

## ***Carabus (Eurycarabus) faminii* Dejean, 1826 (Coleoptera, Carabidae) in Sicily: distribution and taxonomic considerations with description of a new taxon**

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### **ABSTRACT**

The study of large series from many localities from all over Sicily of *Carabus (Eurycarabus) faminii* Dejean, 1826 confirmed that in Sicily live two different subspecies. After examination of the holotypus of *C. faminii* we found that *C. faminii sabellai* Sparacio, 2007 is a synonym of the nominal form widespread in south-east part of Sicily. The western subspecies is described in this paper.

### **KEY WORDS**

Carabidae; *Carabus faminii*; new subspecies; new synonym; Sicily.

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### **INTRODUCTION**

Two subspecies of *Carabus (Eurycarabus) faminii* Dejean, 1826 are reported to Sicily: the nominal subspecies, widespread in the western provinces (Turin et al., 1993, 2003; Taglianti Vigna, 1993; Lorenz, 1998; Brežina, 1999; Bousquet et al., 2003; Vigna Taglianti et al., 2002, Deuve, 2004; Sparacio, 2007) and the ssp. *sabellai* Sparacio, 2007 reported to the south-eastern ones (Erei Mountains).

Two other subspecies are widespread in the Maghreb: ssp. *lucasi* Gaubil, 1849 and ssp. *numidicus* Castelnau, 1835 (Casale et al., 1982; Culot, 1985; Ghiretti, 1996).

As part of a larger study on *Carabus faminii* in Sicily we examined the holotypus of the species described by Dejean in 1826 observing that it is precisely identified with the recently described subspecies from Erei Mountains. Taking into account this consideration the form collected since XIX Century in the western provinces of Palermo, Trapani and West Agrigento, would result without a name and is described in the present paper. Moreover we also review the distribution of the two *Carabus faminii* populations in Sicily in the light of some recent findings.

**ACRONYMS.** The materials used for this study are deposited in the following Museums and private collections: Vittorio Aliquò, Palermo, Italy (CA); Marcello Arnone, Palermo, Italy (CMA); Michele Bellavista, Palermo, Italy (CB); Muséum National d'Histoire Naturelle, Paris (MNHN); Museo di Storia Naturale di Niscemi, Caltanissetta, Italy (CMN); Ivan Rapuzzi, Prepotto, Udine, Italy (CR); Marcello Romano, Capaci, Palermo, Italy (CMR); Ignazio Sparacio, Palermo, Italy (CS); Roberto Torrisi, Motta Sant'Anastasia, Catania, Italy (CT).

***Carabus (Eurycarabus) faminii faminii* Dejean, 1826**

**EXAMINED MATERIAL.** Holotypus (MNHN); Monti Erei (Enna): Monte Rossomanno, 4 males and 3 females (CS; CR); Sughereta di Niscemi (Caltanissetta), 1 male (CMN); Licodia Eubea (Catania), Bosco Vaito (CT); Agrigento, 4 males and 3 females (CR; CS); Agrigento, Valle dei Templi, 1 female (CMA); Piazza Armerina, Aidone (Enna), 1 male and 2 females (CR).

**HOLOTYPE** OF *C. faminii* Dejean, 1826. The holotypus (Figs. 1, 4) is a pinned specimen, length of 21.5 mm, with the following original labels: red

label with the written "HOLOTYPE"; label with the written EC42; label with the symbol "♂"; label with the written "Ex Musaeo Chaudoir"; label with the written "Carabus famini Dejean".

Body black, polished, lateral margins of pronotum and elytra slightly red-purple. Head of normal shape, smooth front, neck faintly punctulate and rugulose; convex eyes, frontal furrows narrow, extended to the anterior border of eyes, clypeus small, labrum bilobed; antennae thin and short, surpassing with three segments the base of elytra. Apical segment of palpi strongly widened, the maxillary ones are axe-shaped.

Pronotum transverse, sides regularly rounded, maximum width in the anterior third, rounded front margins, hind angles of pronotum rounded and large, thin and complete median sulcus, surface finely punctured.

Elytra short, oval, very convex; rough surface with irregular sculpture; primary intervals forming rows of short tubercles interrupted by foveae; secondary and tertiary intervals confused in a large, smooth and flat area. Legs short and robust, femurs wrinkles on both surfaces.

**VARIABILITY.** The examined specimens from South-Eastern Sicily are morphologically related to the holotype of *C. faminii* Dejean, 1826 described above, size ranges from 20 mm to 23 mm, the lateral margins of elytra and pronotum are slightly colored, completely absent in some specimens.

The aedeagus of a specimen from Rossomanno Mount (it was not possible to extract the aedeagus from the holotype) was described and figured by Sparacio (Sparacio, 2007).

Females are more convex with rounded elytra, length ranges from 21 mm to 23 mm.

**BIOLOGY AND DISTRIBUTION.** *C. faminii faminii* was collected under stones and debris of *Pinus* and *Eucalyptus* reforestation and oak bushes.

The nominal subspecies is distributed in south-eastern provinces (Fig. 7). In the map are reported the following localities: Licodia Eubea (Torrisci, 2010), Agrigento, Pachino (Magistretti, 1962, 1965) in addition to Erei Mountains (Rossomanno Mount and Aidone) and Sughereta di Niscemi.

**COMPARATIVE NOTES.** The holotypus of *C. faminii* Dejean, 1826 is identified to the spp. *sabellai*

(see Sparacio, 2007). Under this consideration it is necessary to establish the following synonymy:

*Carabus (Eurycarabus) faminii faminii*

Dejean, 1826

= *Carabus (Eurycarabus) faminii sabellai*

Sparacio, 2007 n. syn.

***Carabus (Eurycarabus) faminii romanoi* n.ssp.**

**EXAMINED MATERIAL.** Holotypus male, Godrano (PA), 25.XI.1978, legit I.Sparacio (CR); Paratypes: Bosco Ficuzza (PA), loc. Valle Maria, 7.I.1973, 1 male (CMR); Triscina (TP), 23.IV.1973, 1 male and 1 female (CMR); Mazara del Vallo (TP), 17.XI.1974, 1 female (CMR); Piana degli Albanesi (PA), Monte Maganoce, 4.I.1974, 1 female (CMR); idem, 11.XII.1974, 1 male and 1 female (CMR); idem, 11.I.1976, 1 female (CMR); Godrano (PA), 3.I.1975, 1 male and 1 female (CMR); idem, 11.I.1976, 1 male (CMR); idem, XI.1976, 1 male and 2 females (CMR); idem, 3.I.1979, 1 male and 1 female (CMR); idem, 23.XI.1979, 1 male and 2 females (CMR); idem, 16.I.1980, 1 female (CMR); idem, 23.I.1980, 1 male and 2 females (CMR); idem, 1.II.1981, 2 males (CMR); idem, 30.XI.1980, 1 male and 3 females (CMR); idem, 4.I.1989, 1 male and 2 females (CMR); idem, 20.XII.1992, 1 female (CMR); Lago Rubino (TP), 6.II.1980, 2 males (CMR); Godrano (PA), 25.XI.1978, 1 male and 1 female (CA); idem, 21.X.1979, 2 males (CA); idem, 9.XII.1979, 3 males (CA); idem, 16.I.1980, 2 females (CA); idem, 20.I.1980, 1 male (CA); idem, 2.III.1980, 1 female (CA); idem, 2.III.1980, 1 male (CA); idem, 10.I.1993, 1 female (CA); idem, 12.X.1996, 2 females (CA); idem, 23.II.2003, 1 female (CA); Campobello di Mazara (TP), Cave di Cusa, 31.XII.1989, 1 male and 1 female (CA); Bosco Ficuzza (PA), 28.I.1989, 2 males (CA); Foce Fiume Belice (TP), 17.IV.1988, 1 female (CA); idem, 21.XI.1992, 1 male and 1 female (CA); idem, 16.XII.1992, 1 male (CA); Lago Scanzano (PA), 20.III.2005, 1 male and 1 female (CA); Godrano (PA), 25.XI.1978, 1 male and 1 female (Coll. IS); idem, 30.XI.1996, 2 males and 1 female (CS); Foce Fiume Belice (TP), 10.VI.1981, 2 females (CS); idem, 17.IV.1993, 2 males (CS); Bosco Ficuzza (PA), 28.I.1989, 2 males and 2 females (CS); idem, 31.XII.1989, 1 female (CS); idem, 28.XI.1993, 2 males (CS); idem, 5.XII.1993, 1 male and 1 female (CS); idem, 30.XI.1996, 1 male (CS); idem, 13.XI.2001, 1 male and 4 females



Figure 1. *C. faminii faminii* holotypus. Figure 2. *C. faminii romanoi* n. ssp. holotypus. Figure 3. *C. faminii romanoi* n. ssp. paratype female, Sicilia, Bosco Ficuzza (PA), XII.2010, I. Rapuzzi & L. Caldon leg. (CR), length 26 mm.

(CS); Campobello di Mazara (TP), Cave di Cusa, 31.XII.1988, 1 male and 2 females (CS); Bosco Ficuzza (PA), 8.II.2009, 2 males and 2 females (CS); Bosco Ficuzza (PA) 8.XII.1978, 1 male and 1 female (CB); idem, 23.XI.1979, 1 male (CB); idem, 27.XII.2008, 1 male and 1 female (CB); Piana Albanesi (PA), I.1975, 1 female (CR); Bosco Ficuzza (PA), XII.1980, 1 male (CR); idem, 11.II.1989, 1 female (CR); idem, 6.XII.1992, 1 male (CR); idem, XII.2009, 1 male and 1 female (CR); idem, XII.2010, 7 males and 8 females (CR); Corleone (PA), 30.XI.1988, 1 female (CR); Foce Fiume Belice (TP), 21.XI.1992, 1 female (CR); Campobello di Mazara (TP), 20.X.1985, 1 female (CR); Godrano (PA), XII.2009, 7 males and 5 females (CR); idem, XI.2010, 3 males and 8 females (CR); Godrano, 25.XI.1978, 1 males (CMA); idem, 21.X.1979, 2 males (CMA); idem, 9.XII.1979, 3 males (CMA); idem, 16.I.1980, 2 males (CMA); idem, 20.I.1980, 1 male (CMA); idem, 25.XI.1992, 1 male (CMA); idem, 10.I.1993, 1 female (CMA); idem, 12.X.1996, 2 females (CMA); idem, 23.II.2003, 1 female (CMA); Bosco Ficuzza, 28.I.1989, 2 males (CMA); Campobello di Mazara,

Cave di Cusa, 31.XII.1988, 1 male and 1 female (CMA); Foce F. Belice, 17.IV.1988, 1 female (CMA); idem, 21.XI.1992, 1 male and 1 female (CMA); idem, 16.XII.1992, 1 male (CMA); Bosco Ficuzza, Lago Scanzano, 20.III.2005, 1 male and 1 female (CMA).

**DESCRIPTION OF HOLOTYPE MALE.** Length including mandibles: 24 mm, maximum width of elytra: 10 mm. Body black, the margins of pronotum and of the edge of elytra with purple. Shiny above (Fig. 2).

Head of normal size, surface with punctures more evident at the base and sides, front and disc almost perfectly smooth; supra-antennary ridge deep and split. Eyes very salient, perfectly hemispherical. Short antennae extending with 2.5 antennomeres beyond pronotal base. Apical segment of palpi strongly widened, axe-shaped; labial palp bisetose. Pronotum very transverse as wide as elytra, slightly convex, very wide at base, maximum width at the middle; sides regularly rounded and bent upwards at the basal angles. Hind angles of pronotum

very long and widely rounded; basal depression broad and deep. Pronotal disc slightly rough, sides and base with irregular punctures.

Elytra oval elongated, convex, maximum width beyond the half, shoulders angulate, sides regularly rounded. Heterodynamic elytral sculpture: primary intervals in form of short catenate rows, interrupted by foveae with metallic lustre; secondary and tertiary intervals fused in a single intermediate zone raised as or more than primary intervals. Legs short of normal size.

Aedeagus (Figs. 5, 6) characteristic of the species but a little more developed and with shorter apex than *C. faminii faminii*.

VARIABILITY. The length of the body ranges from 23 mm to 28 mm. The color of the margins of the pronotum and the edge of the elytra is more frequently red-violet or purple, rarely green or golden green. Labial palps are ditetose or trisetose. Shape of pronotum and elytral sculpture are very little variable.



Figure 4. *C. faminii faminii* holotypus, head and pronotum.

Figure 5. *C. faminii romanoi* n. ssp. aedeagus frontal view.

Figure 6. *idem*, lateral view.

ETIMOLOGY. We are honoured to dedicate this new subspecies to our friend Marcello Romano (Capaci, Palermo, Italy) entomologist and connoisseur of Sicilian biodiversity.

BIOLOGY AND DISTRIBUTION. *C. faminii romanoi* n. ssp. was found under stones and debris in various types of environments: i.e. dune system, stony ground, undergrowth of woodlands or natural reforestation, even degraded, generally down to 800 m above sea level.

The species survives with small population very isolated and endangered by the loss of original vegetation due to urbanisation and agriculture (authors' observations, Ragusa, 1883; Aliquò, 1970; Aliquò & Castelli, 1991). According to Palumbo (1892) the species was common in Selinunte area. In Sicily *C. faminii romanoi* n. ssp. is known only from the Western provinces: Palermo, Trapani and Western part of Agrigento (Fig. 7). It is reported for several localities.

*C. faminii romanoi* n. ssp. (*C. faminii* sensu Auctores) is reported from: Monte Pellegrino, Palermo (Ghiliani, 1839), Termini Imerese (Calcara, 1842), Palermo, Agrigento (Rottenberg, 1870-71), Favorita near Palermo (Ragusa, 1874), Santa Ninfa and Prizzi (De Stefani & Riggio, 1882), Segesta, Castelvetro and Favorita near Palermo (Ragusa, 1883), Castelvetro, Selinunte (Palumbo, 1890, 1892), Palermo, Prizzi and Castelvetro (Vitale, 1912; Luigioni, 1929), Palermo: Passo di Rigano (Luigioni & Tirelli, 1912), Palermo, Castelvetro (Magistretti, 1962), Marsala (Magistretti, 1965), Monte Pellegrino (Aliquò, 1970), Piana degli Albanesi, Bosco Ficuzza and Rocca Busambra (Riggio & Massa, 1974), province of Agrigento, Trapani and Palermo (Casale et al., 1982; Du Chatenet, 1986, 2005; Sparacio, 1995), contrada Tonnarella and borgata Costiera (Mazara del Vallo), Capo Granitola, Cave di Cusa, Partanna (Aliquò & Castelli, 1991), Prizzi, Castelvetro, Salemi (Facchini & Baviera, 2004), Agrigento, Realmonte (Casale et al., 2005).

COMPARATIVE NOTES. *C. faminii romanoi* differs from *C. faminii faminii* for the following characters: larger body size; wider and livelier coloration on lateral margins of elytra and pronotum; stronger head; eyes more prominent; antennae shorter and stronger; larger pronotum with a wider base; longer and less convex elytra; elytral intervals strongly convex, raised and regular; stronger legs.

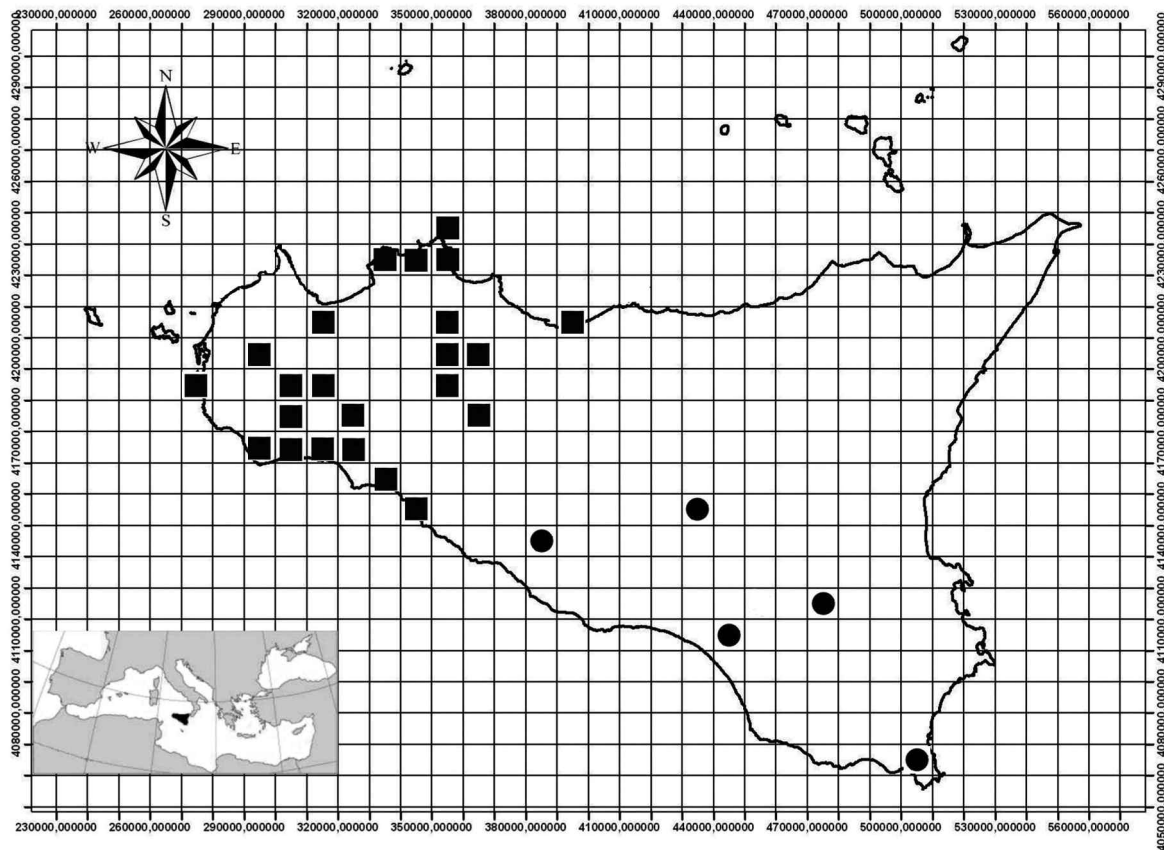


Figure 7. Geographic distribution of *C. faminii* in Sicily: circles=*C. faminii faminii*; squares=*C. faminii romanoi* n. ssp.

## CONCLUSION

In a recent paper one of the authors (Sparacio, 2007) correctly pointed out that *C. faminii* in Sicily includes two different subspecies.

The study of new *C. faminii* populations and the examination of the holotypus, described generically of “Sicily”, allowed us to better understand the spread of this species in Sicily. The populations inhabiting the south-east of Sicily (the provinces of Enna, Caltanissetta, Siracusa, Ragusa, southern Catania and the eastern part of Agrigento) belong to the nominative subspecies, whereas the western populations (Province of Trapani, Palermo and Agrigento West) are attributed to *C. faminii romanoi* n. ssp.

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