ex: *Conyza canadensis* (Asteraceae), (N. Shahbazvar, 178'); Bandar-e Anzali, Hasan Rud, -1 m, N = 37° 26' 45", E = 49° 37' 31", 18.x.2008, ex: *H. tuberosus* (Asteraceae), (N. Shahbazvar, 179); Bandar-e Anzali, Hasan Rud, -1 m, N = 37° 26' 45", E = 49° 37' 31", 18.x.2008, ex: *Xanthium strumarium* (Asteraceae), (N. Shahbazvar, 180); Bandar-e Anzali, Hasan Rud, -1 m, N = 37° 26' 45", E = 49° 37' 31", 18.x.2008, ex: *Hybiscus cyviacus* (Malvaceae), (N. Shahbazvar, 181); Rudsar, Rahim Abad, Ziyaz, 681 m, N = 36° 52' 0.0", E = 50° 13' 0.0", 19.x.2008, ex: *Bidens bipinnata* (Asteraceae), (N. Shahbazvar, 183); Bandar-e Anzali, -15 m, N = 37° 28' 16", E = 48° 27' 44", 20.x.2008, ex: *A. teophrasti* (Malvaceae), (N. Shahbazvar, 185); Sowmaeh Sara, -3 m, N = 37° 17' 45", E = 49° 18' 12", 20.x.2008, ex: *Xanthium strumarium* (Asteraceae), (N. Shahbazvar, 189); Rasht, Pir Bazar, -12 m, N = 37° 20' 24", E = 49° 31' 14", 20.x.2008, ex: *C. maxima* (Cucurbitaceae), (N. Shahbazvar, 190); Rasht, Pir Bazar, -12 m, N = 37° 20' 24", E = 49° 31' 14", 20.x.2008, ex: *H. tuberosus* (Asteraceae), (N. Shahbazvar, 193); Rasht, Pir Bazar, -12 m, N = 37° 20' 24", E = 49° 31' 14", 20.x.2008, ex: *Phaseolus vulgaris* (Fabaceae), (N. Shahbazvar, 195); Rezvanshahr, Ziyabar, 0 m, N = 37° 24' 32", E = 49° 14' 18", 23.x.2008, ex: *Vigna unguiculata* (Fabaceae), (N. Shahbazvar, 197); Sowmaeh Sara, Chomesghal, -9 m, N = 37° 21' 59", E = 49° 21' 44", 23.x.2008, ex: *Cucurbita moschata* (Cucurbitaceae), (N. Shahbazvar, 202); Sowmaeh Sara, Chomesghal, -9 m, N = 37° 21' 59", E = 49° 21' 44", 23.x.2008, ex: *Malva* sp. (Malvaceae), (N. Shahbazvar, 204); Rasht, Sarawan, 97 m, N = 37° 01' 49", E = 49° 37' 49", 24.x.2008, ex: *Crataegus monogyna* (Rosaceae), (N. Shahbazvar, 208); Rasht, Lakan, Salkisar, 42 m, N = 37° 10' 35", E = 49° 34' 22", 24.x.2008, ex: *Sambucus ebulus* (Caprifoliaceae), (N. Shahbazvar, 211); Rasht, Lakan, Salkisar, 42 m, N = 37° 10' 35", E = 49° 34' 22", 24.x.2008, ex: *H. tuberosus* (Asteraceae), (N. Shahbazvar, 212); Rasht, Lakan, Salkisar, 42 m, N = 37° 10' 35", E = 49° 34' 22", 24.x.2008, ex: *Urtica dioica* (Urticaceae), (N. Shahbazvar, 214); Talesh, Haviq, 1 m, N = 38° 09' 29", E = 48° 52' 43", 25.x.2008, ex: *Acer velutinum* (Aceraceae), (N. Shahbazvar, 217); Raht, Lakan, Eskadeh, 131 m, N = 37° 09' 83", E = 49° 32' 88", 26.x.2008, ex: *Sambucus ebulus* (Caprifoliaceae), (N. Shahbazvar, 220); Talesh, Asalem, Nav Rud, -2 m, N = 37° 43' 21", E = 49° 02' 10", 27.x.2008, ex: *Fraxinus excelsior* (Oleaceae), (N. Shahbazvar, 230); Talesh, Haviq, Lamir, 542 m, N = 37° 50' 44", E = 48° 47' 27", 1.xi.2008, ex: *A. teophrasti* (Malvaceae), (N. Shahbazvar, 239); Shaft, Ahmad Sargurab, 141 m, N = 37° 07' 36", E = 49° 21' 54", 2.xi.2008, ex: *Phaseolus vulgaris* (Fabaceae), (N. Shahbazvar, 241); Shaft, Ahmad Sargurab, Siyahmazgi, 600 m, N = 37° 01' 03", E = 49° 16' 12", 2.xi.2008, ex: *Clerodendron bungei* (Verbenaceae), (N. Shahbazvar, 243); Rudsar, Kalachay, -10 m, N = 37° 04' 44", E = 50° 23' 43", 13.xi.2008, ex: *C. maxima* (Cucurbitaceae), (N. Shahbazvar, 245); Rasht, 4 m, N = 37° 16' 46", E = 49° 35' 09", 25.vi.2009, ex: *A. teophrasti* (Malvaceae), (N. Shahbazvar, 251); Rasht, 4 m, N = 37° 16' 46", E = 49° 35' 09", 1.x.2009, ex: *A. teophrasti* (Malvaceae), (N. Shahbazvar, 254).

D i s t r i b u t i o n : Worldwide (EVANS 2008).

Parasitoid collected:

Encarsia acaudaleyrodis HAYAT, 1976

Material examined: Iran, Guilan province: Fuman, Masuleh, Bala Makelvan, 268 m, N = 37° 10' 60", E = 49° 12' 58", 4.ix.2008, ex: *Trialeurodes vaporariorum* on *Cucurbita citrullus* (Cucurbitaceae), (N. Shahbazvar, 165).

Encarsia formosa GAHAN, 1924

Material examined: Iran, Guilan province: Rasht, Sangar, 42 m, N = 37° 11' 44.9", E = 49° 38' 26", 27.vi.2008, ex: *Trialeurodes vaporariorum* on *Cucurbita maxima* (Cucurbitaceae), (N. Shahbazvar, 105).

Encarsia inaron (WALKER, 1839)

Material examined: Iran, Guilan province: Rudbar, Rostam abad, Tutkabon, 360 m, N = 36° 43' 44.8", E = 49° 24' 32.8", 22.viii.2008, ex: *Trialeurodes vaporariorum* on *Cucurbita sativa* (Cucurbitaceae), (N. Shahbazvar, 119); Rasht, Emamzadeh-Hashem, 160 m, N = 37° 0' 39", E = 49° 34' 55", 24.viii.2008, ex: *Trialeurodes vaporariorum* on *Cucumis sativa* (Cucurbitaceae), (N. Shahbazvar, 122); Fuman, Masuleh, Bala Makelvan, 268 m, N = 37° 10' 60", E = 49° 12' 58", 4.ix.2008, ex: *Trialeurodes vaporariorum* on *Cucurbita citrullus* (Cucurbitaceae), (N. Shahbazvar, 165); Rasht, Pir Bazar, -12 m, N = 37° 20' 24", E = 49° 31' 14", 17.x.2008, ex: *Trialeurodes vaporariorum* on *Helianthus tuberosus* (Asteraceae), (N. Shahbazvar, 176).

Encarsia pergandiella HOWARD, 1907

Material examined: Iran, Guilan province: Rasht, Emamzadeh-Hashem, 160 m, N = 37° 0' 39", E = 49° 34' 55", 24.viii.2008, ex: *Trialeurodes vaporariorum* on *Cucumis sativa* (Cucurbitaceae), (N. Shahbazvar, 122); Fuman, Masuleh, Bala Makelvan, 268 m, N = 37° 10' 60", E = 49° 12' 58", 4.ix.2008, ex: *Trialeurodes vaporariorum* on *Cucurbita citrullus* (Cucurbitaceae), (N. Shahbazvar, 165); Fuman, Masuleh, 989 m, N = 37° 09' 35", E = 48° 59' 33", 4.ix.2008, ex: *Trialeurodes vaporariorum* on *Cucurbita citrullus* (Cucurbitaceae), (N. Shahbazvar, 166); Rudsar, Rahim Abad, Ziyaz, 681 m, N = 36° 52' 0.0", E = 50° 13' 0.0", 19.x.2008, ex: *Trialeurodes vaporariorum* on *Bidens bipinnata* (Asteraceae), (N. Shahbazvar, 183); Rasht, Pir Bazar, -12 m, N = 37° 20' 24", E = 49° 31' 14", 20.x.2008, ex: *Trialeurodes vaporariorum* on *Cucurbita maxima* (Cucurbitaceae), (N. Shahbazvar, 190); Shaft, Ahmad Sargurab, 141 m, N = 37° 07' 36", E = 49° 21' 54", 2.xi.2008, ex: *Trialeurodes vaporariorum* on *Phaseolus vulgaris* (Fabaceae), (N. Shahbazvar, 241); Shaft, Ahmad Sargurab, Siyahmazgi, 600 m, N = 37° 01' 03", E = 49° 16' 12", 2.xi.2008, ex: *Trialeurodes vaporariorum* on *Clerodendron bungei* (Verbenaceae), (N. Shahbazvar, 243); Rasht, 4 m, N = 37° 16' 46", E = 49° 35' 09", 1.x.2009, ex: *Trialeurodes vaporariorum* on *A. teophrasti* (Malvaceae), (N. Shahbazvar, 254).

***Eretmocerus eremicus* ROSE & ZOLNEROWICH, 1997**

M a t e r i a l e x a m i n e d : Iran, Guilan province: Rasht, Pir Bazar, -12 m, N = 37° 20' 24", E = 49° 31' 14", 20.x.2008, ex: *Trialeurodes vaporariorum* on *Helianthus tuberosus* (Asteraceae), (N. Shahbazvar, 193).

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Author's addresses:

Nasrin SHAHBAZVAR

Ahad SAHRAGARD

Reza HOSSEINI

Jalil HAJZADEH

Department of Plant Protection, Faculty of Agriculture,
University of Guilan, Rasht, Iran.

E-mail: Sahragard@guilan.ac.ir, Sahra1330@yahoo.com

Shahab MANZARI

Insect Taxonomy Research Department,
Iranian Research Institute of Plant Protection,
P.O. Box 1454, Tehran 19395, Iran

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Maximilian SCHWARZ, Konsulent f. Wissenschaft der Oberösterreichischen Landesregierung, Eibenweg 6, A-4052 Ansfelden, E-Mail: maximilian.schwarz@liwest.at.

Redaktion: Erich DILLER, ZSM, Münchhausenstraße 21, D-81247 München;
Roland GERSTMEIER, Lehrstuhl f. Tierökologie, H.-C.-v.-Carlowitz-Pl. 2, D-85350 Freising
Fritz GUSENLEITNER, Lungitzerstr. 51, A-4222 St. Georgen/Gusen;
Wolfgang SCHACHT, Scherrerstraße 8, D-82296 Schöngeising;
Wolfgang SPEIDEL, MWM, Tengstraße 33, D-80796 München;
Thomas WITT, Tengstraße 33, D-80796 München.

Adresse: Entomofauna, Redaktion und Schriftentausch c/o Museum Witt, Tengstr. 33, 80796 München, Deutschland, E-Mail: thomas@witt-thomas.com; Entomofauna, Redaktion c/o Fritz Gusenleitner, Lungitzerstr. 51, 4222 St. Georgen/Gusen, Austria, E-Mail: f.gusenleitner@landesmuseum.at

Literaturbesprechung

WILSON D.E. & R.A. MITTERMEIER (eds): **Handbook of the Mammals of the World. 1. Carnivores.** - Lynx Edicions, Bellaterra, Spanien, 2009. 727 S.

Lynx Edicions, ein spanischer Verlag, ist eine Perle unter den Verlagen naturhistorischen Inhaltes - vor allem bekannt durch die Herausgabe des "Handbook of the Birds of the World". Der hohe Qualitätsanspruch an Inhalt und Druck wurde fortgesetzt, wenn nicht gar übertroffen. Das neue Handbuch der Säugetiere der Welt ist auf acht Bände konzipiert; in Arbeit sind die Folgebände Huftiere, Primaten, Meeressäuger, Beuteltiere, Nagetiere, Insektenfresser und Fledertiere.

Vögel und Säugetiere sind zweifelsohne die attraktivsten Tiergruppen für Bildbände; trotzdem würde man sich wünschen, dass auch andere Tiergruppen (u.a. Amphibien, Reptilien, Insekten) bald eine ähnliche Resonanz erfahren dürften.

Die Säugetiere sind dabei wahrscheinlich am ehesten überschaubar; etwa 5340 Arten sind zur Zeit bekannt, obwohl – erstaunlicherweise – seit 1758 pro Jahrzehnt immerhin noch über 200 neue Arten beschrieben werden. Selbst bei Primaten wurden seit dem Jahr 2000 insgesamt 53 neue Arten beschrieben (mehr als 13% der gesamten Ordnung!). Diese Zunahme kann und soll allerdings nicht darüber hinwegtäuschen, dass gerade Säugetiere (und darunter v.a. unsere nächsten Verwandten – die Primaten) mit zu den am bedrohtesten Tierarten gehören. Die Ursachen hierfür sind naturinteressierten Lesern hinreichend bekannt. Was uns allgemein heute fehlt ist die entsprechende Einsicht richtige Schritte zum Schutz unserer Tier- und Pflanzenwelt massiv einzufordern. Russel A. Mittermeier, der Mitherausgeber und auch Präsident von Conservation International ist hier genau die richtige Adresse; er kennt diese Problematik wie kein anderer.

Aber nun zum Buch: zunächst einmal ein gigantisch großer (32x24 cm) und gewichtiger (fast 4 kg) Bildband, kein Buch für die allabendliche Bettlektüre. Eher ein Nachschlagewerk, womit das Buch aber unterrepräsentiert wäre, denn die Texte sind nicht nur gut lesbar sondern extrem spannend und hochinformativ. Einmal mit dem Durchblättern angefangen, bleibt man willkürlich hängen und liest und liest.....

Die ersten 37 Seiten sind Einleitung, informieren über die grundlegende Wissensbasis zu allgemeiner Morphologie mit Anatomie, Bewegung, Physiologie, Fortpflanzung, Verhalten, Entwicklung und Evolution. Der systematische Teil beginnt mit den Nandiniidae (Pardelrollern) und endet mit den Mustelidae (Marderartigen); die dazwischenliegenden Familien sind Felidae, Prionodontidae, Viverridae, Hyaenidae, Herpestidae, Eupleridae, Canidae, Ursidae, Ailuridae, Procyonidae und Mephitidae. Zu jeder Familie gibt es eine ausführliche Einleitung über Systematik, morphologische Aspekte, Habitat, Kommunikation, Nahrung und Ernährung, Fortpflanzung, Verbreitung und soziale Organisation, die Bedeutung zum Menschen sowie Naturschutzaspekte und eine Liste der allgemeinen Bibliographie. Im Anschluss daran werden in aller Ausführlichkeit die einzelnen Arten (alle!) vorgestellt. Während die allgemeinen Einführungen mit fantastischen, brillanten Farbfotos illustriert sind, beinhalten die Artbeschreibungen einzelne Farbtafeln mit hochqualitativen Zeichnungen der einzelnen Arten (und zum Teil Unterarten sowie Varianten). Etwas "ungeschickt" erweisen sich

hier z.T. die Tafellegenden, die oft nicht vollständig sind. Sehr erfreulich ist die Nomenklatur, die neben lateinischer und englischer Bezeichnung auch die französischen, deutschen und spanischen Trivialnamen anbietet.

Ein wirklich bemerkenswerter Bildband mit genialen Naturaufnahmen, exakten Verbreitungskarten und künstlerisch gestalteten Arttafeln, mehr als eine bloße Monographie, ein bibliophiles Meisterwerk, welches über viele Jahre Akzente setzen wird.

R. Gerstmeier

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Autor(en)/Author(s): Shahbazvar Nasrin, Sahragard Ahad, Manzari Shahab, Hosseini Reza, Hajizadeh Jalil

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