

Butterflies and day-flying moths in light traps (Lepidoptera)

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Abstract. 10 butterfly species and 5 species of day-flying moths collected in light traps are reported. For most of the captures the light source used is specified. An attempt is made to explain the reasons why these insects were attracted by artificial light.

Samenvatting. Dagvlinders en dagactieve motten in lichtvallen (Lepidoptera)
10 soorten dagvlinders en 5 soorten dagactieve motten werden in lichtvallen aangetroffen. In de meeste gevallen wordt de specifieke lichtbron vermeld. Een poging wordt ondernomen om te verklaren waarom deze insecten door kunstlicht werden aangetrokken.

Résumé. Rhopalocères et Hétérocères actifs le jour trouvés dans des pièges à lumière (Lepidoptera)
10 espèces de Rhopalocères et 5 espèces d'Hétérocères actifs le jour furent trouvées dans des pièges à lumière. Dans la plupart des cas, la source de lumière est spécifiée. Une explication est suggérée concernant les raisons pour lesquelles ces insectes sont attirés par la lumière artificielle.

Key words: experiments – behaviour – ecology.

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There are very few published records of butterflies and day-flying moths being collected in light traps. For Bulgaria, the data of this kind can be found only in an article of Abadjiev (1993) stating a capture during one night of two butterfly species — *Lasiommata roxelana* and *Quercusia quercus* — attracted by a 400W mercury vapour lamp. Some years before, Busse (1989) communicated a capture of two diurnal moths, *Archiearis notha* and *A. parthenias* attracted by light in East Germany.

During my field seasons I have collected with the aid of different kinds of light sources (mostly different power mercury vapour lamps — MLV) numerous butterflies and day-flying moths and some other diurnal insects such as dragonflies, damselflies and some beetles as well. Unfortunately, during my first field seasons I did not pay enough attention to this phenomenon, so that the following records cover the most recent observations.

Saturniidae

Aglia tau (Linnaeus) — ♂, SW Bulgaria, Kresna Gorge, Stara Kresna Railway Station, I. Stoychev leg. (400W MVL).

Sphingidae

Macroglossum stellatarum (Linnaeus) — East Rhodopi Mts., Yazovir Ivailovgrad Dam, Arda Chalet near Daboverz, 200 m, 23.VII.1993, S. Beshkov leg. (1500W lamp); North Albanian Adriatic Sea Coast, Laguna Patog, Loç region, 18.IX.1993, S. Beshkov leg. (250W UV lamp, 00:55 local time); ♀, N Bulgaria at Danube river, Nova Tcherana, Kalimok experimental station, Tutrakan region, 08.VI.1994, D. Vassilev leg. (125W MVL); ♀, idem, 06.VI.1994 (125W MVL); 4♂, ♀, idem, 07, 22, 26, 30.VII.1994; ♀, idem, 06.VIII.1994; ♂, idem, 07.VIII.1994 (125W MVL); 1 specimen, Black Sea Coast, Sinemoretz, 15.X.1994, S. Beshkov observed (400W MVL); ♂, South Black Sea Coast, Arkutino resort house between Primorsko and Sozopol, 09.VIII.1996, S. Beshkov & J. Nowacki leg. (160W MVL); 2 specimens North Black Sea Coast, Douroukoulak Lake, 27.VIII.1997 (one in light trap, 22:50 and another at 160W MVL).

Pieridae

Colias crocea (Fourcroy) — 1 specimen, N Bulgaria, at Danube river, Kalimok experimental station near Nova Tcherana, Tutrakan region, VI.1994, D. Vassilev leg. (resting at 125W mercury vapour lamp early morning).

Lycaenidae

Plebeius argyrognomon (Bergsträsser) — 1 specimen, East Rhodopi Mts., Arda Chalet near Dabovetz, 22.VI.1993, S. Beshkov & D. Vassilev leg. (400W MVL).

Polyommatus coridon (Poda) — 1 specimen, Rhodopi Mts., Trigrad, 14.VIII.1994, V. Gashtarov leg. (400W MVL).

Nymphalidae

Vanessa atalanta (Linnaeus) — ♀, East Rhodopi Mts., Yazovir Studen Kladenetz Dam, "Kroyatzi" Hunt Chalet near Nanovitza, 30.VIII.1992, S. Beshkov & D. Delov leg. (400W MVL).

Vanessa cardui (Linnaeus) — ♀, Sofia, in an apartment on 7th floor, 25.VIII.1992, leg. M. Beshkova (in a shade of 75W lamp); ♀, N Bulgaria, at Danube river, Kalimok experimental station near Nova Tcherana, Tutrakan region, 20.VI.1994, D. Vassilev leg. (125W MVL); ♀, Black Sea Coast, between Ravda and Nessebar, 2 km south of Nessebar, 27.VI.1995, D. Vassilev leg. (lamp); NE Turkey, Karadeniz Dağları, Prov. Artvin, Yusufeli region, near Yaylalar, under Olgunlar Mahallesi, 1780 m, 17.VII.1995, S. Beshkov, J. Gelbrecht & E. Schwabe leg. (160W MVL).

Melitaea didyma (Esper) — ♀, North Black Sea Coast, between Balchik Town and Touzlata, 2 km to Touzlata, 10.VIII.1996, S. Beshkov, J. Nowacki & M. Bunalski leg. (160W MVL).

Melitaea phoebe ([Denis & Schiffermüller]) — ♀, N Bulgaria, at Danube river, Kalimok experimental station near Nova Tcherana, Tutrakan region, 1–2.VI.1994, D. Vassilev leg. (125W MVL).

Maniola jurtina (Linnaeus) — ♀, East Rhodopi Mts., Siv Kladenetz, 21.VI.1993, S. Beshkov & D. Vassilev leg. (400W Hg MVL); ♂, East Rhodopi Mts., Arda Chalet near Dabovetz, 22.VI.1993, S. Beshkov & D. Vassilev leg. (400W MVL, 00:50).

Maniola telmessia (Zeller) — ♀, Asia Minor, Bolkar Dağ, Çamlıyayla, 1300 m, 13.VI.1996, S. Beshkov, J. Gelbrecht & T. Drechsel leg. (160W MVL).

Hipparchia syriaca (Staudinger) — ♂, East Rhodopi Mts., Yazovir Studen Kladenetz dam, Sredna Arda railway station, 16.VI.1993, S. Beshkov leg. (400W MVL); ♂, East Rhodopi Mts., Arda Chalet near Dabovetz, 23.VI.1993, Beshkov leg. (common Tungsten light bulb, 02:40).

Noctuidae

Euclidia glyphica (Linnaeus) — ♂, 3♀, N Bulgaria, at Danube river, Nova Tcherana, Kalimok experimental station, Tutrakan region, 25–27.V.1994, D. Vassilev leg. (125W MVL).

Arctiidae

Spiris striata (Linnaeus) — ♂, N Bulgaria, at Danube river, Nova Tcherana, Kalimok experimental station, Tutrakan region, 30.V.1994, D. Vassilev leg. (125W MVL).

Syntomis phegea (Linnaeus) — ♂, N. Bulgaria, at Danube river, Nova Tcherana, Kalimok experimental station, Tutrakan region, 7.VI.1994, D. Vassilev leg. (125W MVL).

In most cases the attracted species were abundant on the collecting sites during daytime. Beyond doubt, they were attracted to artificial light the same way as the nocturnal insects. To prove this, I kept butterflies during the day in dark envelopes and released them in the night at a distance of 7–12 m from the light source. Nearly always the butterflies immediately flew to the lamp. However, several times they remained inactive even though released just in about 1 m from the lamp. Several times, I have observed butterflies sleeping close to the lamp, not attracted by the light. When disturbed, they

sometimes went to the lamp, but more often they did not. The reasons of these response differences are still unclear. I came to a tentative conclusion that for heliophilous cold-blooded organisms the sun is not only a strong source of light, but provides body heating as an important factor of activity. An analysis of my data has shown that all diurnal insects attracted by light were collected under excellent weather conditions, warm and comfortable for the season.

The relationships between the weather conditions and the light trap collecting efficiency are well known. However, I would like to draw attention to another apparent relationship not to be discussed in detail now, which seems applicable to moth species occurring in our geographical latitude. I have noticed a well-expressed correlation between the activity of the different zoogeographical moth categories and the weather conditions, especially temperature, in the same locality and during the same period. Within a few days, in one locality but under different weather, the capture results were rather different. Under bad weather conditions, the percentage of captured Eurosiberian and widespread species, as well as migrants is higher than under excellent weather. Conversely, perfect weather conditions increase the percentage of the Mediterranean species in captures. However, some closer study in this field is necessary to accept or reject this hypothesis.

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References

- Abadjiev, S., 1993. Butterflies in a light trap (Lepidoptera: Papilionoidea). — *Phegea* 21(1): 27.
 Busse, R., 1989. *Archiearis notha* am Licht (Lepidoptera: Geometridae). — *Ent.Z.* 99(22): 334–335.

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