ISSN 2313-0504 1(11)2014

PARAGUAY BIODIVERSIDAD

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***Lasionota dispar* (Kerremans, 1903)** foto: U. Drechsel

Asunción, Agosto 2014

Paraguay Biodiversidad	1(11)	51-60	Asunción, Agosto 2014

Preliminary studies of the Biodiversity in Garay Cue

"Reserva Natural Privada Cerrados del Tagatiya"

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Abstract: Impressions during four short visits in recent years in the "Reserva Natural Privada Cerrados del Tagatiya " in the Estancia Garay Cué are represented by photographic documentation.

Resumen: Impresiones durante cuatro visitas cortas en los últimos años en la " Reserva Natural Privada Cerrados del Tagatiya " en la Estancia Garay Cué están representados por una documentación fotográfica.

Zusammenfassung: Eindruecke von vier Kurzbesuchen in den letzten Jahren in der "Reserva Natural Privada Cerrados del Tagatiya" in der Estancia Garay Cué werden durch fotographische Dokumentation dargestellt.

Key words: Paraguay, Garay Cue, biodiversity

In the northeast of the Department of Concepción in the eastern region of Paraguay is located the Estancia Garay Cué with an area of about 18,800 ha, of which form about 5,200 ha the " Reserva Natural Privada Cerrados del Tagatiya", a nature reserve under private management. The estancia is located between two national parks, the "Parque Nacional Paso Bravo" in the Northeast and the "Parque Nacional Serrania de San Luis" in the West and include semi-deciduous forests, gallery forests and various types of Cerrado. During four short visits from December 2012 to June 2013 could be obtained first impressions of the existing biodiversity and photos of plants and animals were made. Special attention was paid to the most neglected invertebrate fauna, as this is the main part of biodiversity with thousands of species, many of them still unknown to science.

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Diurnal butterflies are the insects that most attract the attention of the observer. Different species from the great family of Nymphalidae were virtually ubiquitous like *Doxocopa agathina* (Cramer, 1777), *Callicore pygas* (Godart, [1824]), *Dryadula phaetusa* (Linnaeus, 1758), *Marpesia petreus* (Cramer, 1776), *Siproeta epaphus* (Latreille, [1813]), *Siproeta stelenes* (Linnaeus, 1758) and *Morpho achilles* (Linnaeus, 1758) (figs. 1-7). A rarer species that was detected in Paraguay only in a few places was *Mestra dorcas* (Fabricius, 1775) (fig. 8).

Far more difficult to observe are the moths. They are usually found only at night or in the early morning on illuminated house walls, or other light sources. Only when special lights are used, a large part of the species spectrum can be observed. Nevertheless, there are species that are not attracted to the light. These species must be lured with special attractants or pheromones. From the large amount of observed species a few shall be mentioned: *Arsenura paraorbignyana* Brechlin & Meister, 2010 (fig. 9), described only a few years ago; *Citheronia hamifera* W. Rothschild, 1907 (fig. 10); *Dirphia panamensis* (Schaus, 1921) (fig. 11); *Molippa superba* (Burmeister, 1878) (fig. 12), a new record for Paraguay (Drechsel, 2014); *Copaxa flavina* Draudt, 1929 (fig. 13); *Rothschildia erycina* (Shaw, [1796]) (fig. 14); *Eupyrrhoglossum sagra* (Poey, 1832) (fig. 15) and *Adhemarius daphne* (Boisduval, [1875]) (fig. 16). A complete list of so far registered Saturniidae and Sphingidae is given in the Appendix. Considerably more species are to be expected with intense studies.

Conspicuous Coleoptera were *Megasoma janus* Felsche, 1906 (fig. 17) of the Scarabaeidae family and *Eulissus chalybaeus* Mannerheim, 1830 (fig. 18) of the Staphylinidae family.

A spider of the Thomisidae family, which mimics an ant species, is *Aphantochilus rogersi* O.P.-Cambridge, 1870 (fig. 19). Large nets of golden yellow silk weaves *Nephila sexpunctata* Giebel, 1867 (fig. 20), the big female on the photo has captured a cicada.

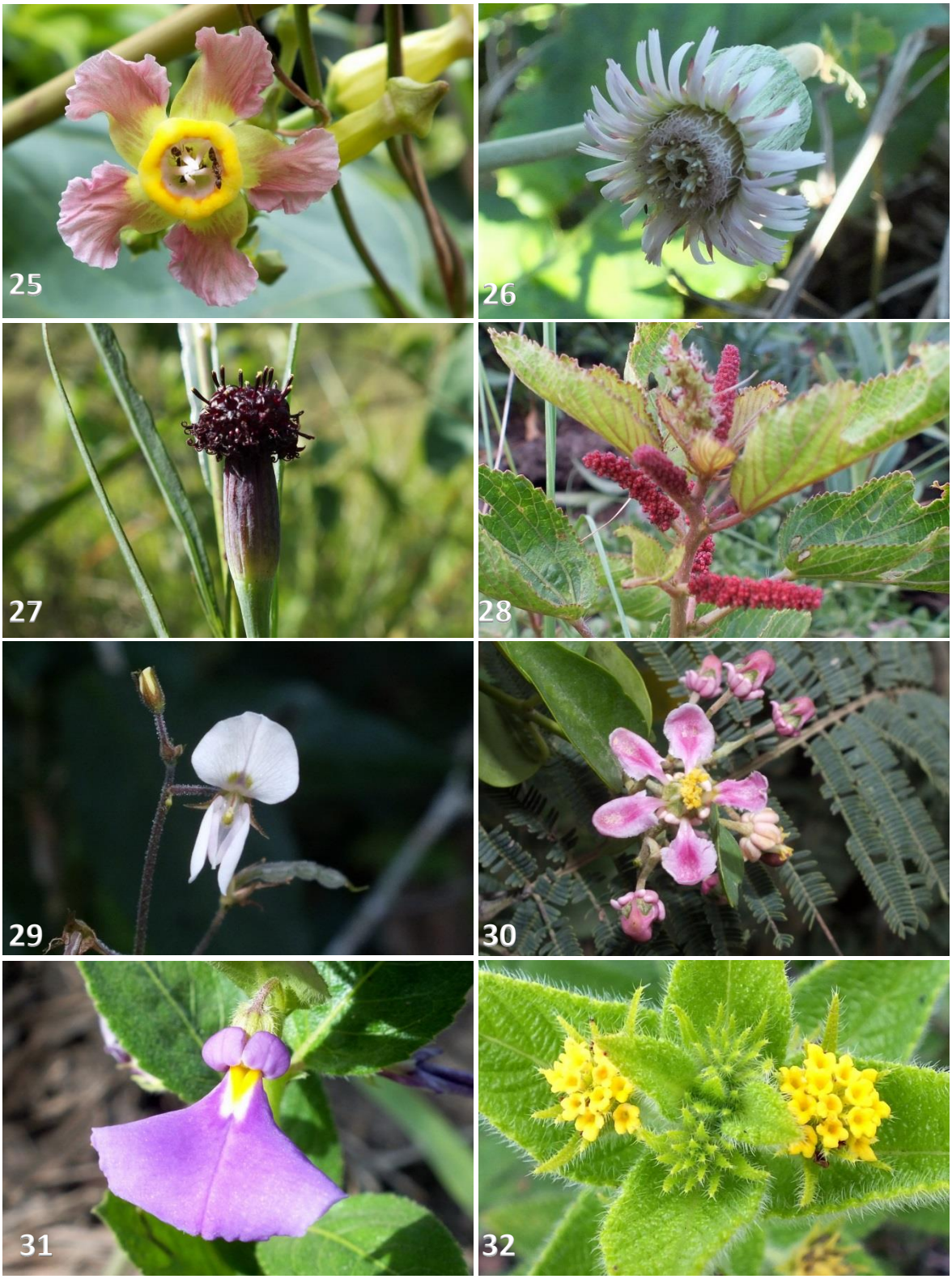
Salient flowering plants were *Helicteres lhotzkyana* K. Scum. (fig. 21); *Ayenia tomentosa* L. (fig.22); *Passiflora capsularis* L. (fig. 23); *Stachytarpheta cayennensis* (Rich.) Vahl (fig. 24); *Prestonia cyaniphylla* (Rusby) Woodson (fig. 25); *Chaptalia sp.* (fig. 26)*; Porophyllum sp.* (fig. 27); *Acalypha sp.* (fig. 28); *Desmodium ?affine* Schlechtendal (fig. 29); *Mascagnia brevifolia* Griseb. (fig. 30); *Hybanthus sp.* (fig. 31) and a Verbenaceae species (fig 32).

Some of the easily observed birds were *Rhea americana* (Linnaeus, 1758) (fig. 33); *Tigrisoma lineatum* (Boddaert, 1783) (fig. 34); *Theristicus caudatus* (Boddaert, 1783) (fig. 35); *Rostrhamus sociabilis* (Vieillot, 1817) (fig. 36); *Jacana jacana* (Linnaeus, 1766) (fig. 37); *Hylocharis chrysura* (Shaw, 1812) (fig. 38); *Ramphastos toco* Statius Muller, 1776 (fig. 39) and *Colaptes campestris* (Vieillot, 1818) (fig. 40).

Figs. 1-8 Nymphalidae: 1) *Doxocopa agathina* (Cramer, 1777); 2) *Callicore pygas* (Godart, [1824]); 3) *Dryadula phaetusa* (Linnaeus, 1758); *4) Marpesia petreus* (Cramer, 1776); 5) *Siproeta epaphus* (Latreille, [1813]); 6) *Siproeta stelenes* (Linnaeus, 1758); 7) *Morpho achilles* (Linnaeus, 1758); *Mestra dorcas* (Fabricius, 1775)

Figs. 9-16: 9) *Arsenura paraorbignyana* Brechlin & Meister, 2010; 10) *Citheronia hamifera* W. Rothschild, 1907; 11) *Dirphia panamensis* (Schaus, 1921); 12 *Molippa superba* (Burmeister, 1878); 13) *Copaxa flavina* Draudt, 1929; 14) *Rothschildia erycina* (Shaw, [1796]) ; 15) *Eupyrrhoglossum sagra* (Poey, 1832); 16) *Adhemarius daphne* (Boisduval, [1875])

Figs. 17-24: 17) *Megasoma janus* Felsche, 1906; 18*) Eulissus chalybaeus* Mannerheim, 1830; 19) *Aphantochilus rogersi* O.P.-Cambridge, 1870; 20) *Nephila sexpunctata* Giebel, 1867; 21) *Helicteres lhotzkyana* K. Scum.; 22) *Ayenia tomentosa* L.; 23) *Passiflora capsularis* L.; 24) *Stachytarpheta cayennensis* (Rich.) Vahl



Figs. 25-32: 25**)** *Prestonia cyaniphylla* (Rusby) Woodson; 26) *Chaptalia sp.*; 27) *Porophyllum sp.*; 28) *Acalypha sp.* ; 29) *Desmodium ?affine* Schlechtendal*;* 30) *Mascagnia brevifolia* Griseb.; 31) *Hybanthus sp.*; 32) Verbenaceae

Figs. 33-40: 33) *Rhea americana* (Linnaeus, 1758); 34) *Tigrisoma lineatum* (Boddaert, 1783); 35) *Theristicus caudatus* (Boddaert, 1783); 36) *Rostrhamus sociabilis* (Vieillot, 1817); 37) *Jacana jacana* (Linnaeus, 1766); 38) *Hylocharis chrysura* (Shaw, 1812), 39) *Ramphastos toco* Statius Muller, 1776; 40) *Colaptes campestris* (Vieillot, 1818)

Acknowledgements

My sincere thanks are due to Oscar Rodriguez, Desarrollo Turistico Paraguayo S.R.L. and Carlos Valiente for logistic support. I would also like to thank Massimo Coda for the opportunity to visit the reserve and for the generous hospitality.

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FRONT COVER PHOTO: *Lasionota dispar* (Kerremans, 1903) (Buprestidae), Paraguay, Dep. Presidente Hayes, Estancia 4L, 28. III. 2014.

Appendix

Checklist of the Saturniidae and Sphingidae species so far registered in Garay Cué

SATURNIIDAE	SPHINGIDAE
ARSENURINAE	**SPHINGINAE**
Arsenura paraorbignyana Brechlin & Meister, 2010	*Agrius cingulatus* (Fabricius, 1775)
Dysdaemonia brasiliensis W. Rothschild, 1906	*Manduca sexta* (Linnaeus, 1764)
Dysdaemonia fosteri W. Rothschild, 1906	*Manduca diffissa* (Butler, 1871)
Titaea orsinome Hübner, [1823]	*Manduca rustica* (Fabricius, 1775)
Paradaemonia thelia (Jordan, 1922)	*Manduca florestan* (Cramer, 1782)
CERATOCAMPINAE	**SMERINTHINAE**
Eacles imperialis (Drury, 1773)	*Adhemarius gannascus* (Stoll, 1790)
Citheronia hamifera W. Rothschild, 1907	*Adhemarius daphne* (Boisduval, [1875])
Citheronia laocoon (Cramer, 1777)	*Adhemarius eurysthenes* (R.Felder, 1874)
Schausiella arpi (Schaus, 1892)	*Orecta lycidas* (Boisduval, [1875])
Schausiella subochreata (Schaus, 1904)	*Protambulyx strigilis* (Linnaeus, 1771)
Psilopygida walkeri (Grote, 1867)	**MACROGLOSSINAE**
Syssphinx molina (Cramer, 1780)	*Callionima grisescens* (Rothschild, 1894)
Syssphinx amena (Travassos, 1941)	*Callionima parce* (Fabricius, 1775)
Adeloneivaia subangulata (Herrich-Schäffer, [1855])	*Callionima inuus* (Rothschild & Jordan, 1903)
Adeloneivaia subangulata (Herrich-Schäffer, [1855])	*Enyo lugubris* (Linnaeus, 1771)
Scolesa hypoxantha (W. Rothschild, 1907)	*Enyo ocypete* (Linnaeus, 1758)
Oiticella luteciae (Bouvier, 1924)	*Erinnyis alope* (Drury, 1770)
HEMILEUCINAE	*Erinnyis lassauxi* (Boisduval, 1859)
Automeris hamata Schaus, 1906	*Erinnyis ello* (Linnaeus, 1758)
Automeris naranja Schaus, 1898	*Erinnyis oenotrus* (Cramer, 1782)
Cerodirphia speciosa (Cramer, 1777)	*Erinnyis obscura* (Fabricius, 1775)
Dirphia avialtoparanensis Brechlin & Meister, 2011	*Eumorpha adamsi* (Rothschild & Jordan, 1903)
Dirphia panamensis (Schaus, 1921)	*Eumorpha analis* (Rothschild & Jordan, 1903)
Hylesia scortina Draudt, 1929	*Eumorpha vitis* (Linnaeus, 1758)
Hylesia ebalus (Cramer, 1775)	*Eumorpha labruscae* (Linnaeus, 1758)
Hyperchiria incisa Walker, 1855	*Madoryx oiclus* (Cramer, 1780)
Hyperchiria orodina (Schaus, 1900)	*Nyceryx nictitans* (Boisduval, [1875])
Molippa superba (Burmeister, 1878)	*Pachylia ficus* (Linnaeus, 1758)
Pseudautomeris luteata (Walker, 1865)	*Pachylioides resumens* (Walker, 1856)

SATURNIINAE	*Perigonia pallida* Rothschild & Jordan, 1903
Rothschildia erycina (Shaw, [1796])	*Perigonia lusca* (Fabricius, 1777)
	Xylophanes anubus (Cramer, 1777)
	Xylophanes tersa (Linnaeus, 1771)
	Xylophanes chiron (Drury, 1771)