

Diversity and distribution of type specimens deposited in the Invertebrate section of the Museum of Zoology QCAZ, Quito, Ecuador

DAVID A. DONOSO^(1,2), FERNANDA SALAZAR^{(1)*}, FLORENCIO MAZA⁽¹⁾,
RAFAEL E. CÁRDENAS⁽¹⁾ & OLIVIER DANGLES^(1,3)

⁽¹⁾ Museo de Zoología, Escuela de Ciencias Biológicas, Pontificia Universidad Católica del Ecuador, Av. 12 de Octubre 1076 y Roca, Apdo. 17-01-2184, Quito, Ecuador

⁽²⁾ Graduate Program in Ecology and Evolutionary Biology, Department of Zoology, University of Oklahoma, Norman, OK 73019, USA

⁽³⁾ IRD-LEGS and University Paris-Sud 11, F-91190 Gif-sur-Yvette, France

* Corresponding author

Abstract. The Invertebrate section of the Museum of Zoology QCAZ at the Pontifical Catholic University of Ecuador in Quito maintains nearly two million curated specimens, and comprises Ecuador's largest collection of native taxa. We review 1902 type specimens from 6 subspecies and 320 species in 121 genera and 42 families, currently kept in the Museum. The list includes 116 holotypes, 10 allotypes, 1774 paratypes and 2 neoparatypes. The collection of type specimens is particularly strong in the Coleoptera (family Carabidae and Staphylinidae) and Hymenoptera. However, other insect orders such as Diptera and Lepidoptera and non-insect arthropods such as Acari, Aranea and Scorpiones, are moderately represented in the collection. This report provides original data from labels of every type specimen record. An analysis of the geographic distribution of type localities showed that collection sites are clustered geographically with most of them found towards the northern region of Ecuador, in Pichincha, Cotopaxi and Napo provinces. Sites are mainly located in highly accessible areas near highways and towns. Localities with a high number of type species include the cloud forest reserve Bosque Integral Otonga and Parque Nacional Yasuní in the Amazon rainforest near PUCE's Yasuní Scientific Station. Type localities are not well represented in the Ecuadorian National System of Protected Areas. Future fieldwork should include localities in the southern region of Ecuador but also target less accessible areas not located near highways or towns. We discuss the value of the collection as a source of information for conservation and biodiversity policies in Ecuador.

Résumé. Diversité et distribution des spécimens types déposés à la section Invertébrés du Musée de ZOOLOGIE QCAZ, Quito, Equateur. La section Invertébrés du Musée de Zoologie QCAZ héberge près de 2 millions de spécimens, ce qui en fait la plus grande collection de taxons natifs d'Equateur. Dans cet article, nous faisons la revue de 1902 spécimens types incluant 6 sous-espèces et 320 espèces dans 121 genres et 42 familles, actuellement conservés au Musée. La liste inclut 116 holotypes, 10 allotypes, 1774 paratypes et 2 neoparatypes. Au sein de l'embranchement Arthropoda, cette liste représente particulièrement bien les ordres d'insectes très diversifiés que sont les Coléoptères (familles Carabidae and Staphylinidae) et Hyménoptères. Toutefois, d'autres ordres d'insectes tels que les Diptères et Lépidoptères, ou encore les Arachnides (Acariens, araignées et scorpions) ne sont que modestement représentés dans la collection. Cette étude synthétise les données originales de chacun de ces spécimens. Une analyse de la distribution géographique des localités types montre que les sites de collection sont spatialement aggrégés, la plupart d'entre eux étant trouvés dans la partie nord de l'Equateur, dans les provinces de Pichincha, Cotopaxi et Napo. Ces sites sont principalement situés dans des zones d'accès facile tels que près de routes et de villes. Les localités présentant un nombre de spécimens remarquablement élevés incluent la forêt de nuages *Bosque Integral Otonga* et le *Parque Nacional Yasuní* dans la forêt amazonienne, près de la station scientifique Yasuní de la PUCE. Les localités type ne sont pas bien représentées au sein du système équatorien des aires protégées. Nous suggérons que les futures études de terrain incluent des sites de collecte dans la partie sud de l'Equateur mais aussi qu'elles aient pour cible les zones ayant un accès plus limité, loin des routes et des villes. Nous discutons également la valeur de cette collection en tant que source d'information pour les stratégies politiques de conservation de la biodiversité en Equateur.

Keywords: QCAZ Museum, Invertebrates, Type specimens, Ecuador, Conservation.

Type collections are invaluable repositories of biological information and comprise unique and irreplaceable taxonomic and natural history reference material (Suarez & Tsutsui 2004; Wheeler *et al.* 2004). Type specimens, the “bearers of the scientific names of all nominal species-group taxa” (art. 72.10 of the ICZN 1999) are obvious objects of interest for systematics and taxonomists and studies in many other branches of scientific endeavor (Alberch 1993; Winston 2007). It is crucially important to catalogue and digitise this information, noting the site of deposition of type specimens and their state of conservation for wide dissemination (Garrett 1989; Michalski 1992).

The use of label data from natural history collections has improved our understanding of ecology, biogeography and evolutionary biology and conservation biology (Freitag *et al.* 1998; Soberón *et al.* 2000; Soberón *et al.* 2003; Reddy & Davalos 2003; Meier & Dikow 2004, O’Connell *et al.* 2004). Museum specimens are evidence of the geographic location of a species at a given time. This information can be integrated in models exploring the geographic components of ecological processes, biodiversity and global change (Graham *et al.* 2004; Rahbek *et al.* 2007; but see Rowe 2005). Results from these studies attest to the benefits of modern database techniques, especially in terms of the dissemination of information from sources (museums) to users (scientists and policy makers) (Meier & Dikow 2004).

Our first objective was to review the type collection of the Invertebrate Section of the Museum of Zoology QCAZ (Quito, Católica, Zoología) at the Pontificia Universidad Católica del Ecuador (PUCE) in Quito. The museum was established in 1981 under the direction of Dr. Giovanni Onore as a unit of the School of Biological Sciences at PUCE. Additional information concerning the Museum’s history, structure, functions and challenges may be found in Barragán *et al.* (this issue) and Dangles *et al.* (this issue). From its start in the early 1980’s, PUCE scientists and students have collected invertebrates in mainland Ecuador, in the Galápagos Islands and associated shallow water marine habitats, a practice that continues today. These specimens comprise the bulk of the museum’s holdings and are stored in cabinets until they can be curated and identified by specialised taxonomists. These collections have motivated scientific research inside and outside Ecuador and have resulted in the description of several hundred new species to science. Vouchers of these new species are stored in the Museum as type specimens. For example, the collection holds the first records of several agricultural pests including several species of fruit flies *Anastrepha* spp. (Diptera: Tephritidae; Calles & Ponce

2003), *Eucalyptus* pests, *Phoracantha semipunctata* (Coleoptera: Cerambycidae) and the potato moth, *Tecia solanivora* (Lepidoptera: Gelechiidae; Barragán *et al.* 2004, Pollet *et al.* 2003). Collections of the insect vectors of human and veterinary disease such as the vectors of Chagas and other diseases caused by trypanosomes (Aguilar *et al.* 1999; Cárdenas & Vieira 2005; Palomeque *et al.* 2003; Pinto *et al.* 2003; Pinto *et al.* 2006;) are also housed in the Museum.

Our second objective was to examine spatial patterns in the collection and potential bias of the type material in documenting Ecuadorian invertebrate diversity, using geographical information systems (GIS) coupled to spatial analysis. Our goal is to provide to Ecuadorian authorities and policy makers basic information on the conservation status of the invertebrate fauna in Ecuador. This information can serve as a guide for conservation and biodiversity efforts (Shi *et al.* 2005).

Materials and Methods

Review of type specimens

From 2005–2008, an intensive search of the wet and dry collections of the Museum for specimens labeled or identified as “type” specimens (i.e. holotypes, paratypes, allotypes, neotypes, topotypes; but also specimens with a colored label) was done. These specimens were separated from the collection and their identity as type specimens was confirmed using original literature. When required, specimens were curated (i.e. change of alcohol, container, oxidized pins, addition of a restored label), but no original label, or other information, was removed from any specimen. Type specimens are maintained separately from the main collection and kept in designated locked cabinets under specific light and humidity conditions for long-term storage (Garrett 1989; Michalski 1992).

Type specimens were the initial focus of a current initiative of the Museum to digitise specimen label information for all museum specimens. Museum personnel established a strict digitisation protocol, which consists of the following steps. Label data from specimens stored in the museum cabinets (i.e. mainly country of origin, province, locality, altitude, geographic coordinates, date, collector, determination, and other ecological data) were recorded in a specially designed database (Apple Macintosh Filemaker Pro). The lowest taxonomic rank for each specimen was checked and recorded in the database up to Phylum (Triplehorn & Johnson 2005). This digitised information was linked to a unique accession number label (e.g. Tipos QCAZI 00001, for type specimens; QCAZI 00001, for other specimens), which was added to every specimen.

Georeferencing

We used label data as the main source of information to georeference type specimens deposited in the Museum. Due to the age of these collections (mostly from 1980’s and 1990’s), a considerable number of data labels (72%) had no geographic coordinates. Before the widespread use of geographic information systems (GIS) products such as global positioning systems (GPS) and electronic gazetteers in the mid 1990’s, most

biological collections in the Museum did not have specific or complete geographic coordinates. We increased the number of known locations by submitting the label data information to a strict protocol of geo-referencing (Wieczorek *et al.* 2004). We divided the locality information from data labels into nine categories (Wieczorek *et al.* 2004). A locality description usually consists of several parts and could be assigned to more than one of the categories. These categories range from category 1 which refers to dubious localities with questionable information to category 9, which describes localities defined by a distance from a landmark (Table 1). The categories allowed us to estimate the geographical information content of each locality description. After the categorisation process, we used standard gazetteers for the country and publically available information GIS products such as digital Ecuadorian maps from the Almanaque Electrónico Ecuatoriano (2002) and UNEP-WCMC (2005) to provide geographic coordinates for those type localities with valid geographic information, but without coordinates.

Spatial analyses

Basic collection tendencies and potential bias in the location of type specimens inside Ecuador were analysed using the following set of statistical analyses. First, we estimated the presence of clustering of the georeferenced localities using the nearest neighbor index (NNI) as calculated by the Spatial Statistics tool “average nearest neighbor distance” in ArcGIS 9.1 (ESRI 2005). Localities in our catalogue are assumed clustered if the nearest neighbor observed meandistance/expected mean distance ratio was less than 1 (i.e. $NNI < 1$). As a measure of statistical significance, we used the Z_{score} statistic to test for the null hypothesis that localities are not clustered in space (ArcGIS 9.1 Help, ESRI 2005).

If clustering was found, we analysed the degree of clustering using the nearest neighbor distance distribution function, $G(r)$ (Diggle 1983). $G(r)$ represents the accumulated frequency of the type localities as a function of the minimum distance separating them. We calculated distances between 165 type localities ($n = 27,225$ entries) using the SpatStat package in R (v.2.4.1, R Development Core Team 2007). Distances were converted from geographic coordinates in degrees to km using the formula, $1^\circ = 111.3$ km (Christopherson 2005). To obtain confidence intervals (CI) at 5% and 95%, we compared these distances with a null model generated by obtaining distances between 165 random-generated localities (100 simulations). Because

the simulated $G(r)$ curves stabilised after approximately 500 entries, we used the first 500 entries for overall comparison.

We visualised the clustering pattern of type localities by generating a map of locality spatial densities. Geographic coordinates (x, y) of the 165 type localities and the corresponding number of collected species, z , were fitted to a surface of the form $z(x, y)$. We used the function, GRIDFIT written in MATLAB (D’Errico 2006), to smooth density values by nearest neighbor interpolation. The resulting GRIDFIT modeling surface, defined by values of a set of nodes forming a rectangular lattice, was then fitted to the profile map of Ecuador. The base polygon consisted of a vector shapefile of Ecuador divided into the main Ecuadorian geographic divisions: Coast (Costa), highlands (Sierra) and Amazon basin (Oriente).

Conservation value of type specimens

We estimated the economic and social importance and conservation value of the type collections at the QCAZ by calculating the percentage of type localities located within the Ecuadorian Protected Areas National System (SNAP; UNEP-WCMC 2005). We used 30 protected areas located inside continental Ecuador, gathered in a polygon map (UNEP-WCMC 2005). The Galápagos Islands were excluded for this analysis. We calculated the percentage of type localities located inside the SNAP using the GIS tool “Count Points” in polygons defined using Hawth’s Tools (Beyer 2004).

We quantified the overall accessibility (*sensu* Farrow & Nelson 2001) of type localities. Accessibility was defined as a physical access potential for moving from one place to the other, measured by travel hours. In ArcGIS 9.1, we extracted accessibility values from the accessibility layer presented in the Almanaque Electrónico Ecuatoriano (2002), which, is based on overall average trip time, in hours, to every type locality, with respect to the following features, topography, river navigability, first and second order roads and towns with more than 50,000 inhabitants. Areas with a high accessibility value are difficult to access and usually are seldom visited by humans (i.e. high value of conservation). Areas with a low accessibility value are associated with roads, navigable rivers and airports.

We further investigated the spatial distribution of type localities by counting the number of type localities within major Ecuadorian political divisions (i.e. provinces) and natural divisions or bioregions (Ron *et al.* in press).

Table 1. Number of type localities for each of Wieczorek’s definitions of localities (Wieczorek *et al.* 2004). Most localities ($n = 156$) were assigned to Category 5 “Named place”. Examples of the type’s data label are given for each locality.

	Definition	# Type Localities	Example of Type’s Data Label
Category 1	Dubious	1	-
Category 2	Can not be located	49	Ecuador, Loja, Cord. Lag. Negra
Category 3	Demonstrably inaccurate	3	Ecuador, Azuay, Cuenca, Challuabamba, 11 km NE Cuenca
Category 4	Coordinates	41	Ecuador, Loja, Veracruz, 2000, -79.57302 -3.97709
Category 5	Named place	156	Ecuador, Cañar, Chocar
Category 6	Offset	0	-
Category 7	Offset along a path	8	Ecuador, Azuay, Km 100 Vía Cuenca-Loja
Category 8	Offsets in orthogonal directions	6	Ecuador, Past(aza), 1100m, Llandia, (17 km N. Puyo)
Category 9	Offset at a heading	11	Ecuador, Napo, 27 km NW Baeza, 2700 m

Results

Taxonomic content of the catalogue

Our survey revealed 1,902 type specimens belonging to 6 subspecies and 320 species in 121 genera and 42 families currently stored in the QCAZ Museum

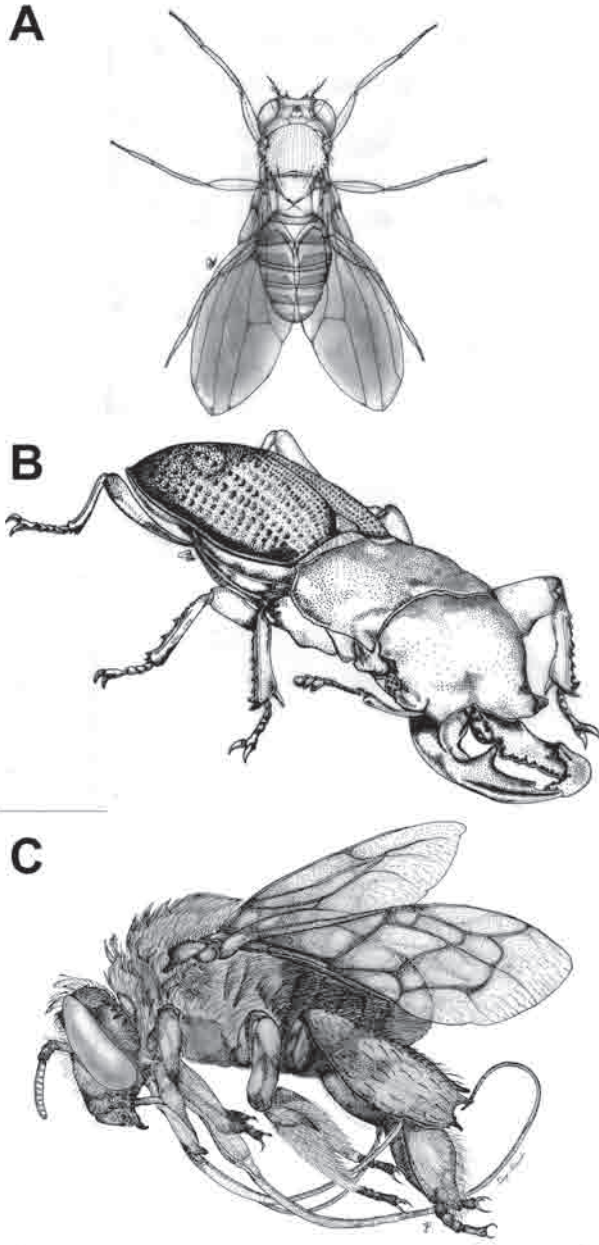


Figure 1
Drawings of emblematic type specimens deposited at the Invertebrate Section of the Museum of Zoology QCAZ, Quito, Ecuador. **A**, *Drosophila ecuatoriana* Vela & Rafael 2004, paratype; **B**, *Onorelucanus aequatorianus*, Bartolozzi & Bomans 1989, paratype; **C**, *Eulaema napensis* Oliveira 2006, holotype.

(Fig. 1). The catalogue (Appendix 1) contains 116 holotypes, 10 allotypes, 1,774 paratypes and 2 neoparatypes from two arthropod Classes: Insecta and Arachnida. Insecta type specimens are from 8 orders of which Coleoptera contains the majority with 16 families, 78 genera, and 199 species. Inside the Coleoptera, the Carabidae contains types from 23 genera and 91 species; the Staphylinidae contains types from 43 species in 19 genera and the Scarabaeidae has types from 20 species in 10 genera. Significant publications that describe Coleoptera type specimens from Ecuador include Cassola (1997), Smith (2003), and Moret (2005). The second greatest abundance of types is in the Hymenoptera with examples from 7 families and 22 species, followed by the Hemiptera with types from 5 families and 9 species and Diptera with types from 3 families and 58 species. Remarkably, there are 215 type specimens from 37 new species of *Drosophila* resulting from the work of Dr. Rafael at PUCE (Rafael & Arcos 1988, 1989; Vela & Rafael 2001; 2004a, b, c, 2005). Surprisingly, there are relatively few type specimens from the Lepidoptera with 14 new species reported from the Nymphalidae (Pyrz & Vilorio 1999) and just one type species (*Hemeroblemma laguerrei* Barbut & Lalanne-Cassou 2005) from the Noctuidae. There are 8 type specimens from the Class Arachnida all of which are spiders (Agnarsson 2006).

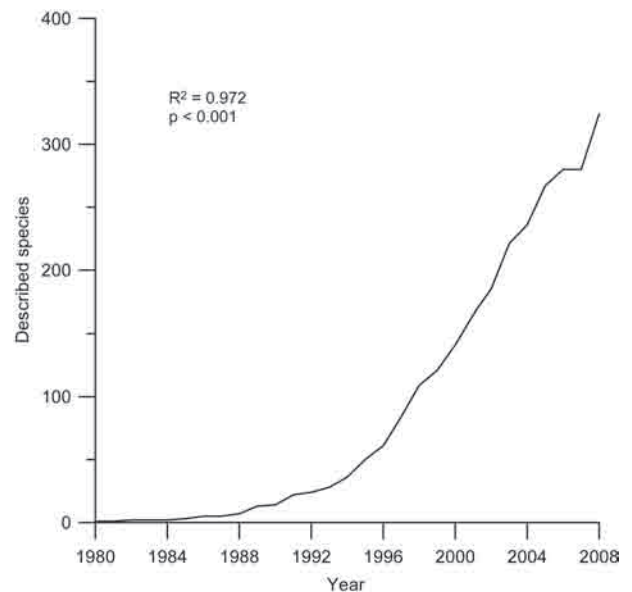


Figure 2
Accumulative number of Ecuadorian invertebrate species with types deposited in the Invertebrate Section of the Museum of Zoology QCAZ since 1980.

The species accumulation curve (Fig. 2) describing the number of type species published per year since the creation of the Museum has a significant logarithmic trend through time ($R^2 = 0.972$, $p < 0.001$). This suggests a continuous increase in taxonomic interest in the poorly described invertebrate fauna of Ecuador. For example, 43 new type specimens from species described in 2008 in various articles and compiled by Giachino (2008) are currently kept at the Museum.

Spatial analyses

Locality data from specimen labels were extracted from 1,902 type specimens in the collection. Due to similarities in collection sites, we reduced the number of

type localities in the type specimen database to 247. An analysis of this data set using the categorisation system proposed by Wieczorek *et al.* (2004) further reduced this to 165 unique type localities (Fig. 3). Fifty-two locality descriptions from Wieczorek's categories 1, 2 and 3 were eliminated from further analyses (Table 1) as being unreliable. A large proportion of invertebrate species and subspecies (28%) were collected in just five localities, Bosque Integral Otonga (35 species), Pasochoa 1 (18 species), Pasochoa 2 (16 species), Yasuní (14 species) and Las Pampas (8 species) (Fig. 4). We found that 22.4% of type localities are located in Pichincha province and 19.4% in Napo. No type specimens in the collection came from El Oro province, in the southern region of the country.

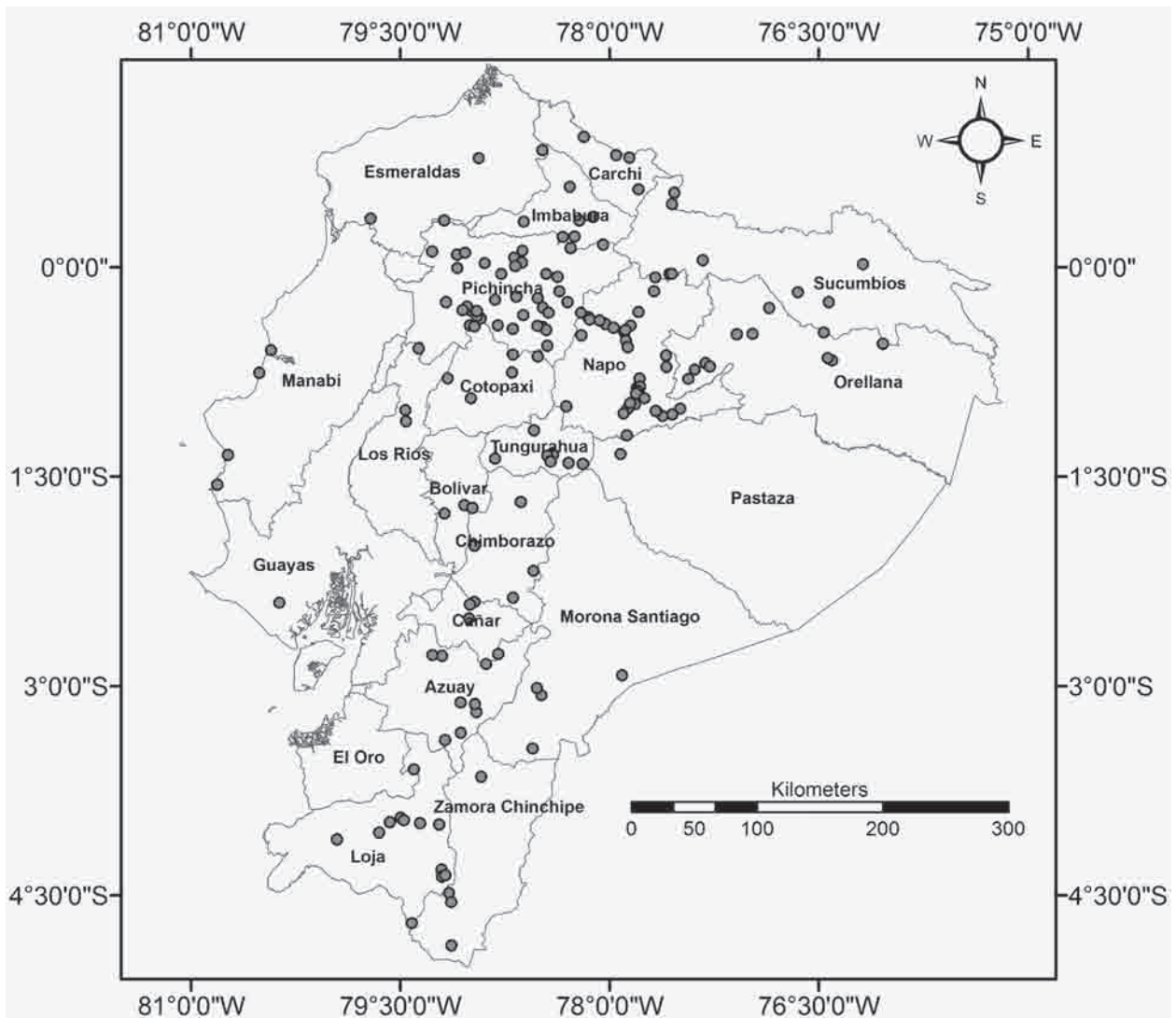


Figure 3
Geographic distribution of type localities in Ecuador. The political limits of Ecuadorian provinces as of 2007.

Type localities were significantly clustered geographically ($NNI < 1$; $Z_{score} = -7.101$; $p < 0.01$). The analysis of the degree of clustering, by means of $G(r)$ function analysis, further estimated that about 85% of the type localities were only 20 km or less from the nearest type locality (Fig. 5). The $G(r)$ curve was above complete spatial randomness envelopes and confirmed a significant aggregation of type localities. Only 15% of type localities were separated by distances higher than 20 km.

A small percentage of type localities (10.3%) were located inside SNAP continental protected areas (Fig. 6). Furthermore, most type localities (>75 % of georeferenced localities) were situated in areas with easy access (e.g. trip time = 0–1 hours; Fig. 7). Based on the Ecuadorian bioregions proposed by Ron *et al.* (in press), type localities are more densely grouped in the Eastern Montane Forest (Baeza, Cosanga, El Chaco and El Reventador), followed by the Amazonian Tropical Rain Forest (Yasuni), the Western Foothills Montane Forest (Calacalí, Nanegalito, Chiriboga, Otongachi, Otonga), Andean Scrub Forest (Loja, Cuenca) and Parámo (Pasochoa, Volcán Atacazo, Parque Nacional

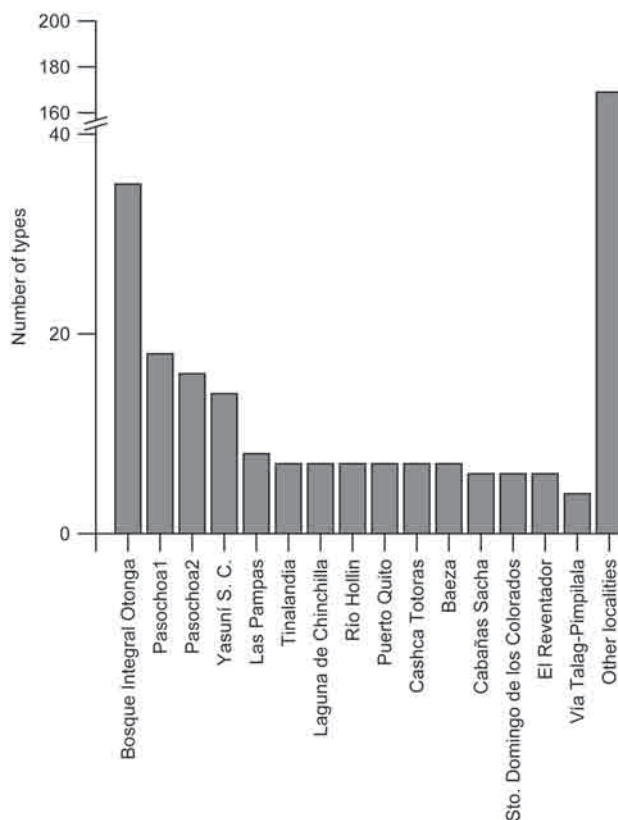


Figure 4
Number of type specimens in the fifteen richest localities in Ecuador.

El Cajas). Bioregions with few or no type localities include the Chococoan Tropical Forest, the Deciduous Forest and the Dry Forest, with just 20 species between them.

Discussion

This is the first catalogue of type specimens kept in the Invertebrate Section of the Museum of Zoology QCAZ in Quito. This collection contains a significant number of type specimens, 1,902 type specimens from 320 species and 6 subspecies, which provide a measure of the importance of the museum in a national and international context.

Most type specimens in the Museum (62.6%) belong to the Coleoptera, which is in accordance to the taxonomic diversity of the order on a global scale. However, perhaps more important than the total diversity of the group, species descriptions were related to the number of taxonomists working on the group (Wheeler 2007). For example, butterflies (Lepidoptera), flies (Diptera), social insects (Hymenoptera) and spiders (Class Arachnida), which are also highly diverse insect groups in Ecuador and worldwide, were relatively rare in our catalogue of types. This is perhaps related to difficulties of doing taxonomy in tropical regions (Balakrishnan 2005), rather than specimen availability in the collection (Checa *et al.*, this issue).

Most type localities were clustered towards the northern region of the country, in Pichincha, Cotopaxi and Napo provinces and in areas of easy accessibility. Several reasons may account for these biases. First, the main airport servicing the country is located in the capital city, Quito, in Pichincha province. Foreign scientists, usually constrained by time, tend to collect in places near main airports and with good logistical support (Soberon *et al.* 2000). Second, the main campus of PUCE is also located at Quito. Collections from PUCE students and researchers, the main sources of specimens for the museum, also tend to represent nearby, accessible areas around Quito. The logistical support of the Bosque Integral Otonga in Cotopaxi Province and the Yasuní Scientific Station in Amazonia has facilitated the growth of the collection from these areas as well.

Similar to patterns in African conservation studies (Reddy & Dávalos 2003), our study demonstrated a relationship between type localities and areas of high biological diversity, hotspots *sensu* Myers *et al.* (2000). There has been a bias of researchers to collect in high rated biodiversity areas such as the Ecuadorian bioregions Tropical Andes and the southern limits of the Chocó-Darién. Accessibility indexes of type

localities were also positively related to areas with oil company facilities. Biologists in Ecuador have taken advantage of oil industry infrastructure and logistics for biodiversity surveys (e.g. Carpio *et al.* this issue). This is also evident in Yasuní National Park, located in the Amazonian Tropical Rain Forest hotspot (Myers *et al.* 2000) that contains oil exploration block 31, managed by Petrobras Oil Company (Brazil) and block 16, managed by Repsol Oil Company (Spain). These areas have been the sites for extensive, although still incomplete, inventories of the local invertebrate fauna.

Collection activities were also related to biological hotspots near important agriculture zones, such as the Chocó-Darién Western Ecuador hotspot (Myers *et al.* 2000). In the southern limits of the Chocó-Darién there were several type localities, such as Otonga and Otongachi, easily accessed by scientists through off-roads created after the Ecuadorian agricultural reformation in the 1960's (Acosta 1999). It is unclear the degree to which collection bias (such as scientists fondness for easily accessible biodiversity hotspots with good infrastructure) may influence our perception of

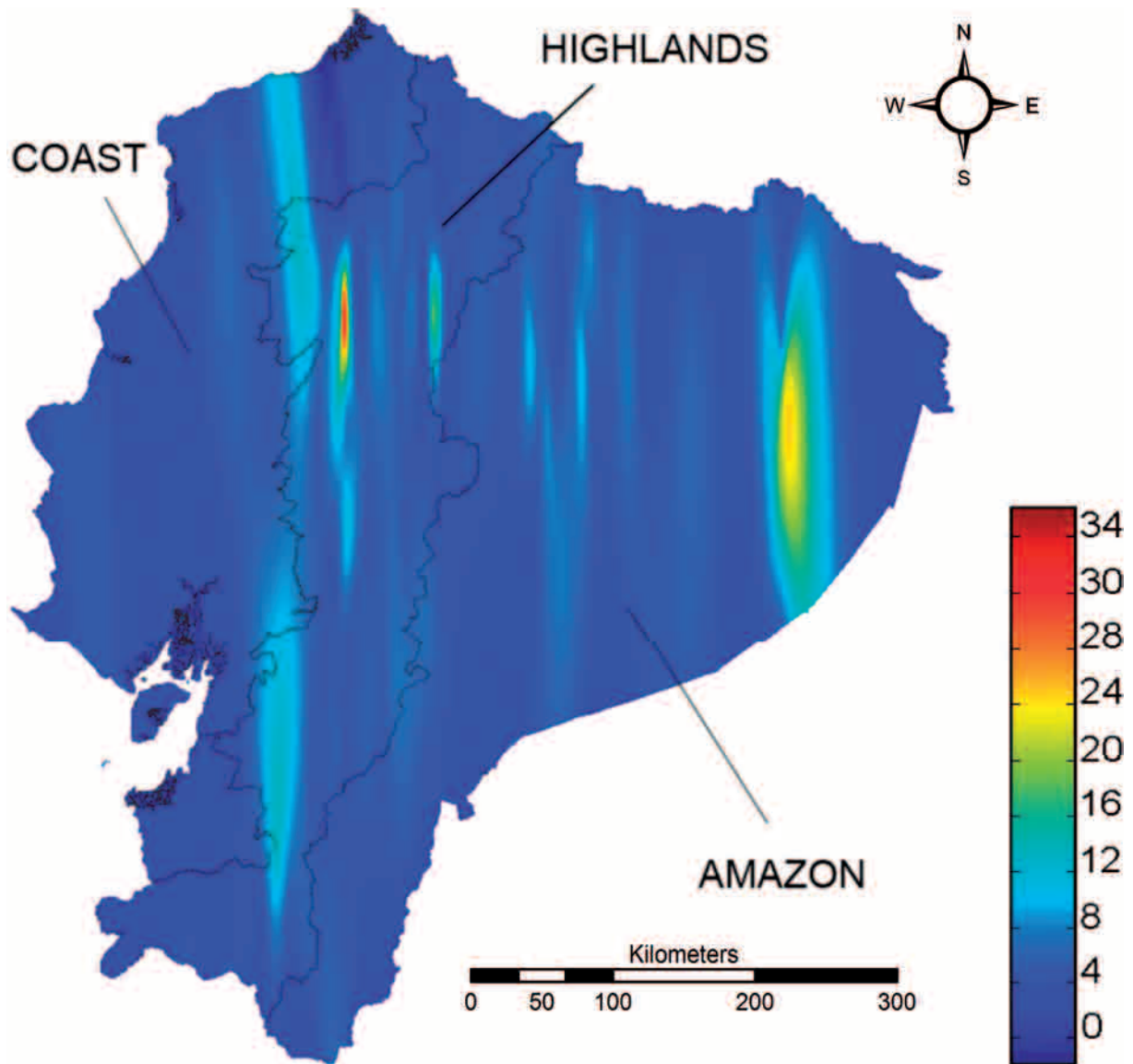


Figure 5

Type locality density extrapolations in the three main ecological regions of Ecuador (coast, highlands, Amazon). Areas with more type localities are presented with reddish colors, while areas with few or no localities are in blue.

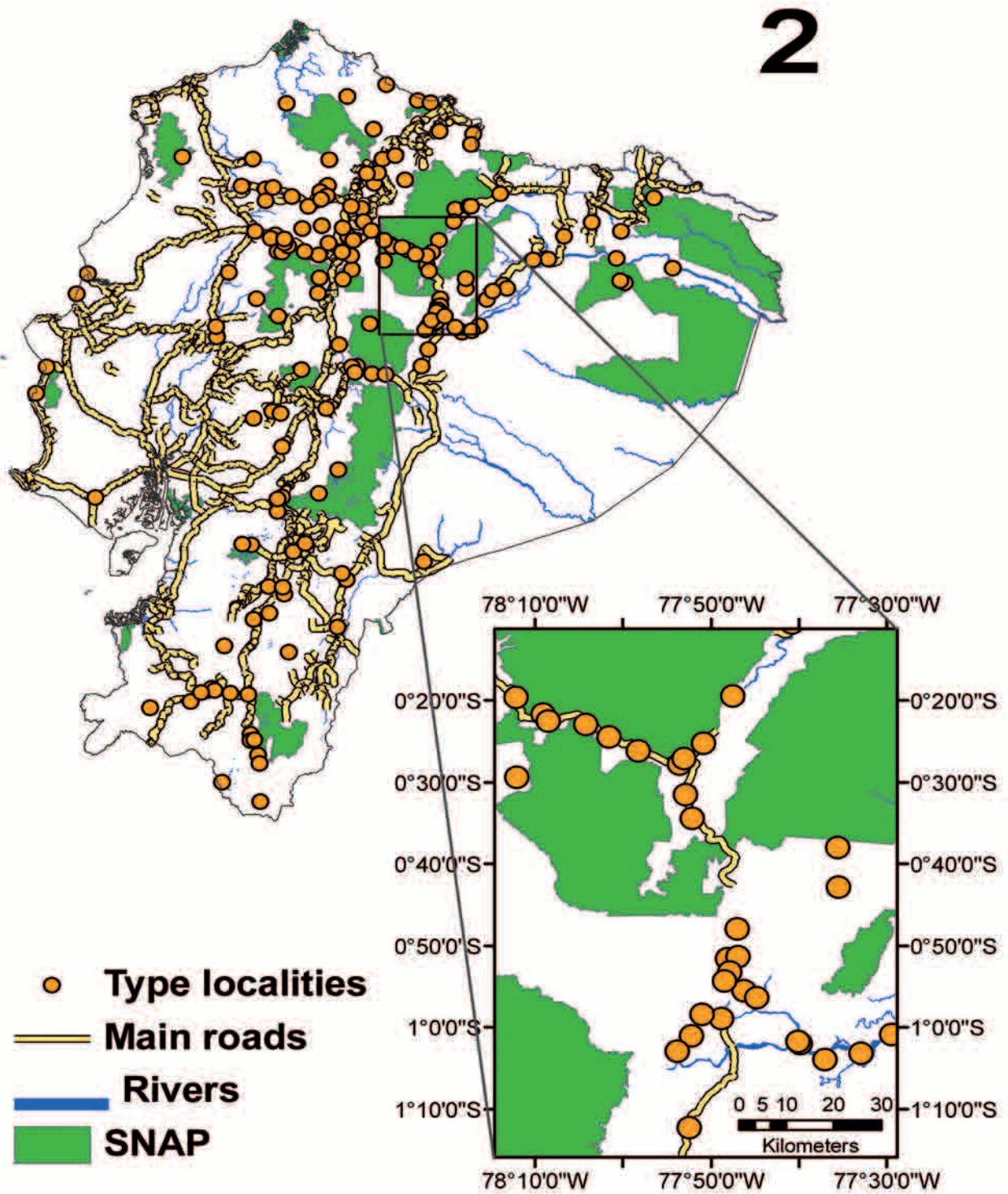


Figure 6 Unique type-localities and relationship with Protected Areas National System (SNAP) with highways and river accessibility features.

biodiversity patterns in Ecuador.

Geographic clustering of type localities is a strong warning about the completeness of the Museum collection. It also reduces its usefulness as a source of information on the invertebrates in under-sampled areas of the country (Soberón *et al.* 2000). Perhaps most dangerous for conservation planning, type localities tended to be close to easily accessed areas. This may devalue the apparent value of more remote areas for conservation when actually they have simply not been adequately sampled. It is unclear what the consequences are of these biases in the collection. Clearly, at the present, the collection does not adequately represent Ecuador's biodiversity and provide baseline data for effective conservation planning (Soberón *et al.* 2000, Reddy & Dávalos 2003). We hope that future collection efforts address this problem, targeting collection sites located toward southern and less accessible regions of the country. We also suggest that collection activity should move toward more pristine areas, which may consequently provide better chances of collecting rare or new biological material. These collections should

begin to address patterns of speciation of various groups in Ecuador. Collection activity should also be planned to examine potential barriers to gene flow leading to speciation such as altitude, phytogeographic regions, biogeographic regions and major physiographic features of the landscape. We argue that in doing so, researchers may increase both the amount and quality of invertebrate material in museum, and the significance of their own work.

The Merriam Webster dictionary defines conservation as "planned management of a natural resource to prevent exploitation, destruction, or neglect". Priority setting is an elemental step towards biological conservation (Shi *et al.* 2002). However, it is a complex task to set priorities for conservation and to put in place the mechanisms for effective conservation practice in small countries such as Ecuador. Difficulties arise from different sources. First, the role and leadership of the government in priority setting and enforcement of laws and programs for conservation is not clear. The recent constitution of Ecuador provides for rights of the environment, however, the mechanism

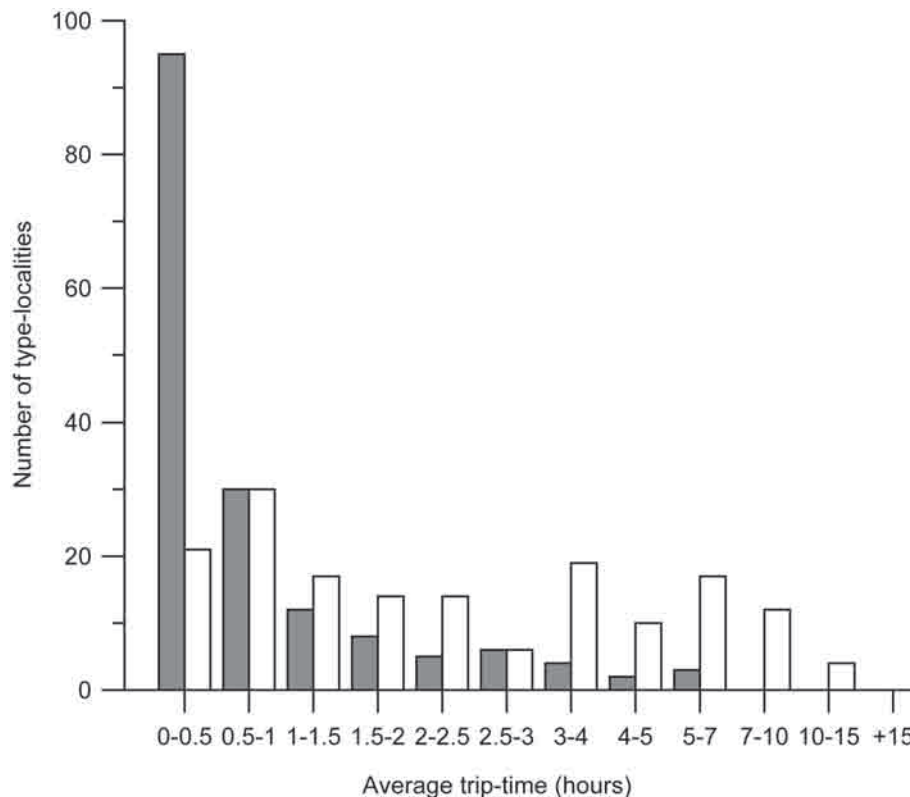


Figure 7

Number of type-localities (filled bars) and random localities (empty bars) in relation to the average trip-time (N=165) it takes to arrive to such localities. The average trip time is a measure of the physical access capacity of mobility from a given point to another (trip average hours), determined by logistic and infrastructure facilities of both (UNEP-WCMC 2005).

to realise these rights in balance with development and exploitation of natural resources is not defined. Second, the current state of taxonomic expertise represented as both the number of people working and the amount of published information make conservation based on invertebrates difficult. We are probably losing species to habitat destruction faster than they can be described or even discovered. As a result, the extent to which effective conservation agendas can be set up over taxonomically poorly known groups such as insects is debatable. However, the importance of the invertebrate fauna as a measure of biodiversity and ecosystem functioning cannot be ignored.

We conclude that invertebrate collections in Ecuador, represented by type specimens at the Museum, are diverse but skewed towards few taxonomic groups and areas of high accessibility and recognised diversity. We challenge current and future researchers to direct their collection efforts to locations and taxonomic groups other than the ones reported in this work. It is important to work collaboratively with scientists and institutions around the world in this effort. It will be impossible for Ecuador to develop sufficient scientific resources to catalogue, much less study in any depth, the country's biodiversity. Ecuadorian students should pursue postgraduate opportunities abroad. We must develop collaborative relationships with major natural history museums around the world to understand our fauna yet still protect the biological patrimony of the country.

Acknowledgements. This paper is dedicated to Giovanni Onore, the founder of the Section of Invertebrates of the Museum of Zoology at PUCE and for his many years of dedicated study of insects and inspiration to countless students. The authors are grateful to C. Keil and P. Lalor for useful comments and linguistic revision of the manuscript. We thank S. McKamey, J. M. Salgado Costas and F. M. Buzzetti for providing taxonomic articles and other useful information. We thank S. Burneo and J. Sanchez at PUCE for assisting in spatial analysis and statistics. S. Lobos and D. Alarcón provided the drawings. Funding for the publication was provided by the government of Ecuador (Donaciones del Impuesto a la Renta 2004–2006) and by the IRD. Finally, we thank all scientists and students that have collected and described the Ecuadorian invertebrates in the Museum collection

References

- Acosta A. 1999.** *Breve historia económica del Ecuador*. Biblioteca General de Cultura. 258 p.
- Agnarsson I. 2006.** A revision of the New World *eximius* lineage of *Anelosimus* (Araneae, Theridiidae) and a phylogenetic analysis using worldwide exemplars. *Zoological Journal of the Linnean Society* **146**: 453–593.
- Aguilar H., Abad F., Racines J., Paucar A. 1999.** Epidemiology of Chagas disease in Ecuador. A brief review. *Memórias do Instituto Oswaldo Cruz* **94**: 387–393.
- Alberch P. 1993.** Museums, collections and biodiversity inventories. *Trends in Ecology and Evolution* **8**: 372–375.
- Allegro G., Giachino P.M., Sciaky R. 2008.** Notes on some Trechini (Coleoptera Carabidae) of South America with description of new species from Chile, Ecuador and Peru, p. 131–172, in **Giachino P.M. (ed.)** *Biodiversity of South America I*. Memoirs on Biodiversity, World Biodiversity Association onlus, Verona, 1, 496 p.
- Almanaque Electrónico Ecuatoriano. 2002.** *Información espacial para aplicaciones agropecuarias*. CD-ROM. Universidad del Azuay, Universidad Nacional de Loja, Fundación Jatun Sacha CDC, CIMMYT, ESPE. 2002.
- Amédégnato C., Poulain S. 1994.** Nouvelles données sur les peuplements acridiens Nord Andeens et Nord-Ouest Amazoniens: La Famille des Romaleidae (Orthoptera: Acridoidea). *Annales de la Société Entomologique de France (n. s.)* **30**: 1–24.
- Amédégnato C. Poulain S. 1998.** New Acridoid Taxa from Northwestern South America: Their Significance for the Phylogeny and Biogeography of the Family Acrididae (Orthoptera). *Annals of the Entomological Society of America* **91**: 532–547.
- Anderson R. 2003.** Neotropical Dryophthoridae: Redescription of the Genus *Melchus* Lacordaire with description of *Daisya* Anderson, New Genus, and seven New Species (Coleoptera: Curculionidae). *The Coleopterists Bulletin* **57**: 413–432.
- Arnaud P. 1982.** Descriptions de deux nouvelles espèces de Phanaeini (Col Scarabeidae). *Miscellanea Entomologica* **49**: 121–123.
- Ashe J., Leschen R. 1995.** *Cajachara carltoni*, a new genus and species of rove beetle (Coleoptera Staphylinidae Aleocharinae) from an Ecuadorian paramo. *Tropical Zoology* **8**: 85–93.
- Balakrishnan R. 2005.** Species concepts, species boundaries and species identification: a view from the tropics. *Systematic Biology* **54**: 689–693.
- Barragán Á.R., Dangles O., Cárdenas R.E., Onore G. 2009.** The History of Entomology in Ecuador. *Annales de la Société entomologique de France (n. s.)* **45(4)**: 410–423.
- Barragán A., Pollet A., Prado J., Lagnaoui A., Onore G., Aveiga I., Lery X., Zeddani, J. 2004.** La polilla guatemalteca *Tecia solanivora* (Povolny) (Lepidoptera: Gelechiidae) en Ecuador. Diagnóstico y perspectivas de manejo bajo un método de predicción. In *Memorias II Taller Internacional de Polilla Guatemalteca, Centro de Biodiversidad y Ambiente, Escuela de Biología, Pontificia Universidad Católica del Ecuador, Quito, Publicación Especial 7*: 5–23.
- Barbut J., Lalanne-Cassou B. 2005.** Description de trois nouvelles espèces d'*Hemeroblemma* Hubner, 1818 (Lepidoptera, Noctuidae, Batocallinae). *Revue Française d'Entomologie (n.s.)* **27**: 161–170.
- Bartolozzi L., Bomans H. 1989.** *Onorelucanus aequatorianus* n.gen., n.sp. di Lucanidae dell'Ecuador (Coleoptera). *Bollettino della Società Entomologica Italiana, Genova* **121**: 53–58.
- Bartolozzi L., Onore G. 2006.** *Sphaenognathus (Chiasognathinus) xerophilus* sp. n. from Perú. *Koleopterologische Rundschau* **76**: 361–365.
- Beyer H.L. 2004.** Hawth's Analysis Tools for ArcGIS. Available at <http://www.spatial ecology.com/htools>
- Borowiec L. 1998a.** Four new species of *Aslamidium* Borowiec, with description of *Neoaslamidium* new subgenus (Coleoptera: Chrysomelidae: Hispinae). *Genus* **9**: 367–374.
- Borowiec L. 1998b.** Review of the Cassidinae of Ecuador, with a description of thirteen new species (Coleoptera: Chrysomelidae). *Genus* **9**: 155–246.
- Borowiec L., Dabrowska A. 1997.** Two new species of *Eugenysa* Chevrolat, 1837 from Ecuador and Peru (Coleoptera: Chrysomelidae: Cassidinae). *Genus* **8**: 673–678.
- Boucher S. 2004.** The species of Passalidae (Insecta: Coleoptera) described by Johann Jakob Kaup: Historical overview and critical catalogue, with the description of four new species. *Darmstädter Beiträge zur Naturgeschichte* **13**: 99–121.

- Boucher S., Pardo L. 1997.** Sur la présence de trois *Verres* Kaup du groupe <<cavicollis>> Bates dans les Andes de Colombie-Equateur (Coleoptera, Passalidae). *Nouvelle Revue d'Entomologie* (n.s.) **14**: 77-83.
- Brailovsky H. 1999.** One new genus and tree new species of acanthocephalini (Hemiptera: Heteroptera: Coreidae: Coreinae). *Journal of the New York Entomological Society* **107**: 247-255.
- Brailovsky H. 2001.** Five new species of Neotropical Coreidae (Insecta: Hemiptera). *Reichenbachia, Staatliches Museum für Tierkunde Dresden* **34**: 67-79.
- Brailovsky H., Barrera E. 2000.** Four new species of Neotropical Coreidae (Insecta: Hemiptera: Heteroptera). *Reichenbachia, Staatliches Museum für Tierkunde Dresden* **33**: 271-280.
- Brown B. 1997.** Revision of the *Apocephalus attophilus*-group of ant-decapitating flies (Diptera: Phoridae). *Contributions in Science (Los Angeles)* **468**: 1-60.
- Brown B. 2000.** Revision of the *Apocephalus miricauda*-group of ant-parasitizing flies. *Contributions in Science (Los Angeles)* **482**: 1-50.
- Buzzetti F. 2006.** The genus *Potamobates* Champion in Ecuador, with description of *P. shuar* n. sp. (Hemiptera: Gerridae). *Zootaxa* **1306**: 51-56.
- Calles J., Ponce P. 2003.** Influencia de la disponibilidad de hospederos y los factores ambientales en la fluctuación poblacional de las moscas de la fruta *Anastrepha* spp. (Diptera: Tephritidae) en Guayllabamba. *Revista de la Pontificia Universidad Católica del Ecuador* **71**: 79-99.
- Camargo J., Moure J. 1994.** Meliponinae Neotropicales: Os Géneros *Paratrígona* Schwarz, 1938 e *Aparatrígona* Moure, 1951 (Hymenoptera, Apidae). *Arquivos de Zoologia* **32**: 33-109.
- Cárdenas R., Vieira J. 2005.** Nuevas citas de Tabánidos (Diptera: Tabanidae) para Ecuador. *Boletín de la Sociedad Entomológica Aragonesa* **36**: 153-156.
- Carpio C., Donoso D.A., Ramón G., Dangles O. 2009.** Short term response of dung beetle communities to disturbance by road construction in the Ecuadorian Amazon. *Annales de la Société entomologique de France* (n. s.) **45**(4): XXX complete at proof 2
- Casale A., Sciaky R. 1986.** Un nuovo *Oxytrechus* dell' Ecuador. *Bollettino del Museo Regionale di Scienze Naturali, Torino* **4**: 483-488.
- Cassola F. 1997.** Studies on tiger beetles. XC. Revision of the Neotropical Genus *Pseudoxyscheila* Guérin, 1839 (Coleoptera, Cicindelidae). *Fragmenta entomologica, Roma* **29**: 1-121.
- Checa M.F., Barragán A., Rodríguez J., Christman M. 2009.** Temporal abundance patterns of butterfly communities (Lepidoptera: Nymphalidae) in the Ecuadorian Amazonia and their relationship with climate. *Annales de la Société entomologique de France* (n. s.) **45**(4): XXX complete at proof 2
- Christopherson R. 2005.** *Geosystems: An Introduction to Physical Geography*. 6th Edition. Prentice Hall. New York. 752 p.
- Cobos A. 1990.** Opuscula Buprestologica, III. Nuevos materiales de la fauna Neotropical (Coleoptera: Buprestidae). *Elytron* **3**: 49-59.
- Contreras A. 1995.** New species of *Chloronia* from Ecuador and Guatemala, with a key to the species in the genus (Megaloptera: Corydalidae). *Journal of the North American Benthological Society* **14**: 108-114.
- Contreras A. 1998.** *Systematics of the Dobsonfly Genus Corydalus (Megaloptera: Corydalidae)*. Thomas Say Publications in Entomology, Entomological Society of America, Lanham, Maryland, USA, 360 p.
- Cook J. 1998.** A Revision of the Neotropical Genus *Bdelyrus* Harold (Coleoptera: Scarabaeidae). *The Canadian Entomologist* **130**: 631-689.
- Cook J. 2002.** A revision of the Neotropical genus *Cryptocanthon* Balthasar (Coleoptera: Scarabaeidae: Scarabaeinae). *Supplement to Coleopterists Bulletin* **56**. *Coleopterists Society Monographs Patricia Vaurie Series* **1**: 1-96.
- Cook J., Peck S. 2000.** Aphodiinae (Coleoptera: Scarabaeidae) of the Galapagos Islands. *The Canadian Entomologist* **132**: 281-300.
- Cooper M. 2000.** Five new species of *Agelaisia* Lepeletier (Hym., Vespidae, Polistinae) with a key to members of the genus, new synonymy and notes. *Entomologist's Monthly Magazine* **136**: 177-197.
- Costa L., Couturier G. 2000.** Mirídeos Neotropicales: uma nova espécie do gênero *Parafulvius* Carvalho (Heteroptera: Miridae: Phyllinae). *Revue Française d'Entomologie* (n.s.) **22**: 119-122.
- Couturier G., Costa L. 2002.** Mirídeos Neotropicales: Uma nova espécie do gênero *Anomalocornis* Carvalho & Wygodzinsky, 1945 (Heteroptera, Miridae, Phyllinae). *Revue Française d'Entomologie* (n.s.) **24**: 193-196.
- Dangles O., Barragán A., Cárdenas R. E., Onore G., Keil C. 2009.** Entomology in Ecuador: Recent developments and future challenges. *Annales de la Société entomologique de France* (n. s.) **45**(4): XXX complete at proof 2
- D'Errico J.R. 2006.** Understanding Gridfit. Information available at: <http://www.mathworks.com/matlabcentral/fileexchange/loadFile.do?objectId=8998>
- Deuve T. 2002.** Nouveaux Trechinae et Bembidiinae de l'Equateur, de la Chine et du Laos Coleoptera, Trechidae. *Revue Francaise d'Entomologie* (n.s.) **24**: 151-160.
- Diggle P.J. 1983.** *Statistical analysis of spatial point patterns*. Academic Press, London, UK
- Donoso D.A., Vieira J., Wild A. 2006.** Three new species of *Leptanilloides* Mann from Andean Ecuador (Formicidae: Leptanilloidinae). *Zootaxa* **1201**: 47-62.
- Dupuis F. 1996.** Description d'une nouvelle espece de *Cyclocephala* Latreille, 1829, et mise au point sur les especes du groupe *Melanocephala* (Coleoptera, Dynastidae). *Bulletin de la Societe entomologique de France* **101**: 257-260.
- ESRI. 2005.** *ArcGIS™ Desktop ver. 9.1*. Environmental Systems Research Institute, Inc., New York, USA
- Farrow A., Nelson A. 2001.** *Modelación de la accesibilidad en ArcView 3*. Centro Internacional de Agricultura Tropical.
- Freitag S., Hobson C., Biggs H. C., Van Jaarsveld A. S. 1998.** Testing for potential survey bias: the effect of roads, urban areas and nature reserves on a southern African mammal data set. *Animal Conservation* **1**: 119-127.
- Garrett K.L. 1989.** Documentation guidelines for the preparation and conservation of biological specimens. *Collection Forum* **5**: 47-51.
- Genier F. 1996.** A revision of the Neotropical genus *Ontherus* Erichson (Coleoptera: Scarabaeidae, Scarabaeinae). *Memoirs of the Entomological Society of Canada* **170**: 1-169.
- Genier F., Kohlmann B. 2003.** Revision of the Neotropical dung beetle genera *Scatimus* Erichson and *Scatrichus* gen. nov. (Coleoptera: Scarabaeidae, Scarabaeinae) *Fabries* **28**: 57-111.
- Giachino P.M. (ed.) 2008.** *Biodiversity of South America I*. Memoirs on Biodiversity, World Biodiversity Association onlus, Verona, 1, 496 p.
- Giachino P.M., Moret P., Picciau L. 2008.** A new microphthalmous species of *Perigona* Castelnau, 1835 from Ecuador (Coleoptera Carabidae), p. 195-199, in, **Giachino P.M. (ed.)** *Biodiversity of South America I*. Memoirs on Biodiversity, World Biodiversity Association onlus, Verona, 1, 496 p.
- Golbach 1988.** Contribucion al conocimiento de la subfamilia Pachyderinae y primera cita de especies para la Argentina. *Revista de la Pontificia Universidad Catolica del Ecuador* **51**: 169-182.
- Graham C.H., Ferrier S., Huettman F., Moritz C., Peterson A.T.** New developments in museum-based informatics and applications in biodiversity analysis. *Trends in Ecology and Evolution* **19**: 497-503.
- Hanley R. 2003.** *Leptandria* gen.n., a monophyletic group of Neotropical aleocharine Staphylinidae (Coleoptera). *Journal of Natural History* **37**: 2615-2626.
- Hovore F. 1992.** A New Genus and Species of Flightless Longhorned Beetle from Central America (Coleoptera: Cerambycidae). *Insecta Mundi* **6**: 37-41.
- Howden H. 1985.** A revision of the South American species in the genus *Neathyreus* Howden and Martínez (Coleoptera, Scarabaeidae, Geotrupinae). *Contributions American Entomological Institute* **21**: 1-95.

- Howden H. 2001.** A new tribe of Hybosorinae with a description of a new species of *Callosides* Howden (Coleoptera: Scarabaeidae). *The Coleopterists Bulletin* **55**: 199-204.
- Iwan D. 1995.** Revision of the genus *Opatrinus* DEJEAN, 1821 (Coleoptera, Tenebrionidae, Platynotini). *Genus* **6**: 1-90.
- Johnson N.F., Masner L. 2004.** The Genus *Thoron* Haliday (Hymenoptera: Scelionidae), Egg-Parasitoids of Waterscorpions (Hemiptera: Nepidae), with Key to World Species. *American Museum Novitates* **3452**: 1-16.
- Kippenhan M. 1997.** A Review of the Neotropical Tiger Beetle Genus *Oxygonia* Mannerheim (Coleoptera: Cicindelidae). *Contributions on Entomology, International* **2**: 301-353.
- Klimaszewski J., Peck S. 1998.** A review of Aleocharine Rove Beetles from the Galápagos Islands, Ecuador (Coleoptera: Staphylinidae: Aleocharinae). *Revue Suisse de Zoologie* **105**: 221-260.
- Leschen R. 1997.** The *Empocryptus* Group (Languriidae: Toraminae): Relationships and a New Genus Associated with a Lepidopteran Cocoon. *The Coleopterists Bulletin* **51**: 303-318.
- Lourenco W. 1988.** La faune des Scorpions de l'Equateur. I. Les Buthidae. Systématique et biogéographie. *Revue Suisse de Zoologie* **95**: 681-697.
- Lourenco W. 1995.** Les Scorpions (Chelicerata, Scorpiones) de l'Equateur avec quelques considerations sur la biogéographie et la diversité des espèces. *Revue Suisse de Zoologie* **102**: 61-88.
- Mantillieri A. 2004.** Six nouvelles espèces du genre *Stereodermus* Lacordaire, 1866 [Coleoptera, Brentidae, Stereodermini]. *Revue Française d'Entomologie* (n.s.) **26**: 131-140.
- Marshall S.A. 1985.** A revision of the New World species of *Minilimosina* Roháček (Diptera: Sphaeroceridae). *Proceedings of the Entomological Society of Ontario* **116**: 1-60.
- Marshall S.A. 1998.** A revision of the Archileptocera group, including *Anomioptera* Schiner, *Palaeocoprina* Duda and *Archileptocera* Duda, with a key to sphaerocerid genera with similar wing venation and a description of a new species of *Palaeoceroptera* Duda (Diptera: Sphaeroceridae). *Journal of Natural History* **32**: 173-216.
- Marshall S.A., Langstaff R. 1998.** Revision of the New World species of *Opacifrons* Duda (Diptera, Sphaeroceridae, Limosininae). *Contributions in Science, Natural History Museum of Los Angeles County* **474**: 1-27.
- Marshall S.A., Smith I. 1992.** A revision of the New World and Pacific *Phthitia* Enderlein (Diptera; Sphaeroceridae; Limosininae), including *Kimosina* Roháček, new synonym and *Aubertinia* Richards, new synonym. *Memoirs of the Entomological Society of Canada* **161**: 1-83.
- Marshall S.A., Totton S. 1995.** Seven new species of *Druciatus* Marshall (Diptera: Sphaeroceridae; Limosininae). *Insecta Mundi* **9**: 291-299.
- Mascagni A. 1994.** Descrizione di una Nuova Specie di *Tropicus* Pacheco dell'Ecuador (Coleoptera Heteroceridae). *Bollettino della Società Entomologica Italiana, Genova* **126**: 134-136.
- Masner L. 1976.** Notes on the ecitophilous diaptiid genus *Mimopria* Holmgren (Hymenoptera: Proctotrupoidea, Diapriidae). *Canadian Entomologist* **108**: 123-126.
- Mauffray W. 1999.** *Oxyagrion tennesse* spec. Nov. From Ecuador (Zygoptera: Coenagrionidae). *Odonatologica* **28**: 165-170.
- McKamey S., Deitz L. 1991.** Revision of the Neotropical Treehopper Genus *Metcalfiella* (Homoptera: Membracidae). Technical Bulletin 294. North Carolina Agricultural Research Service. North Carolina State University. Raleigh, North Carolina, USA, 89 p.
- Meier R., Dikow T. 2004.** Significance of specimen databases from taxonomic revisions for estimating and mapping the global species diversity of invertebrates and repatriating reliable specimen data. *Conservation Biology* **18**: 478-488.
- Merriam-Webster Online Dictionary. 2008.** <http://www.merriam-webster.com> (8 Oct 2008).
- Michalski S. 1992.** *A Systematic Approach to the Conservation (Care) of Museum Collections*. Canadian Conservation Institute, Ottawa, 15 p.
- Moret P. 1993.** Les *Dyscolus* de l'Equateur: Révision des espèces à élytres achètes (1ère partie) (Coleoptera, Harpalidae, Platyninae). *Revue Française d'Entomologie* (n.s.) **15**: 1-13.
- Moret P. 1994.** Les *Dyscolus* de l'Equateur: Révision des espèces à élytres achètes (2e partie) (Coleoptera, Harpalidae, Platyninae). *Revue Française d'Entomologie* (n.s.) **16**: 1-11.
- Moret P. 1995.** Contribution à la connaissance du genre neotropical *Blennidus* Motschulsky, 1865. 1ère partie (Coleoptera, Harpalidae, Pterostichinae). *Bulletin de la Société entomologique de France* **100**: 489-500.
- Moret P. 1996a.** Contribution à la connaissance du genre néotropical *Blennidus* Motschulsky, 1865. 2eme partie (Coleoptera, Harpalidae, Pterostichinae). *Revue Française d'Entomologie* (n.s.) **18**: 1-10.
- Moret P. 1996b.** *Incastichus*, nouveau genre de Pterostichinae de l'Equateur (Coleoptera, Harpalidae). *Nouvelle Revue d'Entomologie* (n.s.) **13**: 303-311.
- Moret P. 1998.** Les *Dyscolus* de la zone périglaciaire des Andes équatoriennes (Coleoptera, Harpalidae, Platyninae). *Bulletin de la Société entomologique de France* **103**: 11-28.
- Moret P. 2000.** Le genre *Pelmatellus* Bates dans l'étage montagnard des Andes équatoriales (Coleoptera, Carabidae, harpalini). *Nouvelle Revue d'Entomologie* (n.s.) **17**: 215-232.
- Moret P. 2001a.** The round beetles of the Chiles area (Coleoptera, Carabidae) a taxonomic and ecological overview, p. 125-135 in: **Ramsay P.M. (ed.)** *The Ecology of Volcàn Chiles: high-altitude ecosystems on the Ecuador-Colombia border*. Pebble & Shell, Plymouth, 217 p.
- Moret P. 2001b.** El género *Bradycellus* Erichson, 1837 en los Andes del Ecuador (Coleoptera: Carabidae: Harpalini). *Revista aragonesa de Entomología* **9**: 25-29
- Moret P. 2005.** *Los coleópteros Carabidae del Páramo en los Andes del Ecuador: sistemática, ecología y biogeografía*. Centro de Biodiversidad y Ambiente, Escuela de Biología. Pontificia Universidad Católica del Ecuador. Monografía # 2, 306 p.
- Moret P. 2008.** Four new species of *Diploharpus* Chaudoir 1850 from Ecuador (Coleoptera, Carabidae, Perigonini), p. 201-208, in **Giachino P.M. (ed.)** *Biodiversity of South America I*. Memoirs on Biodiversity, World Biodiversity Association onlus, Verona, 1, 496 p.
- Moret P., Bousquet Y. 1995.** Le sous-genre *Dercylus* (Lycinodercylus) Kuntzen, 1912: position systématique, révision des espèces et description de la larve (Carabidae, Dercylini). *The Canadian Entomologist* **127**: 753-798
- Moret P., Toledano L. 2002.** *Ecuadion*, nouveau sous-genre de *Bembidion* Latreille du páramo équatorien (Coleoptera, Carabidae, Bembidiini). *Bollettino del Museo Civico di Storia Naturale di Venezia* **53**: 155-205.
- Muzón J., Ellenrieder N. 2001.** Revision of the subgenus *Marmaraeschma* (Odonata, Aeshnidae). *International Journal of Odonatology* **4**: 135-166
- Myers N., Mittermeier R.A., Mittermeier C.G., da Fonseca G.A.B., Kent J. 2000.** Biodiversity hotspots for conservation priorities. *Nature* **403**: 853-858.
- Naviaux R. 1998.** *Ctenostoma* (Coleoptera, Cicindelidae) Révision du genre et descriptions de nouveaux taxons. *Mémoires de la Société Entomologique de France* **2**: 1-186.
- Noguera F. 2002.** Revisión taxonómica de las especies del género *Eburia* Lepeletier y A.-Serville in Lacordaire de Norte y Centroamérica (Coleoptera: Cerambycidae). *Folia Entomologica Mexicana* **41**: 1-167.
- Oliveira M. 2006.** Três novas espécies de abelhas da Amazônia pertencentes ao género *Eulaema* (Hymenoptera: Apidae: Euglossini). *Acta Amazonica* **36**: 121-128.
- Otte D., Peck S. 1997.** New species of *Gryllus* (Orthoptera: Grylloidea: Gryllidae) from the Galápagos Islands. *Journal Orthoptera Research* **6**: 161-173.

- Pace R. 1996.** Aleocharinae della Colombia e dell'Ecuador: Parte I (Coleoptera, Staphylinidae). *Revue Suisse de Zoologie* **103**: 395-437.
- Pace R. 1997.** Aleocharinae della Colombia e dell'Ecuador: Parte III (conclusiones) (Coleoptera, Staphylinidae). *Revue Suisse de Zoologie* **104**: 17-50.
- Pace R. 2008.** New records of Aleocharinae from Ecuador and Peru, with the description of new species, new subgenera and new genera (Coleoptera, Staphylinidae), p. 225-398 in: **Giachino P.M. (ed.)** *Biodiversity of South America I. Memoirs on Biodiversity*, World Biodiversity Association onlus, Verona, 1, 496 p.
- Palomeque F., Abad F., Grijalva M. 2003.** Notas sobre la biología y bionomía de *Rhodnius robustus* Larousse, 1927 (Hemiptera: Reduviidae, Triatominae). *Revista de la Pontificia Universidad Católica del Ecuador* **71**: 49-60.
- Pinto C.M., Grijalva M.J., Costales, J. 2003.** Prevalencia de *Trypanosoma cruzi* en roedores y marsupiales en dos localidades de Manabí, Ecuador. *Revista de la Pontificia Universidad Católica del Ecuador* **71**: 225-233.
- Pinto C.M., Ocaña-Mayorga S., Lascano M.S., Grijalva M.J. 2006.** Infection by trypanosomes in marsupials and rodents associated with human dwellings in Ecuador. *Journal of Parasitology* **92**: 1251-1255.
- Pollet A., Barragán A., Zeddam J., Lery X. 2003.** *Tecia solanivora*, a serious biological invasion of potato cultures in South America. *International Pest Control* **45**: 139-144.
- Pyrzcz T.W., Viloría A.L. 1999.** Contribution to the knowledge of Ecuadorian Pronophilini, Part 1; new pedaliodines (Lepidoptera: Nymphalidae: Satyrinae). *Genus* **10**: 117-150.
- Pyrzcz T.W., Willmott K.R., Hall J.P.W., Viloría A.L. 2006.** A review of the genus *Manerebia* Staudinger (Lepidoptera: Nymphalidae: Satyrinae) in the northern Andes. *Journal of Research on the Lepidoptera* **39**: 37-79.
- Rafael V., Arcos G. 1988.** *Drosophila guayllabambae* n.sp., un nuevo miembro del Grupo Repleta, Subgrupo Hydei (Diptera, Drosophilidae). *Evolucion Biologica* **2**: 167-176.
- Rafael V., Arcos G. 1989.** Subgrupo Inca, un nuevo Subgrupo del Grupo Repleta, con descripción de *Drosophila huancavilcae* n.sp. (Diptera, Drosophilidae). *Evolucion Biologica* **3**: 233-243.
- Rafael V., Vela D. 2003.** *Drosophila yangana* sp.nov. un nuevo miembro del grupo Repleta, subgrupo Inca (Diptera: Drosophilidae). *Revista de la Pontificia Universidad Católica del Ecuador* **71**: 129-139.
- Rahbek C., Gotelli N.J., Colwell R.K., Entsminger G.L., Rangel T.F. L.V.B., Graves G.R. 2007.** Predicting continental-scale patterns of bird species richness with spatially explicit models. *Proceedings of the Royal Society London, Series B* **274**: 165-174.
- Ramírez S. 2006.** *Euglossa samperi* n. sp., a new species of orchid bee from the Ecuadorian Andes (Hymenoptera: Apidae). *Zootaxa* **1272**: 61-68.
- Reddy S., Dávalos L.M. 2003.** Geographical sampling bias and its implications for conservation priorities in Africa. *Journal of Biogeography* **30**: 1719-1727.
- Rider D., Chapin, J. 1991.** Revision of the genus *Thyanta* Stahl, 1862 (Heteroptera: Pentatomidae) I. South America. *Journal of the New York Entomological Society* **99**: 1-77.
- Ron S. R., Guayasamin J.M., Coloma L.A., Menedez-Guerrero P.A. in press.** *Biodiversity and conservation status of Amphibians in Ecuador*. In: **H. Heatwole H., Wilkinson J. W.** (Eds.), *Amphibian Biology. Decline and conservation*, Vol. IX. Surrey Beatty & Sons Pty. Ltd. Australia. **XXX please complete if possible**
- Roubick D. 2004.** Sibling species of *Glossura* and *Glossuropoda* in the Amazon Region (Hymenoptera: Apidae: Euglossini). *Journal of the Kansas Entomological Society* **77**: 235-253.
- Rowe R.J. 2005.** Elevational gradient analyses and the use of historical museum specimens: a cautionary tale. *Journal of Biogeography* **32**: 1883-1897.
- Salgado J. 2001.** Nuevos datos sobre algunos *Dissochaetus* Reitter, 1885 de Ecuador, con la descripción de una nueva especie (Coleoptera, Leiodidae, Cholevinae) *Nouvelle Revue d'Entomologie* (n.s.) **18**: 249-258.
- Salgado J. 2002.** Data on the genus *Adelopsis* from Ecuador. Description of five new species (Coleoptera Leiodidae Cholevinae Ptomaphagini). *Belgian Journal of Entomology* **4**: 113-128.
- Salgado J. 2003.** El Género *Eucatops* en Ecuador. Descripción de dos especies nuevas (Coleoptera, Leiodidae, Cholevinae, Eucatopini). *Nouvelle Revue d'Entomologie* (n.s.) **20**: 51-60.
- Salgado J. 2008.** Contribution to the knowledge of the biodiversity of Ecuador: new genus, new species and new records (Coleoptera, Leiodidae, Cholevinae), p. 209-224 in: **Giachino P. M. (ed.)** *Biodiversity of South America I. Memoirs on Biodiversity*, World Biodiversity Association onlus, Verona, 1, 496 p.
- Schatz H. 1994.** Lohmanniidae (Acari: Oribatida) from the Galápagos Islands, The Cocos Island, and Central America. *Acarologia* **35**: 267-287.
- Shi H., Singh A., Kant S., Zhu Z., Waller E. 2005.** Integrating habitat status, human population pressure, and protection status into biodiversity conservation priority setting. *Conservation Biology* **19**: 1273-1285.
- Shpeley D., Ball G. 1993.** Classification, Reconstructed Phylogeny and Geographical History of the New World species of *Coptodera* Dejean (Coleoptera: Carabidae: Lebiini). *Proceedings of the Entomological Society of Ontario* **124**: 1-182.
- Shpeley D., Ball G. 2000.** A taxonomic review of the subtribe Pericalina (Coleoptera: Carabidae: Lebiini) in the Western Hemisphere, with descriptions of new species and notes about classification and zoogeography. *Insecta Mundi* **14**: 1-185.
- Smith A. 2003.** A Monographic Revision of the Genus *Platycoelia* Dejean (Coleoptera: Scarabaeidae: Rutelinae: Anoplognathini). *Bulletin of the University of Nebraska State Museum* **15**: 1-202.
- Soberón J.M., Dávila P., Golubov J. 2003.** Targeting sites for biological collections. p. 221-231 in: **Smith R.R., Dickie J.B., Linington S. H., Pritchard H.W., Probert R.J.** (Eds.) *Seed Conservation. Turning Science into Practice*. Royal Botanic Garden, Kew, UK.
- Soberón J.M., Llorente J.B., Oñate L. 2000.** The use of specimen-label databases for conservation purposes: an example using Mexican Papilionid and Pierid butterflies. *Biodiversity and Conservation* **9**: 1441-1466.
- Soula M. 2002.** *La prima revisione dei seguenti generi Sud Americani: Cratholus, Tëlaugis, Platyrutela, Pseudohypaspidius, Badiasis, Chlorota, Exothrydium, Thyriochlorota, Parathyridium, Hypaspidius, Mucama, Xenochlorota, Pichica, Tipicha, Heterochlorota, Thyridium, Pseudothyridium, Exochlorota, Aequatoria, Acraspedon, Paratëlaugis, Exanticheina, Chalcentis, Vayana, Minidorysthetus, Pseudomacraspis, Maripa*. Coll. "Coléoptères du Monde XXVI", Association Entomologique pour la Connaissance de la Faune Tropicale, Saintry, France.
- Soula M. 2003.** *La prima revisione dei seguenti generi Sud Americani: Pseudoptenomela, Paraptenomela, Exoptenomela, Ptenomela, Calomacraspis, Paramacraspis, Paradorysthetus, Macraspis, Pseudodorysthetus, Dorysthetus, Anticheiroides, Anticheina, Pseudoanticheiroides*. Coll. "Coléoptères du Monde XXIX", Association Entomologique pour la Connaissance de la Faune Tropicale, Saintry, France.
- Straneo S. 1991a.** South American species of *Loxandrus* LeConte, 1852 (Coleoptera: Carabidae: Pterostichini). *Annals of the Carnegie Museum of Natural History* **60**: 1-62.
- Straneo S. 1991b.** I Pterostichini dell' Ecuador (Coleoptera, Carabidae). *Bollettino del Museo Regionale di Scienze Naturali, Torino* **9**: 397-425.
- Suarez A., Tsutsui N. 2004.** The value of museum collections for research and society. *BioScience* **54**: 66-74.
- Tavakilian G. 2001.** Une nouvelle espèce du genre néotropical *Neseuterpia* Villiers, 1980 (Coleoptera, Cerambycidae, Lamiinae). *Bulletin de la Société Entomologique de France* **106**: 437-440.
- Tennessen K. 1997.** *Lestes jerrelli*, n. sp. (Zygoptera: Lestidae), a new damselfly from Ecuador. *Proceedings Entomological Society Washington* **99**: 661-665.
- Toledano L. 2008.** Systematic notes on the Bembidiina of the Northern Andes with particular reference to the fauna of Ecuador. (Coleoptera, Carabidae), p. 81-130 in: **Giachino P.M. (ed.)** *Biodiversity of South America I. Memoirs on Biodiversity*, World Biodiversity Association onlus, Verona, 1, 496 p.

- Triplehorn C.A., Johnson N.F. 2005.** *Borror and Delong's Introduction to the Study of Insects*. 7th Edition. Thomson Brooks/Cole, Belmont, California. 864 p.
- UNEP-WCMC. 2005.** *Indicadores de Biodiversidad para Uso Nacional (Proyecto BINU)* [CD-ROM]. Fundación EcoCiencia y Ministerio del Ambiente del Ecuador. Ecuador, Quito, Ecuador.
- Vardy C.R. 2002.** The New World tarantula-hawk wasp genus *Pepsis* Fabricius (Hymenoptera: Pompilidae). Part 2. The *P. grossa*- to *P. deaurata*-groups. *Zoologische Verhandelingen* **337**: 1-134.
- Vela D., Rafael V. 2001.** Ocho nuevas especies del grupo Tripunctata, género *Drosophila* (Diptera, Drosophilidae), y el registro de *Drosophila paraguayensis* en el bosque protector Pasochoa, Pichincha, Ecuador. *Revista de la Pontificia Universidad Católica del Ecuador* **66**: 92-120.
- Vela D., Rafael V. 2004a.** Dos Nuevas especies del grupo Flavopilosa, género *Drosophila* (Diptera, Drosophilidae) en el Bosque Pasochoa. Provincia de Pichincha. *Revista Ecuatoriana de Medicina y Ciencias Biológicas* **26**: 14-21.
- Vela D., Rafael V. 2004b.** Three new Andean species of *Drosophila* (Diptera, Drosophilidae) of the Mesophragmatica group. *Iheringia (Porto Alegre)* **94**: 295-299.
- Vela D., Rafael V. 2004c.** Tres nuevas especies del grupo Guaraní, género *Drosophila* (Diptera: Drosophilidae) en el Bosque Pasochoa, provincia de Pichincha. *Revista Ecuatoriana de Medicina y Ciencias Biológicas* **26**: 7-14.
- Vela D., Rafael V. 2005a.** Catorce nuevas especies del género *Drosophila* (Diptera, Drosophilidae) en el Bosque húmedo montano del Volcán Pasochoa, Pichincha, Ecuador. *Revista Ecuatoriana de Medicina y Ciencias Biológicas* **27**: 27-34.
- Vela D., Rafael V. 2005b.** Nuevas especies de *Drosophila* (Diptera, Drosophilidae) en el Bosque Pasochoa, Pichincha-Ecuador. *Revista de la Pontificia Universidad Católica del Ecuador* **75**: 69-80.
- Voisin J. 1996.** Trois espèces nouvelles de *Baillytes* Voisin, de l'Équateur et remarques sur ce genre (Coleoptera, Curculionidae). *Bulletin de la Société entomologique de France* **101**: 357-362.
- Ward P.S. 1999.** Systematics, biogeography and host plant associations of the *Pseudomyrmex viduus* group (Hymenoptera: Formicidae), *Triplaris*- and *Tachigali*-inhabiting ants. *Zoological Journal of the Linnean Society* **126**: 451-540.
- Wheeler Q.D. 2007.** Invertebrate systematics or spineless taxonomy? p. 11-18 in: **Zhang Z.-Q., Shear W. A. (eds.)**, Linnaeus Tercentenary: Progress in Invertebrate Taxonomy. *Zootaxa* **1668**: 1-766.
- Wheeler Q.D., Raven P., Wilson E. O. 2004.** Taxonomy: impediment or expedient? *Science* **303**: 285.
- Wheeler T.A., Marshall S.A. 1995.** Systematics of the new world *Rachispoda* Lioy (Diptera: Sphaeroceridae): revisions of the primarily Neotropical *aequipilosa*, *divergens*, *fuscinervis*, *maculinea*, *marginalis*, and *m-nigrum* species groups. *Journal of Natural History* **29**: 1209-1307.
- Wieczorek J., Guo Q., Hijmans R.J. 2004.** The point-radius method for georeferencing locality descriptions and calculating associated uncertainty. *International Journal of Geographical Information Science* **18**: 745-767.
- Wiesner J. 1999.** The tiger beetle genus *Oxycheila* (Insecta: Coleoptera: Cicindelidae). 50th contribution towards the knowledge of Cicindelidae. *Schwanfelder Coleopterologische Mitteilungen* **3**: 1-81.
- Wild A.L. 2007.** Taxonomic revision of the ant genus *Linepithema* (Hymenoptera: Formicidae). *University of California Publications in Entomology* **126**: 1-151.
- Will K. 2002.** Revision of the new world abariform genera *Neotalus* n.gen. and *Abaris* Dejean (Coleoptera: Carabidae: Pterostichini (Auctorum)). *Annals of the Carnegie Museum of Natural History* **71**: 143-213.
- Will K. 2005.** The Neotropical genera *Oxycrepis* Reiche and *Stolonis* Motschulsky: a taxonomic review, key to the described species and description of new *Stolonis* species from Ecuador (Coleoptera: Carabidae: Loxandrinini). *Zootaxa* **1049**: 1-17.
- Wilson E. O. 2003.** *Pheidole in the New World: A Dominant, Hyperdiverse Ant Genus*. Harvard University Press, Cambridge, Mass, USA.
- Winston J.E. 2007.** Archives of a small planet: The significance of museum collections and museum-based research in invertebrate taxonomy. p. 47-54 in: **Zhang Z.-Q., Shear W. A. (eds.)**, Linnaeus Tercentenary: Progress in Invertebrate Taxonomy. *Zootaxa* **1668**: 1-766.

APPENDIX 1. Catalogue of type specimens deposited at the Invertebrate Section of QCAZ Museum.

The list is organized alphabetically following classes, orders, families and ultimately genera and species. Complete and original label information are available as **appendix 2** to download on the *Annales de la Société entomologique de France* web site.

Class Insecta

Order Coleoptera

Family Buprestidae

- Halecia onorei* Cobos 1989. Holotype.
- Hylaeogena onorei* Cobos 1989. Holotype, paratype.
- Pachyschelus sabatratrus* Cobos 1989. Holotype.
- Policesta excavate episcopalis* Cobos 1989. Holotype.

Family Carabidae

- Abaris napoensis* Will 2002. Paratype.
- Bembidion (Ecuadion) achipungi* Moret & Toledano 2002. Paratype.
- Bembidion (Ecuadion) camposi* Moret & Toledano 2002. Paratype.

- Bembidion (Ecuadion) camposi* Moret & Toledano 2002. Paratype.
- Bembidion caoduroi* L. Toledano 2008. Paratype.
- Bembidion (Ecuadion) chilei* Moret & Toledano 2002. Paratype.
- Bembidion (Ecuadion) cotopaxi* Moret & Toledano 2002. Paratype.
- Bembidion (Ecuadion) giselae* Moret & Toledano 2002. Paratype.
- Bembidion (Ecuadion) humboldti* Moret & Toledano 2002. Paratype.
- Bembidion illuchi* Moret & Toledano 2002. Paratype.
- Bembidion (Ecuadion) mathani* Moret & Toledano 2002. Paratype.
- Bembidion (Ecuadion) onorei* Moret & Toledano 2002. Paratype.
- Bembidion (Ecuadion) saragureense* Moret & Toledano 2002. Holotype, paratype.
- Bembidion walterrossii* Toledano 2008. Paratype.
- Blennidus (Agraphoderus) chinchillanus* Moret 2005. Holotype, paratype.
- Blennidus (Agraphoderus) ecuadorianus viduus* Moret 1996. Holotype, paratype.
- Blennidus (Agraphoderus) gregarius* Moret 1996. Paratype.
- Blennidus (Agraphoderus) gregarius montivagus* Moret 1996. Paratype.
- Blennidus marlenae* Moret 1995. Holotype, paratype.
- Blennidus (Agraphoderus) mucronatus* Moret 1996. Holotype, paratype.

Blennidus (Sierrobium) viridans Moret 1995. Holotype.
Blennidus (Sierrobium) thoracatus Moret 2005. Paratype.
Bradycellus aequatorius Moret 2001. Paratype.
Bradycellus martinezi Moret 2001. Paratype.
Bradycellus youngi Moret 2001. Paratype.
Coptodera apicalis Shpeley & Ball 1993. Paratype.
Dercylus (Licinodercylus) onorei Moret 1995. Paratype.
Dercylus (Licinodercylus) orbiculatus Moret 1995. Paratype.
Dercylus (Licinodercylus) praepilatus Moret 1995. Paratype.
Dercylus (Licinodercylus) granifer Moret 1995. Paratype.
Dercylus (Licinodercylus) gibber Moret 1995. Paratype.
Diploharpus rossii Moret 2008. Paratype.
Dyscolus (s. str.) algidus Moret 2005. Paratype.
Dyscolus (s. str.) araneus Moret 2005. Holotype, paratype.
Dyscolus (s. str.) arvalis Moret 2005. Paratype.
Dyscolus (s. str.) atkinsi Moret 2001. Paratype.
Dyscolus (s. str.) bliteus Moret 2005. Paratype.
Dyscolus (s. str.) bordoni Moret 1993. Paratype.
Dyscolus (s. str.) breviculus Moret 2001. Paratype.
Dyscolus (s. str.) capsarius Moret 2005. Paratype.
Dyscolus (s. str.) carbonescens Moret 2005. Holotype, paratype.
Dyscolus (s. str.) cephalotes spp. *sirinae* Moret 2005. Paratype.
Dyscolus (s. str.) desultor Moret 2005. Paratype.
Dyscolus (s. str.) exsul Moret 2005. Paratype.
Dyscolus (s. str.) fartilis Moret 2005. Paratype.
Dyscolus (s. str.) fucatus Moret 2005. Paratype.
Dyscolus immodicus Moret 2005. Paratype.
Dyscolus involucer Moret 1994. Paratype.
Dyscolus involucer geodesicus Moret 1994. Paratype.
Dyscolus (s. str.) lignicola Moret 1994. Paratype.
Dyscolus (s. str.) lubricus Moret 2001. Holotype.
Dyscolus (s. str.) maleodoratus Moret 2005. Paratype.
Dyscolus (s. str.) montivagus Moret 1998. Paratype.
Dyscolus (s. str.) montufari Moret 2005. Paratype.
Dyscolus (s. str.) nubilus Moret 2001. Paratype.
Dyscolus onorei Moret 1993. Paratype.
Dyscolus (s. str.) palatus Moret 1998. Paratype.
Dyscolus (s. str.) pullatus Moret 2005. Paratype.
Dyscolus (s. str.) riveti Moret 2001. Paratype.
Dyscolus segnipes Moret 1990. Paratype.
Dyscolus (s. str.) tapiarius Moret 2005. Holotype, paratype.
Dyscolus (s. str.) trossulus Moret 2005. Paratype.
Dyscolus (s. str.) verecundus Moret 1998. Paratype.
Dyscolus (Hydrodyscolus) hirsutus Moret 2005. Paratype.
Dyscolus (Hydrodyscolus) imbaburae Moret 2005. Paratype.
Dyscolus (Hydrodyscolus) nocticolor Moret 2005. Paratype.
Dyscolus (Hydrodyscolus) smithersi Moret 2001. Paratype.
Euchella kiplingi Shpeley & Ball 2000. Paratype.
Glyptolenoides balli Moret 2005. Paratype.
Incastichus aequidianus Moret 1996. Paratype.
Loxandrus ecuadoricus Straneo 1991. Paratype.
Loxandrus photophilus Straneo 1991. Paratype.
Ogmopleura (Agraphoderus) colomai Straneo 1991. Paratype.

Ogmopleura balli Straneo 1991. Paratype.
Ogmopleura ecuadoriana Straneo 1991. Paratype.
Ogmopleura (Agraphoderus) liodes planoculis Straneo 1991. Paratype.
Oxytrechus onorei Allegro *et al.* 2008. Paratype.
Oxytrechus pierremoreti Allegro *et al.* 2008. Paratype.
Oxytrechus reventadori Moret 2005. Holotype.
Oxytrechus zoiai Casale & Sciaky 1986. Paratype.
Pelmatellus gracilis Moret 2000. Paratype.
Pelmatellus inca Moret 2000. Paratype.
Pelmatellus polylepis Moret 2000. Paratype.
Pelmatellus caerulelescens Moret 2005. Holotype, paratype.
Perigona belloi Giachino, Moret & Picciau 2008. Paratype.
Sierrobium onorei Straneo 1991. Paratype.
Stenognathus (Prostenognathus) onorei Shpeley & Ball 2000. Paratype.
Stolonis tapiai Will 2005. Paratype.
Stolonis spinosus Will 2005. Paratype.
Stolonis catenarius Will 2005. Paratype.
Stolonis yasuni Will 2005. Paratype.
Trechisibus (Ecuadoritrechus) tapiai Deuve 2002. Holotype.

Family Cerambycidae

Apteraleidion lapierrei Hovore 1992. Paratype.
Eburia frankei Noguera 2002. Paratype.
Neseuterpia couturierii Tavakilian 2001. Paratype.

Family Chrysomelidae

Aslamidium (s. str.) ecuadoricum Borowiec 1998. Holotype.
Cyclocassis secunda Borowiec 1998. Paratype.
Discomorpha onorei Borowiec 1998. Holotype, paratype.
Eugenisa jasinskii Borowiec & Dšbrowska 1997. Paratype.
Eugenisa unicolor Borowiec & Dšbrowska 1997. Paratype.
Stolas napoensis Borowiec 1998. Holotype, paratype.
Stolas perezi Borowiec 1998. Holotype.
Stolas stolidus jadwiszczaki Borowiec 1998. Paratype.
Stolas zumbaensis Borowiec 1998. Paratype.

Family Cicindelidae

Ctenostoma (Neoprocephalus) cassolai Naviaux 1998. Paratype.
Ctenostoma (Procephalus) ecuadoriensis Naviaux 1998. Holotype.
Ctenostoma (Procephalus) onorei Naviaux 1998. Holotype.
Oxycheila brzoskai Wiesner 1999. Holotype, paratype.
Oxygonia nigrovenator Kippenhan 1997. Holotype.
Pseudoxycheila atahualpa Cassola 1997. Holotype, paratype.
Pseudoxycheila caribe Cassola 1997. Paratype.
Pseudoxycheila inca Cassola 1997. Paratype.
Pseudoxycheila nitidicollis Cassola 1997. Holotype, paratype.
Pseudoxycheila onorei Cassola 1997. Holotype, paratype.
Pseudoxycheila pearsoni Cassola 1997. Holotype, paratype.
Pseudoxycheila pseudotarsalis Cassola 1997. Holotype, paratype.
Pseudoxycheila quechua Cassola 1997. Paratype.

Family Curculionidae

Baillytes bartolozzi Voisin 1996. Paratype.

Melchus onorei Anderson 2003. Paratype.

Family Elateridae

Achrestus onorei Golbach, Zamudio & Guzmán de Tomé 1988.

Holotype, paratype.

Family Heteroceridae

Tropicus bartolozzii Mascagni 1994. Paratype.

Family Languriidae

Lepidotoramus grouvellei Leschen 1997. Paratype.

Family Leiodidae

Adelopsis aloecuatoriana Salgado 2008. Paratype.

Adelopsis (Adelopsis) bioforestae Salgado 2002. Holotype, paratype.

Adelopsis (Adelopsis) ecuatoriana Salgado 2002. Holotype, paratype.

Adelopsis (Lutururuca) dehiscentis Salgado 2002. Holotype, paratype.

Adelopsis onorei Salgado 2002. Holotype, paratype.

Adelopsis (Lutururuca) tuberculata Salgado 2002. Holotype, paratype.

Dissochaetus anseriformis Salgado 2001. Holotype, paratype.

Dissochaetus napoensis pallipes Salgado 2008. Paratype.

Eucatops (Eucatops) incognitus Salgado 2003. Holotype, paratype.

Eucatops (Sphaerotops) granuliformis Salgado 2003. Holotype.

Eucatops (Eucatops) onorei Salgado 2008. Paratype.

Family Lucanidae

Onorelucanus aequatorianus Bartolozzi & Bomans 1989. Paratype.

Sphaenognathus (Chiasognathinus) xerophilus Bartolozzi & Onore 2006. Holotype, paratype.

Family Passalidae

Passalus kaupi Boucher 2004. Paratype.

Verres onorei Boucher & Pardo-Locarno 1997. Paratype.

Family Rhysodidae

Stereodermus jonathani Mantilleri 2004. Paratype.

Family Scarabaeidae

Aequatoria aenigmatica Soula 2002. Paratype.

Ataenius cristobalensis Cook & Peck 2000. Paratype.

Ataenius floreanae Cook & Peck 2000. Paratype.

Bdelyrus grandis Cook 1998. Paratype.

Bdelyrus parvoculus Cook 1998. Holotype.

Bdelyrus pecki Cook 1998. Paratype.

Bdelyrus triangulus Cook 1998. Holotype.

Callosides genieri Howden 2001. Paratype.

Coprophanaeus morenoi Arnaud 1982. Paratype.

Cryptocanthon otonga Cook 2002. Holotype, paratype.

Family Dynastidae

Cyclocephala pseudomelanocephala Dupuis 1996. Paratype.

Neoathyreus brasiliensis Howden 1985. Paratype.

Ontherus diabolicus Génier 1996. Paratype.

Ontherus politus Génier 1996. Paratype.

Ontherus pubens Génier 1996. Paratype.

Platycoelia furva Smith 2003. Holotype, paratype.

Platycoelia galerana Smith 2003. Paratype.

Platycoelia hiporum Smith 2003. Paratype.

Platycoelia paucarae Smith 2003. Paratype.

Ptenomela giovannii Soula 2003. Paratype.

Scatimus onorei Génier & Kohlmann 2003. Holotype, paratype.

Family Staphilinidae

Apalonia archidonensis Pace 2008. Paratype.

Apalonia pampeana Pace 1997. Paratype.

Apalonia sigchosensis Pace 2008. Holotype, paratype.

Apalonia vicina Pace 2008. Holotype, paratype.

Atheta altocotopaxicola Pace 2008. Paratype.

Atheta annularina Pace 2008. Holotype.

Atheta cayambensis Pace 2008. Paratype.

Atheta cioccai Pace 2008. Paratype.

Atheta ecumaculata Pace 2008. Holotype.

Atheta ecucastaneipennis Pace 2008. Holotype.

Atheta hollinensis Pace 2008. Holotype.

Atheta neasuspiciosa Pace 2008. Paratype.

Atheta pseudoclaudiensis Klimaszewski & Peck 1998. Paratype.

Atheta toachiensis Pace 2008. Holotype.

Cajachara cartoni Ashe & Leschen 1995. Paratype.

Diestota simplex Pace 2008. Holotype.

Falagria ecuapallida Pace 2008. Holotype.

Gyrophaena cotopaxiensis Pace 1996. Paratype.

Gyrophaena otongensis Pace 2008. Holotype.

Gyrophaena rossii Pace 2008. Holotype, paratype.

Gyrophaena spatulata Pace 1996. Paratype.

Heterostiba rossii Pace 2008. Paratype.

Homalota cotopaxiensis Pace 2008. Holotype.

Leptandria ecitophila Hanley, 2003. Paratype.

Leptandria tishechkini Hanley, 2003. Paratype.

Meronera ecuadorica Pace 2008. Holotype.

Meronera otongicola Pace 2008. Holotype, paratype.

Myllaena pichinchaensis Pace 2008. Paratype.

Orphnebius curticornis Pace 2008. Holotype.

Orphnebius ecuadorensis Pace 1997. Paratype.

Orphnebius otongensis Pace 2008. Holotype, paratype.

Paraplandria caraorum Pace 2008. Holotype, paratype.

Paraplandria ecuadoricola Pace 2008. Holotype.

Parasilusa otongensis Pace 2008. Holotype.

Plesiomalota giachinoi Pace 2008. Paratype.

Plesiomalota paschoensis Pace 2008. Paratype.

Plesiomalota ruficollis Pace 2008. Holotype.

Plesiomalota ruficornis Pace 2008. Holotype.

Plesiomalota squalida Pace 2008. Holotype.

Plesiomalota varicornis Pace 2008. Holotype, paratype.
Pseudoleptonia ecuadorica Pace 2008. Holotype, paratype.
Pseudomniophila cotopaxiensis Pace 2008. Holotype, paratype.
Pseudomyllaena ecuadorensis Pace 2008. Holotype, paratype.

Family Tenebrionidae

Opatrinus ecuadorensis Iwan 1995. Paratype.

Order Diptera

Family Drosophilidae

Drosophila amaguana Vela & Rafael 2004. Holotype, paratype.
Drosophila apag Vela & Rafael 2005. Holotype.
Drosophila arcosae Vela & Rafael 2001. Holotype.
Drosophila asiri Vela & Rafael 2005. Holotype, paratype.
Drosophila carlosvilelai Vela & Rafael 2001. Holotype, paratype.
Drosophila condormachay Vela & Rafael 2005. Holotype, paratype.
Drosophila cuscungu Vela & Rafael 2005. Holotype.
Drosophila ecuatoriana Vela & Rafael 2004. Holotype, paratype.
Drosophila fontdevilai Vela & Rafael 2001. Holotype, paratype.
Drosophila guayllabambae Rafael & Arcos 1988. Holotype, paratype.
Drosophila huancavilcae Rafael & Arcos 1989. Holotype, paratype.
Drosophila ichubamba Vela & Rafael 2005. Holotype, paratype.
Drosophila korefae Vela & Rafael 2004. Holotype, paratype.
Drosophila machachensis Vela & Rafael 2001. Holotype, paratype.
Drosophila ninarumi Vela & Rafael 2005. Holotype, paratype.
Drosophila ogradi Vela & Rafael 2004. Holotype, paratype.
Drosophila paschoensis Vela & Rafael 2001. Holotype, paratype.
Drosophila patacora Vela & Rafael 2005. Holotype, paratype.
Drosophila pichinchana Vela & Rafael 2004. Holotype, paratype.
Drosophila pilaresae Vela & Rafael 2001. Paratype.
Drosophila pugyu Vela & Rafael 2005. Holotype.
Drosophila quillu Vela & Rafael 2005. Holotype, paratype.
Drosophila quitensis Vela & Rafael 2004. Holotype, paratype.
Drosophila ruminahuii Vela & Rafael 2004. Holotype.
Drosophila rumipamba Vela & Rafael 2005. Holotype.
Drosophila rundoloma Vela & Rafael 2005. Holotype, paratype.
Drosophila shuyu Vela & Rafael 2005. Holotype, paratype.
Drosophila shyri Vela & Rafael 2004. Holotype.
Drosophila sisa Vela & Rafael 2005. Holotype, paratype.
Drosophila suni Vela & Rafael 2005. Holotype.
Drosophila surucucho Vela & Rafael 2005. Holotype, paratype.
Drosophila taxobuaycu Vela & Rafael 2005. Holotype, paratype.
Drosophila tomasi Vela & Rafael 2001. Holotype, paratype.
Drosophila urcu Vela & Rafael 2005. Holotype.
Drosophila valenciai Vela & Rafael 2001. Holotype, paratype.
Drosophila yana Vela & Rafael 2005. Holotype, paratype.
Drosophila yangana Rafael & Vela 2003. Holotype, paratype.

Family Phoridae

Apocephalus ancylus Brown 1997. Paratype.

Apocephalus asyndetus Brown 2000. Paratype.
Apocephalus catholicus Brown 2000. Paratype.
Apocephalus comosus Brown 2000. Paratype.
Apocephalus extraneus Brown 1997. Paratype.
Apocephalus funditus Brown 2000. Paratype.
Apocephalus melinus Brown 2000. Paratype.
Apocephalus onorei Brown 1997. Paratype.
Apocephalus quadratus Brown 1997. Paratype.
Apocephalus roeschardae Brown 2000. Paratype.
Apocephalus securis Brown 1997. Paratype.
Apocephalus tanyurus Brown 2000. Paratype.
Apocephalus torulus Brown 2000. Paratype.
Apocephalus trifidus Brown 2000. Paratype.

Family Sphaeroceridae

Druciatius tricetus Marshall 1995. Paratype.
Opacifrons triloba Marshall & Langstaff 1998. Paratype.
Opacifrons redunca Marshall & Langstaff 1998. Paratype.
Palaeocoprina equiseta Marshall 1998. Paratype.
Phthitia merida Marshall 1992. Paratype.
Rachispoda justini Wheeler 1995. Paratype.
Rachispoda praealta Wheeler 1995. Paratype.

Order Hemiptera

Family Coreidae

Anasa scitula Brailovsky & Barrera 2000. Holotype, paratype.
Salapia onorei Brailovsky 1999. Holotype.
Sephina faceta Brailovsky 2001. Paratype.

Family Gerridae

Potamobates shuar Buzzetti 2006. Paratype.

Family Miridae

Anomalocornis peyreti Couturier & Costa 2002. Paratype.
Parafulvius henryi Costa & Couturier 2000. Paratype.

Family Pentatomidae

Thyanta xerotica Rider & Chapin 1991. Paratype.

Family Membracidae

Metcalfiella jaramillorum McKamey 1991. Paratype.
Metcalfiella nigrihumera McKamey 1991. Paratype.

Order Hymenoptera

Family Apidae

Euglossa lugubris Roubick 2004. Paratype.
Euglossa occidentalis Roubick 2004. Holotype, paratype.
Euglossa orellana Roubick 2004. Holotype, paratype.
Euglossa samperi Ramirez 2006. Holotype.
Euglossa tiputini Roubick 2004. Paratypes.
Eulaema napensis Oliveira 2006. Holotype.
Paratrigona onorei Camargo & Moure 1994. Paratype.

Family Diapriidae

Mimopria campbellorum Masner 1976. Paratype.

Family Formicidae

Leptanilloides nomada Donoso, Vieira & Wild 2006. Holotype, paratype.

Leptanilloides nubecula Donoso, Vieira & Wild 2006. Holotype, paratype.

Linepithema aztecoides Wild 2006. Paratype.

Linepithema neotropicum Wild 2006. Paratype.

Linepithema tsachila Wild 2006. Holotype.

Pheidole alpestris Wilson 2003. Paratype.

Pseudomyrmex eculeus Ward 1999. Paratype.

Pseudomyrmex insuavis Ward 1999. Paratype.

Pseudomyrmex ultirix Ward 1999. Paratype.

Family Pompilidae

Pepsis multichroma Vardy 2002. Paratype.

Pepsis onorei Vardy 2002. Paratype.

Family Scelionidae

Thoron garciai Johnson & Masner 2004. Paratype.

Family Vespidae

Agelaia silvatica Cooper 2000. Paratype.

Order Lepidoptera**Family Noctuidae**

Hemeroblemma laguerrei Barbut & Lalanne-Cassou 2005. Paratype.

Family Nymphalidae

Altopedaliodes tena nucea Pycrz & Vilorio 1999. Paratype.

Manerebia golondrina Pycrz & Willmott 2006. Paratype.

Manerebia satura pauperata Pycrz & Willmott 2006. Paratype.

Manerebia germaniae Pycrz & Hall 2006. Paratype.

Manerebia undulata undulata Pycrz & Hall 2006. Paratype.

Manerebia inderena similis Pycrz & Willmott 2006. Paratype.

Manerebia inderena clara Pycrz & Willmott 2006. Paratype.

Manerebia inderena laeniva Pycrz & Willmott 2006. Paratype.

Manerebia inderena mirena Pycrz & Willmott 2006. Paratype.

Pedaliodes rumba Pycrz & Vilorio 1999. Paratype.

Pedaliodes morenoi pilaloensis Pycrz & Vilorio 1999. Paratype.

Pedaliodes arturi Pycrz & Vilorio 1999. Paratype.

Pedaliodes balnearia Pycrz & Vilorio 1999. Paratype.

Pedaliodes peucestas restricta Pycrz & Vilorio 1999. Paratype.

Order Megaloptera**Family Corydalidae**

Chloronia convergens Contreras 1995. Paratype.

Corydalus clauseni Contreras 1998. Paratype.

Order Odonata**Family Lestidae**

Lestes jerrelli Tennessen 1997. Paratype.

Family Coenagrionidae

Oxyagrion tennesseini Mauffray 1999. Paratype.

Family Aeshnidae

Aeshna (Marmaraeschna) brevicercia Muzón & Von Ellenrieder 2001. Holotype, paratype.

Order Orthoptera**Family Grillidae**

Gryllus abditus Otte & Peck 1997. Paratype.

Gryllus isabela Otte & Peck 1997. Paratype.

Family Acrididae

Aphanolampis aberrans Descamps 1978. Neoparatype.

Hyalinacris diaphana Amédégnato & Poulain 1998. Paratype.

Hyalinacris onorei Amédégnato & Poulain 1998. Paratype.

Class Arachnida**Order Scorpionida****Family Buthidae**

Tityus jussarae Lourenço 1988. Paratype.

Family Chactidae

Chactas mahnerti Lourenço 1995. Paratype.

Order Araneae**Family Theridiidae**

Anelosimus guacamayos Agnarsson 2006. Paratype.

Anelosimus oritoyacu Agnarsson 2006. Paratype.

Anelosimus baeza Agnarsson 2006. Paratype.

Anelosimus elegans Agnarsson 2006. Paratype.

Order Acari**Family Lohmaniidae**

Heptacarus encantadae Schatz 1994. Paratype.

Torpacarus omittens galapagensis Schatz 1994. Paratype.

APPENDIX 2.

Catalogue of type specimens deposited at the Invertebrate Section of QCAZ Museum

The list is organized alphabetically following classes, orders, families and ultimately genera and species. Complete and original label information (i.e. as it appeared) is provided for each record, except when labels provided duplicate information. Red labels indicating the status of the specimens (e.g. holotype, paratype) were omitted from the catalog. References are provided at the end of each record.

CLASS INSECTA

ORDER COLEOPTERA

FAMILY BUPRESTIDAE

Halecia onorei Cobos 1989. Holotype QCAZI 603. Ecuador, Napo, Coca, I. 85, Legit: G. Onore. Ref. Cobos 1989.

Hylaeogena onorei Cobos 1989. Holotype QCAZI 605. Ecuador, Napo, Sacha, VII.84, Legit: G. Onore. Paratypes QCAZI 606 and QCAZI 607 (Allotype) with the same label as the holotype. Ref. Cobos 1989.

Pachyschelus sabatratus Cobos 1989. Holotype QCAZI 608. Ecuador, Pichincha, Los Bancos, 28-I-84, Log: M. Larrea. Ref. Cobos 1989.

Policesta excavate episcopalis Cobos 1989. Holotype QCAZI 604. Ecuador, Manabí, Bahía de Caraquez, III-1983, Lg. Gómez P. Ref. Cobos 1989.

FAMILY CARABIDAE

Abaris napoensis Will 2002. Paratype QCAZI 1965 \$. Label 1: Ecuador, Napo, Onkone Gare Camp 00°39'10"S, 76°26'00"W; 220 m. Terra firma forest; Label 2: flowerfall-leaf litter; at night 5&8.X.1995 07-95; Label 3: T. L. ERWIN ECUADOR EXPEDITON 1995. G.E. Ball and D. Shpeley colls. Ref. Will 2002.

Bembidion (Ecuadion) achipungi Moret & Toledano 2002. Paratype QCAZI 81. Ecuador, Chimborazo, Achipungo, (Atillo), 4250 m, 7Jan1995, G. Zapata. Ref. Moret & Toledano 2002.

Bembidion (Ecuadion) camposi Moret & Toledano 2002. Paratypes QCAZI 89 and QCAZI 90. Ecuador, Salcedo, vía Napo km 40, XII. 87, leg.G. Onore. Ref. Moret & Toledano 2002.

Bembidion caoduroi L. Toledano 2008. Paratypes QCAZI 1832 and QCAZI 1833. Ecuador, Pichincha, Lloa, Río Blanco, m 2410, S 00°12'37.1", W 78°40'01.9", 1.VIII.2006, P. M. Giachino. Ref. Toledano 2008.

Bembidion (Ecuadion) chilensi Moret & Toledano 2002. Paratype QCAZI 98. Chiles, 4050 m, 10. VIII .1997, ñ285, N. Atkins. Ref. Moret & Toledano 2002.

Bembidion (Ecuadion) cotopaxi Moret & Toledano 2002. Paratypes QCAZI 91 to QCAZI

97. Ecuador, Cotopaxi, Parque Nacional Cotopaxi, Control Norte, 3755 m, 10Feb2001, I. G. Tapia. Ref. Moret & Toledano 2002.

Bembidion (Ecuadion) giselae Moret & Toledano 2002. Paratype QCAZI 103. Ecuador, Loja, Valladolid, Límite del Parque Jocotoco y Podocarpus, 6Jan2001, I. G. Tapia. Ref. Moret & Toledano 2002.

Bembidion (Ecuadion) humboldti Moret & Toledano 2002. Paratypes QCAZI 99 and QCAZI 100. Ecuador, Chimborazo, Ozogoché, alrededor de la Laguna, 27Dec1994, GOnore. Ref. Moret & Toledano 2002.

Bembidion illuchi, Moret & Toledano 2002. Paratype QCAZI 101. Ecuador, Cotopaxi, Salcedo, Vía a Tena Pass, 3800 m, 15Jan1995, GOnore. Ref. Moret & Toledano 2002.

Bembidion (Ecuadion) mathani, Moret & Toledano 2002. Paratype QCAZI 102. Ecuador, Chimborazo, Achipungo, (Atillo), 4250 m, 7Jan1995, GZapata. Ref. Moret & Toledano 2002.

Bembidion (Ecuadion) onorei Moret & Toledano 2002. Paratypes QCAZI 104 and QCAZI 105. Ecuador, 7.VIII.90, Volcán Cotopaxi, 3800 - 4800 m, leg. Sciaki. Ref. Moret & Toledano 2002.

Bembidion (Ecuadion) saragurensis Moret & Toledano 2002. Holotype QCAZI 108. Label 1: Ecuador, Loja, Saraguro, Paraíso de Celen, Laguna de Chinchilla, 3660 m., 20Dec1998, E. Tapia; Label 2: EX: Dry season. Paratypes QCAZI 109 to QCAZI 113, with the same label as the holotype. Ref. Moret & Toledano 2002.

Bembidion waltherrossii Toledano 2008. Paratype QCAZI 499. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28 VII 2005, W. Rossi. Ref. Toledano 2008.

Blennidus (Agraphoderus) chinchillanus Moret 2005. Holotype QCAZI 136. Label 1: Ecuador, Loja, Saraguro, Paraíso de Celen, Laguna de Chinchilla, 3660 m., 20Dec1998, E. Tapia; Label 2: Ex: dry season. Paratypes QCAZI 137 to QCAZI 144, with the same label as the holotype. Ref. Moret 2005.

Blennidus (Agraphoderus) ecuadorianus viduus Moret 1996. Holotype QCAZI 128. Ecuador, Chimborazo, Ozogoché, alrededor de la Laguna, 27Dec1994, G.Onore. 6 paratypes with the same label as the holotype. Ref. Moret 1996a.

Blennidus (Agraphoderus) gregarius Moret, 1996. Paratype QCAZI 134. Ecuador, Prov. Azuay, Nudo de Azuay, 3980 m, Paredones sous pierre, P. Moret leg., 14. VII. 88. Ref. Moret 1996a.

Blennidus (Agraphoderus) gregarius montivagus Moret 1996. Paratype QCAZI 135. Ecuador, Chimborazo, km 28 Guamate-Macas, 4000 m, –sous pierre, P. Moret leg., 7. I. 95. Ref. Moret 1996a.

Blennidus marlenae Moret 1995. Holotype QCAZI 2. Ecuador, Cañar, Chocar, 3300 m, Nov1990, Legit: G. Onore. Paratype QCAZI 3 with the same label as the holotype. Ref. Moret 1995

- Blennidus (Agraphoderus) mucronatus* Moret 1996. Holotype QCAZI 8. Ecuador, Pichincha, Atacazo volcan, 3800-4000 m, 18Dec1994. 17 paratypes with the same label as the holotype. Ref. Moret 1996a.
- Blennidus (Sierrobium) viridans* Moret 1995. Holotype QCAZI 22. Ecuador, Azuay, Nabón, 3200 m, Nov1990, Legit. G. Onore. Ref. Moret 1995.
- Blennidus (Sierrobium) thoracatus* Moret 2005. Paratypes QCAZI 23. Label 1: Ecuador, Loja, Saraguro, Paraíso de Celén, Laguna de Chinchilla, 3660 m, 20Dec1998, E. Tapia; Label 2: Ex: dry season. QCAZI 24. Ecuador, Loja, Saraguro, Laguna de Chinchilla, 3665 m, 79°24'W 03°36'S, 20Dec1998, E. Tapia. Ref. Moret 2005
- Bradycellus aequatorius* Moret 2001. Paratypes QCAZI 34. Ecuador, Bolívar, Cashca Totoras, XII/87, Legit: L. Coloma. QCAZI 36. Ecuador, Bolívar, Cashca Totoras, 87-12-29, Legit S. Paredes. QCAZI 35. Ecuador, El Oro/Loja, 6 km ESE Guanazan, Pass, 3040 m, 7 Nov1987, C. Young, R. Davidson, J. Rawlins. Grassland. QCAZI 37. Ecuador, Bolívar, Guaranda, San Miguel, Santuario Lourdes, 3100 m, 4 Nov1995, GOnore. QCAZI 38. Ecuador, Bolívar, Totoras, 24-VI-87, Legit F. Campos. Ref. Moret 2001b.
- Bradycellus martinezi* Moret 2001. Paratypes QCAZI 25 and QCAZI 29. Ecuador, Cotopaxi, Parque N. Cotopaxi, 4000 m, 14-V-1983, Col: D. Bastidas. QCAZI 26 and QCAZI 31. Ecuador, Cotopaxi –Volcán, m. 4000, 19. VI-1983, Lg. L. Coloma. QCAZI 27. Label 1: Ecuador, Pichincha, Quito, 8-V-85, Leg: R. León; Label 2: Ex: *Solanum tuberosum* roots. QCAZI 28. Ecuador, Cotopaxi –Volcán, m. 4000, 25-V-1983, Lg. Ernesto Martínez. QCAZI 30. Ecuador, Cotopaxi, (4500), 04-05-1983, Lg. Valle, C. QCAZI 32. Ecuador, Cotopaxi, Misha Huayco, 3200 m., 17SEP1995, Gzapata. QCAZI 33. Ecuador, Cotopaxi, Planchaloma, 3100 m, 2 APR1995, G. Zapata. Ref. Moret 2001b.
- Bradycellus youngi* Moret 2001. Paratype QCAZI 39. Ecuador, El Oro/Loja, 6 km ESE Guanazán pass, 3040 m., 7Nov1987, C. Young, R. Davidson J. Rawlins. Grassland. Ref. Moret 2001b.
- Coptodera apicalis* Shpeley & Ball 1993. Paratype QCAZI 42. Ecuador, Esm. Pr., Zapallo Grande, 4February1988, Mike Huybenz. Ref. Shpeley & Ball 1993.
- Dercylus (Licinodercylus) onorei* Moret 1995. Paratypes QCAZI 168 to QCAZI 170. Ecuador, Cañar, Shical, 3200 m, Nov1990, Legit: G. Onore. Ref. Moret & Bousquet 1995.
- Dercylus (Licinodercylus) orbiculatus* Moret 1995. Paratype QCAZI 171. Ecuador, XI 83, Azuay, Cajas, Legit: G. Onore. Ref. Moret & Bousquet 1995.
- Dercylus (Licinodercylus) praepilatus* Moret 1995. Paratypes QCAZI 172. Ecuador, Bolívar, Totoras, II-87, Legit: L. Coloma. QCAZI 173. Ecuador, Chimborazo, Guangopud- Chimbo pass, 14Aug1993, 4200 m, C. W. Young, G. Onore & E. Tapia. Ref. Moret & Bousquet 1995.
- Dercylus (Licinodercylus) granifer* Moret 1995. Paratype QCAZI 179. Ecuador, Morona – Santiago/Azuay Pass, 21 km SE Gualaceo, 3720 m, 21Oct1987, C. Young, R. Davidson, J. Rawling. Wet paramo. Ref. Moret & Bousquet 1995.

- Dercylus (Licinodercylus) gibber* Moret 1995. Paratype QCAZI 167. Ecuador, Loja, 2800 m, 12Marzo1991, Legit: G. Onore. Ref. Moret & Bousquet 1995.
- Diphloharpus rossii* Moret 2008. Paratypes QCAZI 502, QCAZI 1826 and QCAZI 1827. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Bosque Integral de Otonga, 11-12 VII 2007, W. Rossi. Ref. Moret 2008
- Dyscolus (s. str.) algidus* Moret 2005. Paratype QCAZI 56. Ecuador, Napo, Quilindaña, 4000 m, 12 MAY1995, GZapata. QCAZI 57. Ecuador, Cotopaxi, vía Salcedo-Tena, Estribación Oriental, 2800-3800 m, 15JAN1995, G. Onore. Ref. Moret 2005
- Dyscolus (s. str.) araneus* Moret 2005. Holotype QCAZI 70. Ecuador, Azuay, Patacocha, 3500 m, 31DEC1995, G.Onore. Paratypes QCAZI 71 to QCAZI 76, with the same label as the holotype. QCAZI 77. Ecuador, Azuay, Paute, Antena, 3000 m, 17MAR1996, F.Salazar. Ref. Moret 2005.
- Dyscolus (s. str.) arvalis* Moret 2005. Paratype QCAZI 58. Label 1: Rio-bamba, m-3500 m, Aoñt 77; Label 2: Equateur, Coll. J. Negre. Ref. Moret 2005
- Dyscolus (s. str.) atkinsi* Moret 2001. Paratypes QCAZI 49 to QCAZI 51. Carchi, Volcán Chiles, 3850 m., páramo, 11. VII. 1997, n°289, N. Atkins leg. Ref. Moret 2001a.
- Dyscolus (s. str.) bliteus* Moret 2005. Paratypes QCAZI 79. Ecuador, Chimborazo, Lag. Negra (Atillo), 3600 m., 6JAN1995, G.Zapata. QCAZI 80. Ecuador, Chimborazo, Hacienda Cubillin, 3650 m, ruisseau, 5.8.1998, P. Moret. Ref. Moret 2005.
- Dyscolus (s. str.) bordoni* Moret 1993. Paratype QCAZI 78. Ecuador, 16-IX-84, Prov. Pichincha, Cayambe, NE lag. San Marcos, Pierre Moret legit, 3600 m. Ref. Moret 1993.
- Dyscolus (s. str.) breviculus* Moret 2001. Paratype QCAZI 81. Carchi, Volcán Chiles, 3850 m, paramo, 11.VIII.1997, n°290, N. Atkins leg. Ref. Moret 2001a.
- Dyscolus (s. str.) capsarius* Moret 2005. Paratypes QCAZI 82 and QCAZI 83. Label 1: Ecuador, Azuay, Las Cajas, 35 km WNW Cuenca, 3950 m, 9November1987; Label 2: R. Davidson, J. Rawlins, C. Young, páramo habitat, QCAZI 84. Ecuador, Azuay, Nudo de Cajas pass, 4150 m, 17.V.1997, A. Cassale leg. Ref. Moret 2005.
- Dyscolus (s. str.) carbonescens* Moret 2005. Holotype QCAZI 60. Ecuador, Cañar, La Carbonería, 2850 m, 18JAN1996, FSalazar & G.Onore. Paratypes QCAZI 61 to QCAZI 66, with the same label as the holotype. Ref. Moret 2005.
- Dyscolus (s. str.) cephalotes spp. sirinae* Moret 2005. Paratype QCAZI 67. Ecuador - Chimborazo, Cerro Achipungu, (N) 4230 m, –sous pierre, P. Moret leg. 7.I.95. Ref. Moret 2005
- Dyscolus (s. str.) desultor* Moret 2005. Paratypes QCAZI 68 and QCAZI 69. Ecuador, Chimborazo, Ozogoché, alrededor de la Laguna, 27DEC1994, G.Onore. Ref. Moret 2005.
- Dyscolus (s. str.) exsul* Moret 2005. Paratypes QCAZI 198 to QCAZI 210. Ecuador, Azuay, Patacocha, 3500 m, 30Dec1995, GOnore. Ref. Moret 2005.

- Dyscolus (s. str.) fertilis* Moret 2005. Paratype QCAZI 197. Ecuador -Chimborazo, Hacienda Cubillin, 3400-3520 m, forest, 5.8.1998, P. Moret. Ref. Moret 2005
- Dyscolus (s. str.) fucatus* Moret 2005. Paratype QCAZI 211. Ecuador, Chimborazo, Shangay volcano, 3300 m, 14.VI.1991, Craie Downer. Ref. Moret 2005.
- Dyscolus immodicus* Moret 2005. Paratypes QCAZI 213 to QCAZI 216. Ecuador, Pich, Antisana, VI-85, Legit: J. Coloma. QCAZI 217. Label 1: Ecuador, Pich, Antisana, VI-85, legit: A. Velasco, M. Larrea, 23 VII 1984; Label 2: Ex: excremento. Ref. Moret 2005.
- Dyscolus involucer* Moret 1994. Paratype QCAZI 220. Label 1: W. Otavalo, (Ecuador), 3100 m., 5Sept.77; Label 2: Collection J. Nègre. Ref. Moret 1994.
- Dyscolus involucer geodesicus* Moret 1994. Paratypes QCAZI 218 and QCAZI 219. Ecuador, Carchi, San Gabriel, Monte Verde, Bosque de Arrayanes, 2800 m, C. Young, G. Onore. Ref. Moret 1994.
- Dyscolus (s. str.) lignicola* Moret 1994. Paratypes QCAZI 238. Ecuador, Pichincha, Vía Chiriboga Guarumal, I-84, Leg. Yépez. QCAZI 239 and QCAZI 240. Label 1: Ecuador, Pichincha, Paschoa, V-85, Legit: A. Salazar; Label 2: Hunting on *Polylepis* sp. QCAZI 241. Ecuador, XII -87, Otavalo, m 3000, leg. G. Onore. Ref. Moret 1994.
- Dyscolus (s. str.) lubricus* Moret 2001. Holotype QCAZI 231. Ecuador, VIII-86, Carchi, Tufino, Legit: G. Onore. Ref. Moret 2001a.
- Dyscolus (s. str.) maleodoratus* Moret 2005. Paratypes QCAZI 222 to QCAZI 225. Ecuador, Pichincha, Páramo de Guamaní, 20-10-84, Legit: V. Zak. Ref. Moret 2005.
- Dyscolus (s. str.) montivagus* Moret 1998. Paratype QCAZI 227. Ecuador, Carchi, 23 km W Tufino, pass, Volcán Chiles, 4070 m, 18Nov1987, R. Davidson, C. Young. Paramo. Ref. Moret 1998.
- Dyscolus (s. str.) montufari* Moret 2005. Paratype QCAZI 226. Label 1: Ecuador, Bolivar, Chimborazo Pass, 23 km SSW Chimborazo, 4040 m, 17Oct1987; Label 2: C. Young, R. Davidson, J. Rawlins. Dry paramo. Ref. Moret 2005.
- Dyscolus (s. str.) nubilus* Moret 2001. Paratypes QCAZI 229 and QCAZI 230. Ecuador, VIII-86, Carchi, Tufiño, Legit: G. Onore. Ref. Moret 2001a.
- Dyscolus onorei* Moret 1993. Paratype QCAZI 242. Ecuador, II-86, Carchi, Chiles, 3900 m., Legit: P. Ponce. Ref. Moret 1993.
- Dyscolus (s. str.) palatus* Moret 1998. 7 paratypes with the following label: Ecuador, Pichincha, Atacazo volcano, 3800-4000 m 18Dec1994, GOnore. Ref. Moret 1998.
- Dyscolus (s. str.) pullatus* Moret 2005. Paratypes QCAZI 153. Ecuador, Bolívar, XII.81, Totoras, 3000 m, Legit: J. Naranjo. QCAZI 155, QCAZI 156, QCAZI 160. Ecuador, Bolívar, XII-87, Totoras, Legit: R. Puebla. QCAZI 158, QCAZI 159, QCAZI 163. Ecuador, Bolívar, 28.XII.81, Totoras, 3000 m, Legit: J. Naranjo.

- QCAZI 162. Ecuador, XII-86, Bolívar, Totoras, Legit: L. Coloma. QCAZI 164 and QCAZI 165. Ecuador, VI-86 Bolívar, Totoras, Legit: L. Coloma. QCAZI 154. Ecuador, Bolívar, Cashca Totoras, XII-87, Legit: L. Coloma. QCAZI 161. Ecuador, Bolívar, Cashca Totoras, 28-XII-1987, Legit: P. Coral. QCAZI 157. Ecuador, VIII - 86, Pallatanga, Legit: G. Onore. Ref. Moret 2005.
- Dyscolus (s. str.) riveti* Moret 2001. Paratypes QCAZI 145 to QCAZI 152. Carchi, Volcán Chiles, 4050 m, paramo, 10. VIII.1997, n 285, N. Atkins Leg. Ref. Moret 2001a.
- Dyscolus segnipes* Moret 1990. Paratype QCAZI 166. Label 1: Ecuador, Napo, Paso de Guamaní; e. Quito under stones; road-side, 3810-3962 m, May 13, 1982, #51-3; Label 2: Ecuador, exp. 1982, H. E. Frania & F. A. H. Sperling collectors. Ref. Moret 1990.
- Dyscolus (s. str.) tapiarius* Moret 2005. Holotype QCAZI 232. Ecuador, Loja, Saraguro, Paraíso de Celen, Laguna de Chinchilla, 3660 m, 20Dec1998, E. Tapia. Paratypes QCAZI 233 to QCAZI 235 with the same label as the holotype. Ref. Moret 2005
- Dyscolus (s. str.) trossulus* Moret 2005. Paratype QCAZI 246. Ecuador, Azuay, S. José de Raranga, 3300 m, 16Nov1990, Legit: G. Onore. Ref. Moret 2005
- Dyscolus (s. str.) verecundus* Moret 1998. Paratype QCAZI 247. Ecuador, Pichincha, Atacazo volcan, 3800-4000 m, 18Dec1994, G. Onore. Ref. Moret 1998.
- Dyscolus (Hydrodyscolus) hirsutus* Moret 2005. Paratype QCAZI 221. Ecuador, XI. 85, Napo, Papallacta, Legit: G. Onore. Ref. Moret 2005.
- Dyscolus (Hydrodyscolus) imbaburae* Moret 2005. Paratype QCAZI 212. Ecuador, Imbabura, road Cahuasqui to Buenos Aires, 3500 m, 10Mar1993, G. Onore. Ref. Moret 2005
- Dyscolus (Hydrodyscolus) nocticolor* Moret 2005. Paratype QCAZI 228. Ecuador, Imbabura, Mojanda, 4-Dic-89, Legit Mónica Coello. Ref. Moret 2005.
- Dyscolus (Hydrodyscolus) smithersi* Moret 2001. Paratype QCAZI 174. Carchi, Volcán Chiles, 3400 m., stream side, VIII-1997, IDSPO8, P. Smithers leg. Ref. Moret 2001a.
- Euchella kiplingi* Shpeley & Ball 2000. Paratype QCAZI 40 and QCAZI 41. 01°02'03"S, 77°39'49"W, Ecuador, Napo Prov., Puerto Misahualli, 11:IX:1997, Col. K. Will. Ref. Shpeley & Ball 2000.
- Glyptolenoides balli* Moret 2005. Paratype QCAZI 180. Ecuador, Pichincha, Pifo-Baeza km 45, 29-XI-85, Legit: A. Izurieta. Ref. Moret 2005.
- Incastichus aequidianus* Moret 1996. Paratype QCAZI 177. Label 1: Ecuador, Pichincha; Label 2: Palmeras, 24/01/93, E. Pichilingue. Ref. Moret 1996b.
- Loxandrus ecuadoricus* Straneo 1991. Paratype QCAZI 176. Label 1: Ecuador: Carchi, Chical, 1250 m, 0 56'N, 78 11'W, Coll. R. Davidson. VII.11-20.1983; Label 2: ex: *Eleocharis elegans* swamp. Ref. Straneo 1991a.

- Loxandrus photophilus* Straneo 1991. Paratype QCAZI 175. Paraguay, Dept. Central, San Lorenzo, 18-19Nov1986, J. A. Kochalka. Uv light trap. Ref. Straneo 1991a.
- Ogmopleura (Agraphoderus) colomai* Straneo 1991. Paratypes QCAZI 114 to QCAZI 121. Ecuador, Pichincha, Antisana, 4200 m, 4 –II-1984, Lg. G. Onore. Comments: Labeled as *Blennidus antisanae* (Bates) by P. Moret in 2001. Ref. Straneo 1991b
- Ogmopleura balli* Straneo 1991. Paratype QCAZI 122. Label 1: Ecuador, Azuay, Las Cajas, 35 km WNW Cuenca, 3950 m, 9 November 1987; Label 2: R. Davidson, J. Rawlins; C. Young, Paramo habitat. Comments: Labeled as *Blennidus balli* Straneo by P. Moret in 2001. Ref. Straneo 1991b.
- Ogmopleura ecuadoriana* Straneo 1991. Paratype QCAZI 133. Label 1: Ecuador, Bolívar, Chimborazo, Pass, 23 km SSW Chimborazo, 4040 m, 17Oct1987; Label 2: C. Young, R. Davidson, J. Rawlins, Dry paramo. Comments: Labeled as *Blennidus ecuadorianus* (Straneo) by P. Moret in 2001. Ref. Straneo 1991b.
- Ogmopleura (Agraphoderus) liodes planoculis* Straneo 1991. Paratype QCAZI 1. Ecuador, Tungurahua, 7 km NW Chmborazo, 3960 m., 15Oct1987, R. Davidson, J. Rawlins, C. Young. Dry subparamo. Ref. Straneo 1991b, but see Moret 1996a.
- Oxytrechus onorei* Allegro *et al.* 2008. Paratype QCAZI 500. Ecuador, Pichincha, Volcán Cayambe, m. 4500, 14.VIII.1990, Sciaky. Ref. Allegro *et al.* 2008.
- Oxytrechus pierremoreti* Allegro *et al.* 2008. Paratype QCAZI 501. Ecuador, Pichincha, Atacazo volcán, 3800-4000 m., 18Dec1994, G. Onore. Ref. Allegro *et al.* 2008.
- Oxytrechus reventadori* Moret 2005. Holotype QCAZI 195. Ecuador, Sucumbios, Volcan Reventador, 3530 m, Mayo1999, E. Tapia. Ref. Moret 2005.
- Oxytrechus zoiai* Casale & Sciaky 1986. Paratype QCAZI 196. Ecuador, M. Cotopaxi, m 4800, 3.IV.86, Leg. A. Casale. Ref. Casale & Sciaky 1986.
- Pelmatellus gracilis* Moret 2000. Paratypes QCAZI 189. Ecuador, Pichincha, Puembo, 2450 m, 25-I-85, Legit: J. Coloma. QCAZI 190. Ecuador, Pichincha, Pomasqui, 20-8-85, Legit: L. Torres. QCAZI 191. Ecuador, Tungurahua, Píllaro, 22-I-89, Legit: R. Puebla A. Ref. Moret 2000.
- Pelmatellus inca* Moret 2000. Paratype QCAZI 192. Ecuador, 14.VIII.88, Prov. Cañar, Nudo de Azuay, Paredones, 3980 m, Pierre Moret legit. Ref. Moret 2000.
- Pelmatellus polylepis* Moret 2000. Paratype QCAZI 193. Label 1: Ecuador, Azuay, Las Cajas, 35 km WNW Cuenca, 3950 m, 9 November 1987; Label 2: R. Davidson, J. Rawlins, C. Young. Paramo habitat. Ref. Moret 2000.
- Pelmatellus caerulescens* Moret 2005. Holotype QCAZI 181. Label 1: Ecuador, Loja, Saraguro, Paraíso de Celen, Laguna de Chinchilla, 3660 m, 20Dec1998, E. Tapia; Label 2: Ex: Dry season. Paratypes QCAZI 182 to QCAZI 188 with the same labels data as the holotype. Ref. Moret 2005.
- Perigona belloi* Giachino, Moret & Picciau 2008. Paratype QCAZI 1831 £. Ecuador, Pichincha, m 3150, S. José de Minas, Cerro Blanco, S 00°12'37.3", W

78°21'03.0", 7.VIII.2006, C. Bellδ. Ref. Giachino *et al.* 2008.

Sierrobrius onorei Straneo 1991. Paratypes QCAZI 106. Ecuador, VI-86, Bolívar, Totoras, Legit: L. Coloma. QCAZI 107. Ecuador, Bolívar, Totoras, Legit: L. Coloma, XII/86. Comments: Synonymized as *Blennidus onorei* (Straneo) by P. Moret 2001. Ref. Straneo 1991b.

Stenognathus (Prostenognathus) onorei Shpeley & Ball 2000. Paratype QCAZI 178. Ecuador, Napo, II-89, Cosanga, Legit: G. Onore. Ref. Shpeley & Ball 2000.

Stolonis tapiai Will 2005. Paratype QCAZI 1971 \$. 00°40'36" S, 76°24'02" W, ECUADOR, Napo Prov., Yasuni Scientific Station, 20:IV:1998, 210m, Col. K. Will, Headlamp. QCAZI 1972, with the same label as QCAZI 1971 except for: 19:IV:1998 £. Ref. Will 2005.

Stolonis spinosus Will 2005. Paratype QCAZI 1968 \$. 00°40'36" S, 76°24'02" W, ECUADOR, Napo Prov., Yasuni Scientific Station, 22:IV:1998, 210m, Col. K. Will, Headlamp. Ref. Will 2005.

Stolonis catenarius Will 2005. Paratype QCAZI 1966 \$. 00°40'36" S, 76°24'02" W, ECUADOR, Napo Prov., Yasuni Scientific Station, 22:IV:1998, 210m, Col. K. Will, Headlamp. QCAZI 1967, with the same label as QCAZI 1966 except for: 21:IV:1998, £. Ref. Will 2005.

Stolonis yasuni Will 2005. Paratypes QCAZI 1969 \$, QCAZI 1970 £. 00°40'36" S, 76°24'02" W ECUADOR, Napo Prov., Yasuni Scientific Station 21:IV:1998, 210m, Col. K. Will. Ref. Will 2005.

Trechisibus (Ecuadoritrechus) tapiai Deuve 2002. Holotype QCAZI 194. Ecuador, Loja, Saraguro, Paraíso de Celen, Laguna de Chinchilla, 3660 m, 20DEC1998, E. Tapia. Figura 6 Pronotum. Ref. Deuve 2002.

FAMILY CERAMBYCIDAE

Apteraleidion lapierrei Hovore 1992. Paratype QCAZI 616. Costa Rica, Cartago Pr., Cerro de la Muerte, 3450 m, 11/13June1987, F. T. Hovore coll. Ref. Hovore 1992.

Eburia frankei Noguera 2002. Paratype QCAZI 615. Costa Rica, Guan. Pr., Santa Rosa N. P., 31May/01 June 2002, F. Hovore, I. Swift coll. Ref. Noguera 2002.

Neseuterpia couturieri Tavakilian 2001. Paratypes QCAZI 613 \$ and QCAZI 614 \$. Label 1: Ecuador, (Puyo), Santa Clara-San José vía Puyo-Cena (522 m), 6novembre2000, Thomas Peyret leg.; Label 2: 01°17'07" S, 77°47'18" O, sur inflorescence en anthèse *Astrocaryum urostachys* Burret (ASTERACEAE). Ref. Tavakilian 2001.

FAMILIA CHRYSOMELIDAE

Aslamidium (s. str.) *ecuadoricum* Borowiec 1998. Holotype QCAZI 730. Ecuador, Napo, Misahualli, 450 m, MAY28 1994, C. Boada. Ref. Borowiec 1998a.

Cyclocassis secunda Borowiec 1998. Paratype QCAZI 731. Ecuador, 2000 m, Loja, Veracruz 12 Aug1994, F. Maza. Ref. Borowiec 1998b.

Discomorpha onorei Borowiec 1998. Holotype QCAZI 732. Ecuador, Napo, X-87, Loreto, Legit: G. Onore. Paratype QCAZI 733. Ecuador, Napo, Río Hollin, 6/12/91, P. Delgado. Ref. Borowiec 1998b.

Eugenisa jasinskii Borowiec & Dšbrowska 1997. Paratypes QCAZI 734. Ecuador, kupiony Baños, V-1996. QCAZI 735. Ecuador, Jatun Sacha, 6-09-89, Legit Martin Steer. Ref. Borowiec & Dšbrowska 1997.

Eugenisa unicolor Borowiec & Dšbrowska 1997. Paratypes QCAZI 736. Ecuador, Napo, Puyuyacu, 27-V-1996, leg. A. Jasinski. QCAZI 737. Ecuador, Pichincha, Puerto Quito, 720 mts, 3-XII-1982, Lg. M. Chieruzzi. QCAZI 738. Ecuador, Napo, Lumbaqui, 850 m, 28II 1976, Coll Vénédictoff. QCAZI 739. Ecuador, Napo, Talag, Pimpilala, 5 Nov1999. QCAZI 740. Ecuador, Napo, Misahualli, 480 m, 28Dec1995, X. Salazar. Ref. Borowiec & Dšbrowska 1997.

Stolas napoensis Borowiec 1998. Holotype QCAZI 741. Ecuador, Napo, SC Station Yasuní PUCE, 400 m, 11-23Sep1995, E. Baquero, F. Maza. Paratypes QCAZI 744, with the same label as the holotype. QCAZI 742 and QCAZI 745 with the same label as the holotype except for: 12APR1996, G. Cañas; 16Nov1996, M. Torres. QCAZI 743. Ecuador, Napo, Talag, 700 m, 10Jun1994, G. Onore. QCAZI 746. Label 1: Ecuador, Napo, SC Yasuní, 250 m, 28-30May1997, E. Baus; Label 2: Ex: Trampa de luz. Ref. Borowiec 1998b.

Stolas perezii Borowiec 1998. Holotype QCAZI 747. Ecuador, Napo, Campanococha, 431 m, 15/Jan/1994, Legit. C. Pérez. Ref. Borowiec 1998b.

Stolas stolidajadwyszczaki Borowiec 1998. Paratypes QCAZI 748 and QCAZI 749. Label 1: Ecuador, Napo, Archidona, 705 m, 8-VI-91, Leg. Lee Sehel; Label 2: Jumandi, (Baeza-Archidona). QCAZI 750. Ecuador, Napo, Archidona, 1 May1992, J. Lussio. QCAZI 751. Ecuador, Napo, Tena, 500 m, 26Dic1996, I. Olmedo. Ref. Borowiec 1998b.

Stolas zumbaensis Borowiec 1998. Paratype QCAZI 752. Ecuador, Zamora Chinchipe, Zumba, 19.04.97, K. Los. Ref. Borowiec 1998b.

FAMILY CICINDELIDAE

Ctenostoma (Neoprocephalus) cassolai Naviaux 1998. Paratype QCAZI 248. Ecuador, Pichincha, La Unión del Toachi, (Cuesta del Gallinazo), 950 m, 78°57'10"W, 00°21'05" S, 6Mar1997, G. Onore. Ref. Naviaux 1998 [not reviewed].

Ctenostoma (Procephalus) ecuadoriensis Naviaux 1998. Holotype QCAZI 249. Ecuador, Pichincha, Chiriboga, 1800 m, 78°45'54"W, 00°13'42"S, 2 Nov1983, Leg. Comments: Labeled as *CTENOSTOMA dormei* Horn by F. Cassola in 1987. Ref. Naviaux 1998 [not reviewed].

Ctenostoma (Procephalus) onorei Naviaux 1998. Holotype QCAZI 250. Ecuador, Esmeraldas, Rocafuerte, 50 m, 79°24'00"W, 01°01'00"N, APR1987, E. E. Briones; Comments: Labeled as *CTENOSTOMA nigrum* CHAUDOIR by F. Cassola. Ref. Naviaux 1998 [not reviewed].

Oxycheila brzoskai Wiesner 1999. Holotype QCAZI 252. Label 1: Ecuador, Pichincha,

Tinalandia, (525m), 22March1995, D. W. Brzoska; Label 2: Nocturnal- rocks of Mountain stream. Paratype QCAZI 257 with the same label as the holotype. QCAZI 253. Ecuador, Pichincha, Tinalandia, 650 m, 79°02'57 W, 00°18'21 S, 23Dec1973, N. Venedictoff. QCAZI 254 and QCAZI 256 with the same label as QCAZI 253 except for: 800 m, 3JAN1997, D. Guevara; 5JAN1997, C. Pérez. QCAZI 255. Ecuador, Pichincha, Santo Domingo De Los Colorados, 500 m, 79°10'11"W; 00°15'08"S, 29APR1973, N. Venedictoff. Comments: QCAZI 255 was labeled as *OXYCHILA nigroaenea* by F. Cassola in 1987 and *Oxycheila chesteroni* Bates by R. L. Huber in 1995. Ref. Wiesner 1999.

Oxygonia nigrovenator Kippenhan 1997. Holotype QCAZI 251. Label 1: Ecuador, Napo, 20 km e. Tena-Baeza Rd., 22 Sept.1994, (1,100 m), D. L. Pearson, et al.; Label 2: DIURNAL –ON ROCKS IN SMALL STREAM. Ref. Kippenhan 1997.

Pseudoxxycheila atahualpa Cassola 1997. Holotype QCAZI 258. Ecuador, Napo, Río Hollin, 1100 m, 77°40'W, 00°42'S, 6Dec1987, M. Mena. Paratypes QCAZI 260 (Allotype). Ecuador, Napo, San Rafael, 1400 m, 77°34'W, 00°03'S, 03Dec1988, C. Ayala. 3 paratypes with the same label as QCAZI 260 except for: E. Trujillo; V. Cachago; M. Pallares; 2 paratypes with the same label as QCAZI 260 except for: Nov1984, C. Josse; M. Ferro; QCAZI 270. Ecuador, Napo, San Rafael, 1500 m, 77°34'W, 00°03'S, 2Nov1984, X. Pazmiño. QCAZI 290. Ecuador, Sucumbios, San Rafael, 1480 m, 77°33'W, 00°03'S, 20Nov1993, M. Montalvo. QCAZI 292. Ecuador, Napo, San Rafael, 1500 m, 77°33'W, 00°03'S, 1Nov1984, M. Ferro. QCAZI 259, with the same label as the holotype except for: S. Gutierrez. QCAZI 261, QCAZI 334. Ecuador, Napo, Río Hollin, 1100 m, 77°40'W, 00°42'S, 6Dec1987, J. Gómez. QCAZI 274 and QCAZI 275, Ecuador, Napo, Río Hollin, 1100 m, 77°40'W, 00°42'S, 6Dec1987, H. Freire. 6 paratypes with the same label as the holotype except for: S. Gutierrez; R. Boada; F. Arellano; Hernández; M. Peñaherrera; R. Manosalvas. 6 paratypes with the same label as the holotype except for: 6DEC1991, P. Ramón; 5 Dec1987, Espinosa; 6DEC1981, M. Endara; 7DEC1991, F. Cáceres; Nov1994, J. Chávez; 5DEC1996. M. Bustamante. QCAZI 300 and QCAZI 301. Ecuador, Napo, Río Hollin, 1100 m, 77°40'W 00°42'S 9DEC1995, D. Prado. QCAZI 308 to QCAZI 310; QCAZI 312. Ecuador, Napo, Río Hollin, 1100 m, 77°40'W 00°42'S 8DEC1996, F. Maza. QCAZI 327 and QCAZI 328. Ecuador, Napo, Río Hollin, 1100 m, 77°40'W 00°42'S 5DEC1987, N. L. Granda. 2 paratypes with the same label as the holotype except for: 07DEC1996, M. Avila; E. Gortaire. 7 paratypes with the same label as the holotype except for: 6DEC1996, R. Ramírez; J. Gil. J. Lecaro; V. Barragán; G. Castañeda; F. Villalva; G. Granda. QCAZI 263. Ecuador, Napo, Vía Baeza- Lago Agrio, JAN1976, F. I. Ortiz. QCAZI 264. Ecuador, Napo, El Reventador, 77°33'W, 00°02'S, May1988, G. Onore. QCAZI 289 and QCAZI 325. Ecuador, Napo, El Reventador, 77°33'W, 00°02'S, 1400 m, 9JAN1984, S. Sandoval. 2 paratypes with the same label as QCAZI 289 except for: 03DEC1988, P. Jiménez; M. Pallares. QCAZI 265 and QCAZI 272. Ecuador, Napo, El Reventador, 77°33'W, 00°02'S, 1400 m, 3Dec1988, F. Haro. QCAZI 276. Ecuador, Napo, Reventador, 77°33'W, 00°02'S, 1400 m, 9JAN1984, S. Sandoval. QCAZI 279. Ecuador, Napo, El Reventador, 77°33'W, 00°02'S, 1400 m, 4DEC1993, K. Proaño; QCAZI 266. Ecuador, Napo, Jumandi, 700 m, 00°52'S, 77°47'W, 18APR1992, R. Bernal. QCAZI 281. Ecuador, Napo, Jumandi, 400 m, 77°09'W, 00°29'S, 18APR1992, R. Bernal. QCAZI 271. Ecuador, Napo, Loreto, 350 m, 77°16'45"W, 00°42'42"S, Oct1987, G. Onore. QCAZI 273. Ecuador, Pichincha, Vía Puerto Quito, 300 m, 79°16'10"W,

00°06'42"N, 26Dec1985, F. Albán. QCAZI 282. Ecuador, Pichincha, Nanegalito, 1600 m, 78°41'00"W, 00°08'00"N, 23JAN1994, H. Romero. QCAZI 283. Ecuador, Pichincha, Nanegalito, 1600 m, 78°41'00"W, 00°08'00"N, 1JAN1993, D. Villagómez. QCAZI 284. Ecuador, Pichincha, Mindo, 1200 m, 78°48'00"W, 00°03'00"S, 20Jun1993, M. Gamboa. QCAZI 316. Label 1: Ecuador, Pichincha, Mindo, 1200m, 78°48'00"W, 00°03'00"S, 17JAN1997, R. Oliva; Label 2: LOCALITY DOUBTFUL! F. Cassola, 1997. QCAZI 285. Ecuador, Pichincha, Tandapi, 1460 m, 78°49'34"W, 00°25'05"S, 13JAN1992, B. Elizalde. QCAZI 288. Ecuador, Napo, Baeza, 1400 m, 77°53'W, 00°27'S, 19JAN1992, V. Yánez. QCAZI 289. Ecuador, Napo, Archidona, 610 m, 77°48'09"W, 00°54'13"S, 18JAN1992, P. Fernández. QCAZI 295, QCAZI 297, with the same label as QCAZI 289 except for: 21 May1993, T. Santander; 1MAY1992, L. Vinueza. QCAZI 296. Ecuador, Pichincha, Sto. Domingo, 650 m, 79°10'11"W, 00°15'08"S, 18DEC1992, J. Herbas. QCAZI 302. Ecuador, Napo, Papallacta, 3500 m, 78°08'00"W, 00°22'00"S, 6MAY1995, N. Marchán. QCAZI 303. Ecuador, Napo, El Chaco, 1000 m, 77°47'26"W, 00°19'27"S, 30MAY1995, X. Cisneros. 2 paratypes with the same label as QCAZI 303 except for: 6MAY1995, M. Rodríguez. 2 paratypes with the same label as QCAZI 303 except for: 6JUN1995, V. Quitiguiña; 6MAY1995, R. Paredes. QCAZI 311. Ecuador, Tungurahua, Río Blanco, 1500 m, 78°20'00"W, 01°22'00"S, AUG1994, F. Maza. QCAZI 313. Ecuador, Napo, San Francisco de Borja, 77°49'W, 00°25'S, 18APR1992, V. Utreras. QCAZI 314 and QCAZI 315, with the same label as QCAZI 313 except for: 8APR1992. Comments: QCAZI 259, QCAZI 263, QCAZI 264 and QCAZI 271 labeled as *PSEUDOXYCHILA bipustulata* Latr. by F. Cassola in 1987. Ref. Cassola 1997.

Pseudoxycheila caribe Cassola 1997. Paratypes QCAZI 336. Venezuela, Táchira, Carr. Cordero- Michelena, Casa del Padre, 2350 m, 24-25.VI.95, F. Cassola. QCAZI 337. Venezuela, Táchira, Casa del Padre, m 2300. tra Cordero e Michelena, 16.V.1993, leg. A. Bandinelli. Ref. Cassola 1997.

Pseudoxycheila inca Cassola 1997. Paratypes QCAZI 338. Label 1: Ecuador: Loja, 9 km al s. Yangana, 15Mar.1996, 4°22's, 79°12'w, (2090), D. L. Pearson; Label 2: Road cut. QCAZI 339 to QCAZI 340. Ecuador, Zamora Ch., Valladolid, 2000 m, 79°08'W, 0433'S, 20APR1997, A. Jasinski. Ref. Cassola 1997.

Pseudoxycheila nitidicollis Cassola 1997. Holotype QCAZI 341. Label 1: Ecuador, Napo, 15 km w. Cosanga, 29Sept.1994, (2,200 m), D. L. Pearson et al; Label 2: FORESTED CATTLE PASTURE. Paratypes (Allotype) QCAZI 347, with the same labels data as the holotype. QCAZI 369, with the same labels data as the holotype except for: 16 km w instead of 15 km w. QCAZI 368. Ecuador: Napo, 6.6 km n. Cosanga, 22Sept.1994 (1,875m), D. L. Pearson et al. BRUSHY ROAD CUT. QCAZI 342, QCAZI 343, QCAZI 346. Ecuador, Napo, San Rafael, 1100 m, 00°04'S, 77°34'W, 09AUG1991, G. Onore. QCAZI 350. Ecuador, Napo, San Rafael, 1100 m, 00°04'S, 77°34'W, 6DEC1992, Mtroya. QCAZI 361. Ecuador, Sucumbios, San Rafael, 1400 m, 00°04'S, 77°34'W, Nov1984, M. Ferro. QCAZI 344. Ecuador, Napo, Cosanga, 2000 m, 77°55'00"W, 00°34'00" S, 23AUG1992, R. Bernal. QCAZI 367. Label 1: Ecuador, Napo, Cosanga, 2000 m, 77°55'00"W, 00°34'00" S, 20NOV1991, L. Suárez; Label 2: PASTURE EDGE. 6 paratypes with the same label as QCAZI 344 except for: Feb1989, G. Onore. QCAZI 359. Ecuador, Napo, Cosanga, 2000 m, 77°55'00"W, 00°34'00"S, 27APR1992, K. Paredes. QCAZI 388 and QCAZI 390. Ecuador, Napo, Cosanga, 2000 m,

77°55'00"W, 00°34'00"S, 24 May1996, M. Vallejo. 3 paratypes with the same label as QCAZI 388 except for: 24 May1996, B. Yangari; 25May1996, V. Troya; 26May1996, J. Chávez. QCAZI 348, QCAZI 389, QCAZI 397. Ecuador, Tungurahua, Viscaya, 2100-2300 m, 7 MAY1996, K. Los. QCAZI 349, QCAZI 394. Ecuador, Napo, San Francisco de Borja, 1300m, 77°49'W, 00°25'S, 18APR1992, V. Utreras. QCAZI 352. Ecuador, Napo, Baeza, 1450 m, 77°53'06"W, 00°27'35"S, 19JAN1992, R. Bernal. QCAZI 372. Label 1: Ecuador, Napo, Baeza, 1450 m, 77°53'06"W, 00°27'35"S, 31NOV1985; Label 2: P. Gonzáles. Habitus figured F. Cassola, 1995. 3 paratypes with the same label as QCAZI 352 except for: 30NOV1985, S. M. Paz; 4MAY1995, D. Villagómez; 30Nov1985, P. Vega. Ex: UNDER STONE. QCAZI 364. Ecuador, Sucumbios, El Reventador, 1400 m, 00°03'S, 77°34'W, 5DEC1992, I. de la Torre. 3 paratypes with the same label as QCAZI 364 except for: X. Carrillo; J. Arellano; 06DEC1992, E. Barahona. Habitus and aedeagus figured F. Cassola, 1995. QCAZI 356, QCAZI 385. Ecuador, Napo, Cuyuja, 2200m, 78°00'48"W, 00°29'12"S, 16JAN1988, M. Ponce. QCAZI 357. Ecuador, Pichincha, Sto. Domingo de los Colorados, 500 m, 79°10'11"W, 00°15'08"S, AUG1974, N. Venedictoff. QCAZI 358. Ecuador, Sucumbíos, Vía La Bonita-La Fama, 00°32'N, 77°32'W, 2200 m, 01JAN1994, G. Onore. QCAZI 377, QCAZI 380 and QCAZI 381. Ecuador, Sucumbios, La Bonita, 1800 m, 77°33'00"W, 00°27'00"N, 22FEB1996, G. Onore. QCAZI 360. Ecuador, Napo, Misahualli, 431 m, 77°34'00"W, 01°03'00"S, 14JAN1994, M. Montalvo. QCAZI 370. Ecuador, Napo, Río Pano, 500 m, 00°59'S, 77°49'W, 3OCT1991, M. C. Erazo. QCAZI 373, QCAZI 374. Ecuador, Morona S., Vía Gualaceo-Limón, 78°31'W, 03°01'S, 2050 m, 19OCT1995, D. L. Pearson. QCAZI 375. Label 1: Ecuador, Morona S., Indaza, Vía Sigsig, 78°27'W, 03°05'S, 1050 m, 28DEC1995, G. Onore; Label 2: Ex: adult associated with larva. Same data. QCAZI 376, QCAZI 378. Ecuador, Napo, vía Salcedo-Tena, 10Jul1995, E. Tapia. QCAZI 382. Ecuador, Pichincha, Río San Rimas, 25 Mar1996, I. Aldaz. QCAZI 383. Ecuador, Pichincha, Nanegalito, 1500 m, 78°41'00"W, 00°08'00"N, 8JUL1995, J. Freile. QCAZI 384. Ecuador, Napo, Río Hollín, Vía Loreto, 77°40'W, 00°42'S, 1100 m, 9DEC1995, P. Muriel. QCAZI 386. Ecuador, Napo, Cuyabeno, 250 m, 76°10'49"W, 00°01'05"N, Mar1984, E. Asanza. QCAZI 395, QCAZI 398 and QCAZI 399. Ecuador, Río Blanco. QCAZI 396. Ecuador, Sucumbios, Sucumbíos, 300 m, 77°12'W, 00°10'N, JAN1996, I. Villafuerte. Ref. Cassola 1997.

Pseudoxycheila onorei Cassola 1997. Holotype QCAZI 400. Ecuador, Loja, Catacocha, 2500 m, 79°39'W, 04°03'S, 30DEC1994, G. Onore. Paratypes QCAZI 401 (Allotype) to QCAZI 403, with the same label as the holotype. QCAZI 404 to 412. Ecuador, Loja, Las Chinchas, 2200 m, 79°28'W, 03°59'S, 27DEC1996, G. Onore. Ref. Cassola 1997.

Pseudoxycheila pearsoni Cassola 1997. Holotype QCAZI 413. Ecuador, Zamora Ch., 16 km SE de Zamora, 04°05'S, 78°55'W, 18Mar1996, D. L. Pearson. Paratypes QCAZI 414. Ecuador, Zamora Ch., Vía 28 Mayo- Guadalupe, 78°55'W, 03°40'S, 1600 m, 23May1996, A. Jasinski. QCAZI 415, QCAZI 416; QCAZI 419. Ecuador, Zamora Ch., Veintiocho de Mayo, 78°55'W, 03°38'S, 1400 m, 23May1996, K. Los. QCAZI 420. Ecuador, Zamora Ch., 8 km al Sur de 28 de Mayo, 78°55'W, 03°39'S, 1500 m, 30APR1997, K. Los. QCAZI 417 and 418. Ecuador, Zamora Ch., Cordillera del Cóndor, 1300 m, 29APR1997, A. Jasinski. Ref. Cassola 1997.

Pseudoxyscheila pseudotarsalis Cassola 1997. Holotype QCAZI 421 \$. Ecuador, Pichincha, Puerto Quito, 300 m, 79°16'10"W, 00°06'42"N, JAN 1984, P. Ponce. Paratypes QCAZI 427 (Allotype). Label 1: Ecuador, Esmeraldas, Río Pizará, 400-500 m, 00°20'N, 79°11'W, APR1984, G. Onore; Label 2: Habitus figured F. Cassola, 1995. QCAZI 422, QCAZI 428 and 429, with the same label as QCAZI 427 except for: MAR1985. QCAZI 423, QCAZI 425, with the same label as the holotype except for: 17Mar1985, S. Struve; 09JUN 1985, A. Sancho. QCAZI 424. Ecuador, Pichincha, Maquipucuna, 78°37'W, 00°15'S, 26 Mar1988, I. Lippke. QCAZI 426. Ecuador, Pichincha, San Bernabé, May 1986, L. Coloma. Ref. Cassola 1997.

Pseudoxyscheila quechua Cassola 1997. Paratypes QCAZI 430. Bolivia, Cochabamba, Yungas del Chaparé, 30-31.I.76, Leg. C. Lopreiato. Ref. Cassola 1997.

FAMILY CURCULIONIDAE

Baillytes Bartolozzi Voisin 1996. Paratypes QCAZI 619. Ecuador, Cotopaxi, S. Francisco de Las Pampas, (1300-1500 m), II.1993, L. Bartolozzi (N.Mag.1406). QCAZI 620. Ecuador, Cotopaxi, Las Pampas, V/1985, G. Onorel. Ref. Voisin 1996.

Melchus onorei Anderson 2003. Paratype QCAZI 621. Ecuador, Sto. Domingo de los Colorados, I-1982, Lg. G. Onore. Ref. Anderson 2003.

FAMILY ELATERIDAE

Achrestus onorei Golbach, Zamudio & Guzmán de Tomé 1988. Holotype QCAZI 601. Label 1: Ecuador, Napo, Coca, XII-83, G. Onore col.; Label 2: On oil- palm. Paratype QCAZI 600 (Allotype). Ecuador, Napo, Coca, V. 84, Legit: G. Onore. Ref. Golbach *et al.* 1988.

FAMILY HETEROCERIDAE

Tropicus bartolozzii Mascagni 1994. Paratype QCAZI 431. Ecuador, Manabí, dint. Puerto López, 20.II.1993, L. Bartolozzi, (Numero Magazz. 1406). Ref. Mascagni 1994.

FAMILY LANGURIIDAE

Lepidotoramus grouvellei Leschen 1997. Paratypes QCAZI 432 to QCAZI 435. Ecuador, Napo, Cuyabeno, Legit: E. Corriazo. Comments: altitude and date of collection differ between paratypes. Ref. Leshen 1997.

FAMILY LEIODIDAE

Adelopsis aloecuatoriana Salgado 2008. Paratypes QCAZI 1828 £, QCAZI 1829 \$ and QCAZI 1830 \$. Ecuador, Cotopaxi, Otonga, m 2065, S 00°25'01.2", W79°00'14.0", 21.III.2003 G. Onore. Ref. Salgado 2008.

Adelopsis (Adelopsis) bioforestae Salgado 2002. Holotype QCAZI 589. Label 1: Ecuador, Cotopaxi, Otonga, 2000 m, 00°25'S, 79°00'W, 22Jul1999, I. G. Tapia & P. Ponce; Label 2: Ex: monte bajo CH2. Paratypes QCAZI 590, with the same label as the holotype except for: 24Jul1997. QCAZI 588. Ecuador, Cotopaxi, Otonga, 2000 m, 78°57'00" W, 00°19'11" S 30Jun1997, I. G. Tapia, P. Ponce. Ref. Salgado 2002.

- Adelopsis (Adelopsis) ecuatoriana* Salgado 2002. Holotype QCAZI 591. Ecuador, Cotopaxi, 2000 m, 00°25'S, 79°00'W, 22Jul1999, I. Tapia & P. Ponce. Paratype QCAZI 592, with the same label as the holotype except for: 24Jul1999. Ref. Salgado 2002.
- Adelopsis (lutururuca) dehiscentis* Salgado 2002. Holotype QCAZI 583. Ecuador, Los Ríos, CCRP, 4JAN1981, S. Sandoval. Paratypes QCAZI 582 and QCAZI 586. Ecuador, Los Ríos, CCRP, 10JAN1981, S. Sandoval; 6 paratypes with the same label as the holotype except for: 29Dec1980; 11JAN1981; 8JAN1981, £; 4JAN1980; 4JAN1981; 20DEC1980. QCAZI 577. Ecuador, Pichincha, CCRP, 10JAN1981, S. Sandoval. QCAZI 578. Ecuador, Pichincha, CCRP, 23DEC1981, S. Sandoval. Ref. Salgado 2002.
- Adelopsis onorei* Salgado 2002. Holotype QCAZI 536. Ecuador, Morona, Río Yaupi, 260 m, Cueva Achikianas, 2°55'24"LS, 77°54'21"O, 20JAN2001, M. Vallejo. Paratypes 12 paratypes with the same label as the holotype. QCAZI 545, QCAZI 547- QCAZI 549 and QCAZI 554. Ecuador, Napo, Tena, 850 m, Lagarto Cave, LW77°46'79, LS00°49'55, 16JAN1999, Olmedo. QCAZI 552 \$. Ecuador, Napo, Archidona, 850 m, 00°49'33" S, 77°46'47 W, 2 Nov1998, M. Avila & F. Sáenz. Ref. Salgado 2002.
- Adelopsis (lutururuca) tuberculata* Salgado 2002. Holotype QCAZI 561. Ecuador, Napo, Archidona, 850 m, LS00°49'55, LW79°46'79, 16JAN1999, F. Ayala. Ex: Lagarto cave in guano. Paratypes 5 paratypes with the same label as the holotype. QCAZI 565, QCAZI 566, QCAZI 573 and QCAZI 576. Ecuador, Napo, Tena, 850 m, Lagarto cave, LW 77°46'79, LS00°49'55, 16JAN1999, Olmedo. QCAZI 558, QCAZI 569. Label 1: Ecuador, Napo, Archidona, 850 m, S00°49'33, W77°46'47. 2Nov1998, M. Avila; Label 2: Ex: Lagarto cave. QCAZI 555, QCAZI 568. Ecuador, Napo, Archidona, 750 m, Cave Kamatoa, 00°54' S, 76°56'W, 10Dec2000, P. Piedrahita. QCAZI 564, QCAZI 575, with the same label as QCAZI 555 except for: 13JAN2001, J. Rodríguez. QCAZI 557. Ecuador, Napo, Archidona, Cueva Kamatoa, 750 m, LS 0°54' 55", LW 76°46'38", 20JAN2001, F. Villamaría. QCAZI 556. Label 1: Ecuador, Napo, Tena, 750 m, 00°53'18"S, 77°47'49"W, 27Dec1998, A. Lara; Label 2: Ex: Jumandi cave on the wall. QCAZI 559, QCAZI 572. Ecuador, Napo, Archidona, 780 m, 00°50'54"S, 77°46'73"W, 16JAN1999, D. Paucar. Ex: Piña cave in guano. QCAZI 567 and QCAZI 574. Ecuador, Napo, Archidona, 750 m, Cueva del Cacique, 77°48'09"W, 00°54'13"S, 13JAN2001, J. Rodríguez. Ref. Salgado 2002.
- Dissochaetus anseriformis* Salgado 2001. Holotype QCAZI 524. Label 1: Ecuador, Bolívar, Cashcatotoras, 2800 m, 77°36'38.9"W, 00°05'53.2"S, 3 -6Oct2000, F. Maza, L. Coloma; Label 2: Ex: Berlese. Paratypes 14 paratypes £ and 10 paratypes \$ with the same labels data as the holotype. QCAZI 531. Ecuador, Pichincha, Mte. Pasochoa, 3000 m, 15-XI-1987, Leg Rodríguez. QCAZI 533. Ecuador, Napo, Baeza, 30-XI-85, Sara M. Paz. QCAZI 534 to QCAZI 535. Ecuador, Cotopaxi (entrada Machachi-Latacunga), m 3440, Land. W Cotopaxi, 2.IX.1984, S. Zoia. Ref. Salgado 2001.
- Dissochaetus napoensis pallipes* Salgado 2008. Paratype. QCAZI 498. Ecuador, Cotopaxi prov., Otonga, 13-VII-2007, Rossi leg. Ref. Salgado 2008.

Eucatops (Eucatops) incognitus Salgado 2003. Holotype QCAZI 593. Ecuador, Cotopaxi, Las Pampas, 1500 m, 78°57'04"W, 00°25'16" S, 02Jul1997, I. G. Tapia, P. Ponce. Paratype QCAZI 594. Ecuador, Imbabura, Barcelona, 12-20Sep1995, A. Endara. Ref. Salgado 2003.

Eucatops (Sphaerotops) granuliformis Salgado 2003. Holotype QCAZI 595. Label 1: Ecuador, Napo, SC Yasuní, 250 m, 7-14Sept1997, F. Maza; Label 2: Ex: intercepcion trap. Ref. Salgado 2003.

Eucatops (Eucatops) onorei Salgado 2008. Paratypes QCAZI 1834, QCAZI 1835 and QCAZI 1836. Ecuador, Napo via Jondachi-Loreto km 59, ex cave m 700, 13.VIII.2006, G. Onore leg. Ref. Salgado 2008.

FAMILY LUCANIDAE

Onorelucanus aequatorianus Bartolozzi & Bomans 1989. Paratype QCAZI 599 \$. Ecuador, Cotopaxi, Palo Quemado, XII-1988, G. Onore. Ref. Bartolozzi & Bomans 1989.

Sphaenognathus (Chiasognathinus) xerophilus Bartolozzi & Onore 2006. Holotype QCAZI 1520 £. Perú, Huancabamba, Huancabamba, 2860 m, 02JAN2005, G. Onore. Paratypes 55 paratypes \$ with the same label as the holotype. Bartolozzi & Onore 2006

FAMILY PASSALIDAE

Passalus kaupi Boucher 2004. Paratypes QCAZI 466, QCAZI 469. Ecuador, Pichincha, Las Pampas Argentinas, 1300 m, 04.88. Lg. A. Rodríguez. 5 paratypes with the same label as QCAZI 466 except for: 04.88 Lg. Bustamante. 3 paratypes with the same label as QCAZI 466 except for: IV/88, 1500 m. Leg. M. Grijalva. 4 paratypes with the same label as QCAZI 466 except for: 04.88, Lg. S. Cazar. QCAZI 468. Ecuador, Pichincha, Las Pampas Argentinas, 1300 m, 16.04.88, Lg. Galarza. QCAZI 472. Ecuador, Pichincha, Las Pampas Argentinas, 15-16Abr-88, Ilenka von Lippke. QCAZI 474. Ecuador, Pichincha, Las Pampas Argentinas, 1300 m, 04.88, Lg. J. Córdova. QCAZI 477. Ecuador, Pichincha, Pamp. Argentin, IV/88, 1500 m, Leg. P. Casares. QCAZI 467. Ecuador, Pichincha, Puerto Quito, 7-I-84, Leg: R. León. 6 paratypes with the same label as QCAZI 467 except for: 28-I-84, Leg: M. Larrea; XII-1983, Leg. G. Paz y Miño; 27-I-84, Col. M. Paz García ; 4-XII-83, Leg. L. Santamaría; 3-XII-83, Leg: C. Fiallo; 28-V-83, Lg. J. Woolfson. QCAZI 492. Ecuador, Pichincha, km 113 Vía Pto. Quito, 4XII83, col. Granizo. QCAZI 485. Ecuador, Pichincha, Sto. Domingo, 550 m, 17JAN1993, M. Troya. QCAZI 486 and QCAZI 487, with the same label as QCAZI 485 except for: A. Quiñones; I. Pallares. QCAZI 488. Ecuador, Pichincha, 10 km W Nanegalito, 1700 m, 16Jan1992, L. de la Torre. QCAZI 496. Ecuador, Pichincha, Nanegalito, 1400 m, 23JAN1993, C. Segovia. QCAZI 497. Ecuador, Pichincha, Nanegalito, 1300 m, 1Jan1993, D. Villagómez. QCAZI 489. Ecuador, Pichincha, Tandapi, alt: 900 m, 29-06-91, Legit Pérez V. QCAZI 493. Ecuador, Pichincha, S. Dom. Tinalandia, 650 m, 1972, Coll Venédicoff. 2 paratypes with the same label as QCAZI 493 except for: 7-IV-1973; 30-III-1972. Ref. Boucher 2004.

Verres onorei Boucher & Pardo-Locarno 1997. Paratypes QCAZI 459. Ecuador,

Pichincha, S. Dom. Tinalandia, 650 m, 1972, Coll Vénédictoff, QCAZI 460. Ecuador, Napo, Reventador, V-1984, Legit: G. Onore. QCAZI 461. Ecuador, Prov. Pichincha, Puerto Quito, 5-XII-1983, Leg. M. Iturralde. QCAZI 462. Ecuador, Pichincha, Pto. Quito, 4-XII-82, lg. H. Bustos. QCAZI 463. Ecuador, Sucumbios, Reventador, 1500 m, 5, 6Dec1992, P. Salvador. QCAZI 464. Ecuador, Pichincha, Alluriquín, 15JUA1983, H. Bustos. QCAZI 465. Ecuador, Cotopaxi, Guasagunda, 27 12 94, L. Salazar. Ref. Boucher & Pardo-Locarno 1997.

FAMILY RHYSODIDAE

Stereodermus jonathani Mantilleri 2004. Paratype QCAZI 610. Ecuador, Pichincha, Tandayapa, IV-1983, leg. G. Onore. Comments: Genitalia separated. Ref. Mantilleri 2004.

FAMILY SCARABAEIDAE

Aequatoria aenigmatica Soula 2002. Paratypes QCAZI 719 to QCAZI 721. Ecuador, Cotopaxi, Las Pampas, May1984, G. Onore. Ref. Soula 2002 [not reviewed].

Ataenius cristobalensis Cook & Peck 2000. Paratypes QCAZI 694 and QCAZI 695. Ecu.: Galápagos, S. Cristobal, 4 km E Baquerizo, 150 m, trans. z., 12-23.II.89, Fit Peck & Sinclair, 89-53. QCAZI 696 and QCAZI 697. Ecu: Galapagos, San Cristobal, pampas, 500-700 m, 15-23. II. 1989, S. Peck, general collecting. QCAZI 698. Ecu., Galapagos, S Cristobal, El Junco 1kmE, Miconia Ravine, 14.II.89, siftinglitter, 500 m, S. Peck 89-61. Ref. Cook & Peck 2000.

Ataenius floreanae Cook & Peck 2000. Paratypes QCAZI 699 to QCAZI 701. Ecu., Galapagos, Floreana, 6 km E Black Beach, Scalesia z. cowdung, 360 m, 28. III. 89, S. Peck, 89-166. Ref. Cook & Peck 2000.

Bdelyrus grandis Cook 1998. Paratype QCAZI 59. Ecuador, Napo, Cuyabeno, IV-1986, Legit G. Onore. Ref. Cook 1998.

Bdelyrus parvocolus Cook 1998. Holotype QCAZI 86. Ecuador, Napo, El Reventador, II 88, Legit G. Onore. Ref. Cook 1998.

Bdelyrus pecki Cook 1998. Paratype QCAZI 85. Ecuador, Napo, Hollin, 1100 m, 7-XII-91, F. Caceres. Ref. Cook 1998.

Bdelyrus triangulus Cook 1998. Holotype QCAZI 87. Label 1: Ecuador, Napo, Sunka, 29-I-89, Legit Sandoval; Label 2: Ex: Hojarasca Bosque Alto. Ref. Cook 1998.

Callosides genieri Howden 2001. Paratypes QCAZI 643 and QCAZI 644. Ecuador, Carchi, Bosque de Arrayanes, 6.1 km E San Gabriel, 2830 m, 00°32'33"N, 77°47'26" W, 2.XI.1999-221, R. Anderson arrayan forest litter. Ref. Howden 2001.

Coprophanaeus morenoi Arnaud 1982. Paratypes QCAZI 625 \$, QCAZI 626 £, QCAZI 627 \$ and QCAZI 628 £. Ecuador, (Pich), Tinalandia, I. 1982, 850 m, P & L. Arnaud leg. Ref. Arnaud 1982

Cryptocanthon otonga Cook 2002. Holotype QCAZI 648. Label 1: Cotopaxi, Ecuador, Otonga, 2000 m, 0°25'S, 79°0'W, 4Mar1999, T. Enríquez; Label 2: Ex: Primary

forest Pitfall Trap Human dung. Paratypes 5 paratypes with the same label as QCAZI 648 except for: 24Mar1999; Label 2: Pitfall Trap, all same data Label, types of bait and type of forest. 17 paratypes with the same label as QCAZI 648 except for: 22Mar1999. 7 paratypes with the same label as QCAZI 648 except for: 19Abr1999. 7 paratypes with the same label as QCAZI 648 except for: 16Mar1999. QCAZI 663, QCAZI 676. Label 1: Ecuador, Cotopaxi, Otonga, 2000 m, 0°25'S, 79°0'W, 20 May1999, L. Torres; Label 2: Thubert Primary forest NTP80 Trap Fish. QCAZI 669, QCAZI 674. Ecuador, Cotopaxi, Otonga, 2000 m, 0°25'S, 79°0'W, 23Apr1999, T. Enríquez Primary forest NTP80 Trap Fish. QCAZI 668 with the same labels data as QCAZI 669 except for: 27Aug1999. QCAZI 688. Label 1: Ecuador, Cotopaxi, Otonga, 2000 m, 0°25'S, 79°0'W, 21Apr1999, T. Enríquez; Label 2: Ex: secondary forest NTP80 Trap Fish. Cook 2002.

FAMILIA DYNASTIDAE

Cyclocephala pseudomelanocephala Dupuis 1996. Paratype QCAZI 729. Ecuador, Pv. Loja, Masanamaca, III-85, Lg. L. Coloma. Ref. Dupuis 1996.

Neoathyreus brazilensis Howden 1985. Paratype QCAZI 647. S. Paulo, Sorocova, Mendes leg. X-35. Ref. Howden 1985.

Ontherus diabolicus Génier 1996. Paratypes QCAZI 633 and QCAZI 634. Ecuador, Past., 1100m, Llandia, (17 km N. Puyo), 19.VII.1994, F. Génier, remnant rain for. feces tp. Ref. Génier 1996.

Ontherus politus Genier 1996. Paratype QCAZI 635 \$. Ecuador: Napo, 6600, 15km NW Baeza, 2-6. iii. 76, S. Peck cloud forest dung trap 12. Ref. Génier 1996.

Ontherus pubens Genier 1996. Paratypes QCAZI 636 and QCAZI 637. Ecuador, Napo Prov., Tena, 400 m., 15-21.II.1986, human feces trap, Francois Génier. Ref. Génier 1996.

Platycoelia furva Smith 2003. Holotype QCAZI 705 \$. Ecuador, XII-86, Bolivar, Totoras, Legit: L. Coloma. Paratype QCAZI 706 £. Ecuador, XII/86, Bolivar, Totoras, Legit: L. Coloma. Ref. Smith 2003.

Platycoelia galerana Smith 2003. Paratypes QCAZI 707 \$ to QCAZI 715 \$. Ecuador, Napo, Sumaco, 10-20Nov1995, A. Barragán. QCAZI 716 \$. Ecuador, Loja, La Toma, 1800 m, 22May1996, P. Salvador. QCAZI 717 £. Ecuador, Napo, Las Palmas, 1858 m, 78°42'W, 0°33'S, 13Sep1996, M. Vallejo. Ref. Smith 2003.

Platycoelia hiporum Smith 2003. Paratype QCAZI 718. Ecuador, Esmeraldas, Cristal, 1500 m, 6Dec1985, Legit: M. Vallejo. Ref. Smith 2003.

Platycoelia paucarae Smith 2003. Paratypes QCAZI 702 \$. Ecuador, Pichincha, Tandapi, 1550 m, 3 En1997, D. Guevara. QCAZI 703 \$. Ecuador, Cotopaxi, La Otonga, 2000 M, 10JAN1998, G. Onore. QCAZI 704 \$. Ecuador, Loja, Chinchas/Piñas km7, 1950 m, 17 I 1975, Coll Vénédictoff. Ref. Smith 2003.

Ptenomela giovannii Soula 2003 . Paratypes QCAZI 724, QCAZI 726, QCAZI 727. Ecuador, Cotopaxi, La Otonga, 2000 m, Sep1996, I. Tapia. QCAZI 725. Ecuador, Cotopaxi, La Otonga, 2000 m, 79°5'W, 00°27'S, 2May1997, T. Romero. QCAZI

728. Ecuador, Pichincha, P V Maldonado, 760 m, 30Apr 1995, N. Marchán. Ref. Soula 2003 [not reviewed].
Scatimus onorei Genier & Kohlmann 2003. Holotype QCAZI 645. Ecuador, III.90, Loja, Celica, Legit: G. Onore. QCAZI 646 £ (Allotype). Ecuador, III.90, Loja, Celica, Legit: G. Onore. Ref. Genier & Kohlmann 2003.

FAMILY STAPHILINIDAE

- Apalonia archidonensis* Pace 2008. Paratype QCAZI 1920. Ecuador, Napo, Archidona, S. Domingo, m 680, S 00°57'33.3", W 77°45'11.9", 28-31.VII.2006, P. M. Giachino. Ref. Pace 2008
- Apalonia pampeana* Pace 1997. Paratypes QCAZI 436 to QCAZI 440. Ecuador, Cotopaxi, S. Francisco de Las Pampas, (1300-1500 m), II.1993, L. Bartolozzi (N. Mag. 1406). Ref. Pace 1997.
- Apalonia sigchosensis* Pace 2008. Holotype QCAZI 1960. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Paratypes QCAZI 1923 and QCAZI 1924 with the same label as the holotype. Ref. Pace 2008
- Apalonia vicina* Pace 2008. Holotype QCAZI 1959. Ecuador, Pichincha La Union del Toachi Otongachi Natural Reserve 21-30.VII.2005 W. Rossi. Paratype QCAZI 1925, with the same label as the holotype. Ref. Pace 2008.
- Atheta altocotopaxicola* Pace 2008. Paratype QCAZI 1927. Ecuador, Cotopaxi, m 3500, Volcan Cotopaxi, El Pedregal, 3.VIII.2006, P.M. Giachino. Ref. Pace 2008
- Atheta annularina* Pace 2008. Holotype QCAZI 1953. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Ref. Pace 2008.
- Atheta cayambensis* Pace 2008. Paratype QCAZI 1867 and QCAZI 1868. Ecuador, Cotopaxi, m 3500, Volcan Cotopaxi, El Pedregal, 3.VII.2006, G. Coaduro. Ref. Pace 2008.
- Atheta cioccai* Pace 2008. Paratype QCAZI 1928. Ecuador, Cotopaxi, Otongachi, m 820, pitfall, 23.VI-2.VII.2006, S. Ciocca leg. Ref. Pace 2008.
- Atheta ecumaculata* Pace 2008. Holotype QCAZI 1954. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Ref. Pace 2008
- Atheta ecucastaneipennis* Pace 2008. Holotype QCAZI 1955. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Ref. Pace 2008
- Atheta hollinensis* Pace 2008. Holotype QCAZI 1952. Ecuador, Napo, Jondachi Loreto rd., Rio Hollin, m 1100, 1.VIII.2005, W. Rossi leg. Ref. Pace 2008.
- Atheta neasuspiciosa* Pace 2008. Paratypes QCAZI 1921. Ecuador, Pichincha, m 3900, Los Ilinizas, La Virgen, S 00°37'45.3", W 78°41'18.6", 6.VIII.2006, G. Coaduro. QCAZI 1865. Ecuador, Pichincha, Pasochoa, m 3000, S 00°25'19.5", W

78°30'57.9", 26.VII.2006, P.M. Giachino. Ref. Pace 2008.

Atheta pseudoclaudiensis Klimaszewski & Peck 1998. Paratypes QCAZI 446 to QCAZI 448. Label 1: Ecu. Galap. St Cruz CDRS, 10 m, 7.III.89; Label 2: old tortoise droppings & hey, S. Peck 89-36. QCAZI 449 and QCAZI 450. Label 1: Ecu. Galap. San Cristobal, 600 m, El Junco, pampas; Label 2: horsemanure, 14.II.89 S. Peck 89-60. QCAZI 451. Label 1: Ecu., Galap., Floreana, 6 km E Black Beach; Label 2: 28. III.89, 89-166 S. Peck, Scalesia z. cowdung, 360 m. QCAZI 452 and QCAZI 453. Label 1: Ecu. Galap. Floreana, 8 km E Black Beach; Label 2: Peck & Sinclair, 360m, 22-28. III.89, 89-147 Scalesia, FIT. QCAZI 454. Ecu., Galap., Isabela, 9kmNE Tagus Cove, 1100 m, V. Darwin, 18-20.V.92, arid zone, dung traps, S. Peck 92-192. Ref. Klimaszewski & Peck 1998.

Atheta toachiensis Pace 2008. Holotype QCAZI 1951. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 21-30.VII.2005, W. Rossi. Ref. Pace 2008.

Cajachara carltoni Ashe & Leschen 1995. Paratypes QCAZI 442, QCAZI 443. Label 1: Ecuador, Azuay, Reserva Río Mazán, 25 km NW Cuenca, Lago Toreadora, 3800 m; Label 2: 31DEC1991, C. Carlton R. Leschen, #81 ex: *Polylepis berlasale*. Ref. Ashe & Leschen 1995.

Diestota simplex Pace 2008. Holotype QCAZI 1946. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Ref. Pace 2008.

Falagria ecuapallida Pace 2008. Holotype QCAZI 1947. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005 W. Rossi. Ref. Pace 2008.

Gyrophaena cotopaxiensis Pace 1996. Paratype QCAZI 455. Ecuador: Cotopaxi prov., dint. di S. Francisco de Las Pampas, (1300 -1500 m), II.1993 (num. Mag.1406), legit L. Bartolozzi. Ref. Pace 1996.

Gyrophaena otongensis Pace 2008. Holotype QCAZI 1939. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Ref. Pace 2008.

Gyrophaena rossii Pace 2008. Holotype QCAZI 1938 Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Paratypes QCAZI 1843- QCAZI 1853, QCAZI 1900-1905. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Ref. Pace 2008.

Gyrophaena spatulata Pace 1996. Paratype QCAZI 456. Ecuador: Cotopaxi prov., dint. di S. Francisco de Las Pampas, (1300 -1500 m), II.1993 (num. Mag.1406) legit L. Bartolozzi. Ref. Pace 1996.

Heterostiba rossii Pace 2008. Paratypes QCAZI 1919. Label 1: Ecuador, Tungurahua, Volcán Chimborazo, m 4058, S 01°22'20.3", W 78°49'06.2", 5.VIII.2006, G. Coaduro Label 2: Laboulbeniales n 2977 Walter Rossi. QCAZI 1926. Ecuador, Pichincha, m 3900, Los Ilinizas, La Virgen, S 00°37'45.3", W 78°41'18.6", 6.VIII.2006, G. Coaduro. Ref. Pace 2008.

Homalota cotopaxiensis Pace 2008. Holotype QCAZI 1940. Ecuador, Cotopaxi, Cantón

Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Ref. Pace 2008.

Leptandria ecitophila Hanley, 2003. Paratype QCAZI 445 \$. Label 1: Ecuador: Napo, mid. Río Tiputini, Yasuni res. Stn. 0°40.5'S, 76°24'W, 22July 1999, AKT#091; Label 2: *Eciton buchelli* colony EC#21. Nomadic bivouac site just after emigration A. Tishechkin. Ref. Hanley 2003.

Leptandria tishechkini Hanley, 2003. Paratype QCAZI 444 \$. Label 1: Ecuador, Napo, mid. Río Tiputini, Yasuni res. Stn. 0°40.5'S, 76°24'W, 26July 1999, AKT#111; Label 2: *Eciton hamatum* colony EC #28. Total bivouac sampling. A. Tishechkin. Ref. Hanley 2003.

Meronera ecuadorica Pace 2008. Holotype QCAZI 1948. Label 1: Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 7-10.VII.2006, W. Rossi; Label 2: Laboulbeniales n 2979 Walter Rossi. Ref. Pace 2008.

Meronera otongicola Pace 2008. Holotype QCAZI 1956. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Paratype QCAZI 1936, with the same label as the holotype. Ref. Pace 2008.

Myllaena pichinchaensis Pace 2008. Paratype QCAZI 1837. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Ref. Pace 2008.

Orphnebius curticornis Pace 2008. Holotype QCAZI 1958. Label 1: Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Ref. Pace 2008.

Orphnebius ecuadorensis Pace 1997. Paratypes QCAZI 457 and QCAZI 458. Ecuador, Manabí dint., Puerto Cayo, 21.II.1993, L. Bartolozzi alle luci (N. Mag. 1406). Ref. Pace 1997.

Orphnebius otongensis Pace 2008. Holotype QCAZI 1957. Ecuador, Pichincha, La Union del Toachi Otongachi, Natural Reserve, 21-30.VII.2005, W. Rossi. Paratype QCAZI 1922 with the same label as the holotype. Ref. Pace 2008.

Paraplandria caraorum Pace 2008. Holotype QCAZI 1950. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Paratypes QCAZI 1934 and QCAZI 1935 with the same label as the holotype. Ref. Pace 2008.

Paraplandria ecuadoricola Pace 2008. Holotype QCAZI 1962. Ecuador, Napo, Jondachi Loreto rd., Rio Hollin, m 1100, 1.VIII.2005, W. Rossi leg. Pace 2008.

Parasilusa otongensis Pace 2008. Holotype QCAZI 1941. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Ref. Pace 2008.

Plesiomalota giachinoi Pace 2008. Paratype QCAZI 1861. Ecuador, Pichincha, Lloa, Rio Blanco, m 2650, (under bark), 1.VIII.2006, P.M. Giachino. Ref. Pace 2008.

Plesiomalota pasochoensis Pace 2008. Paratypes QCAZI 1862-QCAZI 1864. Ecuador, Pichincha, Pasochoa, m 3000, S 00°25' 19.5", W 78°30' 57.9", 26.VII.2006, G. Caoduro. Ref. Pace 2008.

Plesiomalota ruficollis Pace 2008. Holotype QCAZI 1942. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Ref. Pace 2008.

Plesiomalota ruficornis Pace 2008. Holotype QCAZI 1943. Label 1: Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi; Label 2: HOLOTYPUS *Plesiomalota ruficornis* mihi det. R. Pace 2007. Ref. Pace 2008.

Plesiomalota squalida Pace 2008. Holotype QCAZI 1943. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Ref. Pace 2008.

Plesiomalota varicornis Pace 2008. Holotype QCAZI 1944. Ecuador, Pichincha, La Union del Toachi, Otongachi Natural Reserve, 21-30.VII.2005, W. Rossi. Paratype QCAZI 1860, with the same label as the holotype. Ref. Pace 2008.

Pseudoleptonia ecuadorica Pace 2008. Holotype QCAZI 1949. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Paratype QCAZI 1866, with the same label as the holotype. Ref. Pace 2008.

Pseudomniophila cotopaxiensis Pace 2008. Holotype QCAZI 1937. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Paratypes QCAZI 1854- QCAZI 1859. Ecuador, Pichincha, La Union del Toachi, Otongachi Natural Reserve, 21-30.VII.2005, W. Rossi. Ref. Pace 2008.

Pseudomyllaena ecuadorensis Pace 2008. Holotype QCAZI 1961. Ecuador, Cotopaxi, Cantón Sigchos, Las Pampas, Otonga Natural Reserve, 25-28.VII.2005, W. Rossi. Paratypes QCAZI 1907 and QCAZI 1913, with the same label as the holotype. Ref. Pace 2008.

FAMILY TENEBRIONIDAE

Opatrinus ecuadorensis Iwan 1995. Paratypes QCAZI 611. Label 1: Pichilingue, Ecuador 16.XI.1977; Label 2: Black light 79.443. QCAZI 612. Ecuador, Los Ríos, Quevedo, VII.1977, Iwan 1995.

ORDER DIPTERA

FAMILIA DROSOPHILIDAE

Drosophila amaguana Vela & Rafael 2004. Holotype QCAZI 1665 \$. Ecuador, Pichincha, Volcán Pasochoa, Jul 1996, D. Vela col. Paratypes QCAZI 1666 \$ and QCAZI 1667 \$. Ecuador, Pichincha, Volcán Pasochoa, Jul 1997, D. Vela col. Ref. Vela & Rafael 2004.

Drosophila apag Vela & Rafael 2005. Holotype QCAZI 1756 \$. Ecuador, Pichincha, Volcán Pasochoa, Jul 1996, D. Vela col. Ref. Vela & Rafael 2005.

- Drosophila arcosae* Vela & Rafael 2001. Holotype QCAZI 1686 \$. Ecuador, Pichincha, Volcán Pasochoa, Ago1996, DVela col. Ref. Vela & Rafael 2001.
- Drosophila asiri* Vela & Rafael 2005. Holotype QCAZI 1704 \$. Ecuador, Pichincha, Volcán Pasochoa, Jun 1996, DVela col. Paratype QCAZI 1705 \$. Ecuador, Pichincha, Volcán Pasochoa, 20Oct 2001, DVela col. Ref. Vela & Rafael 2005.
- Drosophila carlosvilelai* Vela & Rafael 2001. Holotype QCAZI 1629 \$. Ecuador, Pichincha, Volcán Pasochoa, 3200 m, LW 78°29', LS 0°28', 30Ago1996, DVela. Paratypes \$: 3 paratypes with the same label as holotype except for: Jun 1997 DVela col. 3 paratypes with the same label dat as holotype except for: Jul 1997. 11 paratypes with the same label as the holotype except for: Jul 1996. 4 paratypes with the same label as the holotype except for: Ago 1996. QCAZI 1651 with the same label as the holotype except for: Jun 1997. Ref. Vela & Rafael 2001.
- Drosophila condormachay* Vela & Rafael 2005. Holotype QCAZI 1739 \$. Ecuador, Pichincha, Pasochoa, 16Jun2001, V. Rafael, DVela. Paratypes \$: QCAZI 1740 with the same label as the holotype except for: 18Ago2001. 2 paratypes with the same label as the holotype except for: 29Sep2001. QCAZI 1743 with the same label as the holotype except for: 28Oct2001. QCAZI 1744 with the same label as the holotype except for: 20Oct2001. Ref. Vela & Rafael 2005.
- Drosophila cuscungu* Vela & Rafael 2005. Holotype QCAZI 1774 \$. Ecuador, Pichincha, Pasochoa, 16Jun2001, V. Rafael, D. Vela. Ref. Vela & Rafael 2005.
- Drosophila ecuatoriana* Vela & Rafael 2004. Holotype QCAZI 1609 \$. Ecuador, Pichincha, Volcán Pasochoa, 16Jul1996, D. Vela. Paratypes 5 paratypes with the same label as the holotype except for: Jul 1996. 4 paratypes with the same label as the holotype except for: Jul 1997. 3 partypes with the same label as the holotype except for: Ago1996. Ref. Vela & Rafael 2004.
- Drosophila fontdevilai* Vela & Rafael 2001. Holotype QCAZI 1655 \$. Ecuador, Pichincha, Pasochoa, 3200 m, LW 78°29', LS 0°28', 30Jul1996, DVela. Paratypes \$: QCAZI 1656 to QCAZI 1663. Ecuador, Pichincha, Volcán Pasochoa, Jul 1996, DVela col. Ref. Vela & Rafael 2001.
- Drosophila guayllabambae* Rafael & Arcos 1988. Holotype QCAZI 1775 \$. Label 1: Ex: Isolínea 1P. N° 1; Label 2: Ecuador, Pichincha, Guayllabamba, Estación 1; Label 3: 30 Km. Al NE de Quito, margen derecha del Río Guayllabamba, 2200 m.s.n.m.; Label 4: VII/86, Leg: G. Arcos & V. Rafael. Paratypes 9\$ paratypes and 9 £ with the same labels data as the holotype. Ref. Rafael & Arcos 1989.
- Drosophila huancavilcae* Rafael & Arcos 1989. Holotype QCAZI 1760. Ecuador, Guayas, Progreso, NO de Guayaquil, 300 m.s.n.m., XI/86, Leg: G. Arcos y M. Rivera. Paratype QCAZI 1761 (Allotype) with the same label as the holotype. Ref. Rafael & Arcos 1989.
- Drosophila ichubamba* Vela & Rafael 2005. Holotype QCAZI 1735 \$. Ecuador, Pichincha, Volcán Pasochoa, DVela col. 5May. 2001. Paratypes QCAZI 1736 with the same label as the holotype. QCAZI 1737 and QCAZI 1738 with the same label as the holotype except for: 01Abr2002. Ref. Vela & Rafael 2005.

- Drosophila korefae* Vela & Rafael 2004. Holotype QCAZI 1717 \$. Ecuador, Pichincha, Volcán Pasochoa, D. Vela col., Jun. 1996. Paratypes 2 paratypes with the same label as the holotype. Ref. Vela & Rafael 2004.
- Drosophila machachensis* Vela & Rafael 2001. Holotype QCAZI 1652. Ecuador, Pichincha, Volcán Pasochoa, DVela col., Ago1996. Paratypes \$: 2 paratypes with the same label as the holotype except for: Jul1996. Ref. Vela & Rafael 2001.
- Drosophila ninarumi* Vela & Rafael 2005. Holotype QCAZI 1765 \$. Ecuador, Pichincha, Volcán Pasochoa, D. Vela col., Abr. 2001. Paratypes \$: QCAZI 1766 with the same label as holotype except for: 16Jun2001. QCAZI 1767 with the same label as holotype except for: 14Jul2001. QCAZI 1768 with the same label as holotype except for: 26Jan2002. 2 paratypes with the same label as the holotype except for: 02Feb2002. Ref. Vela & Rafael 2005.
- Drosophila ogradii* Vela & Rafael 2004. Holotype QCAZI 1719 \$. Ecuador, Pichincha, Pasochoa, DVela col., Jun. 1996. Paratypes \$: 6 paratypes with the same label as the holotype except for: Ago96; 2 paratypes with the same label as the holotype except for: Jul96. 3 paratypes with the same label as the holotype except for: Jul1997. 4 paratypes with the same label as the holotype except for: Jun1997. Ref. Vela & Rafael 2004.
- Drosophila pasochoensis* Vela & Rafael 2001. Holotype QCAZI 1626 \$. Ecuador, Pichincha, Volcán Pasochoa, DVela 07Jul97. Paratypes \$: 13 paratypes with the same label as the holotype. 7 paratypes with the same label as the holotype except for: Jul1996. 9 paratypes with the same label as the holotype except for: Ago1997. Ref. Vela & Rafael 2001.
- Drosophila patacorni* Vela & Rafael 2005. Holotype \$: QCAZI 1694. Ecuador, Pichincha, Volcán Pasochoa, D. Vela col., Mar. 2001. Paratype \$: QCAZI 1695 with the same label as the holotype except for: 04Abr 2001. Ref. Vela & Rafael 2005.
- Drosophila pichinchana* Vela & Rafael 2004. Holotype \$: QCAZI 1622. Ecuador, Pichincha, Volcán Pasochoa, DVela col., Jul. 1996. Paratype \$: QCAZI 1623 with the same label as the holotype. Ref. Vela & Rafael 2004.
- Drosophila pilaresae* Vela & Rafael 2001. Paratypes \$: QCAZI 1687 to QCAZI 1689. Ecuador, Pichincha, Volcán Pasochoa, Jul1997. Ref. Vela & Rafael 2001.
- Drosophila pugyu* Vela & Rafael 2005. Holotype \$: QCAZI 1764. Ecuador, Pichincha, Volcán Pasochoa, 17Oct2001, DVela col. Ref. Vela & Rafael 2005.
- Drosophila quillu* Vela & Rafael 2005. Holotype \$: QCAZI 1706. Ecuador, Pichincha, Pasochoa, Mar2001, DVela col. Paratypes \$: QCAZI 1707 with the same label as the holotype except for: 30Jun2001. QCAZI 1708 with the same label as holotype except for: 04Abr2001. 8 paratypes with the same label as the holotype except for: 01Abr2002. 2 paratypes with the same label as the holotype except for: 14Jul2001. Ref. Vela & Rafael 2005.
- Drosophila quitensis* Vela & Rafael 2004. Holotype \$: QCAZI 1624. Ecuador, Pichincha, Volcán Pasochoa, Jul 1996, D. Vela col. Paratype \$: QCAZI 1625 with the same label as the holotype except for: Ago1996. Ref. Vela & Rafael 2004.

- Drosophila ruminahui* Vela & Rafael 2004. Holotype \$: QCAZI 1690. Ecuador, Pichincha, Volcán Pasochoa, Jul. 1997, DVela col. Ref. Vela & Rafael 2004.
- Drosophila rumipamba* Vela & Rafael 2005. Holotype \$: QCAZI 1703. Ecuador, Pichincha, Volcán Pasochoa, Jul. 1996, DVela. Ref. Vela & Rafael 2005.
- Drosophila rundoloma* Vela & Rafael 2005. Holotype \$: QCAZI 1699. Ecuador, Pichincha, Volcán Pasochoa, Jun. 1997, DVela col. Paratypes \$: 3 paratypes with the same label as the holotype except for: Jul 1996. Ref. Vela & Rafael 2005.
- Drosophila shuyu* Vela & Rafael 2005. Holotype \$: QCAZI 1696. Ecuador, Pichincha, Volcán Pasochoa, 30Jun 2001, DVela col. Paratypes \$: QCAZI 1697 with the same label as the holotype except for: 10Nov2001; QCAZI 1698 with the same label as the holotype except for: 01Abr2002. Ref. Vela & Rafael 2005.
- Drosophila shyri* Vela & Rafael 2004. Holotype \$: QCAZI 1664. Ecuador, Pichincha, Volcán Pasochoa, 23Jul1996, DVela col. Ref. Vela & Rafael 2004.
- Drosophila sisa* Vela & Rafael 2005. Holotype \$: QCAZI 1772. Ecuador, Pichincha, Volcán Pasochoa, 01Abr2002, DVela col. Paratype \$: QCAZI 1773 with the same label as the holotype. Ref. Vela & Rafael 2005.
- Drosophila suni* Vela & Rafael 2005. Holotype \$: QCAZI 1771. Ecuador, Pichincha, Volcán Pasochoa, Mar2001, DVela col. Ref. Vela & Rafael 2005.
- Drosophila surucucho* Vela & Rafael 2005. Holotype \$: QCAZI 1747. Ecuador, Pichincha, Volcán Pasochoa, 21Abr2001, DVela col. Paratypes \$: 2 paratypes with the same label as the holotype except for: 04Abr2001. 2 paratypes with the same label as the holotype except for: 05May2001. QCAZI 1752 with the same label as the holotype except for: 16Jun 2001. QCAZI 1753 with the same label as the holotype except for: 09Jun 2001; QCAZI 1754 with the same label as the holotype except for: 14Jul2001; 2 paratypes with the same label as the holotype except for: 16Jul2001. Ref. Vela & Rafael 2005.
- Drosophila taxohuaycu* Vela & Rafael 2005. Holotype \$: QCAZI 1745. Ecuador, Pichincha, Volcán Pasochoa, Mar2001, DVela col. Paratype \$: QCAZI 1746 with the same label as the holotype except for: 05May2001. Ref. Vela & Rafael 2005.
- Drosophila tomasi* Vela & Rafael 2001. Holotype \$: QCAZI 1668. Ecuador, Pichincha, Volcán Pasochoa, Jul1997, DVela col. Paratypes \$: 5 paratypes with the same label as the holotype except for: Ago 1997; 10 paratypes with the same label as the holotype except for: Jul1997. Ref. Vela & Rafael 2001.
- Drosophila urcu* Vela & Rafael 2005. Holotype \$: QCAZI 1755. Ecuador, Pichincha, Volcán Pasochoa, 01Abr2002, DVela col. Ref. Vela & Rafael 2005.
- Drosophila valenciai* Vela & Rafael 2001. Holotype \$: QCAZI 1684. Ecuador, Pichincha, Volcán Pasochoa, Jul1996, DVela col. Paratype \$: QCAZI 1685 with the same label as the holotype except for: Jul1997. Ref. Vela & Rafael 2001.
- Drosophila yana* Vela & Rafael 2005. Holotype \$: QCAZI 1691. Ecuador, Pichincha, Volcán Pasochoa, Mar 2001, DVela col. Paratypes \$: QCAZI 1692 with the same

label as the holotype except for: 05May2001. QCAZI 1693 with the same label as the holotype except for: 10Nov2001. Ref. Vela & Rafael 2005.

Drosophila yangana Rafael & Vela 2003. Holotype \$: QCAZI 1757. Ecuador, Loja, Yangana, 1800 m, LW79°10'28", LS 4°21'24", D. Vela col., Sep. 2001. Paratypes £: 2 paratypes with the same label as the holotype. Ref. Vela & Rafael 2005.

FAMILY PHORIDAE

Apocephalus ancylus Brown 1997. Paratype QCAZI 1362 £. Ecuador, Napo, Jatun Sacha, 1.07°S, 77.6°W, 17.ix.1996, J. Röschar, raid *Eciton burchelli*. Ref. Brown 1997.

Apocephalus asyndetus Brown 2000. Paratype QCAZI 1368. Ecuador, Sucumbíos, Sacha Lodge, 0.5°S, 76.5°W, 24.v-3.vi.1994, P. Hibbs MT., 270 m. Ref. Brown 2000.

Apocephalus catholicus Brown 2000. Paratypes QCAZI 1373 £. Ecuador, Esmeraldas, Bilsa Biol. Stn., 500 m, 0.34° N, 79.71° W, 8.v.1996, B. Brown. Inj. *Pachycondyla impressa*. 3 paratypes with the same label as QCAZI 1373. 2 paratypes with the same label as QCAZI 1373 except for: Injured *Odontomachus bauri*. Ref. Brown 2000.

Apocephalus comosus Brown 2000. Paratype QCAZI 1369 £. Ecuador, Sucumbios, Sacha Lodge, 0.5°S, 76.5°W, 3-13.vi.1994, P. Hibbs. Malaise. 270m. Ref. Brown 2000.

Apocephalus extraneus Brown 1997. Paratypes QCAZI 1359. Ecuador, Sucumbios, Sacha Lodge, 0.5°S, 76.5°W, 23.iv.3.v.1994, P. Hibbs. MT. 270 m. QCAZI 1360. Ecuador, Sucumbios, Sacha Lodge, 0.5°S, 76.5°W, 14-24.v.1994, P. Hibbs. MT. 270 m. Ref. Brown 1997.

Apocephalus funditus Brown 2000. Paratype QCAZI 1370. Ecuador, Sucumbios, Sacha Lodge, 0.5°S, 76.5°W, 12-22.ii.1994, P. Hibbs, Malaise, 270 m. Ref. Brown 2000.

Apocephalus melinus Brown 2000. Paratypes QCAZI 1366 and QCAZI 1367. Ecuador, Napo, Yasuní Bio.Res.Stn., 0.67°S, 76.36°W, 20.v.1996, B. V. Brown, inj. *Dolichoderus attelaboides*. Ref. Brown 2000.

Apocephalus onorei Brown 1997. Paratype £: QCAZI 1363. Ecuador, Napo, Yasuní Bio. Stn., 0.67°S, 76.39°W, 24.v.1996, B. V. Brown. 220 m, over *Acromymex* sp. Ref. Brown 1997.

Apocephalus quadratus Brown 1997. Paratype £: QCAZI 1364. Ecuador, Sucumbíos, Sacha Lodge, 0.5°s, 76.5°W, 23.iv-3.v.1994, P. Hibbs. MT. 270m. Ref. Brown 1997.

Apocephalus roeschardae Brown 2000. Paratype QCAZI 1365 £. Ecuador, Napo, Yasuní Bio.Res.Stn., 0.67°S, 76.36°W, 22.v.1996, B. V. Brown, 220 m, inj. *Cephalotes atratus*. Ref. Brown 2000.

Apocephalus securis Brown 1997. Paratype QCAZI 1361. Ecuador, Pichincha, 17 km E Sto Domingo, Tinalandia, 6-13.v.1987, B.V. Brown, 710 m. Clubhouse windows. Ref. Brown 1997.

Apocephalus tanyurus Brown 2000. Paratype QCAZI 1372 £. Ecuador, Sucumbios, Sacha Lodge, 0.5°S, 76.5°W, 10-21.x.1994, P. Hibbs, Malaise. 270 m. Ref. Brown 2000.

Apocephalus torulus Brown 2000. Paratype QCAZI 1371 £. Ecuador, Esmeraldas, Bilsa Biol. Stn., 0.34°N, 79.71° W, 8.v.1996, Brown. Hibbs. Cantley raid *Labidus praedator*. Ref. Brown 2000.

Apocephalus trifidus Brown 2000. Paratype QCAZI 1762. Ecuador, Napo, Yasuní Bio. Rest. Stn., 0.67°S, 76.39°W, 24.v.1996, B. V. Brown. Injured *Pachycondyla crassinoda*. Ref. Brown 2000.

FAMILY SPHAEROCERIDAE

Druciatus tricetus Marshall 1995. Paratypes QCAZI 1346. Ecu., Napo, Tena, 500 m, malaise 2' rainfor. 21-27.v.87, ROM870017 Coote & Brown. QCAZI 1347 \$. Ecu., Pinch. Prov., Rio Palenque Stn., 47 kmS. Sto. Domingo, 29.iv.1987, L. Coote & B. Brown, 180 m, mal. head 1*lowlandrainfor. Ref. Marshall 1995.

Opacifrons triloba Marshall & Langstaff 1998. Paratype QCAZI 1353. Ecu., Pich., 16 km E Santo Domingo, Tinalandia, 4.v.25.vii.85, S & J Peck, 680 m, rainfor.malaise-FIT. Ref. Marshall & Langstaff 1998.

Opacifrons redunca Marshall & Langstaff 1998. Paratype QCAZI 1354. Ecu., Napo Prov., Baeza, 18.v.87, L.D. Coote, scr.sweep wet montane, 1500-1700 m, ROM 870013 Forest/Pasture. Ref. Marshall & Langstaff 1998.

Palaeocoprina equiseta Marshall 1998. Paratypes QCAZI 1350 and QCAZI 1351. Ecu., Napo, 27 km NW Baeza, 2-6.III.1976, 2700 m., DgTp, S. Peck. Ref. Marshall 1998.

Phthitia merida Marshall 1992. Paratypes QCAZI 1348. Ecu., Napo, Prov., Quito- Baeza Rd., above thermal spgs., Papallacta, 3200 m, 22-24.ii.1983, L. Masner. Pan trap. QCAZI 1349. Ecu., Napo, Prov. Quito- Baeza Rd., 4000 m, 18-23.ii.1983, L. Masner. Pan trap in low paramo. Ref. Marshall & Smith 1992

Rachispoda justini Wheeler 1995. Paratypes QCAZI 1355 and QCAZI 1356. Ecu., Pich., 16 km E Santo Domingo, Tinalandia, 4.v.85, S&J Peck, 680 m, rainfor. Malaise-FIT. Ref. Wheeler & Marshall 1995.

Rachispoda praealta Wheeler 1995. Paratypes QCAZI 1357 and QCAZI 1358. Ecu., Napo, 4000m, Quito- Baeza, Pass ElfinFor, dungtrap, S. Marshall, 11.iii'79. Ref. Wheeler & Marshall 1995.

ORDER HEMIPTERA

FAMILY COREIDAE

Anasa scitula Brailovsky & Barrera 2000. Holotype \$: QCAZI 1410. Ecuador, Napo, Vía Hollin-Loreto, Km 30, 1100 m, 6/12/87, Lg. A. Rodríguez. 2 paratypes with the same label as the holotype except for: R. Boada. Ref. Brailovsky & Barrera 2000.

Salapia onorei Brailovsky 1999. Holotype £: QCAZI 1407. Ecuador, Sucumbios, San

Pablo, Río Aguarico, Oct1995, FNischk. Ref. Brailovsky 1999.

Sephina faceta Brailovsky 2001. Paratype \$: QCAZI 1408. Ecuador, Napo, Reventador, I-1988, V- Nivel. B. P. Ref. Brailovsky 2001.

FAMILIA GERRIDAE

Potamobates shuar Buzzetti 2006. Paratypes \$: QCAZI 1606 and QCAZI 1607. Ecuador, Morona Zantiago, Bomboiza, 800 m, 22-III-2004, Carotti & Tirello. Ref. Buzzetti 2006.

FAMILIA MIRIDAE

Anomalocornis peyreti Couturier & Costa 2002. Paratypes QCAZI 1413 to QCAZI 1434. Label 1: Equateur, Pastaza, Chunitayo, 5-XI-2000, T. Peyret col.; Label 2: s/inflorescence de *Oenocarpus bataua* Areaceae. Ref. Couturier & Costa 2002

Parafulvius henryi Costa & Couturier 2000. Paratypes QCAZI 1435 \$, QCAZI 1436 \$, QCAZ 1437 £, QCAZI 1438 £. Label 1: Equateur, Shushufini, 10-X-1999, L. Reynaud & Suarez col.; Label 2: sur *Astrocaryum urostachys* Palmae. Ref. Costa & Couturier 2000.

FAMILIA PENTATOMIDAE

Thyanta xerotica Rider & Chapin 1991. Paratypes QCAZI 1440 to QCAZI 1442. Ecuador, Manabí, San Clemente, XII-84, Legit: F. Cuesta. Ref. Rider & Chapin 1991

ORDER HOMOPTERA

FAMILY MEMBRACIDAE

Metcalfiella jaramillorum McKamey 1991. Paratype QCAZI 1404. Label 1: Cuenca, 2400 m, 2Jan 1986, McKamey. Coll.; Label 2: Ecuador, Azuay, Challuabamba, 11rd km NE. Ref. McKamey 1991

Metcalfiella nigrihumera Mckamey 1991. Paratype QCAZI 1403. Label 1: Ecuador, Azuay, Challuabamba, 11rd km NE; Label 2: Cuenca, 2400 m, 3Jan1986, McKamey, Coll. Ref. McKamey 1991.

ORDER HYMENOPTERA

FAMILY APIDAE

Euglossa lugubris Roubick 2004. Paratype QCAZI 754. Label 1: Perú, LO, Maynas, Peña Negra, km 10 (Purma), 5-7-01, Rasmussen; Label 2: Eugenol. Ref. Roubick 2004.

Euglossa occidentalis Roubick 2004. Holotype QCAZI 1268. Ecuador, Napo Depto, Yasuní National Park, 13-27April1998, D. Roubick; coll. No 33. Paratypes 12 paratypes with different collection number and the following label: Ecuador, Fco. de Orellana Prov., Parque Nacional Yasuní, sept. 2001, E. Báus, D. Roubick coll. #91. 3 paratypes with different collection number and with the same label as the holotype. 16 paratypes with different collecting number and the following label:

Ecuador, Orellana, PUCE SCYasuní, 250 m, 76°24'19" W, 00°40'32 S, 18-23Feb2001, D. Roubick & E. Báus. QCAZI 1276. Ecuador, Fco. De Orellana Prov., Parque Nacional Yasuní, nov. 1998, E. Báus, D. Roubick. QCAZI 1277. Ecuador, Napo, Tena, Shushufindi, Yasuni, 500 m, 76°30'W, 00°38' S, 3Aug1999, F. Palomeque. TRAP EUCALIPTOL. 2 paratypes with the following label: Ecuador, Fco. De Orellana, Loreto, Cotapino, 640 m, 22May1999, F. Palomeque. QCAZI 1285. Ecuador, Napo, Talag, 600 m, W77°54', S01°03', 12Jun99, H. Zumárraga. 2 paratypes with different coll. Number and the following label: Ecuador, Fco. De Orellana Prov., Parque Nacional Yasuní, dic. 2001, E. Báus, D. Roubick. 17 paratypes with different coll. Number and the following label: Ecuador, Fco. De Orellana Prov. ,Parque Nacional Yasuní, dic. 2002, E. Báus, D. Roubick. QCAZI 1321. Ecuador, Orellana, E.C. Yasuní, 250 m, 00°40'S, 76°23'W 20Nov1999, L. Torres. Ref. Roubick 2004.

Euglossa orellana Roubick 2004. Holotype QCAZI 980. Ecuador, Napo Depto, Yasuní National Park, 13-27April1998, D. Roubick; baits; #29. Paratypes 132 paratypes with the same label as the holotype and with different collection number. 7 paratypes with the following label: Ecuador, Napo, Tena, Shushufindi, Yasuni, 500 m, 76°30' W, 00°38'S, 03Aug1999, F. Palomeque. Trap eucaliptol. QCAZI 764. Ecuador, Napo, Tena, Misahualli, Jatun Sacha, 550 m, 77°30'W, 01°03'S, 23Oct1999, P. Carrera. Trap salicilato de metilo. 5 paratypes with the following label: Ecuador, Napo, E.C. Yasuní, 250 m, LW78°58', LS00 56, 22.Apr.1998, F. Palomeque. 2 paratypes with the following label: Ecuador, Napo, Loreto, 9Aug1991, D. Roubick. 189 paratypes with the following label: Ecuador, Orellana, PUCE SCYasuní, 250 m, 76°24'19" W, 00°40'32 S, 18-23Feb2001, D. Roubick & E. Baus. QCAZI 889. Ecuador, Pichin-Napo, Taracoa, S. Abedravo, 18-V-84. 2 paratypes with the following label: Ecuador, Napo, Yuturi Lodge, Río Napo, 0°32'54"S, 76°2'18" W, 270 m, 20Mar1999, R. Brooks, ECU1B99 009 ex: attracted to methyl salicylate. 108 paratypes with the following label: Ecuador, Fco. de Orellana Prov., Parque Nacional Yasuní, dic2002, E. Baus, D. Roubick, coll. #100. 49 paratypes with the following label: Ecuador, Fco. de Orellana Prov., Parque Nacional Yasuní, sep2001, E. Baus, D. Roubick coll. #84. 47 paratypes with the following label: Ecuador, Fco. de Orellana, Yasuní Nat Park, Catholic Univ. Station, Aug 7-17 2004, D. Roubick, coll#113. QCAZI 979. ECUADOR: Napo, Yuturi Lodge, Río Napo, 0°32'54"S, 76°2'18"W, 270 m, 20 MAR1999, R. Brooks, ECU1889 009 ex: attracted to methyl salicylate. Comments: QCAZI 889 \$ and QCAZI 979 \$ labeled as *Euglossa chalybeata* Friese by. R. W. Brooks. Ref. Roubick 2004.

Euglossa samperi Ramirez 2006. Holotype QCAZI 1825. SR1906, Apr.8.2005, Bilsa, Naranja trail, 1100, Esmeraldas, Ecuador, 00°21'N, 79° 44'W, 500m, Cineole, Leg S. Ramirez. Ref. Ramirez 2006.

Euglossa tiputini Roubick 2004. Paratypes QCAZI 756 \$. Hacienda Ila, Napo, Ecuador, D. Velastegui, Cineole, 12-26-68. QCAZI 757. Ecuador, Napo, Talag, 28Dic1993, 400 m, O. Torres. Ref. Roubick 2004.

Eulaema napensis Oliveira 2006. Holotype \$: QCAZI 755. Ecuador, Napo, Jumandi, II/86, Legit: D. Sánchez. Ref. Oliveira 2006. Described under subgenus *Eulaema*.

Paratrigona onorei Camargo & Moure 1994. Paratype QCAZI 1325. Ecuador, Napo,

Cosanga, II/ 86, Legit: L. Coloma. Ref. Camargo & Moure 1994.

FAMILY DIAPRIIDAE

Mimopria campbellorum Masner 1976. Paratype £: QCAZI 1599. BRAZIL, Belem, Para, IPEAN, III-23-1970, JM & BA Campbell. Host: *Eciton Hamatum* (Fabr.). Ref. Masner 1976.

FAMILY FORMICIDAE

Leptanilloides nomada Donoso, Vieira & Wild 2006. Holotype QCAZI 1342. Ecuador, Cotopaxi, Otonga, 1960 m, 79°0.197 W, 0°25.158S, 02Dec2003, Wild & Vieira. Paratype QCAZI 1343. Ecuador, Cotopaxi, Otonga, 1960 m, 79°0.197 W, 0°25.158S, 02Dec2003, Wild & Vieira. Ref. Donoso *et al.* 2006.

Leptanilloides nubecula Donoso, Vieira & Wild 2006. Holotype QCAZI 1341. Ecuador, Cotopaxi, Otonga, 1978 m, 17M0722229, 9953647, 24-Jun-2004, D. A. Donoso. Paratypes QCAZI 1339 and QCAZI 1340. Ecuador, Cotopaxi, Otonga, 1978 m, 17M0722229, 9953647, 24-Jun-2004, D.A. Donoso. Ref. Donoso *et al.* 2006.

Linepithema aztecoides Wild 2006. Paratype £: QCAZI 1338. Label 1: Paraguay, Canindeyú, Res.Mbaracayú, Lagunita, 200 m, 24°08' S, 055°26' W, 13.xi.2002, A. L. Wild #AW1686; Label 2: Humid subtropical medium forest. On low vegetation. Ref. Wild 2006

Linepithema neotropicum Wild 2006. Paratype QCAZI 1344. Label 1: Paraguay, Canindeyú, Res. Mbaracayú, Jejuimí, 170 m, 24°08' S, 055°32' W, 25.ix.2002, A. L. Wild, #AW1718; Label 2: humid sub-tropical tall forest edge. Ref. Wild 2006

Linepithema tsachila Wild 2006. Holotype £: QCAZI 1337. Label 1: Ecuador, Pichincha, ENDESA Forest Res., 700 m, 00°06' N, 79°02' W, 5.xii.2003, A. L. Wild, #AW2212; Label 2: 2nd growth forest nest in rotting center of live tree. Ref. Wild 2006

Pheidole alpestris Wilson 2003. Paratypes QCAZI 1453 and QCAZI 1454. Label 1: Ecuador, Pichincha, 6 km SE Pifo, 0°15' S, 78°18' W, 2900 m, 16-VIII-1991, P. S. Ward, # 11485 #11486; Label 2: Under stone roadside edge. Ref. Wilson 2003.

Pseudomyrmex eculeus Ward 1999. Paratype £: QCAZI 1326. Ecu, Prov. Napo, Jatun Sacha, 01°04'S, 77°36'W, 450 m, 13 .ix.1992, B. L. Fisher, # 458 ex: *Tachigali*, rainfor. Ref. Ward 1999.

Pseudomyrmex insuavis Ward 1999. Paratype QCAZI 1327. Col Amazonas, Araracuara, 00°38' S, 72°15' W, iv. 1994, G. Gangi #224 ex: *Tachigali hypoleuca*. Ref. Ward 1999.

Pseudomyrmex ultirix Ward 1999. Paratype QCAZI 1345. Label 1: Ecuador, Napo, 13 km NNE Archidona, 0°48'S, 77°47' W, 960 m, 7.viii.1991, P. S. Ward. #11393; Label 2: ex: *Triplaris* roadside edge. Ref. Ward 1999.

FAMILY POMPILIDAE

Pepsis multichroma Vardy 2002. Paratype \$: QCAZI 1974. Ecuador, Azuay, Km 100 Vía Cuenca-Loja, IV-1985, G. Onore. Ref. Vardi 2001.

Pepsis onorei Vardy 2002. Paratypes £: 3 paratypes with the following label: Ecuador, Cotopaxi, Las Pampas, 1500, X.1983, G. Onore. 12 paratypes with the following label: Ecuador, Cotopaxi, Las Pampas, 1500, VI.1983, G. Onore. 2 paratypes with the following label: Ecuador, Cotopaxi, Las Pampas, 1500, X. 1985, G. Onore. Ref. Vardi 2002.

FAMILY SCELIONIDAE

Thoron garciai Johnson & Masner 2004. Paratype \$: QCAZI 1600. Label 1: VENEZUELA, Amazonas, Surumoni, 100m, 3°10'30" N; Label 2: 65°40'30" O, 13-21-vii-1999, J. L. García; Label 3: Trampa amarilla. Ref. Johnson & Masner 2004.

FAMILIA VESPIDAE

Agelaia silvatica Cooper 2000. Paratypes £: QCAZI 1501. Ecuador, Pichincha, Quito, Río Guajalito, 1800 m, W 78°38'10", S 0°13'33", 15Nov1997, A. Lara. QCAZI 1502. Ecuador, Pichincha, vía Calacalí-Nanegalito, 2000 m, 23JUN1996, L. Torres. QCAZI 1503. Ecuador, Pichincha, Tandapi, 16-I-1988, Legit: S. Gutierrez. QCAZI 1504 and QCAZI 1505. Ecuador, Pichincha, Hda. Palmeras, VI-1986, Lg. F. Bravo. QCAZI 1506 and QCAZI 1507. Ecuador, Pichincha, Palmeras, 23ENE1993, F. Haro. QCAZI 1508. Ecuador, Pichincha, Palmeras, 1800 m, 7NOV1992, J. Molineros SP. QCAZI 1509. Ecuador, Cotopaxi, Las Pampas, VI.85, Legit: G. Onore. QCAZI 1510 to QCAZI 1513 with the same label as QCAZI 1509 except for: XII 85, QCAZI 1514 to QCAZI 1516 with the same label as QCAZI 1509 except for: 2-XI.1985 Legit: F. Bravo. QCAZI 1517. Ecuador, Cotopaxi, Otonga, 2000 m, 6JUL1996, Gonore. QCAZI 1518, with the same label as QCAZI 1517 except for: 19NOV1994 Ssalazar. QCAZI 1519. Ecuador, Cotopaxi, Los Libres, 2000 m, 5NOV1994, Ssalazar. Ref. Cooper 2000.

ORDEN LEPIDOPTERA

FAMILIA NOCTUIDAE

Hemeroblemma laguerrei Barbut & Lalanne-Cassou 2005. Paratype QCAZI 1577. Equateur, (Tunguraha), Rte de Puyo á Baños, Río Topo, 1400 m, 09-VI-2002, B. Lalanne-Cassou & M. Garnier leg. Ref. Barbut & Lalanne-Cassou 2005

FAMILIA NYMPHALIDAE

Altopedaliodes tena nucea Pycrz & Viloría 1999. Paratype QCAZI 1464. Ecuador, Azuay, Jima, 4000 m, V 1997, I. Aldas leg. Ref. Pycrz & Viloría 1999.

Manerebia golondrina Pycrz & Willmott 2006. Paratype QCAZI 1471. ECUADOR, Prov. Carchi, Res. Forest. Golondrinas, 2150 m, 23.VI. 1999, Leg. Woujtusiak & Pycrz. Pycrz *et al.* 2006.

Manerebia satura pauperata Pycrz & Willmott 2006. Paratype QCAZI 1480. ECUADOR, Zamora Chin., Loja-Zamora, 1500 m, 08.11.1996, leg. S. Attal. Ref. Pycrz *et al.*

2006.

Manerebia germaniae Pyrcz & Hall 2006. Paratype QCAZI 1478. ECUADOR, Prov. Pichincha, Aloag Tandapi km 18, Los Alpes, 2700-2750 m, 26. I. 2004, leg. Pyrcz & Garlacz. Ref. Pyrcz *et al.* 2006.

Manerebia undulata undulata Pyrcz & Hall 2006. Paratype QCAZI.1475. ECUADOR, Bolívar, Balzapamba, arriba de Sta. Lucía, 2600-2650 m, 03.IX.2003, T. Pyrcz leg. Ref. Pyrcz *et al.* 2006.

Manerebia inderena similis Pyrcz & Willmott 2006. Paratype \$: QCAZI 1474. ECUADOR, Bolívar, Balzapamba, arriba de Sta. Lucía, 2600-2650 m, 03.IX.2003, T. Pyrcz leg. Ref. Pyrcz *et al.* 2006.

Manerebia inderena clara Pyrcz & Willmott 2006. Paratype \$: QCAZI 1477. ECUADOR, Baeza, Papallacta, 2100 m, 07.IV.1998, leg. A. Neild. Ref. Pyrcz *et al.* 2006.

Manerebia inderena laeniva Pyrcz & Willmott 2006. Paratype \$: QCAZI 1476. P. Boyer, Leg. El Tablón, 3000 m, (El Triunfo-Patate), (Tungurahua), 26 km de Baños, EQUATEUR, 21/11/1998. Ref. Pyrcz *et al.* 2006.

Manerebia inderena mirena Pyrcz & Willmott 2006. Paratype QCAZI 1472. ECUADOR, Zamora, C. Quebrada de los muertos near Valladolid, m 2550-november 1999, lg. I. Aldas-coll. Bollino. Ref. Pyrcz *et al.* 2006.

Pedaliodes rumba Pyrcz & Viloría 1999. Paratype QCAZI 1465. Ecuador, Prov. Cotopaxi, Pilaló, > 2500 < 3000, 1996 07, leg. I. Aldas. Ref. Pyrcz & Viloría 1999. Label data is inconsistent with publication. Ref. Pyrcz & Viloría 1999.

Pedaliodes morenoi pilaloensis Pyrcz & Viloría 1999. Paratype QCAZI 1466. Ecuador, Prov. Cotopaxi, Pilaló, > 2500 < 3000, 1996 07, leg. I. Aldas. Ref. Pyrcz & Viloría 1999. Not as deposited in QCAZ

Pedaliodes arturi Pyrcz & Viloría 1999. Paratype \$: QCAZI 1467. ECUADOR, Cord.Lag. Negra, 15. V.1998, 3000-3200 m, A. Jasinski leg. One paratype is missing

Pedaliodes balnearia Pyrcz & Viloría 1999. Paratype QCAZI 1481. ECUADOR, Tungurahua, Tung-Volcano, 2300-2600 m, 08-05-1996, leg. A. Jasinski. Ref. Pyrcz & Viloría 1999.

Pedaliodes peucestas restricta Pyrcz & Viloría 1999. Paratype \$: QCAZI 1470. ECUADOR, Provincia Pichincha, Aloag Tandapi road, approx. 1700, 25.09.1995, Chisiche, leg. Andrew Neild. Ref. Pyrcz & Viloría 1999.

ORDER MEGALOPTERA

FAMILY CORYDALIDAE

Chloronia convergens Contreras 1995. Paratype \$: QCAZI 1390. Ecuador, Pichincha, Pto. Quito, 12-XII-1982, Lg. P. Navarrete. Ref. Contreras 1995.

Corydalus clauseni Contreras 1998. Paratypes QCAZI 1379 £. Ecuador, Pichincha, Puerto

Quito, XII-1982, Lg. Ernesto Martínez. QCAZI 1380 £. Ecuador, Pichincha, Puerto Quito, 20-I-85, Lg. C. Redin. QCAZI 1381 £. Ecuador, Loja, Masanamaca, 16Mar1985, Legit: L. Coloma. QCAZI 1382 £. Ecuador, Pichincha, Puerto Quito, 14-I-84, Leg: R. León. QCAZI 1383 £. Ecuador, Pichincha, Santo Domingo, 6-06-1992, Pedro Jimenez. QCAZI 1384 £. Ecuador, Prov. Pichincha, Puerto Quito, 15-I-1984, Col. M. I. Salazar. QCAZI 1385 £. Ecuador, Puerto Quito, 20-I-85, Legit: C. Redin. QCAZI 1386 £. Ecuador, Pichincha, Puerto Quito, 3-XII-1923, Leg. P. Davila. QCAZI 1387 \$. Ecuador, Napo, Lumbaqui, May1973, Legit: N. Venedectoff. QCAZI 1388 \$. Ecuador, Pichincha, Alluriquin, III-1983, Lg. L. Coloma. QCAZI 1389 \$. Ecuador, Pichincha, P.V. Maldonado, 15-III-91, Legit: J. Woolfson. Contreras 1998.

ORDER ODONATA

FAMILY LESTIDAE

Lestes jerrelli Tennessen 1997. Paratypes QCAZI 1443. Ecuador, Napo Province, pond 12.3 km W, on Loreto Rd, from Coca Rd., elev. 820', 13 June 1995, Coll. By W. Mauffray In copula. Comments: Two specimens in same envelope labeled as *Lestes forficula* Rambur by Bill Mauffray in 1995. Ref. Tennessen 1997.

FAMILY COENAGRIONIDAE

Oxyagrion tenneseni Mauffray 1999. Paratype \$: QCAZI 1444. Ecuador, Napo, Baeza; 10.6 km S, on Hwy 45 near Bermojo, seepage marsh, 16-Jun-1995, Coll Bill Mauffray, Altitude: 5600 ft. Ref. Mauffray 1999.

FAMILY AESHNIDAE

Aeshna (Marmaraeschna) brevicercia Muzón & Von Ellenrieder 2001. Holotype \$: QCAZI 1445. Ecuador, Pichincha, 2300 m, Feb. 1991, C. León. Paratypes QCAZI 1446 \$. Ecuador, Pichincha, Sangolquí, Sep 7 1993, D. Padilla. QCAZI 1447 £. Ecuador, Pichincha, Conocoto, Jun. 28. 1992, P. Fernández. QCAZI 1448 £. Ecuador, Pichincha, Conocoto, 5 Mar 1993, G. Dávalos. QCAZI 1449 £. Ecuador, Imbabura, Ibarra, 2 Nov 1991, F. Martinez. QCAZI 1450 \$. Ecuador, Imbabura, Atuntaqui, 2500 m, Dec. 26 1988, C. León. QCAZI 1451 \$. Ecuador, Pichincha, Sangolquí, Nov 15 1993, D. Padilla. QCAZI 1452 \$. Ecuador, Pichincha, Quito, Apr. 1975, M. L. Pérez. Comments: QCAZI 1445 and QCAZ 1452 labeled as *Aeshna brevifrons* Hagen by Bill Mauffray in 1995. Ref. Muzón & Von Ellenrieder 2001.

ORDER ORTHOPTERA

FAMILY GRILLIDAE

Gryllus abditus Otte & Peck 1997. Paratypes QCAZI 1391. Ecu., Galap., Floreana, Pta. Cormoran, arid z, mv. Light & night colln sand dunes, 21.IV.92, J. Cook, S. Peck, 92-130. QCAZI 1392. Ecu., Galap., Isabela, NE rim Alcedo, 1100 m, 21 -25. VI.91, shrub forest carrion traps, S. Peck, 91-246. QCAZI 1393. Ecu., Galap., Isabela, SE cratterrim, 22-23.VI.91, 1100 m, under rocks in grass, S. Peck, 91-249. QCAZI 1394. Ecu., Galap., Isabela, NE rim Alcedo, 1100 m, 21 -25. VI.91, shrub forest, gen. Colln. S. Peck, 21-247. QCAZI 1395. Ecu., Galap., Isabela, Sierra

Negra, 3-14.III.89, 750 m, pampa, deepsoil traps, S. Peck, 89-98. Ref. Otte & Peck 1997.

Gryllus isabela Otte & Peck 1997. Paratypes QCAZI 1396 to QCAZI 1399. Ecu., Galap., Isabela, Alcedo, 20-24.VI.91, Crater rim UV light, 1100 m, S. Peck. 91-286 Luz Ultravioleta. QCAZI 1400. Ecu., Galap., Isabela, NE slope Alcedo, 20-25.VI.91, 850 m, open forest, night colln, S. Peck, 91-244. Ref. Otte & Peck 1997.

FAMILY ACRIDIDAE

Aphanolampis aberrans Descamps 1978. Neoparatypes: QCAZI 1401 and QCAZI 1402. Prov. Napo, Puerto Napo, Ahuano, 450 m, 16VIII/06 IX 1991. Comments: Neoparatypes designated by Amédégnato & Poulain 1994. Ref. Descamps 1978 [not reviewed].

Hyalinacris diaphana Amédégnato & Poulain 1998. Paratypes QCAZI 1486 and QCAZI 1494. Ecuador, Pichincha, Palmeras, Nov 1991, Galo Zapata. QCAZI 1487. Ecuador, (22-10-88), Pichincha, Chillogallo, San Luis Páramo, 3600 m, Legit: A. Quintana. QCAZI 1488. Ecuador, Pichincha, Palmeras, 22-I-84, Leg: I. Yépez. QCAZI 1489. Ecuador, Pichincha, Sangolquí, 15 JAN1993, M. Baldeón. QCAZI 1490. PICHINCHA, ECUADOR, Palmeras, 1820 m, 19-NOV-1994, Santiago Espinosa. QCAZI 1491. Ecuador, Pichincha, Palmeras, 24OCT1992, M. Troya. QCAZI 1492. Ecuador, Pichincha, Vía Los Bancos km13, 20NOV1996, J. Costales. QCAZI 1493. ECUADOR, Pichincha, Río Guajalito, 1200m, 76°48'W, 00°53'S, 6MAR1997, F. GUAMAN. QCAZI 1495. Ecuador, Pichincha, Palmeras, 17Nov 1991, Leg. A. Encalada. Ref. Amédégnato & Poulain 1998.

Hyalinacris onorei Amédégnato & Poulain 1998. Paratypes QCAZI 1496 and QCAZI 1497. Ecuador, Cotopaxi, Otonga, 2000 m, 3MAY1997, G. Onore. QCAZI 1498. Ecuador, Cotopaxi, Otonga, 2000 m, 79°5W, 0°27S, 2MAY1997, I. Olmedo. Ref. Amédégnato & Poulain 1998. Male specimens.

CLASS ARACHNIDA

ORDER ESCORPIONES

FAMILY BUTHIDAE

Tityus jussarae Lourenço 1988. Allotype ♂: QCAZI 1601. Ecuador, Napo, Archidona, Cueva de Lagarto, 00°56' S, 77°50' W, 2 May. 1988, F. Rodríguez. Ref. Lourenço 1988.

FAMILY CHACTIDAE

Chactas mahnerti Lourenço 1995. Paratype ♂: QCAZI 1602. Ecuador, Pichincha, La Florida, Cerca de Alluriquin, 15 Sep. 1984, L. Coloma. Ref. Lourenço 1995.

CLASS ARACHNIDA

FAMILIA THERIDIIDAE

Anelosimus guacamayos Agnarsson 2006. Paratypes QCAZI 1455 and QCAZI 1456.

Ecuador, Napo, Río Quijos S: 0.17469 W: 77.67926 1329 m 19-Jul-2004.
Comments: Both paratypes are of opposite sex and are stored in the same envelope.
Ref. Agnarsson 2006.

Anelosimus oritoyacu Agnarsson 2006. Paratypes QCAZI 1457 and QCAZI 1458.
Ecuador, Napo, Baeza-Lago Rd., 2.4 Km, S: 0.45157, W: 77.88392, 1818 m, 19-Jul-2004. Comments: Both paratypes are of opposite sex and are stored in the same envelope. Ref. Agnarsson 2006.

Anelosimus baeza Agnarsson 2006. Paratypes QCAZI 1459 and QCAZI 1460. Ecuador, Napo, Baeza-Lago Rd., 2.6 Km, 1840 m, W. Maddison, 19-Jul-2004. Comments: Both paratypes are of opposite sex and are stored in the same envelope. Ref. Agnarsson 2006.

Anelosimus elegans Agnarsson 2006. Paratypes QCAZI 1461 and QCAZI 1462. Ecuador, Napo, Río Salado, 1293 m, L. Aviles, 19-Jul-2004. Ref. Comments: Both paratypes are of opposite sex and are stored in the same envelope. Agnarsson 2006.

CLASS ACARI

FAMILY LOHMANIIDAE

Heptacarus encantadae Schatz 1994. Paratypes QCAZI 1463. GAL 87-697 Galapagos, I. Rábida, Littoral, leg: Schatz. Comments: All paratypes (n=5) are under the same QCAZI # in a single vial. Ref. Schatz 1994.

Torpacarus omittens galapagensis Schatz 1994. Paratype QCAZI 1608. GAL 87-577 Galapagos, Pinzón, Craterium leg: Schatz. Ref. Schatz 1994.