

# GROUND BEETLES OF MACARONESIA, AN OVERVIEW (COLEOPTERA, CARABIDAE)

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With 1 table

Our knowledge of the Carabid fauna of the Macaronesian archipelagoes has increased considerably in the last few years, due to the contributions of several authors: GILLERFORS (1986), BORGES (1992), ISRAELSON (1990) and BORGES & OROMÍ (1991) for the Azores; SERRANO (1987), ERBER & WHEATER (1988), ERBER & HINTERSEHER (1988, 1990) and ERBER (1990) for Madeira; SERRANO (1983, 1987) and ERBER & HINTERSEHER (1987) for the Salvages; MACHADO (1992) with a revisionary work, for the Canaries; and FRANZ (1987), GEISTHARDT (1982, 1988) and MATEU (1990) for the Cape Verde.

The present contribution is a compilation of the species recorded in the works mentioned, offering a synoptic list of all Carabid beetles inhabiting Macaronesia, in its geographical sense. No such global list has been published, if we exclude the classic WOLLASTON'S (1865) "Coleoptera Atlantidum" where the Cape Verde was missing, and the individual lists incorporated in MACHADO (1992).

Only the Canarian fauna can be considered as revised; our knowledge of the Azorean and Cape Verdean is rather accurate, but Madeiran fauna requires a revision, in particular, some conflictive genera such as *Trechus*.

The catalogue below has been compiled following the faunal lists included in Machado's monograph (1992), with some additions and corrections.

**Additions:** *Cedrorum azoricus* s.l. BORGES & SERRANO (in litt.) for the Azores, and *Paradromius linearis* for Madeira, recorded by ERBER (1990).

**Corrections:** MACHADO (o.c.) recorded *Acupalpus brunneipes* for Madeira, but it was not included in the faunal list (all *Acupalpus* species in Madeira should be thoroughly revised). He also mentioned *Ocydromus obliquum* for Azores, but BORGES (in press) found that the species is in reality *O. semipunctatum* (Donovan).

**Deletions:** *Ocydromus siculum* was mentioned for Madeira by JUNK (1938) probably

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based on the assumption of NETOLITZKY (1918) that *atlanticum* could be the western race of *siculum*, and other authors have considered *atlanticum* as a "Mischart". Based on MÜLLER-MOTZFELD'S (1986) revision of the *siculum*-complex, it is better to remove the species from the Madeiran list. *Acupalpus flavicollis* (Sturm) listed by BORGES (1990) with no further reference has been also removed from the present catalogue, as well as several Canarian species which have an uncertain status: *Dyschirius wyttenboogaarti* KLYNSTRA 1937, *Bembidion inconspicuum* WOLLASTON, 1864, *Stenolophus lanzarotensis* KLYNSTRA 1937 and *Syntomus brevipennis* (WOLLASTON, 1864).

### CONCLUSIONS

The total number of carabids species present in Macaronesia is 380, 19 of which are clearly introduced ones. Using these numbers one could deduct a native fauna of 361 species, but the amount of introduced species is probably higher than stated. A total of 28 species have developed inter- or intransular subspecies, which total 68. Therefore, if one adds species and subspecies as separate faunistic elements, the gross total is 420.

Table I summarizes the composition of the fauna of each archipelago.

TABLE I - Faunistic elements in the Carabidae of Macaronesia

CONCEPT	Azores	Madeira	Salvages	Canaries	Cape Verde	Macaronesia
<b>SPECIES TOTAL</b>	<b>48</b>	<b>109</b>	<b>9</b>	<b>226</b>	<b>61</b>	<b>380</b>
introduced species	11	9	1	12	5	19
<b>NATIVE SPECIES</b>	<b>37</b>	<b>100</b>	<b>8</b>	<b>214</b>	<b>56</b>	<b>361</b>
<i>Endemic</i>	15	58	2	143	16	241
monotypic species	14	50	2	128	12	207
polytypic species	1	6	-	13	1	23
end. geogr. races	-	2	-	2	3	11
<i>Macaronesian</i>	2	6	2	7	2	
monotypic	-	1	-	1	-	
polytypic species	2	5	2	6	2	
<i>Non endemic</i>	20	36	4	64	38	120
European	3	7	-	1	-	8
Palaartic	13	8	1	6	-	19
Mediterranean	2	16	1	34	7	41
North-African	1	3	2	19	3	21
African	-	1	-	3	5	8
Sahelian	1	1	-	1	22	22
Afro-tropical	-	-	-	-	1	1

The degree of endemicity of the fauna is highest in the Canaries (70%), decreasing in Madeira (63%), Salvages (50%), Azores (46%) and Cape Verde (32%). The little archipelago of Selvagens has a poor carabid fauna, and could be considered as an appendix of either the Canarian or Madeiran fauna. There is a trend from North to South in which the percentage of Palearctic and European elements decrease, while the importance of North-African and Ethiopian species increases. The Mediterranean element is maximum in the intermediate archipelagoes: the Canaries and Madeira.

Each archipelago has a rather "closed" fauna; that is, very few species inhabit two (8%) or more than two (5%) archipelagoes at one time. Most of them are introduced or widely spread common species (winged). However, there is also a small group of "Macaronesian" species (usually with archipelago-endemic vicariant subspecies): *Aepus gracilicornis*, *Ocydromus schmidti*, *Paradromius insularis*, *Dromius angustus*, etc.

The carabid fauna of the Azores, Madeira and the Canaries can be regarded as a subset of the West-Palearctic fauna, with a notorious entity and affinity between the endemic component of Madeira and the Canaries. The proportion of Cape Verdean paleoendemics which show relations to past common colonization with the other archipelagoes is today very small and the main character of the fauna is clearly Ethiopian. Therefore, the geographical Macaronesia can be split in two zoogeographical realms, the Palearctis and Ethiopis.

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#### LIST OF THE CARABID BEETLES OF MACARONESIA

##### *Carabinae*

<i>Caminara chlorostica cognata</i> (CHAUDOIR, 1850)	V	Cape Verdean geographical race
<i>Caminara imbricata</i> (KLUG, 1832)	V	Sahel-Sudanian
<i>Campalita olivieri</i> (DEJEAN, 1831)	ACV	North-African
<i>Campalita maderae maderae</i> (FABRICIUS, 1775)	MC	West-Mediterranean
<i>Ctenosta senegalensis</i> (DEJEAN, 1831)	V	Sahel-Sudanian
<i>Carabus abbreviatus</i> BRULLÉ, 1835	C	Canarian
<i>Carabus faustus faustus</i> BRULLÉ, 1838	C	Canarian subspecies
<i>Carabus faustus cabrerai</i> ENDERLEIN, 1929	C	Canarian subspecies
<i>Carabus coarctatus</i> BRULLÉ, 1838	C	Canarian

##### *Nebriinae*

<i>Leistus ellipticus</i> WOLLASTON, 1857	M	Madeiran
<i>Leistus nubivagus</i> WOLLASTON, 1864	C	Canarian
<i>Nebria dilatata</i> DEJEAN, 1836	C	Canarian
<i>Nebria currax</i> WOLLASTON, 1864	C	Canarian

**Notiophilinae**

- Notiophilus geminatus* DEJEAN, 1831 MC West-Mediterranean  
*Notiophilus quadripunctatus* DEJEAN, 1826 AM West-European

**Lorocerinae**

- Elliptosoma wollastoni* JAVET, 1852 M Madeiran

**Siagoninae**

- Siagona europaea* DEJEAN, 1826 C Indo-Mediterranean

**Scaritinae**

- Scarites buparius* (FORSTER, 1771) C West-Mediterranean  
*Scarites abbreviatus abbreviatus* DEJEAN, 1825 M Madeiran subspecies  
*Scarites abbreviatus humeralis* WOLLASTON, 1854 M Madeiran subspecies  
*Scarites abbreviatus cimensis* COCKERELL, 1923 M Madeiran subspecies  
*Scarites abbreviatus desertarum* COCKERELL, 1923 M Madeiran subspecies  
*Dyschirius numidicus* PUTZEYS, 1846 C Saharian  
*Dyschirius chalybeus* PUTZEYS, 1846 C Mediterranean  
*Dyschirius pauxillus* WOLLASTON, 1864 C Northwest-African  
*Dyschirius zanzibaricus* CHAUDOIR, 1878 V Sahel-Sudanian  
*Dyschirius auriculatus* WOLLASTON, 1867 CV Mediterranean  
*Dyschirius samharicus* PUTZEYS, 1873 CV Saharian-Indian

**Apotominae**

- Apotomus angusticollis* MÜLLER, 1946 C North-African  
*Apotomus chaudoirii* WOLLASTON, 1860 MC African  
*Apotomus velox* CHAUDOIR, 1876 V Sahelian

**Broscinae**

- Broscus crassimargo* WOLLASTON, 1865 C Canarian  
*Broscus rutilans* WOLLASTON, 1862 C Canarian  
*Broscus glaber* (BRULLÉ, 1838) C Canarian

**Trechinae**

- Canarobius chusyae* MACHADO, 1987 C Canarian  
*Canarobius oromii* MACHADO, 1987 C Canarian  
*Thalassophilus azoricus* OROMÍ & BORGES, 1991 A Azorean  
*Thalassophilus caecus* JEANNEL, 1938 M Madeiran  
*Thalassophilus pieperi* ERBER, 1990 M Madeiran  
*Thalassophilus whitei* WOLLASTON, 1854 MC Macaronesian  
*Thalassophilus subterraneus* MACHADO, 1990 C Canarian  
*Spelaeovulcania canariensis* MACHADO, 1987 C Canarian

<i>Aepus gracilicornis gracilicornis</i> WOLLASTON, 1860	AM	Macaronesian geographical race
<i>Aepus gracilicornis desertarum</i> MATEU & COLAS, 1959	M	Madeiran geographical race
<i>Aepus gracilicornis meridionalis</i> MACHADO, 1992	C	Canarian geographical race
<i>Perileptus areolatus</i> (CREUTZER, 1799	C	West-Palaearctic
<i>Perileptus wollastoni</i> JEANNEL, 1925	V	Cape Verdean
<i>Perileptus hesperidum</i> JEANNEL, 1925	V	Sahelian?
<i>Trechus torretassoi</i> JEANNEL, 1937	A	Azorean
<i>Trechus montanheiorum</i> OROMÍ & BORGES, 1991	A	Azorean
<i>Trechus jorgensis</i> OROMÍ & BORGES, 1991	A	Azorean
<i>Trechus terceiranus</i> MACHADO, 1988	A	Azorean
<i>Trechus picoensis</i> MACHADO, 1988	A	Azorean
<i>Trechus maderae</i> FRANZ, 1981	M	Madeiran
<i>Trechus alecrinensis</i> FRANZ, 1981	M	Madeiran
<i>Trechus lundbladi</i> JEANNEL, 1938	M	Madeiran
<i>Trechus flavomarginatus</i> WOLLASTON, 1854	M	Madeiran
<i>Trechus debilis</i> WOLLASTON, 1871	M	Madeiran
<i>Trechus laevis</i> WOLLASTON, 1857	M	Madeiran
<i>Trechus signatus</i> WOLLASTON, 1857	M	Madeiran
<i>Trechus dilutus</i> WOLLASTON, 1854	M	Madeiran
<i>Trechus custos custos</i> WOLLASTON, 1854	M	Madeiran subspecies
<i>Trechus custos quadricollis</i> WOLLASTON, 1854	M	Madeiran subspecies
<i>Trechus alticola</i> WOLLASTON, 1854	M	Madeiran
<i>Trechus cautus</i> WOLLASTON, 1854	M	Madeiran
<i>Trechus nigrocruciatu</i> s WOLLASTON, 1854	M	Madeiran
<i>Trechus umbricola</i> WOLLASTON, 1854	M	Madeiran
<i>Trechus wollastoni</i> JEANNEL, 1922	M	Madeiran
<i>Trechus minyops</i> WOLLASTON, 1862	M	Madeiran
<i>Trechus lindbergi</i> COLAS, 1963	M	Madeiran
<i>Trechus laurisilvae</i> FRANZ, 1981	M	Madeiran (bon.sp.?)
<i>Trechus ribeiramus</i> FRANZ, 1981	M	Madeiran (bon.sp.?)
<i>Trechus rabaçalensis</i> FRANZ, 1981	M	Madeiran (bon.sp.?)
<i>Trechus obtusus obtusus</i> ERICHSON, 1837	M	West-Palaearctic
<i>Trechus obtusus pecoudianus</i> JEANNEL, 1952	M	Madeiran geographical race (?)
<i>Trechus gomerensis</i> FRANZ, 1986	C	Canarian
<i>Trechus laureticola</i> JEANNEL, 1936	C	Canarian
<i>Trechus cabrerai</i> (JEANNEL, 1936)	C	Canarian
<i>Trechus machadoensis</i> FRANZ, 1985	C	Canarian
<i>Trechus wytttenboogaarti</i> JEANNEL, 1936	C	Canarian
<i>Trechus fortunatus</i> JEANNEL, 1927	C	Canarian
<i>Trechus tenoensis</i> ISRLAELSON & PALM, 1979	C	Canarian
<i>Trechus felix</i> WOLLASTON, 1864	C	Canarian
<i>Trechus antonii</i> JEANNEL, 1936	C	Canarian

<i>Trechus flavocircumdatatus</i> JEANNEL, 1922	C	Canarian
<i>Trechus minioculatus</i> MACHADO, 1987	C	Canarian
<i>Trechus flavocinctus flavocinctus</i> JEANNEL, 1922	C	Canarian subspecies
<i>Trechus flavocinctus gomerae</i> JEANNEL, 1936	C	Canarian subspecies
<i>Trechus detersus</i> WOLLASTON, 1864	C	Canarian
<i>Trechus flavolimbatus</i> WOLLASTON, 1863	C	Canarian
<i>Trechus benahoaritus</i> MACHADO, 1990	C	Canarian
<i>Anchotrechus punctipennis</i> JEANNEL, 1927	C	Canarian
<i>Lymnastis gaudini gaudini</i> JEANNEL, 1929	C	Canarian subspecies
<i>Lymnastis gaudini gomerae</i> FRANZ, 1965	C	Canarian subspecies
<i>Lymnastis subovatus</i> MACHADO, 1992	C	Canarian
<i>Lymnastis thoracicus</i> MACHADO, 1992	C	Canarian
<i>Lymnastis niloticus</i> MOTSCHOUJSKY, 1862	V	North-African
<i>Tachys centromaculatus</i> WOLLASTON, 1864	CV	West-Mediterranean
<i>Tachys dimidiatus</i> MOTSCHOUJSKY, 1849	C	West-Mediterranean
<i>Tachys fortunatus</i> MACHADO, 1989	C	¿Canarian?
<i>Tachys pallidulus</i> ANTOINE, 1943	C	Northwest-African
<i>Tachys micros</i> FISCHER, 1828	A	European
<i>Tachys bisulcatus</i> NICOLAI, 1822	M	Euro-Mediterranean
<i>Tachys bistriatus</i> DUFTSCHMID, 1812	M	Mediterranean
<i>Tachys algiricus</i> LUCAS, 1848	C	West-Mediterranean
<i>Tachys impressipennis atomarius</i> (WOLLASTON, 1867)	V	Cape Verdean geographical race
<i>Tachylopha feai</i> (ALLUAUD, 1925)	V	Sahelo-Sudanian
<i>Tachyura lucasi</i> DUVAL, 1852	MV	Mediterranean
<i>Tachyura variabilis</i> (CHAUDOIR, 1876)	V	Sahel-Sudanian
<i>Tachyura inaequalis</i> (KOLENATI, 1845)	A	Mediterranean
<i>Tachyura curvimana</i> (WOLLASTON, 1854)	AMCV	North-African-Sahelian
<i>Tachyura haemorrhoidalis</i> (PONZA, 1805)	C	West-Mediterranean
<i>Tachyta nana s.l.</i> (GYLLENSVÄRD, 1810)	C	Palaearctic (i)
<i>Asaphidion delatorrei</i> UYTENBOOGAART, 1928	C	Canarian
<i>Orzolina thalassophila</i> MACHADO, 1987	C	Canarian
<i>Metallina ambigua</i> (DEJEAN, 1831)	A	West-Mediterranean (i)
<i>Bembidion varium</i> (OLIVIER, 1792)	C	Palaearctic
<i>Bembidion mixtum</i> (SCHAUM, 1863)	V	African
<i>Bembidion vicinum</i> (LUCAS, 1846)	C	Mediterranean
<i>Bembidion iricolor</i> BEDEL, 1879	C	Atlantic-Mediterranean
<i>Bembidion biguttatum</i> FABRICIUS, 1779	M	Euro-siberian
<i>Bembidion semipunctatum</i> (DONOVAN, 1806)	A	West-Palaearctic
<i>Synechostictus elongatum s.l.</i> DEJEAN, 1831	M	West-Euro-Mediterranean
<i>Phyla tethys</i> (NETOLITZKY, 1926)	M	Mediterranean
<i>Ocydromus laetus</i> (BRULLÉ, 1838)	C	Mediterranean
<i>Ocydromus crotchii</i> (WOLLASTON, 1864)	C	Canarian

<i>Ocydromus fortunatus</i> (WOLLASTON, 1871)	C	Canarian
<i>Ocydromus derelictus</i> (ALLUAUD, 1926)	A	Azorean (paleoendemic)
<i>Ocydromus tabellatus</i> (WOLLASTON, 1854)	M	Madeiran
<i>Ocydromus hesperidum</i> (WOLLASTON, 1867)	V	Cape Verdean
<i>Ocydromus schmidti azoricus</i> LINDROTH, 1960	A	Azorean geographical race
<i>Ocydromus schmidti schmidti</i> (WOLLASTON, 1854)	M	Madeiran geographical race
<i>Ocydromus schmidti subcallosus</i> (WOLLASTON, 1864)	C	Canarian geographical race
<i>Ocydromus schmidti</i> ssp.	V	Cape Verdean geographical race?
<i>Ocydromus atlanticus atlanticus</i> (WOLLASTON, 1854)	MC	Macaronesian geographical race
<i>Ocydromus andreae</i> (FABRICIUS, 1787)	C	Palaearctic
<i>Ocys harpaloides</i> (SERVILLE, 1821)	AM	West-Palaearctic
<i>Pogonus chalceus</i> MARSHAM, 1802	C	Southwest-Palaearctic
<i>Pogonus gilvipes</i> DEJEAN, 1828	CV	Atlanto-Mediterranean
<i>Syrdenus grayi</i> (WOLLASTON, 1862)	CV	West-Mediterranean

**Perigoninae**

<i>Perigona nigriceps</i> DEJEAN, 1831	AMCV	Oriental/cosmopolitan (i)
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**Pterostichinae**

<i>Olisthopus ericae</i> WOLLASTON, 1854	M	Madeiran
<i>Olisthopus madeirensis</i> WOLLASTON, 1854	M	Madeiran
<i>Olisthopus humerosus</i> WOLLASTON, 1858	M	Madeiran
<i>Olisthopus glabratus glabratus</i> BRULLÉ, 1838	C	Canarian subspecies
<i>Olisthopus glabratus tamaranus</i> MACHADO, 1992	C	Canarian subspecies
<i>Olisthopus palmensis</i> WOLLASTON, 1864	C	Canarian
<i>Olisthopus elongatus</i> WOLLASTON, 1854	MC	West Mediterranean
<i>Olisthopus inclavatus</i> ISRAELSON, 1983	A	Azorean
<i>Agonum marginatum</i> (LINNAEUS, 1758)	AMC	West-Palaearctic (i)
<i>Agonum muelleri</i> HERBST, 1784	A	Palaearctic (i)
<i>Pseudanchomenus aptinoides</i> TARNIER, 1860	A	Azorean (paleoendemic)
<i>Paranchus nichollsii</i> (WOLLASTON, 1864)	C	Canarian
<i>Paranchus debilis</i> (WOLLASTON, 1864)	C	Canarian
<i>Paranchus ruficornis</i> GOETZE, 1777	AMC	Palaearctic (i)
<i>Abacetus natalensis</i> CHAUDOIR, 1869	V	Afro-tropical
<i>Pedius figuratus</i> (WOLLASTON, 1864)	C	Canarian
<i>Angoleus crenatus freyanus</i> (UYTTENBOOGAART, 1940)	C	Northwest-African
<i>Angoleus wollastoni</i> (WOLLASTON, 1854)	MCV	North-African
<i>Lagarus vernalis</i> s.l. (PANZER, 1796)	A	Palaearctic (?)
<i>Omaeus aterrimus nigerrimus</i> DEJEAN, 1828	AM	Southwest-Palaearctic
<i>Orthomus berytensis</i> (REICHE & SOULCY, 1854)	MSC	Mediterranean
<i>Orthomus discors</i> (WOLLASTON, 1864)	C	Canarian
<i>Cedrorum azoricus azoricus</i> BORGES & SERRANO i.p	A	Azorean subspecies

<i>Cedrorum azor. caveirensis</i> BORGES & SERRANO i.p	A	Azorean subspecies
<i>Nesorthomus berrai</i> BATTONI, 1987	M	Madeiran
<i>Nesorthomus robustus</i> (WOLLASTON, 1854)	M	Madeiran
<i>Nesorthomus dilaticollis</i> (WOLLASTON, 1854)	M	Madeiran
<i>Nesorthomus curtus</i> (WOLLASTON, 1854)	M	Madeiran
<i>Nesorthomus gracilipes</i> (WOLLASTON, 1854)	M	Madeiran
<i>Nesorthomus pecoudi</i> JEANNEL, 1942	M	Madeiran
<i>Nesorthomus lundbladi</i> JEANNEL, 1938	M	Madeiran
<i>Eutrichopus canariensis</i> (BRULLÉ, 1838)	C	Canarian
<i>Eutrichopus gonzalezi</i> MATEU, 1954	C	Canarian
<i>Wolltinerfia anagae</i> MEDINA & OROMÍ, 1991	C	Canarian
<i>Wolltinerfia tenerifae</i> (MACHADO, 1984)	C	Canarian
<i>Wolltinerfia martini</i> (MACHADO, 1984)	C	Canarian
<i>Pseudomyas doramasensis</i> UYTENBOOGAART, 1929	C	Canarian
<i>Gomerina calathiformis</i> (WOLLASTON, 1865)	C	Canarian
<i>Gomerina nitidicollis</i> (LINDBERG, 1953)	C	Canarian
<i>Pseudoplatyderus amblyops</i> BOLIVAR, 1940	C	Canarian
<i>Paraeutrichopus harpaloides</i> (WOLLASTON, 1864)	C	Canarian
<i>Paraeutrichopus pecoudi</i> MATEU, 1954	C	Canarian
<i>Platyderus alticola alticola</i> (WOLLASTON, 1864)	C	Canarian subspecies
<i>Platyderus alticola hierroensis</i> MACHADO, 1992	C	Canarian subspecies
<i>Platyderus alticola gomerensis</i> MACHADO, 1992	C	Canarian subspecies
<i>Platyderus alticola descendens</i> BEDEL, 1902	C	Canarian subspecies
<i>Platyderus lancerottensis</i> ISRAELSON, 1990	C	Canarian
<i>Platyderus gregarius</i> REICHE, 1861	C	Northwest-African
<i>Amaroschema gaudini</i> JEANNEL, 1943	C	Canarian
<i>Calathus complanatus complanatus</i> DEJEAN, 1828	M	Madeiran subspecies
<i>Calathus complanatus vandeli</i> COLAS & MATEU, 1959	M	Madeiran subspecies
<i>Calathus fimbriatus</i> WOLLASTON, 1858	M	Madeiran
<i>Calathus colasianus</i> MATEU, 1970	M	Madeiran
<i>Calathus vividus</i> FABRICIUS, 1801	M	Madeiran
<i>Calathus subfuscus</i> WOLLASTON, 1865	M	Madeiran
<i>Calathus refleximargo</i> MACHADO, 1992	C	Canarian
<i>Calathus obliteratus</i> WOLLASTON, 1865	C	Canarian
<i>Calathus pilosipennis</i> MACHADO, 1992	C	Canarian
<i>Calathus spretus</i> WOLLASTON, 1862	C	Canarian
<i>Calathus gomerensis</i> COLAS, 1943	C	Canarian
<i>Calathus cognatus</i> WOLLASTON, 1864	C	Canarian
<i>Calathus marcellae</i> COLAS, 1943	C	Canarian
<i>Calathus laureticola</i> WOLLASTON, 1865	C	Canarian
<i>Calathus appendiculatus</i> WOLLASTON, 1862	C	Canarian
<i>Calathus angularis</i> BRULLÉ, 1838	C	Canarian



<i>Calathus canariensis</i> HAROLDS, 1868	C	Canarian
<i>Calathus rufocastaneus</i> WOLLASTON, 1862	C	Canarian
<i>Calathus ciliatus</i> WOLLASTON, 1862	C	Canarian
<i>Calathus auctus</i> WOLLASTON, 1862	C	Canarian
<i>Calathus carinatus</i> BRULLÉ, 1838	C	Canarian
<i>Calathus angustulus</i> WOLLASTON, 1862	C	Canarian
<i>Calathus amplius</i> ESCALERA, 1921	C	Canarian
<i>Calathus depressus</i> BRULLÉ, 1838	C	Canarian
<i>Calathus freyi</i> COLAS, 1941	C	Canarian
<i>Calathus ascendens</i> WOLLASTON, 1862	C	Canarian
<i>Calathus rectus</i> WOLLASTON, 1862	C	Canarian
<i>Calathus abaxoides</i> BRULLÉ, 1838	C	Canarian
<i>Calathus gonzalezi</i> MATEU, 1956	C	Canarian
<i>Calathus simplicicollis</i> WOLLASTON, 1862	C	Canarian
<i>Calathus extensicollis</i> PUTZEYS, 1863	A	Azorean
<i>Calathus lundbladi</i> COLAS, 1938	A	Azorean
<i>Calathus vicenteorum</i> SCHATZMAYR, 1937	A	Azorean
<i>Calathus carvalhoi</i> SERRANO & BORGES, 1986	A	Azorean
<i>Calathidius brevithorax</i> MACHADO, 1992	C	Canarian
<i>Calathidius acuminatus</i> (WOLLASTON, 1862)	C	Canarian
<i>Calathidius sphondroides</i> (WOLLASTON, 1862)	C	Canarian
<i>Licinopsis alternans</i> (DEJEAN, 1828)	C	Canarian
<i>Licinopsis oblitterata oblitterata</i> (WOLLASTON, 1865)	C	Canarian subspecies
<i>Licinopsis oblitterata franzi</i> MACHADO, 1987	C	Canarian subspecies
<i>Licinopsis gaudini</i> JEANNEL, 1937	C	Canarian
<i>Licinopsis angustula</i> MACHADO, 1987	C	Canarian
<i>Licinopsis picescens picescens</i> (WOLLASTON, 1864)	C	Canarian subspecies
<i>Licinopsis picescens gomerita</i> MACHADO, 1987	C	Canarian subspecies
<i>Licinopsis schurmanni</i> MACHADO, 1987	C	Canarian
<i>Sphodrus leucophthalmus</i> (LINNAEUS, 1758)	MSC	Indo-European (i)
<i>Laemostenus complanatus</i> (DEJEAN, 1828)	AMC	North-African (i)
<i>Amara aenea</i> (DEGEER, 1774)	AMCV	Palaearctic (i)
<i>Amara superans</i> WOLLASTON, 1854	M	Madeiran
<i>Celia cottyi</i> (COQUEREL, 1859)	MSC	Northwest-African
<i>Amathitis rufescens</i> (DEJEAN, 1829)	C	West-Mediterranean
<i>Zabrus crassus</i> DEJEAN, 1828	C	Canarian
<i>Zabrus laevigatus</i> ZIMMERMANN, 1831	C	Canarian
<i>Zabrus canaricus</i> MACHADO, 1992	C	Canarian

### *Harpalinae*

<i>Crasodactylus punctatus</i> GUÉRIN, 1847	C	African
<i>Anisodactylus binotatus</i> (FABRICIUS, 1787)	AM	Palaearctic (i)

<i>Notiobia cupripennis</i> (GERMAR, 1824)	C	Neotropical (i)
<i>Odontocarus cordatus</i> (DEJEAN, 1825)	C	West-Mediterranean
<i>Ditomus opacus</i> (ERICHSON, 1841)	C	North-African
<i>Daptus vittatus labiatus</i> MOTSCHOUJSKY, 1849	C	West-Mediterranean
<i>Graniger femoralis</i> (COQUEREL, 1858)	C	Mediterranean
<i>Nesarpalus gregarius gregarius</i> FAUVEL, 1897	M	Madeiran subspecies
<i>Nesarpalus gregarius atlanticus</i> SCHAUBERBERG, 1932	M	Madeiran subspecies
<i>Nesarpalus vividus</i> (DEJEAN, 1829)	M	Madeiran
<i>Nesarpalus pelagicus</i> (WOLLASTON, 1860)	S	Selvagens
<i>Nesarpalus solitarius</i> (WOLLASTON, 1863)	C	Canarian
<i>Nesarpalus fortunatus</i> (WOLLASTON, 1863)	C	Canarian
<i>Nesarpalus wyttenboogaarti</i> (VANEMDEN, 1929)	C	Canarian
<i>Nesarpalus micans</i> (WOLLASTON, 1864)	C	Canarian
<i>Nesarpalus empiricus</i> (WOLLASTON, 1985)	C	Canarian
<i>Nesarpalus sanctaerucis</i> (WOLLASTON, 1864)	C	Canarian
<i>Platymetopus tessellatus</i> Dejean, 1829	V	Sahelian
<i>Nesiopelus serienotatus</i> (WOLLASTON, 1867)	V	Cape Verdean
<i>Aulacoryssus aciculatus</i> (DEJEAN, 1829)	V	Sahel-Sudanian
<i>Cryptophonus janinae</i> (JEANNE, 1984)	C	Canarian
<i>Cryptophonus schaumii</i> (WOLLASTON, 1864)	C	Canarian
<i>Cryptophonus paivanus paivanus</i> (WOLLASTON, 1867)	V	Cape Verdean subspecies
<i>Cryptophonus paivanus meirai</i> (MATEU, 1958)	V	Cape Verdean subspecies
<i>Cryptophonus tenebrosus</i> (DEJEAN, 1829)	MC	Euro-Mediterranean
<i>Cryptophonus fulvus</i> (DEJEAN, 1829)	C	Mediterranean
<i>Ophonus ardosiacus</i> (LUTSCHNIK, 1922)	AMS	West-Palearctic (?)
<i>Ophonus stictus</i> (STEPHENS, 1828)	AM	West-Palearctic
<i>Pseudophonus rufipes</i> (DEGEER, 1774)	AM	West-Palearctic (i)
<i>Pseudophonus griseus</i> (PANZER, 1797)	A	Palaeartic
<i>Harpalus attenuatus</i> STEPHENS, 1828	M	Atlanto-Mediterranean (?)
<i>Harpalus distinguendus</i> (DUFTSCHMID, 1812)	AMC	Palaeartic (i)
<i>Nesarpax labiatus</i> (ERICHSON, 1843)	V	Cape Verdean
<i>Bradybaenus scalaris</i> (OLIVIER, 1808)	V	Sahel-Sudanian
<i>Dicheirotichus obsoletus</i> (DEJEAN, 1829)	C	Atlanto-Mediterranean
<i>Dicheirotichus punicus</i> BEDEL, 1899	C	Mediterranean
<i>Bradycellus ventricosus</i> WOLLASTON, 1864	C	Canarian
<i>Bradycellus excultus</i> WOLLASTON, 1854	M	Madeiran
<i>Bradycellus madeirensis</i> MATEU, 1958	M	Madeiran
<i>Bradycellus feloi</i> MACHADO, 1992	C	Canarian
<i>Bradycellus harpalinus</i> SERVILLE, 1821	M	European
<i>Bradycellus chavesi</i> ALLUAUD, 1919	A	Azorean
<i>Bradycellus distinctus</i> (DEJEAN, 1867)	A	West-Palearctic (?)
<i>Acupalpus brunneipes</i> (STURM, 1825)	AM	West-Palearctic

<i>Acupalpus dubius</i> SCHILSKY, 1888	AM	European
<i>Acupalpus notatus</i> MULSANT & REY, 1861	MC	Mediterranean
<i>Acupalpus maculatus</i> SCHAUM, 1860	C	Euro-Mediterranean
<i>Egaploa crenulata</i> (DEJEAN, 1829)	V	Sahel-Sudanian
<i>Egadroma marginata</i> (DEJEAN, 1829)	MC	Mediterranean
<i>Egadroma reluscens</i> (ERICHSON, 1845)	V	Sahel-Sudanian
<i>Stenolophus teutonius</i> (SCHRANK, 1781)	AMC	West-Palaeartic
<i>Anomostomus torridus</i> LAFERTÉ, 1853	V	Sahelian
<i>Amblystomus orpheus</i> (LAFERTÉ, 1853)	V	Sahel-Sudanian
<i>Amblystomus viridulus</i> (ERICHSON, 1843)	V	Sahelian

### Licininae

<i>Zargus schaumii</i> WOLLASTON, 1854	M	Madeiran
<i>Zargus desertae</i> WOLLASTON, 1854	M	Madeiran
<i>Zargus pellucidus</i> WOLLASTON, 1854	M	Madeiran
<i>Zargus monizii</i> WOLLASTON, 1860	M	Madeiran
<i>Zargus crotchianus</i> WOLLASTON, 1865	C	Canarian
<i>Eurygnathus latreillei latreillei</i> (LAPORTE, 1834)	M	Madeiran subspecies
<i>Eurygnathus latreillei wollastoni</i> COCKERELL, 1923	M	Madeiran subspecies
<i>Licinus manriquianus</i> WOLLASTON, 1862	C	Canarian
<i>Licinus punctatulus punctatulus</i> (FABRICIUS, 1792)	A	West-Palaeartic (i)
<i>Licinus punctatulus granulatus</i> DEJEAN, 1926	C	North-African (i)

### Pentagonicinae

<i>Pentagonica hexagona</i> (WOLLASTON, 1867)	V	Cape Verdean
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### Callistinae

<i>Pachydinodes conformis uncosignatus</i> WOLLASTON, 1867	V	Cape Verdean geographical race
<i>Stenodinodes boisduvali</i> (DEJEAN, 1831)	V	Sahelo-Sudanian
<i>Stenodinodes assecla</i> (LAFERTÉ, 1851)	V	Sahelian
<i>Epomis circumscriptus</i> (DUFTSCHMID, 1812)	C	Afro-Palaeartic
<i>Chlaenius spoliatus</i> (ROSSI, 1790)	C	Mediterranean
<i>Chlaenius canariensis canariensis</i> DEJEAN, 1831	C	North-African
<i>Chlaenius laeticollis</i> CHAUDOIR, 1876	V	Sahel-Saharan

### Masoreinae

<i>Masoreus alticola</i> WOLLASTON, 1864	C	Canarian
<i>Masoreus affinis arenicola</i> WOLLASTON, 1863	CS	Macaronesian geographical race
<i>Masoreus orientalis</i> ssp.	M	Madeiran geographical race?
<i>Masoreus orientalis nobilis</i> WOLLASTON, 1864	C	Canarian geographical race
<i>Masoreus orientalis ascendens</i> WOLLASTON, 1867	V	Cape Verdean geographical race
<i>Aephinidius madagascariensis</i> (CHAUDOIR, 1850)	V	African

**Lebiinae**

<i>Somotrichus elevatus</i> (FABRICIUS, 1792)	V	Cosmopolitan (i)
<i>Platytrarus famini</i> (DEJEAN, 1826)	CV	Mediterranean
<i>Platytrarus tessellatus</i> (DEJEAN, 1826)	V	Ethiopian
<i>Platytrarus gracilis occidentalis</i> ANTOINE, 1933	C	Northwest-African
<i>Demetrius atricapillus</i> (LINNAEUS, 1758)	C	West-palearctic (i)
<i>Trichis maculata</i> KLUGER, 1832	V	Mediterranean
<i>Plocionus pallens</i> (FABRICIUS, 1775)	V	Cosmopolitan (i)
<i>Cymindis zargoides</i> (WOLLASTON, 1863)	C	Canarian
<i>Cymindis velata</i> (WOLLASTON, 1865)	C	Canarian
<i>Cymindis simillima</i> (WOLLASTON, 1865)	C	Canarian
<i>Cymindis amicta</i> (WOLLASTON, 1864)	C	Canarian
<i>Cymindis cincta</i> BRULLÉ, 1838	C	Canarian
<i>Cymindis anchomenoides</i> (WOLLASTON, 1867)	V	Cape Verdean
<i>Cymindis alutaceus</i> (WOLLASTON, 1867)	V	Cape Verdean
<i>Cymindis dohrnii</i> (WOLLASTON, 1867)	V	Cape Verdean
<i>Cymindis lindbergi</i> MATEU, 1964	V	Cape Verdean
<i>Cymindis marginella</i> BRULLÉ, 1838	C	Canarian
<i>Cymindis maderae</i> (WOLLASTON, 1857)	M	Madeiran
<i>Cymindis paivana</i> (WOLLASTON, 1860)	S	Salvages
<i>Cymindis moralesi</i> MATEU, 1979	C	Canarian
<i>Cymindis suturalis pseudosuturalis</i> BEDEL, 1906	MCS	Northwest-African
<i>Cymindis discophora</i> CHAUDOIR, 1873	C	Northwest-African
<i>Paradromius iucundus iucundus</i> MACHADO, 1992	C	Canarian subspecies
<i>Paradromius iucundus gillerforsi</i> MACHADO, 1992	C	Canarian subspecies
<i>Paradromius amoenus</i> (WOLLASTON, 1863)	C	Canarian
<i>Paradromius tamaranus</i> MACHADO, 1992	C	Canarian
<i>Paradromius amplius</i> MACHADO, 1992	C	Canarian
<i>Paradromius exornatus exornatus</i> MACHADO, 1992	C	Canarian subspecies
<i>Paradromius exornatus furvus</i> MACHADO, 1992	C	Canarian subspecies
<i>Paradromius purpurarius</i> MACHADO, 1992	C	Canarian
<i>Paradromius strigifrons strigifrons</i> (WOLLASTON, 1865)	C	Canarian subspecies
<i>Paradromius strigifrons tinerfensis</i> (MATEU, 1961)	C	Canarian subspecies
<i>Paradromius strig. grancanariensis</i> MACHADO, 1992	C	Canarian subspecies
<i>Paradromius linearis</i> (OLIVIER, 1795)	MC	Euro-Mediterranean
<i>Paradromius hariensis</i> MACHADO, 1992	C	Canarian
<i>Paradromius insularis insularis</i> (WOLLASTON, 1854)	M	Madeiran subspecies
<i>Paradromius insularis oceanicus</i> (WOLLASTON, 1865)	MS	Macaronesian subspecies
<i>Paradromius insularis illautus</i> MACHADO, 1992	C	Canarian geographical race
<i>Paradromius scholzi</i> MACHADO, 1992	C	Canarian
<i>Dromius meridionalis</i> DEJEAN, 1825	A	West-Palearctic (?)
<i>Dromius angustus alutaceus</i> WOLLASTON, 1857	M	Madeiran geographical race

<i>Dromius angustus plagipennis</i> WOLLASTON, 1865	C	Canarian geographical race
<i>Dromius angustus dissimilis</i> MACHADO, 1992	C	Canarian geographical race
<i>Dromius brittoni brittoni</i> MATEU, 1957	C	Canarian geographical race
<i>Dromius geisthardti</i> MATEU, 1990	V	Cape Verdean
<i>Philorhizus ferrarius</i> MATEU, 1956	C	Canarian
<i>Philorhizus bravoorum</i> MATEU, 1957	C	Canarian
<i>Philorhizus lindbergi</i> MATEU, 1956	C	Canarian
<i>Philorhizus elliptipennis</i> (WOLLASTON, 1864)	C	Canarian
<i>Philorhizus longicollis</i> (WOLLASTON, 1865)	C	Canarian
<i>Philorhizus mateui</i> MACHADO, 1992	C	Canarian
<i>Philorhizus umbratus</i> (WOLLASTON, 1865)	M	Madeiran
<i>Philorhizus wollastoni wollastoni</i> (FAUVEL, 1905)	M	Madeiran subspecies
<i>Philorhizus wollastoni nitidus</i> MATEU, 1957	M	Madeiran subspecies
<i>Philorhizus conicipennis</i> (FAUVEL, 1905)	M	Madeiran
<i>Philorhizus vieirai</i> MATEU, 1957	M	Madeiran
<i>Philorhizus atlanticus atlanticus</i> MATEU, 1957	C	Canarian subspecies
<i>Philorhizus atlanticus fortunatus</i> MATEU, 1957	C	Canarian subspecies
<i>Philorhizus atlanticus palmensis</i> MACHADO, 1992	C	Canarian subspecies
<i>Philorhizus fumatus</i> MATEU, 1961	C	Canarian
<i>Philorhizus parvicollis</i> (WOLLASTON, 1865)	C	Canarian
<i>Philorhizus franzi</i> MACHADO, 1992	C	Canarian
<i>Philorhizus incertus incertus</i> (WOLLASTON, 1864)	C	Canarian subspecies
<i>Philorhizus incertus jandiensis</i> MACHADO, 1992	C	Canarian subspecies
<i>Philorhizus insignis</i> LUCAS, 1846	C	North-African
<i>Philorhizus beidensis beidensis</i> ANTOINE, 1940	C	Northwest-African
<i>Philorhizus melanocephalus</i> (DEJEAN, 1825)	A	West-Palearctic
<i>Philorhizus notatus</i> (STEPHENS, 1827)	A	North-Palearctic
<i>Philorhizus attenuatus</i> (WOLLASTON, 1867)	V	Cape Verdean
<i>Philorhizus sigma</i> (ROSSI, 1790)	V	European (i?)
<i>Metadromius pervenustus</i> (WOLLASTON, 1864)	C	Canarian
<i>Metadromius palmi</i> MACHADO, 1992	C	Canarian
<i>Syntomus lundbladi</i> JEANNEL, 1938	M	Madeiran
<i>Syntomus inaequalis</i> (WOLLASTON, 1863)	C	Canarian
<i>Syntomus lancerotensis</i> (WOLLASTON, 1864)	C	Canarian
<i>Syntomus fuscomaculatus</i> (MOTSCHOULSKY, 1845)	MC	South-Palearctic
<i>Syntomus lateralis schrammi</i> ANTOINE, 1940	C	North-African
<i>Syntomus grayi</i> (WOLLASTON, 1867)	V	Cape Verdean
<i>Syntomus submaculatus</i> (WOLLASTON, 1867)	V	Sahelian
<i>Microlestes luctuosus chobauti</i> JEANNEL, 1942	MC	West-Mediterranean
<i>Microlestes negrita</i> WOLLASTON, 1854	AM	Mediterranean
<i>Microlestes angusteforcipatus</i> ANTOINE, 1940	C	West-Mediterranean
<i>Microlestes corticalis</i> DUFOUR, 1820	MC	Mediterranean

<i>Microlestes abeillei brisouti</i> HOLDHAUS, 1912	C	North-African
<i>Microlestes gomerensis</i> LINDBERG, 1953	C	Saharian
<i>Microlestes discoidalis</i> (FAIRMAIRE, 1892)	V	Sahelian
<i>Apristus hololeucus</i> LINDBERG, 1950	C	Canarian
<i>Zolotarewskiella strigicollis</i> (WOLLASTON, 1867)	V	Sahel-Sudanian

### **Zuphiinae**

<i>Dicrodontus brunneus brunneus</i> (DEJEAN, 1831)	C	Canarian subspecies
<i>Dicrodontus brunneus exilis</i> MACHADO, 1992	C	CANARIAN SUBSPECIES
<i>Dicrodontus aptinoides</i> (WOLLASTON, 1865)	C	CANARIAN
<i>Dicrodontus alluaudi</i> MATEU, 1952	C	Canarian
<i>Parazuphium baeticum mauretaniae</i> HÜRKA, 1982	M	North-African
<i>Parazuphium blandum</i> MATEU, 1990	V	Ethiopian
<i>Parazuphium debile harteni</i> MATEU, 1990	V	Ethiopian
<i>Parazuphium damascenum canariense</i> MACHADO, 1992	C	Canarian geographical race

### **Brachininae**

<i>Pheropsophus hispanicus</i> (DEJEAN, 1823)	C	Northwest-African (i)
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## REFERENCES

BORGES, P. A. V.:

1990. A checklist of the Coleoptera from the Azores with some systematic and biogeographic comments. *Bol. Mus. Mun. Funchal*, 42 (220): 87-136.
1992. Biogeography of the Azorean Coleoptera. *Bol. Mus. Mun. Funchal*, 44 (237): 5-76.
- (IN PRESS). Seasonal activity and conservation management of a ground-beetle (Coleoptera: Carabidae) guild in a remnant of a salty-lagoon from Terceira.

BORGES, P. A. V. &amp; A. R. M. SERRANO:

1989. New records of the coleopterous fauna (Insecta, Coleoptera) from the Azores. *Bol. Mus. Mun. Funchal*, 41(209): 5-24.

BORGES, P. A. V. &amp; P. OROMÍ:

1991. Cave-dwelling ground beetles of the Azores (Col., Carabidae). *Mem. Biosp.ol.*, 18: 185-191.

BORGES, P. A. V. &amp; SERRANO, A. M.:

- (IN PRESS). New taxa of Poecilini (Coleoptera, Carabidae, Pterostichinae) from the Azores. *Boll. Mus. Reg. Scienz. Nat. Torino*.

ERBER, D.:

1990. New and little known coleoptera from Madeira. Results of the excursions to Madeira in the years 1986-1990. *Bol. Mus. Mun. Funchal*, 42 (233): 147-181.

ERBER, D. &amp; W. HINTERSEHER:

1988. Contribution to the knowledge of the Madeira Beetles. *Bol. Mus. Mun. Funchal*, 40 (202): 139-214.
1990. Additional notes to the knowledge of the Madeira beetles. *Bol. Mus. Mun. Funchal*, 42 (222): 141-146.

ERBER, D. &amp; WHEATER, P. C.:

1988. Additional notes on the coleopterous fauna of the Selvagem Islands. *Bol. Mus. Mun. Funchal*, 40 (207): 249-251.

FRANZ, H.:

1987. Biogeographische und Ökologische Studien auf den Kapverdischen Inseln.

*Sitzb. Österr. Akad. Wiss. Mathem.-nat. Kl, I, 196 (1-4): 89-110.*

GEISTHARDT, M.:

1982. Die Käfer (Coleoptera) der Kapverden. Eine Zusammenstellung der von Lobin et al. auf dem Archipel 1978-1980 gesammelten Arten, nebst zoogeographischen Anmerkungen. *Cour. Forsch.-Inst. Senckenberg*, 52: 173-224.
1988. Tabellarische Übersicht zur Verbreitung der Coleoptera auf den Kapverdischen Inseln. *Cour. Forsch.-Inst. Senckenberg*, 105: 193-210.

GILLERFORS, G.:

1986. Contribution to the Coleopterous fauna of the Azores. *Bol. Mus. Mun. Funchal*, 38 (172): 16-27.

ISRAELSON, G.:

1990. Further notes on the Coleopterous fauna of the Azores, with speculations on its origin. *Bocagiana*, Funchal, 138, 8 pp.

MACHADO, A.:

1992. *Monografía de los Carábidos de las islas Canarias (Insecta, Coleoptera)*. - La Laguna: Instituto de Estudios Canarios, 734 pp.

MATEU, J.:

1990. Contribution à la connaissance des Coléoptères carabiques de l'archipel du Cap Vert (Insecta, Coleoptera, Carabidae). *Spixiana* 13 (2): 187-193.

MÜLLER-MOTZFELD, G.:

1986. Die Gruppe des *Bembidion* (Subgenus: *Ocydromus* Clariv.) *decorum* Zenker (Coleoptera: Carabidae). *Dtsch. ent. Z., n.F.* 33 (3-5): 137-175.

SERRANO, A. R. M.:

- 1987a. Contribution à la connaissance des Coléoptères (Insecta, Coleoptera) de l'Archipel des Îles Selvagens. *Bocagiana*, 111, 3 pp.
- 1987b. Contribution à la connaissance des Coléoptères de l'Archipel de Madère. I. Coleoptera: Carabidae, Dytiscidae, Hydraenidae, Hydrophilidae, Histeridae et Staphylinidae. *Bol. Mus. munic. Funchal*, 33 (192): 141-155.

WOLLASTON, T. V.:

1865. *Coleoptera Atlantidum, being an enumeration of the Coleopterous insects of the Madeiras, Salvages and Canaries*. London: Taylor & Francis, 47 + 526 pp, Appendix 140 pp.