

ZYGAENIDAE (LEPIDOPTERA) IN THE COLLECTIONS OF THE NATURAL HISTORY MUSEUM IN BELGRADE (SERBIA)

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The collections of the Natural History Museum in Belgrade comprise 804 specimens representing 23 species of Zygaenidae, thirteen of which belong to the subfamily Zygaeninae and ten to the Procridinae. The examined material was collected in the territory of the former SFR of Yugoslavia, mostly in Serbia, between 1922 and 1996. Two species, viz. *Zygaena (Mesembrynus) cynarae* (Esper, 1789) and *Zygaena (M.) punctum* Ochsenheimer, 1808, are recorded for the first time for the fauna of Serbia. *Zygaena (M.) punctum* is also recorded for the first time for Montenegro.

Key words: Zygaenidae, former SFR of Yugoslavia, Serbia, Natural History Museum, Belgrade

INTRODUCTION

Only a few papers on the Zygaenidae have been published from the states of the former Socialist Federal Republic of Yugoslavia (Slovenia,

Croatia, Bosnia and Herzegovina, Serbia, Montenegro, Macedonia), and especially for the territory of Serbia. Recent investigations within the project “Zygaenidae of the Balkan Peninsula” have provided a lot of new data and extended our knowledge significantly. Some of the first results for Serbia and Montenegro have recently been published (Nahirnić *et al.* 2011a, 2011b).

The Natural History Museum in Belgrade (NHMB) is one of the oldest Serbian national institutions and is the only institution of its kind in Serbia; as well, it is one of the leading natural history museums in Eastern Europe because of the richness and diversity of its material. Founded in 1895 as “Jestastvenički muzej srpske zemlje”, it houses 117 natural history collections comprising about 1,500,000 specimens from Serbia, the Balkan Peninsula and the rest of the world, with a large number of them containing entomological material. In this paper the results of an examination of the family Zygaenidae (Lepidoptera) are summarized. The collections in the Natural History Museum in Belgrade (NHMB) include 804 specimens of Zygaenidae. Some of these records have already been published by Gradojević (1963) and Jakšić (2006). As there are only a few other papers on the Zygaenidae of Serbia (Lazarević 1898, Todorowa & Petkoff 1915, Rebel & Zerny 1931, single data in Holik 1936-1948, Dinić *et al.* 1996), we provide additional unpublished data from the above-mentioned collections in the NHMB.

MATERIAL AND METHODS

The following collections of the NHMB were examined: Collection of Heterocera, Collection of Miloš Rogulja, Collection of Zoran Gradojević, Collection of Petar Novak, Collection of Insects in the Institute for Plant Protection, Collection of Momčilo Zečević, Collection of Archibald Reiss and Collection of Zoran Mučalica. We have revised all specimens including those with determination labels to avoid misidentifications. The determination of the Zygaeninae is based on habitus, wing pattern and genitalia and the Procridinae on genitalia, following Naumann *et al.* (1999). The systematic treatment follows Efetov & Tarmann (1999) with additions by Efetov (2000, 2004) for Procridinae and Naumann *et al.* (1999) for Zygaeninae.

Abbreviations used in the text: **AL** – Republic of Albania, **BIH** – Federation of Bosnia and Herzegovina, **HR** – Republic of Croatia (Hrvatska), **MNE** – Republic of Montenegro (Crna Gora), **MK** – FYR of Macedonia, **SRB** – Republic of Serbia, **SLO** – Republic of Slovenia.

RESULTS

List of specimens

Familia **ZYGAENIDAE** Latreille, 1809Subfamilia **Procridinae** Boisduval, 1828

1. *Theresimima ampellophaga* (Bayle-Barelle, 1808)
SRB: Fruška Gora Mt., 02.07.1939, leg. M. Rogulja, 1♂.
2. *Rhagades (Rhagades) pruni* ([Denis & Schiffermüller], 1775)
SRB: Fruška Gora Mt., 12.06.1927, leg. M. Rogulja, 1♂; Fruška Gora Mt., 10.07.1932, leg. M. Rogulja, 1♀; Novi Sad, 11.06.1926, leg. M. Rogulja, 1♂; Novi Sad, 04.07.1926, leg. M. Rogulja, 1♂ 2♀♀; Vrnjci, 01.07.1935, 1♀.
3. *Jordanita (Tremewania) notata* (Zeller, 1847)
SRB: Beočin (Fruška Gora Mt.), 30.06.1929, leg. M. Rogulja, 1♂; Beočin (Fruška Gora Mt.), 19.06.1932, leg. M. Rogulja, 2♂♂.
4. *Jordanita (Jordanita) graeca* (Jordan, 1907)
SRB: Fruška Gora Mt., 15.06.1923, leg. M. Rogulja, 1♂; Fruška Gora Mt., 15.06.1930, leg. M. Rogulja, 1♂; Fruška Gora Mt., 19.06.1932, leg. M. Rogulja, 5♂♂; Miljakovac (Beograd), 27.06.1979, leg. Lj. Andjus, 1♂.
5. *Jordanita (Jordanita) chloros* (Hübner, [1813])
SRB: Fruška Gora Mt., 28.07.1923, leg. M. Rogulja, 1♂ (Jakšić, 2006); Fruška Gora Mt., 10.07.1932, leg. M. Rogulja, 1♂; Fruška Gora Mt., 09.07.1939, leg. M. Rogulja, ♂.
MK: Korab Mt. podnožje, 1000-1200 m, 19.07.1938, leg. M. Rogulja, 1♂ (Jakšić, 2006).
6. *Jordanita (Jordanita) globulariae* (Hübner, 1793)
SLO: Kamnik, 1930, leg. O. Vagner 1♂; Pokojišče, 700 m, 08.06.1929, leg. J. Hafner, 1♂.
SRB: Beočin (Fruška Gora Mt.), 24.06.1936, leg. M. Rogulja, 2♂♂ (Jakšić, 2006); Beočin (Fruška Gora Mt.), 27.06.1938, leg. M. Rogulja, 1♂ (Jakšić, 2006).
7. *Jordanita (Solaniterna) subsolana* (Staudinger, 1862)
SRB: Mramorak (Deliblatska peščara), 11.06.1953, leg. D. Čubrilović, 1♂ 1♀; Mramorak (Deliblatska peščara), 20.06.1981, leg. Lj. Andjus, 1♂; Novi Sad, 04.07.1926, leg. M. Rogulja, 2♂♂ (Jakšić, 2006).
MK: Korab Mt., podnožje, 1000-1200 m, 27.07.1938, leg. M. Rogulja, 1♂ (Jakšić, 2006).
8. *Adscita (Adscita) geryon* (Hübner, [1813])
SRB: Kopaonik Mt., 1700 m, 12.07.1937, leg. M. Rogulja, 3♂♂ (Jakšić, 2006).

9. *Adscita (Adscita) statices statices* (Linnaeus, 1758)
SRB: Divčibare, 06.07.1982, leg. Lj. Andus, 1♂; Jastrebac Mt., 14.07.1965, leg. D. Čubrilović, 1♂; Jastrebac Mt., 13.07.1978, leg. Lj. Kašić, 3♂♂; Mitrovac, 1000 m (Tara Mt.), 01.08.1960, leg. D. Čubrilović, 2♂♂ (Jakšić, 2006); Tara Mt., 01.08.1960, leg. D. Čubrilović, 1♂ (Jakšić, 2006).
Adscita (Adscita) statices drenowskii (Alberti, 1939)
MK: Korab Mt., 1800 m, 27-28.07.1938, leg. M. Rogulja, 3♂♂ (Jakšić, 2006); Korab Mt., 1000-1200 m, 18.07.1938, leg. M. Rogulja, 1♂♂ (Jakšić, 2006).
Adscita statices statices × *statices drenowskii*
AL: Dibre, 2000 m (Korab Mt.), 28.07.1938, leg. M. Rogulja, 2♂♂.
MK: Korab Mt., 1800 m, 28.07.1938, leg. M. Rogulja, 2♂♂ (Jakšić, 2006).
10. *Adscita (Tarmannita) mannii* (Lederer, 1853)
SLO: St. Katharina, 636 m (Bled), 19.06.1928, leg. J. Hafner, 1♂.
SRB: Fruška Gora Mt., 15.06.1930, leg. M. Rogulja, 1♂ (Jakšić, 2006); Kopaonik Mt., 1700 m, 12.07.1937, leg. M. Rogulja, 2♂♂ (Jakšić, 2006).
MK: Korab Mt., 1800 m, 27.07.1938, leg. M. Rogulja, 2♂♂.

Subfamilia *Zygaeninae* Latreille, 1809

11. *Zygaena (Mesembrynus) cynarae* (Esper, 1789)
SRB: Tara Mt., 03.08.1960, leg. D. Čubrilović, 1♂.
12. *Zygaena (Mesembrynus) punctum* Ochsenheimer, 1808
HR: Knin, 27.06.1936, leg. J. Hafner, 1♂ 1♀; Knin, 30.06.1936, leg. J. Hafner, 1♀; Spalato (= Split), 10.06.1924, leg. P. Novak, 1♂; Sućurac, 05.06.1924, leg. P. Novak, 1♂.
SRB: Dolina (Deliblatska peščara), 01.07.1953, leg. Z. Gradojević, 2♂♂.
MNE: Njeguši, 19.07.1932, O. Vagner, 1♂.
13. *Zygaena (Mesembrynus) brizae* (Esper, 1800)
SRB: Dolina (Deliblatska peščara), 10.07.1954, leg. Z. Gradojević, 2♂♂; Petrovo selo (Đerdap), 18.06.1978, leg. M. Zečević, 1♂; Stol Mt., 12.06.1981, leg. M. Zečević, 1♂.
14. *Zygaena (Mesembrynus) purpuralis* (Brünnich, 1763)
SLO: Janča Gora, 15.06.1930, leg. J. Hafner, 1♂ 1♀; Jezersko, 01.07.1937, leg. O. Vagner, 1♂.
BIH: Šhitluci (Banja Luka), 20.06.1965, leg. M. Zečević, 1♂; Bistrica, 1300 m (Jahorina Mt.), 25.07.1957, leg. D. Čubrilović, 3♂♂ 3♀♀; Bistrica, 1300 m (Jahorina Mt.), 27.07.1957, leg. D. Čubrilović, 3♂♂.

SRB: Boljevac, 05.07.1977, 1♂; Bukulja, 696 m, 23.06.1954, leg. Bogavac, 1♀; Crni vrh (Maljen Mt.), 1000 m, 29.07.1959, leg. Lj. Tričković, 1♀; Deliblatska peščara, 11.06.1953, 1♂; Dolina (Deliblatska peščara), 10.06.1953, leg. Z. Gradojević, 1♂ (Gradojević, 1963); Fruška Gora Mt., 1922, leg. M. Rogulja, 1♂; Fruška Gora Mt., 14.05.1926, leg. M. Rogulja, 1♂; Fruška Gora Mt., 06.06.1926, leg. M. Rogulja, 1♂ 2♀♀; Fruška Gora Mt., 24.06.1926, leg. M. Rogulja, 1♂; Fruška Gora Mt., 24.05.1928, leg. M. Rogulja, 2♂♂; Fruška Gora Mt., 04.06.1928, 2♂♂ 2♀♀; Fruška Gora Mt., 20.06.1932, leg. M. Rogulja, 5♂♂ 8♀♀; Fruška Gora Mt., 1932, leg. M. Rogulja, 1♂; Fruška Gora Mt., May 1935, leg. M. Rogulja, 1♂ 3♀♀; Fruška Gora Mt., 24.05.1938, leg. M. Rogulja, 1♀; Fruška Gora Mt., 31.05.1938, leg. M. Rogulja, 2♀♀; Gobelja, 1950 m (Kopaonik Mt.), 20.07.1978, leg. A. Sigunov, 1♂; Golo brdo, 1627 m (Zlatar Mt.), 29.07.1979, leg. Lj. Tričković, 4♀♀; Jastrebac Veliki Mt., 10-28.07.1962, leg. D. Čubrilović, 1♀; Kopaonik Mt., 1700 m, 12.07.1937, leg. M. Rogulja, 10♂♂ 9♀♀ (Jakšić, 2006); Maljen Mt., 15.06.1959, leg. Lj. Tričković, 1♀; Crni vrh, 1000 m (Maljen Mt.), 29.07.1959, leg. Lj. Tričković, 1♀; Mramorak (Deliblatska peščara), 16.06.1953, 1♂; Petrovo selo (Đerdap), 14.06.1978, leg. M. Zečević, 1♂; Rajac (Suvobor Mt.), 13.07. 1977, leg. Lj. Andus, 1♂; Stol Mt., 05.07.1971, leg. M. Zečević, 1♂; Stol Mt., 28.06.1973, leg. M. Zečević, 1♂ 1♀; Stol Mt., 30.06.1973, leg. M. Zečević, 1♀; Stol Mt., 29.06.1974, leg. M. Zečević, 1♂; Stol Mt., 30.06.1977, leg. M. Zečević, 1♂; Stol Mt., 04.07.1984, leg. D. Stojanović, 1♀; Stol Mt., 10.07.1984, leg. D. Stojanović, 1♀; Stol Mt., 13.07.1984, leg. D. Stojanović, 2♀♀; Stol Mt., 18.07.1984, leg. D. Stojanović, 1♂; Tara Mt., 01.08.1960, leg. D. Čubrilović, 2♂♂; Tara Mt., 26.08.1962, leg. Lj. Tričković, 1♂; Tara Mt., 26.07.1963, leg. D. Čubrilović, 2♂♂ 2♀♀; Tara Mt., 22.07.1963, leg. D. Čubrilović, 1♂; Tara Mt., 27.07.1963, leg. D. Čubrilović, 3♂♂ 5♀♀; Tara Mt., 20.07.1966. leg. D. Čubrilović, 1♂; Tara Mt., 19.07.1966, leg. D. Čubrilović, 5♂♂; Tara Mt., 21.07.1966, leg. D. Čubrilović, 1♂; Tara Mt., 23.07.1966, leg. D. Čubrilović, 2♂♂; Tara Mt., 25-27.07.1966. leg. D. Čubrilović, 5♂♂ 1♀; Tara Mt., 29.07. 1966, leg. D. Čubrilović, 1♀; Mitrovac, 1000 m (Tara Mt.), 25.07. 1966, leg. D. Čubrilović, 1♂.

MK: Korab Mt., 1000 m, 22.07.1938, leg. M. Rogulja, 1♂; Korab Mt., 1200 m, 21.07.1938, leg. M. Rogulja, 1♂.

15. *Zygaena (Agrumenia) carniolica* (Scopoli, 1763)

SLO: Brežice, 01-28.08.1946, leg. M. Gradojević, 1♂; Podutik, 30.06.1930, leg. J. Hafner, 2♀♀; Ribnica, 25.06.1930, leg. J. Hafner, 1♀; St. Katharina, 18.06.1930, leg. J. Hafner, 1♀; Vrhpolje, 19.07. 1930, 1♂.

HR: Curzola (= Korčula), 15.05.1926, leg. P. Novak, 1♂; Gospić, 26.07.1950, leg. Bjeg, 3♂♂ 2♀♀; Sućurac, 05.06.1924, leg. P. Novak, 2♂♂; Šibenik, 20.08.1957, leg. V. Tomić, 1♂.

BIH: Banja Luka, 08.08.1967, leg. M. Zečević, 2♂♂ 1♀; Bosanski Prolog (Vaganj Mt.), 06.08.1925, leg. P. Novak, 1♀; Dobož, 07.1931, 1♂.

SRB: Akmačić (Zlatac Mt.), 29.07.1987, leg. Lj. Protić, 1♂; Deliblatska peščara, 12.07.1956, leg. Z. Gradojević, 1♀ (Gradojević, 1963); Dolina (Deliblatska peščara), 20.06.1952, leg. Z. Gradojević, 2♂♂ (Gradojević, 1963); Dolina (Deliblatska peščara), 01.07.1953, leg. Z. Gradojević, 5♂♂ 3♀♀ (Gradojević, 1963); Dolina (Deliblatska peščara), 23.07.1953, leg. Z. Gradojević, 1♂ (Gradojević, 1963); Dolina (Deliblatska peščara), 28.07.1954, leg. Z. Gradojević, 1♀ (Gradojević, 1963); Fruška Gora Mt., July 1923, leg. M. Rogulja, 1♀; Fruška Gora Mt., 17.07.1926, leg. M. Rogulja, 1♂ 5♀♀; Fruška Gora Mt., 03.07.1927, leg. M. Rogulja, 1♀; Fruška Gora Mt., 10.07.1927, leg. M. Rogulja, 1♀; Fruška Gora Mt., 17.07.1927, leg. M. Rogulja, 7♀♀; Fruška Gora Mt., 08.07.1928, leg. M. Rogulja, 1♂; Fruška Gora Mt., 27.08.1927, leg. M. Rogulja, 1♂; Fruška Gora Mt., 28.06.1931, leg. M. Rogulja, 3♀♀; Fruška Gora Mt., 1932, leg. M. Rogulja, 1♂; Fruška Gora Mt., 09.07.1932, leg. M. Rogulja, 1♀; Fruška Gora Mt., 28.06.1938, leg. M. Rogulja, 1♀; Fruška Gora Mt., 09.05.1939, leg. M. Rogulja, 1♀; Fruška Gora Mt., 28.06.1939, leg. M. Rogulja, 1♀; Glasovik (Pasjača), 15.07.1978, leg. Lj. Kašić, 1♂; Glasovik (Pasjača), 17.07.1978, leg. Lj. Kašić, 1♂; Košutnjak (Beograd), 02.07.1940, leg. A. Sigunov, 1♂; Ovčar Banja, 26.07.1980, leg. Lj. Kašić, 2♀♀ (Jakšić, 2006); Pasjača, 15.07.1978, leg. Lj. Tričković, 1♀; Pasjača, 16.07.1978, leg. M. Brajković, 1♂; Rajac (Suvobor Mt.), 13.07.1979, leg. Lj. Protić, 1♂ (Jakšić, 2006); Rajac (Suvobor Mt.), 13.07.1979, leg. Lj. Andus, 1♂; Stol Mt., 04.08.1971, leg. M. Zečević, 1♂; Stol Mt., 04.08.1970, leg. M. Zečević, 1♀; Titov gaj (Beograd), 21.07.1980, leg. Lj. Andus, 1♀; Vrnjci, 04.07.1935, 8♂♂ 1♀; Vrnjci, 05.07.1935, 3♂♂ 1♀.

MNE: Lovćen Mt., 1200 m, 19.07.1932, leg. O. Vagner, 3♀♀.

MK: Korab Mt., 1200 m, 25.07.1938, leg. M. Rogulja, 1♀; Korab Mt., 1400 m, 21.07.1938, leg. M. Rogulja, 1♂ 1♀; Korab Mt., 1400 m, 22.07.1938, leg. M. Rogulja, 2♀♀; Korab Mt., 1400 m, 23.07.1938, leg. M. Rogulja, 2♀♀; Korab Mt., 1400 m, 26.07.1938, leg. M. Rogulja, 1♂.

16. *Zygaena (Zygaena) loti* ([Denis & Schiffermüller], 1775)

HR: Curzola (= Korčula), 19.05.1926, leg. P. Novak, 1♂; Lumbarda (Curzola = Korčula) 15.05.1925, leg. P. Novak, 1♀; Murter, 14.06.1931, leg. P. Novak, 5♂♂, 1♀; Split, 15.05.1945, leg. P. Novak, 1♂.

- SRB:** Dolina (Deliblatska peščara), 01.07.1953, leg. Z. Gradojević, 1♀ (Gradojević, 1963); Đerdap, 16.05.1978, leg. M. Zečević, 1♂; Fruška Gora Mt., 1922, leg. M. Rogulja, 1♂; Fruška Gora Mt., 30.06.1929, leg. M. Rogulja, 1♂ (Jakšić, 2006); Fruška Gora Mt., 28.06.1931, leg. M. Rogulja, 1♂; Fruška Gora Mt., 1932, leg. M. Rogulja, 1♂ 2♀♀; Fruška Gora Mt., June 1935, leg. M. Rogulja, 1♀; Fruška Gora Mt., 28.06.1938, leg. M. Rogulja, 1♀ (Jakšić, 2006); Jastrebac Mt., 13.07.1978, leg. Lj. Kašić, 2♂♂ 1♀; Kazan (Đerdap), 04.07.1986, leg. M. Zečević, 1♂; Kazan (Đerdap), 04.06.1987, leg. M. Zečević, 1♂; Košutnjak (Beograd), 17.06.1968, leg. Z. Mučalica, 1♂; Novi Sad, 04.07.1925, leg. M. Rogulja, 1♂; Novi Sad, 25.06.1926, leg. M. Rogulja, 1♀; Novi Sad, 04.07.1926, leg. M. Rogulja, 3♂♂ 1♀; Ploče (Đerdap), 24.06.1979, leg. M. Zečević, 1♀; Rakovica (Beograd), 08.07.1941, leg. A. Sigunov, 1♂ 2♀♀; Rakovica (Beograd), 15.07.1941, leg. A. Sigunov, 1♂ 1♀; Sokobanja, 20.06.1978, leg. Lj. Kašić, 1♂; Stol Mt., 04.07.1970, leg. M. Zečević, 2♀♀; Stol Mt., 04.08.1970, leg. M. Zečević, 1♂; Stol Mt., 07.07.1972, leg. M. Zečević, 1♀; Stol Mt., 09-10.07.1972, leg. M. Zečević, 2♂♂; Stol Mt., 28.07.1974, leg. M. Zečević, 1♀; Stol Mt., 18.07.1977, leg. M. Zečević, 1♂; Stol Mt., 10.07.1984, leg. D. Stojanović, 2♂♂ 1♀; Stol Mt., 13.07.1984, leg. D. Stojanović, 1♂; Tara Mt., 20.07.1963, leg. D. Čubrilović, 1♀; Topčider (Beograd), 13.07.1940, leg. A. Sigunov, 2♂♂; Topčider (Beograd), 17.07.1940, leg. O. Vagner, 1♂ 2♀♀; Vlasina, 01.07.1981, leg. Lj. Andus, 1♂.
- MK:** Korab Mt., 1100 m, 23.07.1938, leg. M. Rogulja, 1♂.
17. *Zygaena (Zygaena) osterodensis* Reiss, 1921
SRB: Kopaonik Mt., 1700 m, 12.07.1937, leg. M. Rogulja, 1♂.
18. *Zygaena (Zygaena) viciae* ([Denis & Schiffermüller], 1775)
SLO: Vrhpolje, 26.06.1930, leg. O. Vagner, 2♂♂.
SRB: Novi Sad, 04.07.1928, leg. M. Rogulja, 7♂♂ 7♀♀; Novi Sad, 25.06.1926, leg. M. Rogulja, 1♂; Novi Sad, 25.06.1928, leg. M. Rogulja, 2♂♂; Fruška Gora Mt., 20.06.1932, leg. M. Rogulja, 1♂; Fruška Gora Mt., 21.08.1927, leg. M. Rogulja, 1♂; Fruška Gora Mt., 23.06.1931, leg. M. Rogulja, 1♂; Fruška Gora Mt., 01.07.1928, leg. M. Rogulja, 1♂; Rajac (Suvobor Mt.), 16.07.1979, leg. Lj. Andus, 1♂.
19. *Zygaena (Zygaena) ephialtes* (Linnaeus, 1767)
SLO: Martinščica, 06.07.1934, leg. O. Vagner, 2♀♀ f. *trigonellae*, 5-spotted, yellow; 1♂ f. *trigonellae*, 5-spotted, yellow (ssp. *pannonica* Holik, 1937);
HR: Split, 25.05.1943, leg. P. Novak, 1♀ f. *trigonellae*, 5-spotted, yellow (ssp. *pannonica* Holik, 1937);
BIH: Banja Luka, 08.08.1967, leg. M. Zečević, 1♂ f. *trigonellae*, 5-spotted, yellow (ssp. *pannonica* Holik, 1937);

SRB: Rajac (Suvobor Mt.), 11.07.1979, leg. Lj. Andus, 1♀ f. *trigonellae*, 5+1 spotted, yellow (ssp. *pannonica* Holik, 1937); Tara Mt., 04.07.1960, leg. D. Čubrilović, 1♀ f. *trigonellae*, 5-spotted, yellow (ssp. *pannonica* Holik, 1937); Tara Mt., 11.07.1963, leg. D. Čubrilović, 2♀♀ f. *trigonellae*, 5-spotted, yellow (ssp. *pannonica* Holik, 1937); Tara Mt., 13.07.1963, leg. D. Čubrilović, 2♀♀ 1♂ f. *trigonellae*, 5-spotted, yellow (ssp. *pannonica* Holik, 1937); Tara Mt., 22.07.1963, leg. D. Čubrilović, 1♀ f. *trigonellae*, 5-spotted, yellow (ssp. *pannonica* Holik, 1937); Tara Mt., 23.07.1963, leg. D. Čubrilović, 1♀ f. *trigonellae*, 5-spotted, yellow (ssp. *pannonica* Holik, 1937); Topčider, 16.07.1940, leg. O. Vagner, 1♀ f. *trigonellae*, 5+1 spotted, yellow, 1♀ 5-spotted, yellow (ssp. *pannonica* Holik, 1937); Fruška Gora Mt., 28.06.1931, leg. M. Rogulja, 1♀ f. *trigonellae*, 5-spotted, yellow (ssp. *pannonica* Holik, 1937); Fruška Gora Mt., 10.06.1932, leg. M. Rogulja, 1♂ f. *trigonellae*, 5-spotted, yellow (ssp. *pannonica* Holik, 1937); Fruška Gora Mt., 02.07.1939, leg. M. Rogulja, 1♂ 1♀ f. *trigonellae*, 5-spotted, yellow (ssp. *pannonica* Holik, 1937); Fruška Gora Mt., 27.06.1938, leg. M. Rogulja, 1♀ f. *trigonellae*, 5-spotted, yellow (ssp. *pannonica* Holik, 1937); Fruška Gora Mt., 08.07.1928, leg. M. Rogulja, 1♀ f. *trigonellae*, dark yellow cingulum 5-spotted, yellow (ssp. *pannonica* Holik, 1937); Novi Sad, 04.07.1926, leg. M. Rogulja, 3♂♂ 4♀♀ f. *trigonellae*, 5-spotted, yellow (ssp. *pannonica* Holik, 1937); Novi Sad, 25.07.1926, leg. M. Rogulja, 2♀♀ f. *trigonellae*, 5-spotted, yellow (ssp. *pannonica* Holik, 1937); Prizren, 20.07.1978, leg. S. Mladenović, 1♂ f. *medusa*, 5-spotted, red (ssp. *istoki* Silbernagel, 1944); Jastrebac Mt., 25.07.1962, leg. D. Čubrilović, 1♂ f. *medusa*, 5-spotted, red (ssp. *istoki* Silbernagel, 1944); Jastrebac Mt., 27.07.1962, leg. D. Čubrilović, 1♂ f. *medusa*, 5-spotted, red (ssp. *istoki* Silbernagel, 1944); Jastrebac Mt., 02.08.1961, leg. D. Čubrilović, 1♂ f. *trigonellae*, 5-spotted, yellow (ssp. *istoki* Silbernagel, 1944); Topli Do (Stara Planina Mt.), 06.07.1996, 3♀♀ 1♂ f. *medusa*, 5-spotted, red (ssp. *istoki* Silbernagel, 1944); Rtanj village (Rtanj Mt.), 21.07.1978, 1♀ f. *medusa*, 5 spotted, red (ssp. *istoki* Silbernagel, 1944); Rogljevo (Zaječar), 12.07.1976, 1♀ f. *medusa*, 5 spotted, red (ssp. *istoki* Silbernagel, 1944); Đerdap, 20.07.1985, leg. M. Zečević, 1♂ f. *medusa*, 5 spotted, red (ssp. *istoki* Silbernagel, 1944); Lepenski Vir, 17.07.1984, leg. D. Stojanović, 1♀ f. *medusa*, 5-spotted, red (ssp. *istoki* Silbernagel, 1944); Lepenski Vir, 17.07.1984, leg. D. Stojanović, 1♀ f. *trigonellae*, 5-spotted, yellow (ssp. *istoki* Silbernagel, 1944); Tekija (Đerdap), 24.06.1979, leg. M. Zečević, 1♀ f. *medusa*, 5-spotted, red (ssp. *istoki* Silbernagel, 1944); Zlot, 09.07.1971, leg. M. Zečević, 1♀ f. *medusa* 5-spotted, red (ssp. *istoki* Silbernagel, 1944); Stol Mt. 04.08.1970, leg. M. Zečević, 1♀ f. *medusa*, 5-spotted, red

(ssp. *istoki* Silbernagel, 1944); Đerdap, 24.06.1979, leg. M. Zečević, 1♀ f. *trigonellae*, 5-spotted, yellow (ssp. *istoki* Silbernagel, 1944); Kazan (Đerdap), 04.07.1987, leg. M. Zečević, 1♀ f. *trigonellae*, 5-spotted, yellow (ssp. *istoki* Silbernagel, 1944).

MK: Korab Mt. 1100 m, 21.07.1938, leg. M. Rogulja, 1♂ f. *trigonellae*, 5-spotted, yellow (ssp. *istoki* Silbernagel, 1944); Korab Mt. 1100 m, 22.07.1938, leg. M. Rogulja, 2♀♀ f. *trigonellae*, 5-spotted, yellow (ssp. *istoki* Silbernagel, 1944); Korab Mt. 1100 m, 23.07.1938, leg. M. Rogulja, 1♂ f. *trigonellae*, 5-spotted, yellow (ssp. *istoki* Silbernagel, 1944); Korab Mt. 1200 m, 26.07.1938, leg. M. Rogulja, 1♀ f. *trigonellae*, 5-spotted, yellow (ssp. *istoki* Silbernagel, 1944); Korab Mt. 1200 m, 23.07.1938, leg. M. Rogulja, 2♂♂ f. *trigonellae*, 5-spotted, yellow (ssp. *istoki* Silbernagel, 1944); Korab Mt. 1100 m, 24.07.1938, leg. M. Rogulja, 1♀ f. *trigonellae*, 5-spotted, yellow (ssp. *istoki* Silbernagel, 1944); Korab Mt., 1200 m, 21.07.1938, 1♀ f. *medusa*, 5-spotted, red (ssp. *istoki* Silbernagel, 1944); Korab Mt. 1100 m, 25.07.1938, 1♂ f. *medusa*, 5-spotted, red (ssp. *istoki* Silbernagel, 1944); Korab Mt. 1000 m, 19.07.1938, 1♀ f. *medusa*, 5-spotted, red (ssp. *istoki* Silbernagel, 1944); Korab Mt., 1000 m, 20.07.1938, 3♂♂ f. *medusa*, 5-spotted, red (ssp. *istoki* Silbernagel, 1944); Korab Mt., 1000 m, 21.07.1938, 3♂♂ 2♀♀ f. *medusa*, 5-spotted, red (ssp. *istoki* Silbernagel, 1944); Korab Mt., 1000 m, 22.07.1938, 1♂ f. *medusa*, 5-spotted, red (ssp. *istoki* Silbernagel, 1944).

20. ***Zygaena (Zygaena) angelicae*** Ochsenheimer, 1808

BIH: Jahorina Mt., 1300 m, 25.07.1957, leg. D. Čubrilović, 2♂♂ 3♀♀; Jahorina Mt., 1300 m, 27.07.1957, leg. D. Čubrilović, 1♂.

SRB: Jastrebac Mt., 10-28.07.1962, leg. D. Čubrilović, 1♂; Tara Mt., 01.08.1960, leg. D. Čubrilović, 1♂; Tara Mt., 20.07.1963, leg. D. Čubrilović, 1♂ 2♀♀; Tara Mt., 22.07.1963, leg. D. Čubrilović, 1♀; Tara Mt., 25.07.1963, leg. D. Čubrilović, 1♂; Tara Mt., 26.07.1963, leg. D. Čubrilović, 1♂; Tara Mt., 19.07.1966, leg. D. Čubrilović, 1♂; Tara Mt., 21.07.1966, leg. D. Čubrilović, 1♂; Tara Mt., 25.07.1966, leg. D. Čubrilović, 1♂.

MNE: Valoviti do (Žabljak), 31.07.1980, leg. M. Zečević.

21. ***Zygaena (Zygaena) transalpina*** (Esper, 1780)

SLO: Krvavec, 1400 m, 12.08.1930, leg. O. Vagner, 1♂.

22. ***Zygaena (Zygaena) filipendulae*** (Linnaeus, 1758)

SLO: Brežice, 01-28.08.1946, leg. M. Gradojević, 2♂♂ 1♀; Jezersko, 18.07.1936, leg. O. Vagner, 1♂; Nemora (ad savum prope Labacum), 06.07.1930, leg. J. Hafner, 1♀; Pokojišče, 25.06.1928, leg. J. Hafner, 1♂; Šklendrovec, 30.06.1930, leg. J. Hafner, 1♀; Vrhpolje, 25.06.1930, 1♂.

HR: Lumbarda (Curzola = Korčula), 15.05.1926, leg. P. Novak, 1♀; Mosor, 07.06.1937, leg. P. Novak, 1♂; Salin, 25.06.1928, leg. P. Novak, 1♂.

BIH: Bistrica (Jahorina Mt.), 23.07.1957, leg. D. Čubrilović, 1♂; Gola (Jahorina Mt.), 27.07.1957, leg. D. Čubrilović, 1♂ 1♀; Jahorina Mt., 10.07.1957, leg. D. Čubrilović, 1♂; Jahorina Mt., 14.07.1957, leg. D. Čubrilović, 2♂♂; Jahorina Mt., 28.07.1957, leg. D. Čubrilović, 1♂; Jahorina Mt., 29.07.1957, leg. D. Čubrilović, 1♂.

SRB: Akmačić (Zlatar Mt.), 28.07.1979, leg. Lj. Tričković, 1♂ 1♀; Avala Mt., 23.06.1940, leg. A. Sigunov, 1♀; Brajkovac, 10.06.1976, leg. Z. Mučalica, 1♀; Bukulja, 696 m, 23.06.1954, leg. Bogavac, 1♂; Divčibare, 05.07.1982, leg. B. Jovanović, 2♂♂ (Jakšić, 2006); Dubašnica, 20.07.1976, 1♀; Petrovo selo (Đerdap), 14.06.1978, 3♂♂; Đerdap, 20.07.1985, leg. M. Zečević, 1♂; Fruška Gora Mt., 03.07.1927, leg. M. Rogulja, 1♂ (Jakšić, 2006); Fruška Gora Mt., 1930, leg. M. Rogulja, 1♂; Fruška Gora Mt., 24.06.1930, leg. M. Rogulja, 1♂ (Jakšić, 2006); Fruška Gora Mt., 29.05.1930, leg. M. Rogulja, 2♂♂ (Jakšić, 2006); Fruška Gora Mt., 20.06.1932, leg. M. Rogulja, 2♂♂; Fruška Gora Mt., 31.05.1938, leg. M. Rogulja, 1♂ (Jakšić, 2006); Fruška Gora Mt., June 1935, leg. M. Rogulja, 3♀♀; Fruška Gora Mt., July, 1923, leg. M. Rogulja, 1♂ 1♀; Fruška Gora Mt., 30.06.1929, leg. M. Rogulja, 3♀♀; Fruška Gora Mt., 15.06.1930, leg. M. Rogulja, 1♂ 1♀; Fruška Gora Mt., 04.06.1928, leg. M. Rogulja, 1♀; Fruška Gora Mt., 21.05.1936, leg. M. Rogulja, 1♂ 1♀; Fruška Gora Mt., May 1932, leg. M. Rogulja, 1♀; Fruška Gora Mt., 06.06.1928, leg. M. Rogulja, 1♂ 1♀; Fruška Gora Mt., 01.07.1928, leg. M. Rogulja, 1♀; Fruška Gora Mt., 19.06.1932, leg. M. Rogulja, 1♂. Glasovik (Pasjača), 15.07.1978, leg. Lj. Kašić, 1♂ 1♀; Glasovik (Pasjača), 25.07.1978, leg. Lj. Kašić, 1♀; Gobelja 1950 m (Kopaonik Mt.), 20.07.1978, leg. A. Sigunov, 1♂; Glavina (Fruška Gora Mt.), 16.07.1984, leg. Lj. Andus, 1♂; Golo brdo, 1627 m (Zlatar Mt.), 29.07.1979, leg. Lj. Tričković, 2♂♂; Jastrebac Mt., 13.07.1978, leg. Lj. Kašić, 2♂♂ (Jakšić, 2006); Jastrebac Mt., 13.07.1978, leg. Lj. Tričković, 1♂; Jastrebac Mt., 29.07.1961, leg. D. Čubrilović, 1♂; Klokočevac, 16.07.1977, leg. M. Brajković, 1♂; Kokin brod, 21.07.1979, leg. A. Sigunov, 1♂; Kopaonik Mt. 1700 m, 12.07.1937, leg. M. Rogulja, 1♂; Kragujevac, 25.05.1921, 1♂; Kragujevac, 05.06.1921, 1♂ 1♀; Kragujevac, 11.07.1921, 1♂; Košutnjak (Beograd), 1930, leg. B. Stanislavski, 1♂; Kraljevica, 10.07.1978, 1♀; Konjska reka (Tara Mt.), 31.07.1960, leg. D. Čubrilović, 3♂♂ 1♀; Malinjak (Kokin brod), 30.07.1979, leg. Lj. Tričković, 1♂; Maljen Mt., 21.07.1959, leg. Lj. Tričković, 1♂ 1♀; Mitrovac (Tara Mt.), 12.07.1967, leg. Aleksić, 1♂;

Ozren Mt., 1100 *m*, 01.07.1978, leg. Lj. Tričković, 2♂♂ 2♀♀; Ozren Mt., 02.07.1978, leg. Lj. Kašić, 1♂ 3♀♀; Ozren Mt., 1174 *m*, 02.07.1974, leg. Lj. Tričković, 1♂; Oblačinsko jezero, 15.07.1976, leg. Lj. Tričković, 2♂♂; Oblačinsko jezero, 15.07.1978, leg. Lj. Tričković, 4♂♂; Ovčar Banja, 25-26.07.1980, leg. Lj. Tričković, 3♂♂; Prizren, 27.07.1978, leg. S. Mladenović, 1♀; Rajac (Suvobor), 06.07.1984, leg. Lj. Anđus, 1♂; Rajac (Suvobor Mt.), 12.07.1979, leg. Lj. Anđus, 1♂; Rajac (Suvobor Mt.), 13.07.1977, leg. Lj. Anđus, 2♂♂; Rajac (Suvobor Mt.), 16.07.1979, leg. Lj. Anđus, 1♂; Slavkovića (Suvobor Mt.), 14.07.1979, leg. Lj. Anđus, 1♀; Radovanska reka, 07.07.1977, leg. M. Zečević, 1♂ 2♀♀; Rajac (Suvobor), 16.07.1979, leg. Lj. Kašić, 1♂; Rakovica (Beograd), 21.06.1941, leg. A. Sigunov, 1♂; Rakovica (Beograd), 01.07.1941, leg. A. Sigunov, 1♂; Rakovica (Beograd), 08.06.1979, leg. Lj. Anđus, 1♂; Resava, 27.07.1948, leg. J. Papić, 1♂; Resava, Veliko vrelo, 25.07.1948, leg. J. Papić, 1♀; Ripanj, 07.09.1979, leg. Lj. Anđus, 1♀; Rtanj Mt., 17.08.1974, 1♀; Rtanj Mt., 29.07.1974, leg. M. Zečević, 2♂♂; Sremska Mitrovica, 09.06.1960, leg. P. Sisojević, 3♂♂ 2♀♀; Stol Mt., 02.07.1967, leg. M. Zečević, 1♂; Stol Mt., 28.06.1969, leg. M. Zečević 2♂♂ 1♀; Stol Mt., 28.06.1971, leg. M. Zečević, 1♀; Stol Mt., 14.06.1972, leg. S. Radovanović, 1♂; Stol Mt., 22.06.1972, leg. S. Radovanović, 1♂; Stol Mt., 25.06.1972, leg. S. Radovanović, 1♀; Stol Mt., 30.06.1972, leg. M. Zečević, 1♂; Stol Mt., 18.06.1972, leg. M. Bošković, 1♂ 1♀; Stol Mt., 20.06.1973, leg. M. Zečević, 1♂; Stol Mt., 10.07.1984, leg. D. Stojanović, 4♂♂ 3♀♀; Tara Mt., 28.07.1960, leg. D. Čubrilović, 1♀ (Jakšić, 2006); Tara Mt., 01.08.1960, leg. D. Čubrilović, 1♂ (Jakšić, 2006); Tara Mt., 17-18.07.1963, leg. D. Čubrilović, 2♂♂ (Jakšić, 2006); Tara Mt., 20.07.1963, leg. D. Čubrilović, 1♂ 1♀ (Jakšić, 2006); Tara Mt., 22-23.07.1963, leg. D. Čubrilović, 1♂ 1♀ (Jakšić, 2006); Tara Mt., 26-27.07.1963, leg. D. Čubrilović, 6♂♂ 2♀♀ (Jakšić, 2006); Tara Mt., 19.07.1966, leg. D. Čubrilović, 1♀ (Jakšić, 2006); Tara Mt., 26-27.07.1966, leg. D. Čubrilović, 1♂ 1♀ (Jakšić, 2006); Titov gaj (Beograd), 16.07.1980, leg. Lj. Anđus, 1♂; Topli Do (Stara Planina Mt.), 13.07.1979, leg. M. Brajković, 2♂♂ 2♀♀; Topli Do (Stara planina), 06.07.1996, 2♀♀; Zaplanje (Donji Dušnik), 22.07.1980, leg. Lj. Protić, 1♂; Zlatibor Mt., 1100 *m*, 15.07.1977, leg. Lj. Anđus, 1♂; Zlatibor Mt., 16.07.1977, leg. Lj. Anđus, 3♂♂; Zlatibor Mt., 25.07.1980, leg. D. Čubrilović, 1♂; Zvezdara (Beograd), autumn 1967, leg. Z. Mučalica, 1♂; Grabar (Žagubica), 15.07.1977, leg. M. Brajković, 1♂; Vlasina uz Vrlu, 05.07.1981, leg. Lj. Anđus, 1♂ (Jakšić, 2006); Vrnjci, 07.1935, leg. O. Vagner, 2♂♂; Vrnjci, 04-05.07.1935, 7♂♂; Vrnjci, 20.05.1981, 1♂; Vrnjci, 20.05.1981, 1♂; Vrška čuka, 21.08.1974, leg. M. Zečević, 1♂.

- MK:** Korab Mt., 1100 m 23.06.1938, leg. M. Rogulja, 1♂; Korab Mt., 1400 m, 18.07.1938, leg. M. Rogulja, 1♂; Korab Mt., 1100 m 19.07.1938, leg. M. Rogulja, 1♂; Korab Mt., 1200 m, 26.07.1938, leg. M. Rogulja, 1♂; Korab Mt., 1200 m, 22.07.1938, leg. M. Rogulja, 1♂; Korab Mt., 1000 m, 21.07.1938, leg. M. Rogulja, 1♂ 1♀; Korab Mt., 1200 m, 25.07.1938, leg. M. Rogulja, 1♂; Korab Mt., 1200 m, 21.07.1938, leg. M. Rogulja, 1♀; Korab Mt., 1200 m, 19.07.1938, leg. M. Rogulja, 1♂.
23. *Zygaena (Zygaena) loniceræ* (Scheven, 1777)
- SLO:** St. Katarina, 04.07.1932, leg. J. Hafner, 1♂; Jezersko, 13.07.1936, leg. O. Vagner, 1♀; Jezersko, 21.07.1937, leg. O. Vagner, 1♂; Rateče, 06.07.1931, leg. J. Vagner, 1♂; Šklendrovec, 28.06.1930, leg. J. Hafner, 1♀; Šmarna Gora, 23.06.1930, leg. J. Hafner, 1♀; Vrhpolje, 30.06.1930, 1♂.
- BIH:** Jahorina Mt., 1300 m, 25.07.1957, leg. D. Čubrilović, 18♂♂ 17♀♀; Jahorina Mt., 1300 m, 23.07.1957, leg. D. Čubrilović, 1♂; Jahorina Mt., 1300 m, 27.07.1957., leg. D. Čubrilović, 5♂♂ 2♀♀; Jahorina Mt., Bistrica, 1300 m, 25.07.1957, leg. D. Čubrilović, 1♂; Polje, 1500 m, (Jahorina Mt.), 16.07.1957, leg. D. Čubrilović, 1♂.
- SRB:** Brza palanka, Strmen ponor, 06.07.1986, leg. M. Zečević, 1♂; Crni Vrh (Maljen Mt.), 900 m, 01.07.1959, leg. Lj. Tričković, 1♂ (Jakšić, 2006); Crni vrh (Maljen Mt.), 1000 m, 21.07.1959, leg. Lj. Tričković, 1♂ (Jakšić, 2006); Divčibare, 14.07.1959, leg. Lj. Tričković, 1♂ 1♀; Dubašnica, 20.07.1976, 1♀; Fruška Gora Mt., 07.1923, leg. M. Rogulja, 1♂ 1♀; Fruška Gora Mt., 07.1928, leg. M. Rogulja, 1♂; Gobelja, 1950 m (Kopaonik Mt.), 20.07.1978, leg. A. Sigunov, 1♀; Jastrebac Mt., 13.07.1965, leg. D. Čubrilović, 1♀; Konjska reka (Tara Mt.), 31.07.1950, leg. D. Čubrilović, 1♀; Maljen Mt., 21.07.1959, leg. Lj. Tripković, 1♂ (Jakšić, 2006); Mitrovac (Tara Mt.), 12.07.1967, leg. Aleksić, 1♂; Stol Mt., 28.06.1969, leg. M. Zečević, 2♂♂; Stol Mt., 25.06.1972, leg. S. Radovanović, 1♂; Stol Mt., 30.06.1972, leg. S. Radovanović, 1♂; Stol Mt., 01.07.1972, leg. M. Zečević, 1♀; Stol Mt., 14.07.1972, leg. M. Zečević, 1♂; Stol Mt. 30.06.1973, leg. M. Zečević, 1♂; Stol Mt., 04.07.1984, leg. D. Stojanović, 1♂; Stol Mt., 13.07.1984, leg. D. Stojanović, 1♂ 3♀♀; Tara Mt., 01.08.1960, leg. D. Čubrilović, 1♂; Tara Mt., 03.08.1960, leg. D. Čubrilović, 3♂♂ 1♀; Tara Mt., 26.08.1962, leg. Lj. Tričković, 6♂ 1♀ (Jakšić, 2006); Tara Mt., 20.07.1963, leg. D. Čubrilović 1♀; Tara Mt., 26.07.1963, leg. D. Čubrilović, 3♂♂ 4♀♀; Tara Mt., 27.07.1963, leg. D. Čubrilović, 11♂♂ 6♀♀; Tara Mt., 25.07.1963, leg. D. Čubrilović, 1♂ 1♀; Tara Mt., 23.07.1963, leg. D. Čubrilović, 1♂; Tara Mt., 19.07.1966, leg. D. Čubrilović, 1♂ 3♀♀; Tara Mt., 20.07.1966, leg. D. Čubrilović, 2♂♂; Tara Mt., 21.07.1966, leg. D.

Čubrilović, 1♀; Tara Mt., 26.07.1966, leg. D. Čubrilović, 1♂ 2♀♀;
Topli Do (Stara Planina Mt.), 06.07.1996, 1♂.

MNE: Durmitor podnožje, Međeda, 1800 m, 03.08.1981, leg. P. Jakšić,
1♀.

MK: Korab Mt., 1000 m, 22.07.1938, leg. M. Rogulja, 1♂; Korab Mt.,
1000 m, 23.07.1938, leg. M. Rogulja, 1♂; Korab Mt., 1100 m,
27.07.1938, leg. M. Rogulja, 1♂; Korab Mt., 1200 m, 21.07.1938, leg.
M. Rogulja, 1♂.

DISCUSSION AND CONCLUSIONS

Among the 804 specimens of Zygaenidae that are deposited in the collections of the NHMB we found 23 species, 13 of them belonging to the Zygaeninae and 10 to the Procrinae. All specimens originate from the former SFR Yugoslavia, mostly from Serbia, and were collected between 1922 and 1996. Only one species (two specimens) originates from Albania (from a locality close to the Macedonian border). Of 107 localities, 66 are in Serbia. Of the 23 species examined, 20 are from Serbia. Most of the material was collected by Miloš Rogulja (amateur lepidopterist), Danica Čubrilović (curator of entomology in the NHMB), and Momčilo Zečević (amateur lepidopterist). These collectors worked especially in the Fruška Gora Mt., on Tara Mountain and on Stol Mountain.

Comments on the species

Theresimima ampellophaga (Bayle-Barelle, 1808) (Procrinae)

A rare species on the Balkan Peninsula. New records are known only from Slovenia, Bulgaria and Greece [unpublished data in the BioOffice database of TLMF (Tiroler Landesmuseen, Ferdinandeum, Innsbruck, Austria)]. The only data for Serbia originates from the Niš area (Dimić *et al.* 1996). This species was a pest in vineyards in earlier times and has been recently observed and monitored by using pheromone traps (Subchev *et al.* 2008). Due to the use of pesticides in viticulture, *T. ampellophaga* is now extinct in many parts of Europe.

Rhagades (Rh.) pruni ([Denis & Schiffermüller], 1775) (Procrinae) (Fig. 1)

This species was first mentioned for Belgrade by Lazarević (1898). In NHMB there are further historical records from the Danube basin until 1935 (Fruška Gora, Novi Sad). In recent times *Rh. pruni* has been found only at two localities in Serbia: Suva Planina Mt. and Jadovnik Mt. (Nahirić *et al.* 2011b). *Rh. pruni* is difficult to observe because the adults have a reduced proboscis and therefore cannot be found nectaring at flowers. Usually the imagines do not fly far from the localities where the

larvae develop. Pheromones to observe this species have recently become available but have not yet been used for intensive monitoring of this species. In historical times *Rh. pruni* was often reared from larvae. The larva feeds on *Prunus spinosa* and other species of Rosaceae and can be obtained by beating the twigs and actively searching the leaves.



Fig. 1. - *Rhagades (Rh.) pruni* ([Denis & Schiffermüller], 1775), Vrnjci, 01.07.1935, ♀.

Jordanita (T.) notata (Zeller, 1847) (Procridinae)

Common throughout the Balkan Peninsula.

Jordanita (J.) graeca (Jordan, 1907) (Procridinae)

This species is absent from most of the higher parts of the Dinarides. In the Balkans it occurs mainly along the coast including some of the islands, in the adjacent karst belt and in the Danube basin. In the southern parts of the Balkans, *J. graeca* is more common and can also be found in the mountains (Macedonia, Greece). From Serbia only a few data are available.

Jordanita (J.) chloros (Hübner, [1813]) (Procridinae)

Like *J. graeca* this species occurs in the northern parts of the Balkans, mainly along the coast and the adjacent mountains and in the Danube plain.

Jordanita (J.) globulariae (Hübner, 1793) (Procridinae)

Common throughout the Balkan Peninsula. From Bosnia a subspecies (*J. g. ssp. bosniaca* Alberti, 1937) was described but a revision based on

copious material has shown that this description was unjustified (see Efetov & Tarmann 1999).

Jordanita (S.) subsolana (Staudinger, 1862) (Procridinae)

Common throughout the Balkan Peninsula.

Adscita (A.) statices statices (Linnaeus, 1758), ***Adscita (A.) statices drenowskii*** (Alberti, 1939), ***Adscita statices statices* × *statices drenowskii*** (Procridinae)

There is a remarkable zoogeographical transition zone between the nominotypical *A. statices statices* and *A. statices drenowskii* in the Balkans where hybrids have been found. Both subspecies can be easily recognized by their different male genitalia (strongly curved cornutus of the aedeagus in *A. statices statices* and almost straight cornutus in *A. statices drenowskii*). The females cannot be distinguished and the biology and ecology are the same. There is also a genetic distance to be recognized based on DNA studies. *A. statices statices* inhabits the northern parts of the Balkans (Slovenia, Croatia, Bosnia and Herzegovina, northern and central Serbia, northern Montenegro, north-western Bulgaria), *A. statices drenowskii* inhabits the southern and eastern parts of the Balkans (southern Serbia, southern Montenegro, Macedonia, Albania and Bulgaria). The hybrid belt runs from Montenegro (Prokletije Mt.) and northern Albania to southern Serbia and into Bulgaria. The distributional limits are still not clearly known.

Adscita (A.) geryon (Hübner, [1813]) (Procridinae)

A typical mountain species throughout the Balkan Peninsula (*A. g. ssp. orientalis* Alberti, 1938). Only in the Danube plain, in the eastern parts (eastern Macedonia, Bulgaria), is *A. geryon* represented by populations that do not show the characters of *A. g. ssp. orientalis* (i.e. larger size, darker habitus, a strong cornutus in the aedeagus). The lowland populations (*A. g. ssp. geryon*) and the mountain populations overlap and the characters mentioned above for *A. g. ssp. orientalis* are variable. The validity of *A. g. ssp. orientalis* has to be questioned. So far even new DNA analyses have not resolved this problem. However, the data received show that the genetic distances between the populations from central Europe (*A. g. ssp. geryon*) and those from Macedonia (*A. g. ssp. orientalis*) are remarkable whereas the distances between the Macedonian populations and those from central Italy (Abruzzi) are minor. The genitalia characters show completely different results. Much more data are necessary to be able to comment on this matter in detail.

Adscita (T.) manni (Lederer, 1853) (Procridinae)

Widely distributed and common in the Balkans, especially near the coast. Only a few records from Serbia.

Zygaena (M.) cynarae (Esper, 1789) (Fig. 2) (Zygaeninae)

Newly recorded for Serbia. Tara Mt. is the easternmost locality for this species on the Balkan Peninsula. This population is most probably connected to the population in Montenegro (Mala Crna Gora) (Nahirnić *et al.* 2011a, 2011b) and may form a distinct subspecies. However, there is still insufficient material available to enable a final decision. In Nahirnić *et al.* (2011b) this species was erroneously mentioned from Kopaonik Mt. in the table of the paper. This is a printing error in the table. The text in that paper is correct.



Fig. 2 - *Zygaena (M.) cynarae* (Esper, 1789), Tara Mt., 03.08.1960, leg. D. Čubrilović, ♂, forewing length 15 mm - newly recorded for Serbia.

Zygaena (M.) punctum Ochsenheimer, 1808 (Fig. 3) (Zygaeninae)

Newly recorded for Serbia and Montenegro. This species was known from Slovenia, Croatia, Bosnia and Herzegovina, Macedonia, Albania and Bulgaria. We found two specimens in the collection of Zoran Gradojević, collected in Deliblatska peščara in 1953, and one specimen in the collection of Heterocera of NHMB, collected in 1932 from Njeguši in Montenegro. *Z. punctum* is represented by two different subspecies on the Balkan Peninsula. In western Slovenia and north-western Croatia and along the Dalmatian coast to Montenegro, Albania, Macedonia, southern Bulgaria and Greece *Z. p. ssp. dalmatina* Boisduval, 1834 (described from Dubrovnik) is found. The nominotypical subspecies *Z. p. ssp. punctum*

(described from Hungary) is restricted to the Pannonian parts of Austria, Slovakia and Hungary and occurs in the Balkans as far as is known only in Serbia and Bulgaria.



Fig. 3 - *Zygaena (M.) punctum* Ochseneheimer, 1808, Dolina (Deliblatska peščara), 01.07.1953, leg. Z. Gradojević, ♂ - newly recorded for Serbia.

Zygaena (M.) brizae (Esper, 1800) (*Zygaeninae*)

Not common in the Balkans. The populations from northern Serbia (Danube River) belong to the nominotypical ssp. *brizae* (described from Budapest). Populations from Slovenia, Croatia, Bosnia and Herzegovina and southern Serbia belong to *Z. b. ssp. drvarica* Rauch, 1977 (described from Drvar, Bosnia and Herzegovina). From Macedonia and northern Greece *Z. b. ssp. ochrida* Holik, 1937 is described.

Zygaena (M.) purpuralis (Brünnich, 1763) (*Zygaeninae*)

Our results confirm that in the Balkans *Zygaena (Mesembrynus) minos* ([Denis & Schiffermüller], 1775) is more or less absent except in the southernmost parts of Macedonia and Bulgaria. Confirmed data for *Z. minos* from the former territory of Yugoslavia are only available from the Galičica Mt. in Macedonia. These populations belong to *Z. p. ssp. peloponnesica* Holik, 1937 (described from Chelmos Mountains, Greece). *Z. purpuralis* and *Z. minos* can be determined with certainty only by examination of the genitalia. The division of *Z. purpuralis* into subspecies in the Balkans is still a matter for discussion. The northern populations

(Slovenia, northern Croatia) seem to belong to *Z. p. ssp. isarca* Verity, 1922 (described from Bozen/Bolzano in the southern Alps in Italy); all populations from Bosnia and Herzegovina, Serbia, Montenegro, Albania, Macedonia and western Bulgaria seem to form a separate group and can possibly be included in *Z. p. ssp. lathyri* Boisduval, [1828] (described from Dubrovnik).

Zygaena (A.) carniolica (Scopoli, 1763) (Zygaeninae)

Common throughout the Balkan Peninsula. This species forms distinct population groups that have been described as subspecies. Most of the above-mentioned specimens refer to the nominotypical *Z. c. ssp. carniolica* Scopoli, 1763 (described from ‘Carniola’ [Slovenia]). Specimens of the nominotypical subspecies are large, dark, with a one-segmented or no abdominal cingulum. In the Danube plain (e. g. Fruška Gora Mt.) and in the lowlands of Serbia *Z. c. ssp. flaveola* Esper, 1786 (described from Vienna) occurs. Specimens from this subspecies are smaller, have a very strong white or yellowish white margin around the red spots of the forewing and a strong red cingulum on the abdomen, mainly on two segments. From northern Albania and southern Serbia (Šar-Planina Mt.) southwards to Greece a very reddish subspecies with large spots and red cingulum can be found, i.e. *Z. c. ssp. graeca* Staudinger, 1870 (described from Mount Parnassos). From Bulgaria to western Turkey populations with very strong white margin around the spots and a very large red cingulum on mainly three abdominal segments are distributed, i.e. *Z. c. ssp. wiedemannii* Ménétrés, 1839 (described from “entre Constantinople et le Balkan”).

Zygaena (Z.) loti ([Denis & Schiffermüller], 1775) (Zygaeninae)

Common throughout the Balkan Peninsula. Four subspecies that occur in the Balkans have been described. *Z. l. ssp. praeclara* Burgeff, 1926 (described from Bolzano/Bozen in the Italian Alps) occurs in western Slovenia and north-western Croatia, *Z. l. ssp. balcanica* Reiss, 1922 (described from Korična in Bosnia and Herzegovina) occurs in southern Croatia, Bosnia and Herzegovina, central and southwestern Serbia and Montenegro, *Z. l. ssp. macedonica* Burgeff, 1926 (described from Titov Veles in the Vardar valley in Macedonia) inhabits Macedonia, southeastern Serbia, Albania, Bulgaria and Greece, and *Z. l. ssp. loti* ([Denis & Schiffermüller], 1775) (described from Vienna) occurs in the northern parts of Serbia along the Danube River.

Zygaena (Z.) osterodensis Reiss, 1921 (Zygaeninae)

A rare species on the Balkan Peninsula. All known populations belong to *Z. o. ssp. koricznensis* Reiss, 1922 (described from Makljen Pass in Bosnia and Herzegovina). *Z. osterodensis* is a species of forested areas where it occurs on clearings, along forestry roads and on edges of forested country when it meets open country. The imagines have a preference for

nectar of the flowers of *Vicia cracca* and other *Vicia* species in half shadowy conditions.

Zygaena (Z.) viciae ([Denis & Schiffermüller], 1775) (Zygaeninae)

Widely distributed but not common on the Balkan Peninsula, forming several very distinctive subspecies. *Z. v. ssp. viciae* ([Denis & Schiffermüller], 1775) (described from Vienna) is 5-spotted, without a cingulum, with a narrow hindwing border, and the size of the males and females is more or less the same; it occurs in the Balkans only in northern Slovenia; *Z. v. ssp. stentzii* Freyer, [1839] (described from Pontebba in the south-eastern Alps, Italy), is 6-spotted, very often has a red cingulum and occurs on the Balkans only in the northwest (westernmost parts of Slovenia); *Z. v. ssp. bosniensis* Reiss, 1922 (described from Korična Mt. in Bosnia and Herzegovina) is 5-spotted, without a cingulum, with a broad hindwing border and occurs in central and southern Slovenia, Croatia, Serbia and Montenegro; *Z. v. ssp. silbernageli* Reiss, 1943 (described from Petrina Planina Mt. in Macedonia) is characterized by partly confluent spots 5+6, a strong sexual dimorphism in size (small males and very large females), the absence of a cingulum (rare aberrations with a cingulum are known) and occurs in Macedonia, Albania, southern Bulgaria and in northern Greece.

Zygaena (Z.) ephialtes (Linnaeus, 1767) (Zygaeninae)

This is the most difficult *Zygaena* species occurring in the Balkans with regard to the subspecific division of the various populations. It seems that several postglacial invasions have taken place, all of which have left their mark. The interbreeding of many of these populations has led to a unique mixture of forms. At least seven, if not more, population groups are so different from each other that they could perhaps deserve subspecific status. Most of them are already described. However, the current results do not provide a clear picture and further investigations are necessary to elucidate this phenomenon. In the data listed above, a description of the habitus of each examined specimen is given and the respective subspecies is mentioned in brackets.

Zygaena (Z.) angelicae Ochseneheimer, 1808 (Zygaeninae)

Not common but widely distributed on the Balkan Peninsula. Most of the Balkan populations belong to *Z. a. ssp. herzegowinensis* Reiss, 1922 (described from Ubli in Bosnia and Herzegovina) with a relatively broad dark margin on the hindwing. Only in the north-easternmost parts of Slovenia does one find the nominotypical *Z. a. ssp. angelicae* Ochseneheimer, 1808 (described from Dresden, Germany and Vienna, Austria) and in the surroundings of Trnovo in western Slovenia the very isolated *Z. a. ssp. ternovanensis* Koch, 1938 (described from 'Ternovaner-Wald') with mainly yellow specimens can be found.

Zygaena (Z.) transalpina (Esper, 1780) (Zygaeninae)

This species has a remarkable distribution on the Balkan Peninsula. All populations belong to *Z. t. ssp. hilfi* Reiss, 1922. In Slovenia and northern Croatia this species has a continuous distribution that seems to end somewhere in the Dinaride Mountains near Plitvička jezera. Further south only very isolated populations on mountain tops can be found. These isolated populations are completely surrounded by *Z. angelicae* with which *Z. transalpina* can interbreed. The southernmost relict populations of *Z. transalpina* are known from southern Serbia (Nahirnić *et al.* 2011a, 2011b).

Zygaena (Z.) filipendulae (Linnaeus, 1758) (Zygaeninae)

Common throughout the Balkan Peninsula. Several subspecies have been described but their validity has yet to be discussed.

Zygaena (Z.) loniceriae (Scheven, 1777) (Zygaeninae)

Common throughout the whole Balkan Peninsula from where all populations refer to *Z. l. ssp. thurneri* Holik, 1943 (described from Karorman planina Mt. in Macedonia).

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**ZYGAENIDAE (LEPIDOPTERA) У ЗБИРКАМА
ПРИРОДЊАЧКОГ МУЗЕЈА У БЕОГРАДУ**

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РЕЗИМЕ

У ентомолошким колекцијама Природњачког музеја у Београду налази се 804 примерака и 23 врсте лептира из породице Zygaenidae. Десет врста припадају потпородици Procridae, док тринаест врста припадају потпородици Zygaeninae. Материјал из Природњачког музеја сакупљан је на територији претходне СФР Југославије, углавном у Србији, у периоду 1922-1996. године. Две врсте, *Zygaena (Mesembryus) synarae* (Esper, 1789) и *Zygaena (M.) punctum* Ochsenheimer, 1808, су по први пут забележене за фауну Србије. Такође је *Zygaena (M.) punctum* констатована и као нова врста за фауну Црне Горе.