

Current state of the Buprestid (Coleoptera: Buprestidae) study in Romania

Adrian RUICĂNESCU

Summary

In this work, all known data about history of the publications in Romanian Buprestidae, faunistic, ecological, biological and bionomical, as well as some conclusions and recommendations are briefly given.

Keywords: Buprestidae, Romania, Faunistic, Ecology, Bionomy, Protected species

Brief History of publications

Before 1940, all these studies was non specific, only inventoried species in Coleopteran checklists.

SEIDLITZ (1891) in "Fauna Transsylvanica" - 84 Buprestid species from the Central Europe, including Transylvania.

HURMUZACHI (1901) - relationship of *Acmaeodera degener* and *Perotis lugubris* with xeric Mediterranean habitats.

FLECK (1905) "Die Coleopteren Catalogus" lists 45 Buprestid species from the Southern and Eastern regions.

KUTHY (1918) publishes the Buprestid Catalogue of Hungary - included Transylvania and Banat.

PETRI (1912, 1920) - publishes a synthesis of all coleopteran species from Transylvania from all prior authors - included 66 Buprestid species.

MARCU (1928, 1930, 1931) publishes checklists of coleopteran species from Bukowina, including 12 species.

Between 1940-1989, the Coleopteran checklists and catalogues are continuing.

KASZAB (1940) synthesizing old data and published the Buprestid Catalogue of Hungary (including Transylvania and Banat) - results 104 species from these provinces.

NEGRU & ROȘCA (1967) - published the checklist of the coleopteran species from Southern Dobroudja - 26 species and Negru (1968) - published also the checklist of coleopteran species from the "Letea" island (Danube Delta) - other 4 buprestid species added.

INIȘTEA (1968) - published the checklist of coleopteran species from the "Letea" island (Danube Delta) - 4 buprestid species; (1974) - published the checklist of the coleopteran species from the "Caraorman" island (Danube Delta) - 4 species; (1975) - published the checklist of coleopteran spe-

cies from the "Iron Gates" region (Southern Banat) - 26 buprestid species.

After 1989, The Buprestid checklists and new recording are beginning, also the new studies about their biology and bionomy.

RUICĂNESCU (1992, 1993) published the checklists of Coleoptera from Turda Gorges and Iron Gates - 10 buprestid species added from each area; (1994) - published the checklist of species belonging to the genus *Agriilus* from 5 regions of Romania - 32 species added and 10 confirmed; (1995) - published the first illustrated key of the genus *Agriilus* of the Central and Eastern Europe - 43 species treated; (1997) - published the coleopteran checklists from Retezat and Cerna Valley National Parks. 46 Buprestid species added; (1998) published a synthesis of faunistic, ecological and bionomical aspects of the Buprestid species from Transylvania. 103 species discussed and published the first results of the first Romanian Buprestid database, entitled Buprom; (2002) - certified the species *Dicerca (s.str.) furcata* in the Romanian fauna and published the first red list of the Romanian Buprestid species, using the IUCN criteria; (2003) confirmed the presence of *Anthaxia (s.str.) hypomelaena* in the Romanian fauna.

SERAFIM & RUICĂNESCU (1995) - published the N. SĂVULESCU's collection catalogue from the "G. Antipa" Museum of Bucharest. 81 buprestid species added.

VLAD-ANTONIE & RUICĂNESCU (1996) - published the Buprestid collection catalogue from the Natural History Museum of Sibiu. 286 species was collected over the world.

RUICĂNESCU & KABOUREK (1997) published the checklists of coleopteran species from the Tișița Gorges Reserve - 7 species added.

RUICĂNESCU & VOLKOVITSH (1997) - corrected the erroneous records of *Acmaeodera cylindrica* and *Acmaeoderela gibbulosa* in Romania.

Ruicănescu & Crişan (2006) - certified the species *Dicerca (Argante) moesta* in the Romanian fauna.

Faunistics

Actually, there are 156 known species in Romania, (fig. 1). (120 specii Ungaria, 179 Bulgaria, In Hungary are 120 species known (MUSKO-

parts of the country? This is because of at least 3 reasons:

- 1 - The lack of specialists in this group;
- 2 - The low importance accorded in publishing material and data;
- 3 - The bad communication between the collection owners and / or the museum custods.

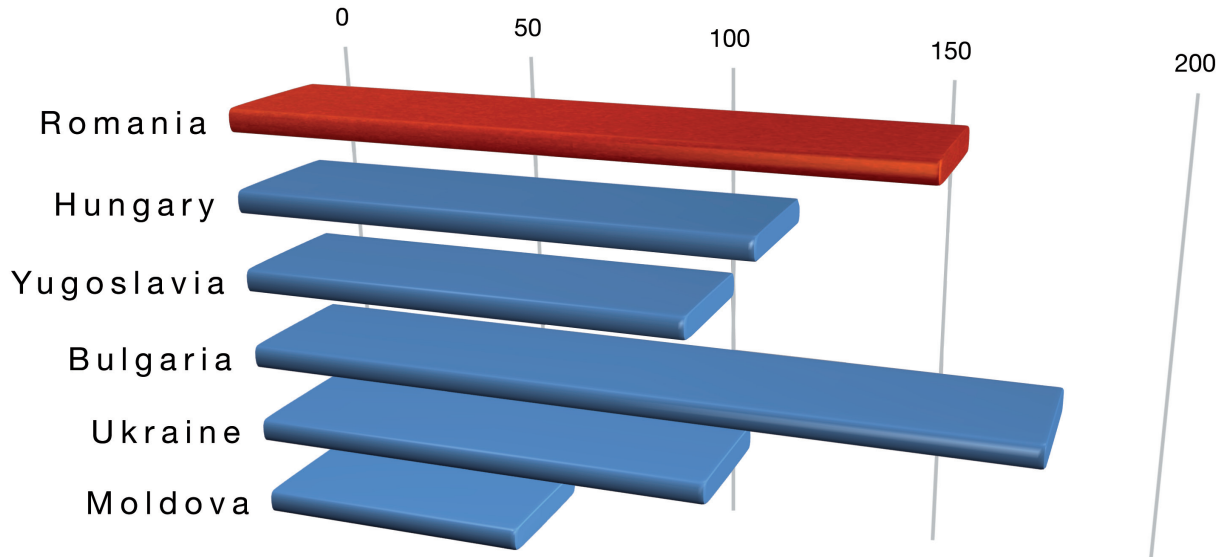


Fig. 1. The diagram of the known Buprestid species numbers in Romania and neighbored countries.

VITZ & GABOR 2002), in Bulgaria 176 (SAKALIAN 2003), in Ukraine 109, in Yugoslavia 105 and in Moldova 64 (Bily 2002¹). (fig. 1).

These 156 known species are distributed unequally on the Romanian territory, most of these records are known from Transylvania, South of Banat, Oltenia and Dobruđja (fig. 2a).

In percentile view by columns, the frequency of records is like in the fig. 2b.

Why this distribution, of records, while the most number of species must be in the southern

New records in the Romanian fauna:

- Agrilus auricollis* Ksw. Iron Gates, 1.05.1990; Mangalia, 16.06.2000.
- Agrilus delphinensis* Ab. Arcalia, 9.07.1993.
- Agrilus macroderus* Ab. Turda Gorges, 06.1992, 1993.
- Agrilus salicis* Friv. (Danube Delta) Caraorman, 05.1991, 1992; Letea 6.1993, 1995.
- Agrilus suvorovi* Obenb. Caraorman, 05.1992; Neptun 06.2000.

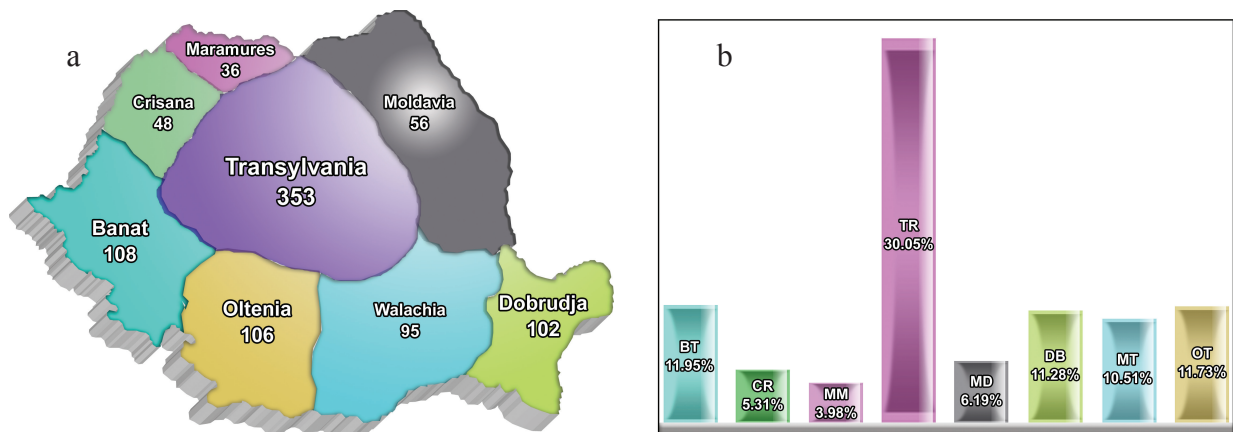


Fig 2. The distribution of records in Romania by regions: a) the map, b) in percentile view.

¹In Yugoslavia, Ukraine and Moldova are listed the Central European species only, not all.

Anthaxia sponsa Ksw. Iron Gates, 24.05.1988.

Sphenoptera petriceki (Obenb.) Ostrov (CT) 10.06.1961, publ. 1995.

Endemic species:

Chrysobothris leonhardi (Ob.) Canaraua Fetii, 04.1966, 1968, publ. 1995, endemic in the Romanian and Bulgarian Black Sea coast.

Corrected records:

Acmaeodera cylindrica (F.) Recorded in Făgăraş (Petri 1912) - possible spotless specimen(s) of *Acmaeoderella flavofasciata*.

Acmaeoderella gibbulosa Men. recorded as *Acmaeodera lugens* by Fleck (1905) in some localities from southern Romania, is *Acmaeoderella circassica* (Reitt.) - both erroneous records corrected together with Dr. M. VOLKOVITSH (1997).

Species confirmed in the Romanian Fauna in the last time:

Dicerca (Argante) moesta (F.) recorded by SĂVULESCU at 06.1952, confirmed at 06.2005 (RUCĂNESCU & CRIŞAN)

Dicerca (s. str.) furcata Thbg. recorded by KASZAB (1940), Transylvania (without named locality), confirmed at 05.2003, Bistriţa.

Anthaxia hypomelaena (Ill.) recorded by BÍLÝ at Agigea (1977) (BÍLÝ 2002), confirmed in 06.2004, 2005 at Măcin Mts.

Species that need confirmations:

Anthaxia discicollis G. & L. recorded at Herkules Bath 05.1970 - WIDENFALK (H. MÜHLE in litt.)

Anthaxia midas Ksw. Herkules Bath, 29.05.1957, leg. / coll. SĂVULESCU, publ. SERAFIM & RUCĂNESCU (1995).

Eurythyrea micans (F.) some records in Transylvania and Oltenia (PETRI 1912, FLECK 1905) - must be revised.

Buprestis novemmaculata L. mentioned by CURLETTI (1994) Romania - without other data.

Dicerca (s. str.) amphibia Mars. 1 specimen collected from Herkules Bath, coll. GANGLBAUER in Museum of Vienna (V. KUBAN in litt.).

Sphenoptera (Deudora) rauca (F.) mentioned at Suatu (CJ) PETRI (1912).

Critically endangered species:

Buprestis (Cypriacis) splendens F. Currently found in 1 site only. Larva develops in decayed wood in 3-20 years. Only one location in Romania.

Eurythyrea aurata Pal. Found in Danube Delta in one location only. Uncontrolled tourism can endangers this species

Melanophila acuminata (Deg.) Develops in fired wood. Cleaning of this kind of wood may endangers this species.

Biology and ecology

Larval trophic spectrum:

The host-plant diversity is dominating by the oligophagous species, followed by the polyphagous and monophagous ones (fig. 3). This situation is

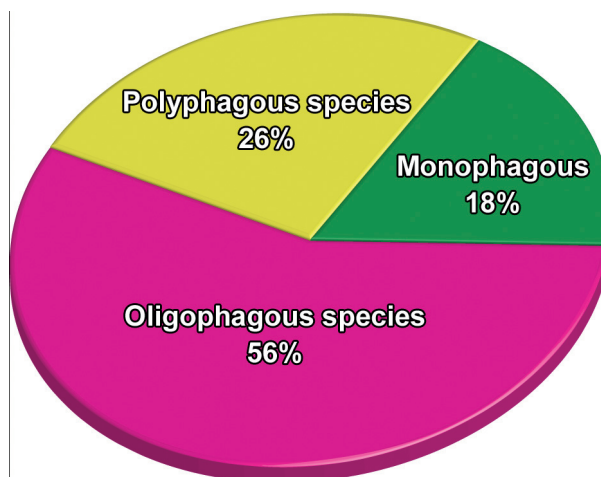


Fig. 3. The host-plant diversity spectrum in buprestid larvae.

very normal in the temperate climat habitats and is very similar with other xylophagous coleopteran groups.

Most of the buprestid larvae develop in the ligneous trunks or branches, but a part of its, devel-

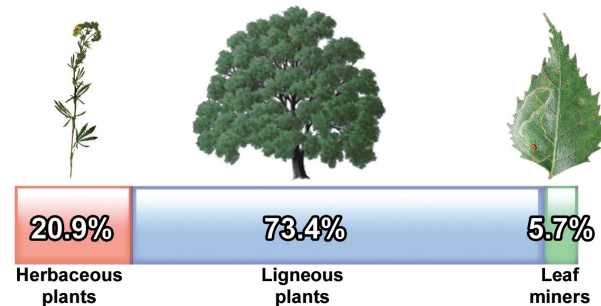


Fig. 4. The percentile view of the preferred host-plant kinds.

ops in herbaceous plant stems or rhizomes and in leafs as miners (fig. 4).

According to its host-guest relationship, the Buprestidae species are mostly secondary guests in ligneous plants and primary guests in herbaceous plants or bushes (fig. 5). This may reconsiders the pest status for some species.

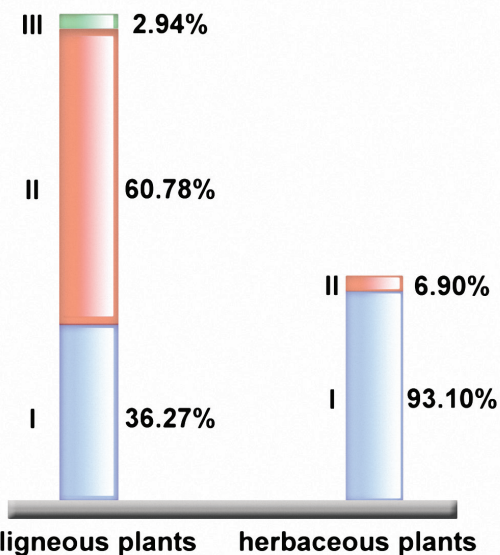


Fig. 5. The host-guest relationship between Buprestid species and their host plants; I - primary guests, II - secondary guests, III - tertiary guests.

Altitudinal spectrum:

The most species occur in the low lands (steppe and nemoral floors 0-1400 m) and fewer

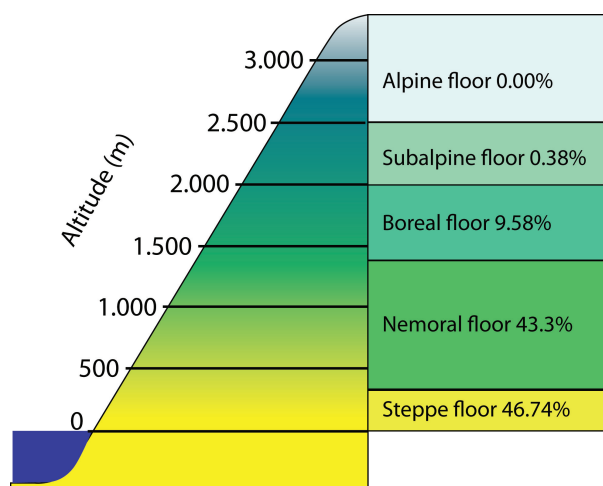


Fig. 6. Altitudinal spectrum of the Buprestid species in Romania.

in the boreal and subalpine floor (1400-2000 m). Habitually, no buprestid species occur in the alpine floor (over 2000 m) (fig. 6).

Bionomy

The arboreal and eremial species are almost balanced (fig. 7). This situation appears because of the position of Romania in Europe, being almost in all of the migration ways.

The arboreal species are dominating by the Siberian and Mediteran elements; meanwhile the eremial ones are dominating by the Turanic and Moesic elements.

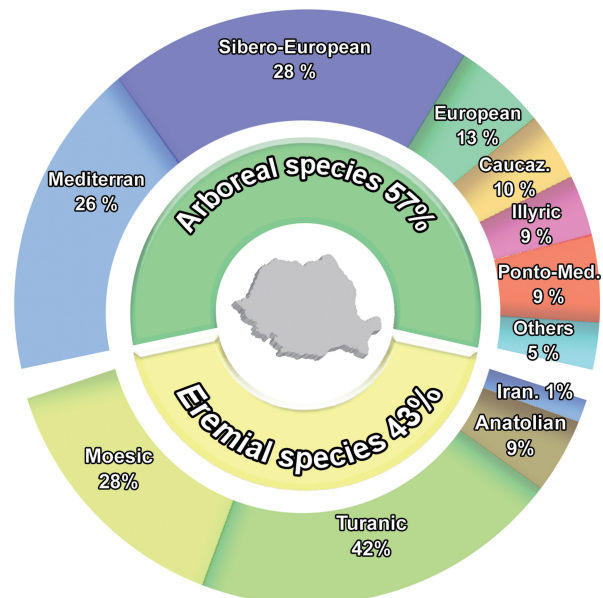


Fig. 7. The zoogeographical spectrum

Conclusions and recommendations

Conclusions:

1. There was no specific studies in Buprestid beetles in Romania, before 1989;

2. All faunistical, biological and bionomical data are included in the software catalogue entitled Buprom:

- 9 new species was recorded in Romania;
- 2 erroneous records was corrected;
- 3 species was confirmed in the Romanian fauna;
- 6 species need to be confirmed;
- 3 species are most then critically endangered;
- the most species are oligophagous;
- the ligneous plants are mostly preferred;
- in ligneous host-plants, the most of the species are secondary guests; while in the herbaceous ones, the primary guests are dominating;
- the steppe with woods and oak floors contain the biggest diversity of species, meanwhile in the sub-alpine and alpine floors the diversity is minimal;
- the arboreal and eremial species are almost balanced:
 - in the arboreal category, the Sibero-European and Mediteran elements are dominating;
 - in the eremial category, the Turanic and Moesic elements are mostly figured.

Recommendations:

1. Completion of the species inventorying, according with other European countries studies;
2. Realizing of comparative taxonomical, faunistic, ecological and bionomical studies among Buprestid fauna in Romania, correlated with the neighboring countries;
3. Persuasion of EU and national authorities in understanding of the importance of basic entomological studies;
4. Due to both their xeric preferences and their easy identification, the Buprestid beetles are ideal bio-indicators in the Global Warming monitoring.

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Address:

Adrian RUICĂNESCU
 Institute of Biological Research
 48, Republicii Str.
 3400, Cluj Napoca, Romania
 e-mail: a_ruicanescu@yahoo.co.uk, a.ruicanescu@gmail.com

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