Notes on the Donaciines (Coleoptera Chrysomelidae Donaciinae) (1-10)

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Summary

Donacia bicolor ZSCHACH, 1788 and D. brevicornis AHRENS, 1810 are recorded for the first time from the Red Sea region. Donacia brevitarsis THOMSON, 1884, D. springeri MÜLLER, 1916 and Macroplea mutica (FABRICIUS, 1792) are recorded for the first time from France. Macroplea appendiculata (PANZER, 1794) is recorded from Spain for the first time. Faunistic data regarding D. polita KUNZE, 1818, D. simplex FABRICIUS, 1775, Neohaemonia flohri (JACOBY, 1884) and N. melsheimeri (LACORDAIRE, 1845) are provided.

Keywords: Coleoptera, Chrysomelidae, Donaciinae, Donacia, Macroplea, Neohaemonia, Faunistics.

Résumé


Faunistic data presented here concern the donaciines preserved in the General Collection of the Royal Belgian Institute of Natural Sciences (Dept. of Entomology) in Brussels, Belgium. All the material regarding the Haemoniini tribe is provided here. As for the material dealing with the two other tribes : Donacini and Plateumarini, the data will be published later; only some noteworthy records of species are provided.

In order to avoid an overloading of the text, the bibliographical sources with regard to general distribution and host plants of species have not been systematically indicated; however, most of them will be found in LAYS (1997). With respect to host plants of each donaciine, the given list of genera and/or species of plants must be considered as a “raw” list, gathering data found in the literature, but it does not mean that all of them are their food plants, some being, perhaps, just adventitious (see LAYS, 2001).

As often in old collections, specimens, sometimes, do not bear any date of catching; at least, when it is known, one can provide data regarding the entomologists who owned those collections (and it does not imply they collected these insects); this gives only a vague idea of the probable period of collections : Félicien CHAPUIS (1824-1879), Ernest DONGÉ (1862-1929), Albert FAUVEL (1840-1921), Eugène Henri LE MOULT (1882-1965), P.M. MALLET (?-?; but see JOLIVET below).

Abbreviations used : [ ] : data provided by the author; n.d. : no date; n.l. : no locality.

English names of countries appear in bold print, followed by the name, between [ ], in which they appear on the labels, usually in French in the present case.

1. Donacia (Donaciomima) bicolor ZSCHACH, 1788. First record for the Red Sea region

Red Sea [Mer Rouge]: 19, n.l., 16.IV.1893, Dcuadic (Le Moult vendit.)

“ Mer Rouge ” is the French name for Red Sea. Since donaciines are not sea living organisms (even if one species, Macroplea mutica F., lives on plants of brackish and marine waters),
this location indicates that the specimen was probably caught somewhere on the coasts of the Red Sea. With its some 5,000 km of coasts, from Suez to Aseb on the Western coast crossing Egypt, Sudan and Eritrea and from Elath to Ra's Bāb al-Mandab on the Eastern coast, crossing Southern tip of Israel, Jordan, Saudi Arabia and Yemen Arab Republic, theoretically there are many places where the specimen could have been captured; unless it refers to one of these numerous islets that are scattered all over the Red Sea.

Distribution: Donacia bicolor is largely distributed in continental Europe, but occurs also in the United Kingdom and Ireland (Menzies & Cox, 1996), South of Scandinavia (Borowiec, 1984: 481, map 10); elsewhere, recorded in Caucasus, Kazakhstan, Turkey, West Siberia, Uzbek SSR, North Iran, Israel, but does not occur in Maghreb (Jolivet, 1968). In the Mediterranean region, this species is present in the countries that delimit the northern part of that sea, from Spain to Turkey (although rather localized in the latter country).

As far as the author knows no donacine has ever been recorded in the Red Sea region. In Africa, all the Palaearctic species that occur are only located to the Maghreb (Morocco and Algeria; though some species must also exist in Tunisia). As Jolivet (1972: 45) pointed out, no Donacia occurs in the desert or subdesert regions between Tunisia and Saudi Arabia. It seems that this region is rather avoided by donacines, although some species have been recorded in the Arabian Peninsula: Donacia microcephala and in Israel: Donacia microcephala and D. marginata. In the Near East, Donacia bicolor occurs in Turkey (limited to the North-West), North Iran and, as just mentioned, in Israel. So far, the southernmost locality was in Israel; the last observation of D. bicolor in that country dates back to 1946, where the donacine was living on bur reeds: Sparganium erectum neglectum (Beeby) K. Richt (= S. neglectum Beeby) in Lake Hula (or Huleh); owing to anthropogenic factors, the populations of the donacine's food plant were drastically reduced and this seems to have contributed to a local extinction of D. bicolor (along with an other species: D. marginata) (Firth, 1976, 1993).

Objectively, it is not possible to find out the locality of this capture from the Red Sea; a priori, it should be rather located in the North of that sea, perhaps along the coasts of the Gulf of Aqaba or the Gulf of Suez? That seems more probable than on the littoral of Eritrea or Yemen.

My colleague P. Jolivet, who has visited several islets in the Red Sea, states (pers. con., 17/VII/2001) that they are entirely dry and unsuited to donacines, but that they may inhabit the coasts of Egypt.

Host plants: has been reported on many species, and some must be just adventitious: Carex spp. (C. lasiocarpa E. & C. rostrata St.); Glyceria maxima (H.), Phragmites spp., Sagittaria spp., Scirpus spp., Sparganium erectum L. (= ramosum Huds.; = neglectum Beeby), Typha spp.

2. Donacia (Donaciomima) brevicornis Ahrens, 1810. First record for the Red Sea region

Red Sea [Mer Rouge]: 1♀, n.l., 16.IV.1893, Douadic (Le Moulit vendit.)

The specimen has a label, with the manuscript inscription: Donacia impressa, Catal.[ogue] n° 13. It is not known who identified this specimen and to what catalogue it refers to.

This specimen exhibits some characters that occur in D. impressa: anterior and posterior angles of prothorax well developed; anterolateral calli larger than the posterolateral calli, and in D. brevicornis: prothorax on the posterolateral calli, presence of a tiny striated oblique surface surrounded with punctures; laterally, large pubescent area; elytra: depressions well distinct; pygidium: deeply emarginate; ovipositor and spermatheca are similar to D. brevicornis' (compared with a specimen of France). There are more arguments in favor of D. brevicornis than D. impressa.

Distribution: the occurrence of this species in the Middle East is rather surprising compared with its general distribution: mainly in continental Europe (Borowiec, 1984: 482, map 11), but also recorded in Algeria (Jolivet, 1968, 1972), Russian and Kazakhstan. As for the preceding species, the exact locality of this capture can not be determined. Donacia brevicornis is the second Palaearctic donacine species, with D. marginata, that occurs both in the Maghreb and in the Middle East.

The fact that this specimen and the preceding one were captured the same day (16 April 1893) by the same person (Douadic) indicates perhaps that they may come from the same locality, or at least from close localities. Since donacines usually live in great numbers, it is probable that more than these two specimens were collected and may be discovered one day in some collections.
Host plants: mentioned on several Cyperaceae: Carex spp., Eriophorum spp., Scirpus lacustris L. and on one Poaceae: Glyceria maxima (H.)

3. Donacia (Donaciomima) brevitarsis

THOMSON, 1884. France fauna nov.


In these collections, all specimens but one were identified as D. antiqua KUNZE, 1818; only the specimen from Paris was identified as D. simplicifrons LACORDAIRE, 1845, a taxon that has been placed in synonymy with D. antiqua KUNZE. The aedeagus of all males was dissected, examined (including endophallus) then mounted. Donacia brevitarsis can be easily misidentified with some other species, and more specially with D. antiqua KUNZE. It is quite certain that close examinations of series of antiqua in the collections will reveal the presence of brevitarsis in several parts of Europe and Western Russia.

The last author who published a complete list of the Donacinae of France (providing also a dichotomic key) was BORDY (1983). As far as the present author knows, no new donacine species has been added since that publication.

Description of the imago and/or key can be found in NYHOLM (1950), MOHR (1966),RAVIZZA (1973), REITTER (1920), THOMSON (1884). BOROWIEC (1992) designated its lectotypes. RAVIZZA (1972) provides a photograph of a living specimen on its food plant. The shape of the endophallus (illustrated in NYHOLM, 1950 and RAVIZZA, 1973) remains an excellent character to identify this taxon.

NYHOLM (loc. cit.) and MOHR (loc. cit.) recommend, amongst other characters used for species identification, the use of the length of tarsi’s articles; the existing differences are often minute and vary within and between conspecific populations and, therefore, in many cases, it can not be retained as a valid taxonomic character.

Distribution: Denmark, Finland (South), Germany, Italy (North-West), Poland, Sweden (South and Centre), Russia (North-West) (BOROWIEC, 1984, 1989; CLAVAREAU, 1913; GOECKE, 1960; MOHR, 1966; RAVIZZA, 1972, 1973; RUFFO, 1964; SILFVERBERG, 1987).

Host plants: palynophagous species: in Italy, it has been recorded on Carex hudsonii A. BENN. (= elata ALL.), C. rostrata STOKES and, mainly, on C. vesicaria L. (RAVIZZA, 1972, 1973).

Phenology: owing to its wide distribution, a mean period of activity can not be given; aside from the fact that data are still needed, this species lives in lowland but can also reach stations around 1,000 m. above sea level. In North Italy, around an altitude of 1,100 m., adults were mainly observed between mid-June to the beginning of July; and in a station at alt. 275 m. adults occurred mainly between mid-April and beginning of May (RAVIZZA, 1972, 1973). RAVIZZA (1973) notes that the phenology of adults of D. brevitarsis corresponds with the flowering of its food plants.

4. Donacia (Donaciomima) polita

KUNZE, 1818


[*]: There are also 2 females, without labels of origin, coming from the material of Le Moult and that were beside this male and mounted on the same kind of mounting card; they could come from Algeria.

[**]: In 1949, P. JOLIVET acquired the P.-M. Mallet collection, itself being made, amongst others, from the collections of Félix ANCEY (1835-1919), J. DUCHAÎNE and HEYNE (CONSTANTIN, 1992).

Distribution: Endemic to the Mediterranean region: Spain, Sardinia, Italy, Balkan Peninsula, Algeria, Morocco (BOROWIEC, 1984: 487, map 21; JOLIVET, 1968: 314; 1972: 45; LACORDAIRE, 1845: 129; RUFFO, 1964: 55). In his notes on the African donacines, JOLIVET (1968, 1972) does not mention D. polita from Algeria; one presumes this must be a simple omission since he consulted LACORDAIRE (1845), who, for Algeria, gives the locality of La Calle (= El Kala [Arabic
toponym], a small coastal town between Annaba and the border of Tunisia. In Morocco, JOLIVET (1968 : 314) reports this species from the North and the Middle Atlas mountains up to an altitude of 1,900 m.

Host plants : unknown according to BOROWIEC (1984).

5. Donacia (Donaciomima) simplex FABRICIUS, 1775


The fact that the name of the town Tangier (Tanger in French) is crossed implies these specimens were collected somewhere else in Morocco, but it remains impossible to find out where. With regard to the time of capture of these specimens, no date is available, as it is often the case with the specimens of E.H. LE MOULT (who was an insects dealer); however, when dates exist they range from 1869 to 1928.

Distribution : very large distribution throughout Eurasia (BOROWIEC, 1984 : 488, map 23), also in Morocco and Algeria (JOLIVET, 1968 : 315); JOLIVET (loc. cit.) reports only 4 specimens captured in Morocco between 1939 and 1967.

Host plants : observed on Carex, Glyceria, Juncus effusus (L.), Phragmites, Sparganium emersum R. (= simplex HUDS.), Typha latifolia (L.)


France : Isère : Sassenage [5°39' E. - 45°13' N.; alt. : ± 500 m], 3♂-8♀♀, 6.v.1922 (n° 2341); 1♀, 10.v.1921; 5♂♂, n.d. [but prob. in the 1920's]; Savoie : Avresseux [5°41' E. - 45°13' N.; alt. : 290 m], 1♂-2♀♀, n.d. [but prob. in the 1920's or 30's].

All the specimens belong to the former collection of P.M. MALLE, that was later acquired by P. JOLIVET, and were placed under the label of Donacia antiqua. The aedeagus of all males was dissected, examined (including endophallus) then mounted by the author.

No new taxonomic key is provided here, but descriptions and/or keys will be found in GOECKE (1943), KIPPEBERG (1967), MÖHR (1966), MÜLLER (1916), NYHOLM (1950) and REITTER (1920).

The imaginal habitus is provided by KIPPEBERG (1967) and RAVIZZA (1971 : 215, fig. 3) gives a picture of a living adult. A drawing of the dorsal view of its pronotum can be found in KIPPEBERG (1967) and MÖHR (1966). NYHOLM (1950) and RAVIZZA (1973) provided a very good drawing of the aedeagus (lateral view), median lobe and its endophallus. The drawing of the male genitalia (dorsal view, distal part) reported as being D. springeri's by MÖHR (1966 : 106, Aed. 2 : 12) is not reliable and, perhaps, concerns another species, unless the drawing is too rough. The shape of D. springeri's median lobe is well typical : long (1,8 mm), narrow (0,325 mm), straight, very pointed; fine, but net striae (a microstructure quite common amongst the Donaciinae), running lengthwise, cover the distal half of median lobe's ventral side (better seen when viewed from above) and could not be mistaken with any other French species. What has been said above (see D. brevitarsis) regarding the use of the length of tarsi's articles recommended by NYHOLM (loc. cit.) and MÖHR (loc. cit.) for identification purposes is also true here.

Distribution : occurs in some parts of Europe : Sweden (Prov. Skania); in the meridional part of its geographic area, the species seems limited to the Alps and its spurs where it has been observed, so far, in Italy (North), Germany (Bavaria) and Austria (North Tyrol) (BOLLOW, 1940; BOROWIEC, 1984; GOECKE, 1960; IHSEN, 1943, MÖHR, 1966; RAVIZZA, 1971 & 1973; REITTER, 1920; SCHERER, 1978) and this is, again, confirmed by these new records from S.E. France.

Host plants : palynophagous species; in North Italy (Lombardy), recorded on the inflorescence of Carex acuta L. (= gracilis CURT.) (RAVIZZA, 1971); still in the same country observed on the spikes of Carex hudsonii A. BENN. (= elata ALL.) (RAVIZZA, 1973). In Austria, D. springeri has been reported on Carex goodenowi GAY and Scirpus lacustris L. (KIPPEBERG, 1967).

Phenology : In North Italy, adults have a short phenology, being mainly active in April (site of observation at an altitude of 275 m) (RAVIZZA, 1973); but at a higher altitude (1,300 m, North Tyrol, Austria), and as expected, they are active later : May, mainly in June, but still observed in the beginning of July (KIPPEBERG, 1967). The paucity of data does not allow the determination of the adults' phenology in France; only the month of May is reported here but, as just illustrated above, phenology correlatively fluctuates with altitude as well as latitude.
Spain fauna nov.


In the former Dongé collection, there are four cocoons, without label of origin and identification, but that were placed beside *M. appendiculata* adult specimens; 2 are empty, 1 contains a dry larva, 1 also contains a body (probably a dry larva or pupa), but it can not be determined without breaking it; it is presumed that they belong to the present species, but that would require confirmation.

The aedeagus of all males was dissected, examined (including endophallus) then mounted by the author.

[1] : regarding “ St-Julien ”, there are several localities that bear this toponym in the following Departments and one does not know in which of them the material was collected : Haute-Savoie, Gironde, Jura, Saône-et-Loire.

Distribution : Belgium, France, Germany, Poland, Netherlands, Switzerland, Czech Republic, United Kingdom, Ireland, Scandinavia, Romania, Russian Republic (Siberia) and Kazakhstany. Also reported from Algeria, but its presence in North Africa is doubtful according to Daccordi & Ruffo (1978). Very recently, Petitpierre (2001) stated that this genus could be discovered in Spain, which is now confirmed.

Host plants : has been captured on many plants and it is likely that some are just adventitious, but the pond weeds (*Potamogeton spp.*) and water milfoils (*Myriophyllum spp.*) can be considered as its main food plants; *Butomus umbellatus* L., *Potamogeton lucens* L., *P. natans* L., *P. pectinatus* L., *Myriophyllum spicatum* L., *M. alterniflorum* DC., *Sagittaria sagittifolia* L., *Scirpus maritimus* L., *S. lacustris* L., *Sparganium erectum* L., *Typha angustu­folia* L.

Phenology : few data available; in Belgium adults have been collected from March to September, with a higher frequency in the latter month (Lays, 1997).


**Austria** : 1♂, n.d., Jekel; **France** : Bas-Rhin : Strasbourg : 1♂, n.d., P. Sirguey (Coll. P. Sirguey); **Finland** : Esbo : 1♂, n.d., Levander (Coll. A. Fauvel); Esbo : 1♀, n.d., J. Sahlb[er]g (Coll. A. Fauvel); **Poland** : Danzig : 2♂♂-2♀♀, n.d. (Coll. L. Pandelé, n° 5905). Unknown origin : 4♂♂-4♀♀, n.d. (Coll. F. Chapuis, n° 1737). There is also 1 female, without date, captured by Jekel, holding a hardly decipherable manuscript inscriptions of the locality, looking like “ Bonnia ”? Other specimens, with readable labels, of the same series may exist elsewhere, in other Museums, and could elucidate this problem.

The aedeagus of all males was dissected, examined (including endophallus) then mounted by the author.

Distribution : Algeria, Austria, Baltic Sea, Belgium, Caspian Sea, Germany, Hungary, Finland, Ireland, Italy, Kirgiz S.S.R., Mongolian Republic, Netherlands, North Sea, Norway, Poland, Romania, Russia, Sardaina, Sweden, United Kingdom, Uzbeck S.S.R. For North Africa, Hinic (1994) mentions also Morocco and Tunisia, but, as far as the present author knows, no *Macroplea* spp. has ever been reported from these countries; it was only suggested, by Jolivet (1968), that *M. appendiculata* could exist in the lakes of Morocco, but has never been discovered there since.


Keys and/or descriptions of *M. appendiculata*

Regarding the aedeagus of these two *Macroplea* species, HOINIC (*loc.cit.*), using a S.E.M., reported the existence of minute pores (± 20\(\mu\)) located on the ventral part of the distal third of median lobe. In fact, these pores largely occur amongst the Donaciinae, but equally in other subfamilies of Chrysomelidae. They can be seen with a stereoscopic microscope (at least x 80; almost horizontal light) or with a compound microscope (phase contrast). The aedeagus must be well cleaned and prepared because the slightest layer or dirt may hide these microstructures. The male genitalia of several Donaciinae species were examined. For *Macroplea appendiculata* and *M. mutica*, micropores with one chaeta occur not only on the ventral face of the distal part of median lobe, as indicated by HOINIC, but also laterally and on its dorsal face (save its median part); equally present on tegmen dorsal face. Other species checked were: *Donacia* (*Cyphogaster*) *javana*, *D. (Donacia)* *crassipes*, *D. (Donaciomima) springeri*, *Donaciast a monrosi*, *Donaciella clavipes*, *Plateumaris consimilis*, *P. sericea*, *Sominella reticulata*. These structures appear as minute dark spots on the photographs of the apex of median lobe (ventral view) of several *Donacia* spp. provided by HAYASHI (2000 : 43, figs. 11 c, d) and HAYASHI & HARUSAWA (2000 : 207, figs. 24, 28, 32). Details of those examinations are not given here, but it can be said that all these aedeagi possess these microstructures usually on more than one face, also on the tegmen; sometimes they are barely visible, they slightly vary in size and density; length of chaetae may change, too. Some members of other subfamilies: *Sagrinae* (*Sagra femorata*), Orsodacinae (*Orsodacne cerasi*), Zeugophorinae (*Zeugophora subspinosa*), Cryptocephalinae (*Cryptocephalus aureolus*), Chrysolinae (*Chrysolina auricolata*), Galerucinae (*Lochmaea capreae*), gave positive results and it is expected that the same must be true for the remaining subfamilies. As for the function of these microstructures, HOINIC (*loc.cit.* : 19) suggests that they could work as secretory pores, "possibly connected with glands which produce a substance for the dilatation of female genital elements, or an odorous substance"; although these hypotheses need confirmation, one can remark that the organ on which these microstructures rest, the median lobe, is in itself certainly effective enough to operate dilatation of female genitalia. Concerning the possibility of an odorous substance production, HOINIC makes reference to male genitalic glands—possessing such a function—that occur amongst some Coleoptera and that were reported by JEANNEL (1955). One must note that contrary to what the Romanian author states, JEANNEL (*loc.cit.*) has not only localized these glands but illustrated them too (p. 31 : fig. 12; p. 32 : fig. 13 c; p. 136 : fig. 86 b); these glands always stand beside, and not on, the median lobe and are relatively quite big. Consequently, it is more probable that these microstructures may provide a sensile function and are homologous to those tactile hairs so universally spread amongst insects' genitalia.

9. *Neohaemonia flohri* (JACOBY, 1884)

**Mexico**: Mexico City: 1°, n.d., Högê.

Was under the label of *Neohaemonia nigricornis* KIRBY; the genitalia of that specimen has been mounted (by whom ?) on a microscope slide (n° 2) placed in the box.

Obviously, this specimen comes from a larger series of specimens (apparently some 200) collected by HÖGE and later spread in several collections throughout the world, as reported by ASKEVOLD (1988).

Distribution: So far, *N. flohri* has been recorded only in Mexico (ASKEVOLD, 1988).

Host plants: unknown.

Phenology: not enough available data (at least June).

10. *Neohaemonia melsheimeri* (LACORDAIRE, 1845)


Was under the label of *Neohaemonia nigricornis* KIRBY; as for the preceding specimen, its genitalia has been mounted on a microscope slide (n° 1) placed in the box.

Unfortunately, the State where the specimen was collected is difficult to determine for 6 toponyms, at least, bear the name of Rochester in Indiana, Michigan, Minnesota, New Hampshire and New York.

Distribution: its range extends through the Northeast of USA and Southeast of Canada (ASKEVOLD, 1988).
Host plants: Potamogeton spp.; observed also on Sparganium sp. and Lemna sp. but these plants are perhaps adventitious.

Phenology: though there have been records of imagoes from March to November, in fact, and provided the data available in ASKEVOLD (1988) can be used for some assessments, the months of May and June accumulate the highest occurrences of N. melsheimeri, with 33% and 41% respectively.

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