

The Arctiinae (Lepidoptera: Erebidae) of Istanbul Belgrad Forest, Turkey

Hamit Ayberk

Abstract. Istanbul-Belgrad Forest mainly is in the form of a deciduous forest, composed of various tree species and tall shrubs. The study was conducted between the years of 2010 and 2011 in related area. The objectives of this study were to investigate the Arctiinae fauna of the area. As a result of the study; a total of 13 species belonging to 3 tribes of the subfamily Arctiinae are determined.

Samenvatting. De Arctiinae (Lepidoptera: Erebidae) van Istanbul Belgrad Forest, Turkije
Het Istanbul Belgrad Forest is een hoofdzakelijk een loofbos, samengesteld uit verschillende boomsoorten en grote struiken. De studie werd uitgevoerd in 2010 en 2011 met als doel de Arctiinae fauna van dit gebied te inventariseren. In totaal werden 13 soorten, behorende tot 3 tribi waargenomen.

Résumé. Les Arctiinae (Lepidoptera: Erebidae) de la forêt d'Istanbul Belgrad, Turquie
La forêt d'Istanbul Belgrad consiste surtout en arbres à feuillage caduque et en arbustes. L'étude a été conduite en 2010 et 2011 et avait comme but d'inventorier la faune d'Arctiinae dans cette région. Au total, 13 espèces appartenant à 3 tribus ont été signalées.

Key Words: Istanbul Belgrad Forest – Lepidoptera – Arctiinae fauna – Faunistics

Ayberk H.: Istanbul University, Faculty of Forestry, Department of Forest Entomology and Protection, Bahçeköy 34473, Istanbul-Turkey. hayberk@istanbul.edu.tr

Introduction

Belgrad Forest corresponding to 0.03% of total forested areas in Turkey covers an area of 5,444 ha. Elevation in the area ranges from 40–230 m. The climate of Belgrad Forest according to Thorthwaite classification system is humid, mesothermal oceanic with a moderate water deficit in summer. The soils are shallow to deep, gravely, loamy clay in texture, rich in organic matter with medium to good permeability rates. The area, geographically, is on the Thracian side of Istanbul and

spreads over the part of the land encased by the Bosphorus on one side and the Black sea coastline on the other. The forest mainly is in the form of a deciduous forest, composed of various tree species and tall shrubs (Figure 1). Dominant vegetation of the area includes *Quercus frainetto*, *Q. cerris* and *Fagus orientalis* tree species mixed with varying amounts of *Acer campestre*, *A. trautvetteri*, *Alnus glutinosa*, *Carpinus betulus*, *Castanea sativa*, *Populus tremula*, *Sorbus torminalis* and *Ulmus campestris* with a normal crown closure (Yaltırık 1966, Kantarcı 1980; Karaöz 1988).



Figure 1. Istanbul Belgrad Forest, Turkey.

The Lepidoptera is the second largest single group of similar organisms in the world (only the beetles, Coleoptera, have more species) comprising an estimated

174,250 species in 126 families and 46 superfamilies (Mallet 2007, Capinera 2008). According to Koçak & Kemal (2009), 5,182 Lepidopteran species, belong to 76

families are recorded from Turkey. Butterflies constitute only 11% of all lepidopteran species. In other words, more than 89% of all of the scale-winged insects are moths, not butterflies (Shields 1989). The larvae of most species are phytophagous and some of them are very serious pests on agricultural plants. On the other hand, aesthetics play a significant role in butterfly importance and adults of many species may serve as inspiration for artists and designers (Borror *et al.* 1989).

The systematics of the Arctiinae are in need of revision and depend significantly on a personal view of an author. In any case, Arctiinae (formerly Arctiidae) is a monophyletic group with a clear autapomorphic character — the presence of anal glands in the females. On the other hand, this group bifurcated between Catocalinae and Herminiinae. So, many specialists downgraded the family Arctiidae to a subfamily of Erebidae (Lafontaine & Fibiger 2006, Dubatolov 2010). Arctiinae include the groups commonly known as tiger moths (or tigers), which usually have bright colours, footmen (which are usually much drabber), lichen moths and wasp moths. Many species have 'hairy' caterpillars which are popularly known as woolly bears or woolly worms. Tiger moths are characterized by the presence of tymbal organs on the metepisternum, sound producing organs used as a defence against predatory bats (Scoble 1995).

Materials and Methods

The study was conducted between the years 2010 and 2011; the objectives of this study were to investigate the Arctiinae fauna of Istanbul Belgrad Forest. After collecting with sweep nets and light traps, each specimen was put into a killing jar and brought to the laboratory for preparation and identification. Specimens were pinned using insect pins and they were mounted on spreading boards. All specimens were stored according to the conventional techniques for Lepidoptera (Steyskal *et al.* 1986). Identifications were made mostly by comparison with determined specimens from the collection of the author and that of the Arthropod Collection of the Forest Entomology and Protection Department in Istanbul University, Faculty of Forestry.

Results

Although there were a lot of studies to determine the Lepidoptera fauna of Turkey, they were mostly regionally carried out and the complete faunistics list has not definitely completed yet. For Belgrad Forest, a total of 13 species belonging to 3 tribes of the subfamily Arctiinae are listed hereunder. The list is generated accordingly with the systematics and nomenclature of Fauna Europaea (Fibiger & Skule 2012).

Family: **Erebidae**

Subfamily: **Arctiinae**

Tribe: **Arctiini**

1. *Arctia festiva* (Hufnagel, 1766) – Collected on 15.06.2010
2. *Arctia villica* (Linnaeus, 1758) – Collected on 13.07.2010 and 02.08.2011
3. *Coscinia striata* (Linnaeus, 1758) – Collected on 30.06.2010
4. *Euplagia quadripunctaria* (Poda, 1761) – Collected on 29.07.2010
5. *Phragmatobia fuliginosa* (Linnaeus, 1758) – Collected on 25.07.2010, 27.07.2010, 07.08.2011 and 08.08.2011
6. *Phragmatobia placida* (Fribaldszky, 1835) – Collected on 15.06.2010 and 10.07.2011
7. *Spilosoma lubricipeda* (Linnaeus, 1758) – Collected on 25.08.2011 and 26.08.2011
8. *Spilosoma lutea* (Hufnagel, 1766) – Collected on 15.06.2010, 05.07.2010 and 17.07.2011

Tribe: **Syntomini**

9. *Dysauxes famula* (Freyer, 1836) – Collected on 03.08.2011

Tribe: **Lithosiini**

10. *Eilema depressa* (Esper, 1787) – Collected on 08.07.2010
11. *Eilema lurideola* (Zincken, 1817) – Collected on 10.08.2011
12. *Eilema sororcula* (Hufnagel, 1766) – Collected on 15.08.2010
13. *Miltochrista miniata* (Forster, 1771) – Collected on 15.06.2010, 03.07.2011 and 15.07.2011

References

- Borror D. J., Triplehorn C. A. & Johnson N. F. 1989. *An introduction to the study of insects*. — New York, USA: Saunders College Publishing.
- Capinera J. L. 2008. *Butterflies and moths. Encyclopedia of Entomology*. — New York, USA: Springer publishing.
- Dubatolov V. V. 2010. Tiger-moths of Eurasia (Lepidoptera, Arctiidae) (Nyctemerini by R. de Vos & V. V. Dubatolov). — *Neue Entomologische Nachrichten* **65**: 1–106.
- Fibiger M. & Skule B. 2012. *Fauna Europaea. Family Erebidae*. — In: Karsholt O., van Nieukerken E. J. & de Jong Y., Lepidoptera, Moths. Fauna Europaea version 2.5. www.faunaeur.org.
- Kantarci M. D. 1980. *Untersuchungen über die Boden- und Standortkartierung im Belgrader Wald bei Istanbul*. — Istanbul, Turkey: Istanbul University Press.
- Karaöz M. Ö. 1988. Comparison of the certain edaphic and biomass characteristics of some coniferous and deciduous forest ecosystems in Belgrad Forest near Istanbul. — *Istanbul University Review of the Faculty of Forestry* **38**(1): 157–190.
- Koçak A. Ö. & Kemal M 2009. *Revised checklist of the Lepidoptera of Turkey. Ankara, Turkey*. — Centre for Entomological Studies (CESA) press.

- Lafontaine J. D. & Fibiger M 2006. Revised higher classification of the Noctuoidea (Lepidoptera). — *Canadian entomologist* **138**: 610–635.
- Mallet J. 2007. *Taxonomy of Lepidoptera: the scale of the problem. The Lepidoptera Taxome Project*. — London, University College press.
- Scoble M. J. 1995. *The Lepidoptera: Form, Function and Diversity*. — UK, Oxford University Press.
- Shields O. 1989. World number of butterflies. — *Journal of Lepidopterists Society* **43**: 178–183.
- Steyskal G. C., Murphy W. L. & Hoover E. M. 1986. *Insects and Mites: Techniques for collection and preservation*. — USA, United States Department of Agriculture Publication.
- Yaltirik F. 1966. *Studies on the floral analysis of Belgrad Forest vegetation and the main formation*. — Ankara, Turkey: General Directorate of Forestry Press.
-