



Entomofauna

ZEITSCHRIFT FÜR ENTOMOLOGIE

Band 37, Heft 32: 493-504

ISSN 0250-4413

Ansfelden, 4. Januar 2016

A study on Crabronidae and Megachilidae (Hymenoptera: Apoidea) from West Azarbaijan province, Northwest of Iran

Najmeh SAMIN & Nil BAGRIACIK

Abstract

The families Crabronidae and Megachilidae (Hymenoptera: Apoidea) of West Azarbaijan province (northwest of Iran) are studied in this paper. Of Crabronidae, totally 17 species from 12 genera (*Ammatomus* A. COSTA, *Astata* LATREILLE, *Bembecinus* A. COSTA, *Cerceris* LATREILLE, *Ectemnius* DAHLBOM, *Lestica* BILLBERG, *Nysson* LATREILLE, *Oxybelus* LATREILLE, *Palarus* LATREILLE, *Tachysphex* KOHL, *Tachytes* PANZER, and *Trypoxylon* LATREILLE), and for Megachilidae, in total 19 species from 11 genera (*Anthidium* FABRICIUS, *Archianthidium* MAVROMOUSTAKIS, *Chelostoma* LATREILLE, *Eoanthidium* POPOV, *Hoplitis* KLUG, *Icteranthis* MICHENER, *Lithurgus* BERTHOLD, *Megachile* LATREILLE, *Osmia* PANZER, *Paraanthidium* FRIESE, and *Stelis* PANZER) were collected and identified.

Key words: Hymenoptera, Apoidea, Crabronidae, Megachilidae, West Azarbaijan, Iran.

Zusammenfassung

Vorliegende Arbeit behandelt die Fauna der Crabronidae and Megachilidae (Hymenoptera: Apoidea) der Provinz Azarbaijan im Nordwesten des Irans. Bei den Crabronidae gelang der Nachweis von 17 Arten aus den 12 Gattungen *Ammatomus* A. COSTA, *Astata* LATREILLE, *Bembecinus* A. COSTA, *Cerceris* LATREILLE, *Ectemnius* DAHLBOM, *Lestica* BILLBERG, *Nysson* LATREILLE, *Oxybelus* LATREILLE, *Palarus* LATREILLE, *Tachysphex* KOHL, *Tachytes* PANZER, and *Trypoxylon* LATREILLE, von Megachilidae wurden 19 Arten der 11 Gattungen *Anthidium* FABRICIUS, *Archianthidium* MAVROMOUSTAKIS, *Chelostoma* LATREILLE, *Eoanthidium* POPOV, *Hoplitis* KLUG, *Icteranthis* MICHENER, *Lithurgus* BERTHOLD, *Megachile* LATREILLE, *Osmia* PANZER, *Paraanthidium* FRIESE und *Stelis* PANZER.

Introduction

Crabronidae (Hymenoptera) is the largest of the spheciform families (YILDIRIM 2011) and includes solitary digger wasps, which are common in temperate regions all over the world. It is represented by about 9000 species in the world (BOHART & MENKE 1976; GOULET & HUBER 1993; PULAWSKI 2012). The fauna of Iranian Crabronidae was poorly studied (ESMAILI & RASTEGAR 1974; EBRAHIMI 2005; GHAZI-SOLTANI et al. 2006; FALLAHZADEH et al. 2009; SAKENIN et al. 2010; SAMIN et al. 2015), while Iran is a large country with various geographical regions and climates and so diverse fauna of these insects is expected to be in this country.

Megachilidae (Hymenoptera) is a large family of specialized, morphologically rather uniform bees found throughout the world. The front wings without exception have two marginal cells, and the stigma is small. The pollen-collecting scopula of all nonparasitic females is located on the abdominal sternum (STEPHEN et al. 1969; ÖZBEK & ZANDEN 1992). They are mostly moderate-sized (around the size of a honey bee, ranging from 5 mm to 19 mm), stout-bodied and black or yellow, white and reddish maculation bees (BANAZAK & ROMASENKO 1995). The members of megachilid bees are typical long-tongued bees, so are very good pollinators of wide variety of cultivated and wild plants, especially legume crops (FREE 1970; KLOSTERMEYER 1982). The fauna of Iranian Megachilidae was studied well (e.g. ESMAILI & RASTEGAR 1974; MIRABZADEH et al. 1991; EBADI 1995; TALEBI et al. 1995; MODARRES AWAL 1997; MIRABZADEH & IMANI 1998; IMANI & TIRGARI 1998; IZADI et al. 1998; IZADI et al. 1999; MIRABZADEH et al. 2000; IMANI 2000a; IMANI 2000b; IZADI et al. 2000; KARIMPOUR et al. 2002; IZADI et al. 2004; IZADI et al. 2006; KHAGHANINIA et al. 2010; TAVAKKOLI et al. 2010; KHAGHANINIA et al. 2011; KHODAPARAST et al. 2011; KHODAPARAST & MONFARED 2012; KESHTKAR et al. 2012; RASEKH ADEL et al. 2012a; RASEKH ADEL et al. 2012b; RASEKH ADEL et al. 2012c; SALEHI SARBIJAN et al. 2012; MONFARED & KHODAPARAST 2012; MONFARED et al. 2012; KHODAPARAST & MONFARED 2013; NADIMI et al. 2013).

In this paper, the fauna of Crabronidae and Megachilidae of West Azarbaijan province (located in North West of Iran, bordering with Turkey, Iraq and Armenia, and the

provinces of East Azerbaijan, Zanjan and Kurdistan) is studied. West Azarbaijan province covers an area of 43,660 km², and the climate of the province is largely influenced by the rainy winds of the Atlantic Ocean and Mediterranean. According to existing meteorological data, local temperatures vary within the province. The highest temperature reaches 34 °C in July, and the lowest temperature is -16 °C in January.

Materials and Methods

The specimens of this faunistic investigation were collected from different regions of West Azarbaijan province using common handy entomological net and Malaise trap. The collected specimens were placed in ordinary paper envelopes after killing them in cyanid bottle in order to bring them in laboratory. The collection thus brought was placed in a desiccators (having water at its bottom) for about 24 h in order to soak and soften them. Thereafter, they were pinned using 0, 1 and 2 mounted pins and their wings and legs set on appropriate setting boards to facilitate morphological studies. Classification of Crabronidae follows that of PULAWSKI (2012), and for Megachilidae, BANASZAK & ROMASENKO (1998) and MICHENER (2007).

Results

In total 17 species of Crabronidae from 12 genera and 19 species of Megachilidae from 11 genera are studied in this paper as the fauna of West Azarbaijan province. The list of species is given below. Species names within genera are arranged alphabetically.

Family C r a b r o n i d a e

Genus *Ammatomus* A. COSTA, 1859

Ammatomus coarctatus (SPINOLA, 1808)

M a t e r i a l e x a m i n e d : West Azarbaijan province: Ourmieh, 1♂, June 2010. West Azarbaijan province: Myandoab, 2♂♂, September 2010.

Genus *Astata* LATREILLE, 1796

Astata kashmirensis NURSE, 1909

M a t e r i a l e x a m i n e d : West Azarbaijan province: Oshnavieh, 1♂, July 2009.

Genus *Bembecinus* A. COSTA, 1859

Bembecinus tridens (FABRICIUS, 1781)

M a t e r i a l e x a m i n e d : West Azarbaijan province: Khoy, 2♀♀, April 2010. West Azarbaijan province: Ourmieh, 1♂, July 2010.

Genus *Cerceris* LATREILLE, 1802

***Cerceris bracteata* EVERSMAAN, 1849**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Khoy, 1 ♀, 1 ♂, April 2010. West Azarbaijan province: Salmas, 2 ♀ ♀, April 2011.

***Cerceris ruficornis* (FABRICIUS, 1793)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Myandoab, 1 ♀, September 2010. West Azarbaijan province: Ourmieh, 1 ♀, April 2011.

***Cerceris sabulosa* (PANZER, 1799)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Myandoab, 3 ♀ ♀, 2 ♂ ♂, September 2010. West Azarbaijan province: Salmas, 4 ♀ ♀, 2 ♂ ♂, April 2011.

Genus *Ectemnius* DAHLBOM, 1845

***Ectemnius massiliensis* (KOHL, 1883)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Oshnavieh, 1 ♀, 2 ♂ ♂, July 2009.

Genus *Lestica* BILLBERG, 1820

***Lestica subterranea* (FABRICIUS, 1775)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Mahabad, 1 ♀, spring 2009.

Genus *Nysson* LATREILLE, 1802

***Nysson interruptus* (FABRICIUS, 1798)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Khoy, 1 ♂, April 2010.

Genus *Oxybelus* LATREILLE, 1796

***Oxybelus quatuordecimnotatus* JURINE, 1807**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Mahabad, 1 ♀, 3 ♂ ♂, spring 2009. West Azarbaijan province: Ourmieh, 1 ♂, May 2011.

Genus *Palarus* LATREILLE, 1802

***Palarus variegatus* (FABRICIUS, 1781)**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Salmas, 1 ♂, April 2011.

Genus *Tachysphex* KOHL, 1883

***Tachysphex incertus* RADOSZKOVSKY, 1877**

M a t e r i a l e x a m i n e d : West Azarbaijan province: Mahabad, 1 ♂, spring 2009. West Azarbaijan province: Ourmieh, 2 ♂ ♂, July 2010

***Tachysphex pulcher* PULAWSKI, 1967**

Material examined: West Azarbaijan province: Makoo, 1♂, August 2009.

***Tachysphex panzeri* (VANDER LINDEN, 1829)**

Material examined: West Azarbaijan province: Myandoab, 2♂♂, September 2010.
West Azarbaijan province: Ourmieh, 1♂, June 2010.

Genus *Tachytes* PANZER, 1806

***Tachytes argyreus* (F. SMITH, 1856)**

Material examined: West Azarbaijan province: Makoo, 2♀♀, August 2009. West Azarbaijan province: Ourmieh, 1♀, April 2011.

***Tachytes obsoletus* (ROSSI, 1792)**

Material examined: West Azarbaijan province: Mahabad, 1♂, spring 2009. West Azarbaijan province: Khoy, 1♀, 1♂, April 2010.

Genus *Trypoxylon* LATREILLE, 1796

***Trypoxylon figulus* (LINNAEUS, 1758)**

Material examined: West Azarbaijan province: Ourmieh, 2♀♀, 2♂♂, June 2010.

Family M e g a c h i l i d a e

Genus *Anthidium* FABRICIUS, 1805

***Anthidium (Gulanthidium) anguliventre* MORAWITZ, 1888**

Material examined: West Azarbaijan province: Salmas, 1♀, April 2011.

***Anthidium (Anthidium) cingulatum* LATREILLE, 1809**

Material examined: West Azarbaijan province: Myandoab, 2♀♀, September 2010.

***Anthidium (Anthidium) florentinum* (FABRICIUS, 1775)**

Material examined: West Azarbaijan province: Ourmieh, 1♀, 1♂, June 2010.

Genus *Archianthidium* MAVROMOUSTAKIS, 1939

***Archianthidium pubescens* (MORAWITZ, 1872)**

Material examined: West Azarbaijan province: Mahabad, 1♀, 2♂♂, spring 2009.

Genus *Chelostoma* LATREILLE, 1809

***Chelostoma (Chelostoma) emarginatum* (NYLANDER, 1856)**

Material examined: West Azarbaijan province: Oshnavieh, 1♀, July 2009.

Genus *Eoanthidium* POPOV, 1950

Eoanthidium (Eoanthidium) aff. judaeense (MAVROMOUSTAKIS, 1945)

Material examined: West Azarbaijan province: Myandoab, 1 ♀, September 2010.

Genus *Hoplitis* KLUG, 1807

Heriades (Rhopaloheriades) clavicornis MORAWITZ, 1875

Material examined: West Azarbaijan province: Khoy, 1 ♂, April 2010. West Azarbaijan province: Ourmieh, April 2011.

Hoplitis (Alcidamea) leucomelana (KIRBY, 1802)

Material examined: West Azarbaijan province: Salmas, 2 ♀ ♀, 1 ♂, April 2011.

Genus *Icteranthidium* MICHENER, 1948

Icteranthidium cimbiciforme (SMITH, 1854)

Material examined: West Azarbaijan province: Ourmieh, 2 ♀ ♀, 1 ♂, April 2011.

Genus *Lithurgus* BERTHOLD, 1827

Lithurgus chrysurus FONSCOLOMBE, 1834

Material examined: West Azarbaijan province: Ourmieh, 1 ♀, June 2010.

Genus *Megachile* LATREILLE, 1802

Megachile albonotata RADOSZKOWSKI, 1886

Material examined: West Azarbaijan province: Ourmieh, 1 ♀, 1 ♂, June 2010.

Megachile (Xanthosarus) lagopoda (LINNAEUS, 1761)

Material examined: West Azarbaijan province: Myandoab, 2 ♀ ♀, September 2010.

Megachile (Xanthosarus) maritima (KIRBY 1802)

Material examined: West Azarbaijan province: Mahabad, 1 ♀, spring 2009.

Megachile (Pseudomegachile) rubripes MORAWITZ, 1875

Material examined: West Azarbaijan province: Oshnavieh, 1 ♀, July 2009. West Azarbaijan province: Ourmieh, 1 ♂, April 2011.

Genus *Osmia* PANZER, 1806

Osmia (Helicosmia) caerulescens (LINNAEUS, 1758)

Material examined: West Azarbaijan province: Mahabad, 2 ♀ ♀, 2 ♂ ♂, spring 2009.

Osmia (Helicosmia) dives MOCSÁRY, 1877

Material examined: West Azarbaijan province: Khoy, 2 ♀ ♀, April 2010.

***Osmia (Odontanthocopa) ligurica* MORAWITZ, 1868**

Material examined: West Azarbaijan province: Myandoab, 1♂, September 2010.

Genus *Paraanthidium* FRIESE, 1898

***Paraanthidium (Paraanthidium) interruptum* (FABRICIUS, 1781)**

Material examined: West Azarbaijan province: Oshnavieh, 2♀, July 2009. West Azarbaijan province: Ourmieh, 3♀, April 2011.

Genus *Stelis* PANZER, 1806

***Stelis denticulata* FRIESE, 1889**

Material examined: West Azarbaijan province: Mahabad, 1♀, 1♂, spring 2009.

Discussion

In this faunistic research, in total 17 species of Crabronidae and 19 species of Megachilidae were collected from some regions of West Azarbaijan province. Additionally many other specimens were collected which will be identified in future. This investigation indicates that the fauna of these beneficial insects is diverse in mentioned region, and carrying on the faunistic surveys is necessary toward finding new distribution data, new country records and probably new species.

Acknowledgments

We are thanks N.S. Gadallah (Egypt) and W.J. Pulawski (USA) for editing the manuscript and providing the necessary papers, H. Sakenin and H. Ghahari (Iran) for loaning some materials. The research was supported by Islamic Azad University (Yadegar – e- Imam Khomeini (RAH) Branch), and Niğde University of Turkey.

References

- BANASZAK J. & L. ROMASENKO (1998): Megachilid Bees of Europe. – Pedagogical University of Bydgoszcz, Poland, 239 pp.
- BOHART R.M. & A.S. MENKE (1976): Sphecid wasps of the world. A generic revision. – University of California Press, Berkeley, Los Angeles, London. 1 color plate, IX+695 pp.
- EBADI R. (1995): Collection, identification and preliminary study of pollinator insect fauna in Esfahan province. – Proceedings of 12th Iranian Plant Protection Congress, p. 309.
- EBRAHIMI E. (2005): An identification guide to the Sphecidae of Iran (Insecta, Hymenoptera). – Journal of Entomological Society of Iran **24** (2): 109-135.

- ESMAILI M. & R. RASTEGAR (1974): Identified species of Aculeate Hymenoptera of Iran. – Journal of the Entomological Society of Iran **2** (1): 41-52.
- FALLAHZADEH M., OSTOVAN H. & N. SAGHAEI (2009): A contribution to the fauna of Sphecidae and Crabronidae (Hymenoptera) in Fars province, Iran. – Plant Protection Journal 2009 **1** (2): 234-248.
- FREE J.B. (1970): Insect pollination of crops. – Academic Press, London and New York, 544 pp.
- GHAZI-SOLTANI G., EBRAHIMI E. & Sh. IRANIPUR (2006): A new record of a crabronid wasp (Hym.: Sphecidae) for Iran from East Azarbaijan province. – VIII European Congress of Entomology, 17-22 September 2006 Izmir, Turkey, Supplementary Abstract Book 2, RVPP-08.
- GOULET H. & J.T. HUBER (1993): Hymenoptera of the world: An identification guide to families. – Centre for Land and Biological Resources Research, vii+668 pp, Ottawa, Ontario.
- IMANI B. (2000a): Mortality factors affecting alfalfa leaf cutting bee *Megachile rotundata* F. Megachilidae. – Proceedings of 14th Iranian Plant Protection Congress, p. 25.
- IMANI B. (2000b): Effect of light trap on nest cells of alfalfa leaf cutting bee *Megachile rotundata* F. Megachilidae. – Proceedings of 14th Iranian Plant Protection Congress, p. 231.
- IMANI B. & S. TIRGARI (1998): Survey of the efficiency of the alfalfa leafcutter bees *Megachile rotundata* F. (Hym. Megachilidae) on alfalfa seed production in Shahriar region. – Proceedings of 13th Iranian Plant Protection Congress, p. 51.
- IZADI H., EBADI R. & A.A. TALEBI (1998): Pollinator of bees in the north of Fars province. – Proceedings of 13th Iranian Plant Protection Congress, p. 197.
- IZADI H., EBADI R. & A.A. TALEBI (1999): Introduction of a part of fauna of pollinator bees in north of Fars province. – Journal of Sciences and Technology of Agriculture and Natural Resources **2** (4): 89-104.
- IZADI H., MAHDIAN K. & R. EBADI (2000): Introduction of several genera of pollinator bees (Hym.: Apoidea) in Kerman province. – Proceedings of 14th Iranian Plant Protection Congress, p. 365.
- IZADI H., SAMIH M.A. & K. MAHDIAN (2006): Identification and introduction of some Iran pollinator bees of Colletidae, Halictidae, and Megachilidae (Hym: Apoidea). – Communication Agriculture Applied Biological Science **71** (2): 621-624.
- IZADI H., EBADI R. & A.A. TALEBI (2004): Pollinator bees of north parts of Fars Province, Iran. – Proceeding of XVTH International Plant Protection Congress, Beijing China, p. 436.
- KARIMPOUR Y., FATHIPOUR Y. & A.A. TALEBI (2002): Preliminary investigation on the fauna of the pollinator bees (Apoidea) of western part of Urmia Lake. – Proceedings of 15th Iranian Plant Protection Congress, pp. 165-166.
- KESHTEKAR A., MONFARED A. & M. HAGHANI (2012): Collecting and identifying of pollinator bees (Hymenoptera: Apoidea) from urban parks and gardens of Shiraz city. – Proceedings of 20th Iranian Y. Plant Protection Congress, p. 211.

- KHAGHANINIA S., GÜLER Y. & GHARAGEDAGHI (2011): Megachilids bees (Hymenoptera: Apoidea) of Horand grass lands including a genus as a new record for Iran. – Global Conference on Entomology, p. 158.
- KHAGHANINIA S., GÜLER Y. & M. MOUSAVI (2010): Megachilids bees (Hymenoptera: Apoidea) of Aynali forests with four new records for Iran. – Munis Entomology & Zoology 5, Supplement, 890-895.
- KHODAPARAST R., MONFARED A.R., MÜLLER A. & C. PRAZ (2011): Collecting and identifying of pollinator bees (Hymenoptera, Apoidea, Megachilidae) in Fars province. – Proceedings of the 2nd Iranian Pest Management Conference (IPMC), p. 103.
- KHODAPARAST R. & A. MONFARED (2012): A survey of bees (Hymenoptera: Apoidea) from Fars Province, Iran. – Zootaxa **3445**: 37-58.
- KHODAPARAST R. & A. MONFARED (2013): Taxonomic studies on Osmiine bees (Hymenoptera, Apoidea: Megachilidae) of Fars province (Iran). – Entomofauna **34** (19): 229-260.
- KLOSTERMEYER E.C. (1982): Biology of the alfalfa leafcutting bee. – Proceedings of I. International Symposium on Alfalfa leafcutting bee management (August 16-18 1982). University of Saskatchewan, Saskatoon, Saskatchewan, Canada, pp. 10-19.
- MICHENER C.D. (2007): The bees of the world, second edition. – Johns Hopkins University Press, Baltimore and London, 953 pp.
- MIRABZADEH A., MASHAYEKHI M. & G. TAHMASEBI (1991): Bees collection cross pollinated plants of Tehran. – Proceedings of 10th Iranian Plant Protection Congress, Shahid Bahonar University of Kerman.
- MIRABZADEH A. & B. IMANI (1998): Comparison of defensive behaviour of alfalfa leaf cutting bees (*Megachile rotundata* F.) with honey bees (*Apis mellifera* L.). – Proceedings of 13th Iranian Plant Protection Congress, p. 57.
- MIRABZADEH A., MASHAYEKHI M. & B. IMANI (2000): A new method to control important parasitoids of alfalfa leaf bee *Megachile rotundata* F. Megachilidae. – Proceedings of 14th Iranian Plant Protection Congress, p. 26.
- MODARRES AWAL M. (1997): Family Megachilidae (Hymenoptera). In: MODARRES AWAL M. (ed.), List of agricultural pests and their natural enemies in Iran. – Ferdowsi University Press, 429 pp.
- MONFARED A. & R. KHODAPARAST (2012): Recording 19 species of parasitic bees of Apoidea (Hymenoptera) from Fars province. – Proceedings of 20th Iranian Plant Protection Congress, p. 159.
- MONFARED A., AZHARI Sh. & R. KHODAPARAST (2012): Recording of forty species of bees (Hymenoptera: Apoidea) from cold regions of Kuhgiluyeh & Boyrahad province, Iran. – Proceedings of 20th Iranian Plant Protection Congress, p. 222.
- NADIMI A., TALEBI A.A. & Y. FATHIPOUR (2013): The tribe Osmini (Hymenoptera: Megachilidae) in the north of Iran: new records and distributional data. – Entomofauna **34** (17): 205-220.
- ÖZBEK H. & G. ZANDEN van der (1992): A preliminary review of Megachilidae of Turkey (Part I. Osmini (Hymenoptera: Apoidea). – Türkiye Entomoloji Dergisi **16** (1): 13-32.

- PULAWSKI W.J. (2012): Catalog of Sphecidae sensu lato. – Available on: http://research.calacademy.org/ent/catalog_sphecidae.htm. 11.12.2012
- RASEKH ADEL M., SADEGHI NAMGHI H. & M. HUSSEINI (2012a): The first report of *Anthidium diadema* (Latreille, 1809) (Hym.: Megachilidae) from Iran. – Journal of Plant Protection **25** (4): 438-440 [in Persian with English dummmary].
- RASEKH ADEL M., SADEGHI NAMGHI H. & M. HUSSEINI (2012b): Biodiversity of Apoidea (Insecta: Hymenoptera) associated with onion and alfalfa fields in Mashhad and Chenaran Regions. – Iranian Journal of Plant Protection Science **43** (1): 191-199.
- RASEKH ADEL M., SADEGHI NAMGHI H. & M. HUSSEINI (2012c): Pollinator bees (Hym.: Apoidea) in onion and alfalfa fields in Mashhad and Chenaran. – Proceedings of the 20th Iranian Plant Protection Congress, p. 759.
- SAKENIN H., SAMIN N. & N. BAGRIACIK (2010): A contribution to the Aculeate Hymenoptera (Insecta) from Iran. – Entomofauna **10**: 15-20.
- SALEHI SARBIJAN S., KHANI A., IZADI H., MONFARED A., KHODAPARAST R. & M. SORAYA MOHTAT (2012): Collecting and identification of pollinator bees of superfamily of Apoidea (Hymenoptera) of north regions of southern Kerman province. – Proceedings of the 20th Iranian Plant Protection Congress, p. 125.
- SAMIN N., SAKENIN H., BAGRIACIK N. & R. MONAEM (2015): A study on Sphecidae and Crabronidae from Iran (Hymenoptera: Apoidea). – Entomofauna **36**: 193-200.
- STEPHEN W.P., BOHART G.E. & P.F. TORCHIO (1969): The biology and external morphology of bees. – Agr. Exper. Sta., Oregon State University, Corvallis, Oregon, 140 pp.
- TALEBI A.A., ESMAILI M. & S. TIRGARI (1995): Alfalfa pollinator bees (Hym.: Apoidea) in Karadj. – Proceedings of 12th Iranian Plant Protection Congress, p. 93.
- TAVAKKOLI G.R., HAJZADEH J. & A.A. TALEBI (2010): Introducing 39 pollinating bees (Hymenoptera: Apoidea) occurring on legum (fabacae) crops from Guilan province. – Proceedings of the 19th Iranian Plant Protection Congress, p. 120.
- YILDIRIM E. (2011): Contribution to the knowledge of the Sphecidae and Crabronidae (Hymenoptera: Aculeata) fauna of Turkey. – Entomologie faunistique – Faunistic Entomology **64** (3): 73-82.

Authors' addresses:

Najmeh SAMIN

Young Researchers and Elite Club

Science and Research Branch,

Islamic Azad University, Tehran, Iran

E-mail: n_samin63@yahoo.com

Nil BAGRIACIK

Department of Biology, Faculty of Science and Art

Niğde University, 51100 Niğde, Turkey

E-mail: bagriacik@hotmail.com

Buchbesprechung

ADLBAUER K. & R. BECK, 2015: **Katalog und Fotoatlas der Bockkäfer Äthiopiens (Coleoptera, Cerambycidae)**. Taita Publishers Hradec Králové Tschechische Republik, 312 Seiten, Format 220 x 280 mm, Fester Einband, Text Deutsch. ISBN: 978-80-902734-2-9.

Bockkäfer sind wohl die Käferfamilie, die unzählige Käferforscher, egal ob Profis oder Amateure, mindestens einmal in ihrem Leben in ihren Bann gezogen haben. Mit über 26.000 bisher beschriebenen Arten gehören die Cerambycidae zu den artenreichsten Familien unter den Käfern. Und ständig werden neue Arten entdeckt. Von vielen Regionen der Erde, insbesondere der an Bockkäfern artenreichen Tropen und Subtropen existieren bis heute keine zusammenfassenden monografischen und vor allem gut bebilderten Arbeiten, was den Einstieg in die Erforschung dieser faszinierenden Tiergruppe stark erschwert.

Eine dieser Lücken schließt nun dieses großzügig gestaltete Werk, was alle bisher aus dem Land gemeldeten 561 Arten auf 870 Fotos präsentiert. Karl Adlbauer aus Graz ist ein seit Jahren ausgewiesener Spezialist der afrikanischen Bockkäferfauna und Robert Beck, der einen Großteil der abgebildeten Arten in den letzten 20 Jahren in Äthiopien selbst gesammelt hat, ein seit Jahren engagierter Amateurentomologe aus München.

Das Buch gliedert sich in einen kurzen einführenden Teil, mit dem Verzeichnis der Subtriben, einer Einleitung und dem Sammlungsverzeichnis, und geht dann in den umfangreichen Katalogteil über. Alle Arten werden mit ihrem aktuellen Namen aufgeführt, darunter sind die Angaben zur Synonymie aufgelistet. Von sehr vielen Taxa werden, vor einem leicht grauen Hintergrund, auf gut ausgeleuchteten und tiefenscharfen Fotos, beide Geschlechter vorgestellt. Hier muss man dem Verlag, der auf dem Gebiet der coleopterologischen Bildbände bereits über eine langjährige Erfahrung verfügt, wirklich ein Kompliment machen, da eine solche Reproduktion nicht selbstverständlich ist. Alle Tiere im Katalogteil sind sehr gut präpariert und kommen daher in ihrer Form und Farbe ästhetisch sehr gut zur Geltung. 130 dieser Arten bzw. Unterarten sind für die äthiopische Fauna endemisch und nicht wenige sind bisher nur einmal an einem Fundort gesammelt worden. Es folgen 42 eindrucksvolle Fotos von typischen Lebensräumen, die dem Betrachter die landschaftliche Schönheit und Vielfalt Äthiopiens vor Augen führen. Anschließend findet man eine Fotogalerie aller Arten, von denen die Autoren nur das historische Typenmaterial vorzuliegen hatten, sowie einige Tafeln mit acht Arten, die die Autoren bisher nur den Gattungen zuordnen konnten. Mit weiteren Neubeschreibungen ist also zu rechnen. Das Werk schließt mit zwei Tafeln lebend abgelichteter Arten, einer Liste der nur aus Äthiopien (und Eritrea bzw. Djibouti) bekannten Taxa, dem Literaturverzeichnis und den bebilderten Kurzbiografien der beiden Autoren.

Da Ackerbau, Viehzucht und Rodung gerade in diesem Teil Afrikas auch die Lebensräume holzbewohnender Käfer immer weiter einschränken, bleibt leider zu befürchten, dass man viele dieser Arten in nicht allzu ferner Zukunft nur noch in diesem Buch bewundern kann. Ein sehr schönes Werk, das nicht nur echten Bockkäferspezialisten sondern allen Käferfreunden oder auch allgemein an der Insektenfauna Afrikas interessierten Entomologen zu empfehlen ist.

Dr. Lars Hendrich, Zoologische Staatssammlung München

Druck, Eigentümer, Herausgeber, Verleger und für den Inhalt verantwortlich:
Maximilian SCHWARZ, Konsulent f. Wissenschaft der Oberösterreichischen Landesregierung, Eibenweg 6, A-4052 Ansfelden, Austria; maximilian.schwarz@liwest.at.

Redaktion: Fritz GUSENLEITNER, Biologiezentrum Linz, f.gusenleitner@landesmuseum.at;
Roland GERSTMEIER, Lehrstuhl f. Zoologie, TU München, gerstmei@wzw.tum.de;
Thomas WITT, Tengstraße 33, D-80796 München, thomas@witt-thomas.com;
Berthold CLEWING, Akademischer Verlag München, avm@druckmedien.de;
Harald SULAK, Museum Witt München, h.sulak@atelier-sulak.de.

Mitarbeiter: Karin TRAXLER, Biologiezentrum Linz, bio.redaktion@landesmuseum.at;
Heike REICHERT, Museum Witt München, heike_reichert66@web.de;
Erich DILLER, Zool. Staatssammlung München, erich.diller@zsm.mwn.de.

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

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Entomofauna](#)

Jahr/Year: 2016

Band/Volume: [0037](#)

Autor(en)/Author(s): Samin Najmeh, Bagriacik Nil

Artikel/Article: [A study on Crabronidae and Megachilidae \(Hymenoptera: Apoidea\) from West Azarbaijan province, Northwest of Iran 493-504](#)