ANNUAL REPORT 2011

SOUTH AMERICAN BIOLOGICAL CONTROL LABORATORY

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

Reporting period: July 2010 to June 2011

PRELIMINARY RESULTS
NOT FOR PUBLICATION

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GENERAL INFORMATION

by

Juan Briano

This report summarizes the scientific, academic and miscellaneous activity at SABCL from July 2010 to June 2011, including the following targets: Waterhyacinth (*Eichhornia crassipes*), Brazilian peppertree (*Schinus terebinthifolius*), balloon vine (*Cardiospermum grandiflorum*), Brazilian waterweed (*Egeria densa*), water primrose (*Ludwigia hexapetala*), Lippia (*Phyla canescens*), water lettuce (*Pistia stratiotes*), parkinsonia (*Parkinsonia aculeata*), water pennywort (*Hydrocotyle rannunculoides*), cactus moth (*Cactoblastis cactorum*), little fire ant (*Wasmannia auropunctata*), cactus mealybug (*Hypogeoccocus pungens*), imported fire ants (*Solenopsis* spp.), and miscellaneous work on leaf-cutting ants (*Acromyrmex* spp.). SABCL has worked in close contact with the collaborators mentioned at the beginning of each chapter. Their logistical-technical-financial support has been essential for the current program.

Regulatory and financial problems

As previously reported, a more demanding regulatory frame derived from the Convention on Biological Diversity has been progressively implemented by Argentine environmental agencies since 2003. During 2010-2011 the lack of a clear legal status to operate in Argentina has been a major obstacle for SABCL to export natural enemies to the US, Australia, South Africa and UK.

Unfortunately, the legal status has not been clarified yet. Since late March 2010, the issue has been discussed at the Ministry of Foreign Affairs (MFA), the Ministry of Agriculture (MAg) and the Secretariat of Environment (SE). A document on SABCL was prepared in November 2010 with the collaboration of FAS, US Embassy Buenos Aires, and ARS Headquarters, Beltsville, MD. The document was delivered to the above three agencies to clarify the scientific background of SABCL and legal and operational aspects in Argentina. An expected positive answer from MFA will allow the signature of a Memorandum of Understanding with MAg and the registration of SABCL at the SE to resume operation.

As a consequence of the regulatory problems, in FY 2011 SABCL has received significantly less soft funding from both ARS counterpart laboratories and external agencies. Several other economic problems have coincided to magnify this difficult situation, anticipating uncertain consequences for the future of SABCL. These problems are: 1) The high inflation in Argentina during the last decade, 2) The extraordinary increase of mandatory US Embassy costs on security, and 3) The progressive decrease of ARS base funding for SABCL since 2002.

The financial problems for FY 2011 were solved with a special injection of funds from ARS Headquarters, which we deeply appreciate. With the monetary aspect temporarily solved, SABCL has had more oxygen to keep dealing with the other problems.

Location

USDA-ARS-South American Biological Control Laboratory (SABCL)

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Phone/fax: (5411) 4662-0999; 4452-1882; 4452-4838
Website: http://www.ars.usda.gov/main/site_main.htm?modecode=02-11-00-00

Mission and Support

The main mission and objectives of SABCL are: (1) Search for natural enemies (NE) of weeds and insect pests, (2) Study the basic biology, ecology, and evaluate the specificity of those NE, (3) Ship selected agents to the United States or other countries, (4) Communicate and publish the results of the investigations, (5) Provide logistic support to USDA researchers and other scientists conducting investigations on biological control in Argentina, and (6) Liaison with agricultural research agencies and universities for detecting areas of potential cooperative work.

Since July 2008, the SABCL has been supervised by Dr. Daniel Strickman, Acting Director of the OBCLs. Local support is given by the American Embassy-Buenos Aires, Foreign Agriculture Service and David Mergen, Agricultural Counsellor. Current ARS projects have a counterpart in the US designated by National Program Leaders Drs. Kevin Hackett and John Lydon.

Staff

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UBA Interns: M. Moore, E. Cuello, C. Mengoni Goñalons, L. Chifflet, B. Aguirre, M. Maestro, N. Cuadra, P. Krug, and C. Coulin.

Publications (July 2010-June 2011)

Manuscripts published

1. Allen, C., **J. A. Briano, L. Varone**, D. H. Oi, and S. M. Valles. 2010. Exploitation of a high genomic mutation rate in *Solenopsis invicta* virus 1 to infer demographic information about its host, *Solenopsis invicta*. J. Invertebr. Pathol. 105: 105-111.
2. Cabrera N., **Cabrera Walsh G.** 2010. *Diabrotica collicola* (Coleoptera: Chrysomelidae), a new species of leaf beetle from Argentina. Discussion and key to some similar species of the *Diabrotica virgifera* group. Zootaxa 2683: 45-55.
3. **Calcaterra, L. A**., S. Cabrera, F. Cuezzo, I. Giménez Pérez, and **J. A. Briano**. 2010. Habitat and Grazing Influence on Terrestrial Ants in Subtropical Grasslands and Savannas of Argentina. Ann. Entomol. Soc. Am. 103: 635-646.

4. Triapitsyn, S. V., **A. J. Sosa** and **M. C. Hernández.** 2010. Egg parasitoids of *Megamelus* spp. (Hemiptera: Delphacidae) in Argentina. Rev. Soc. Entomol. Argent. 69: 171-188.
5. Triapitsyn, S. V., **G. A. Logarzo** and E. G. Virla. 2010. Egg parasitoid of *Saccharosydne subandina* (Hemiptera: Delphacidae) in Neuquén, Argentina. Boletín MIP (Manejo Integrado de Plagas) Nº 20 (Diciembre 2010). IMYZA-INTA, Argentina (online journal, available at: http://www.inta.gov.ar/imyza/info/bol/mip/10/bol20/mip20.htm).
6. **Varone, L**; Heraty, J. M. and **Calcaterra, L. A.** 2010. Distribution, abundance and persistence of species of *Orasema* (Hym: Eucharitidae) parasitic on fire ants in South America. Biol. Control 55: 72–78.
7. Ascunce, M. S., C. Yang, J. Oakey, **L. A. Calcaterra**, K. McCubbin, W. Wu, Cheng Shih, J. Goudet, K. G. Ross, and D. Shoemaker. 2011. Global invasion history of the fire ant *Solenopsis invicta*. Science 331: 1066-1068.
8. **Cabrera Walsh G.,** Schooler S., and Julien, M. 2011. Biology and host range of *Hydrotimetes natans* Kolbe (Coleoptera: Curculionidae), a natural enemy candidate for biological control of *Cabomba caroliniana* Gray (Cabombaceae) in Australia. Australian J. Entomol. 50: 200-206.
9. Dellapé, G., **G. A. Logarzo**, E. G. Virla, and S. L. Paradell 2011. New records on the geographical distribution of South American sharpshooters (Cicadellidae: Cicadellinae: Proconiini) and their potential as vectors of *Xylella fastidiosa*. Fla. Entomol. 94: 364-366.
10. Gagné, R. J., **Mc Kay, F**., and Heard, T. H. 2011. A new species of *Neolasioptera* (Diptera: Cecidomyiidae) from *Parkinsonia aculeata* (Leguminosae) in Argentina for possible use in biological control in Australia, with a key to Neotropical species of *Neolasioptera*. Zootaxa 2866: 61-68.
11. **Logarzo G. A.**, Casalinuovo M. A., Piccinali R. V., Braun K., and Hasson E. 2011. Geographic host use variability and host range evolutionary dynamics in the phytophagous insect *Apagomerella versicolor* (Cerambycidae). Oecologia 165: 387- 402.
12. Oi, D., S. Valles, and **J. Briano**. 2010. Laboratory host specificity testing of the fire ant microsporidian pathogen *Vairimorpha invictae* (Microsporidia: Burenellidae). Biol. Control 53: 331-336.
13. Oleiro, M., **Mc Kay, F**., and Wheeler, G. S. 2011. Biology and host range of *Tecmessa elegans* (Lepidoptera: Notodontidae), a leaf feeding moth evaluated as a potential biological control agent for *Schinus terebinthifolius* (Sapindales: Anacardiaceae) in the USA. Environ. Entomol. 40: 605-613.
14. Pan, X., X. Jia, J. Zeng, **A. J. Sosa**, B. Li and J. Chen. 2011. Stem tissue mass density is linked to growth and resistance to a stem-boring insect in *Alternanthera philoxeroides*. Plant Species Biol. 26: 58-65.
15. Porter, S. D., L. C. Graham, S. J. Johnson, L. G. Thead, and **J. A. Briano.** 2011. The large decapitating fly *Pseudacteon litoralis* (Diptera: Phoridae): Successfully established on fire ant populations in Alabama. Fla. Entomol. 94: 208-213.
16. Telesnicki, M. C., **A. J. Sosa**, E. Greizerstein and M. H. Julien. 2011. Cytogenetic effect of *Alternanthera philoxeroides* (alligator weed) on *Agasicles hygrophila* (Coleoptera: Chrysomelidae) in its native range. Biol. Control 57: 138-142.
17. Tipping, P. W., T. D. Center, **A. J. Sosa**, and F. A. Dray. 2011. Host specificity assessment and potential impact of *Megamelus scutellaris* (Hemiptera: Delphacidae) on

waterhyacinth *Eichhornia crassipes* (Pontederiales: Pontederiaceae). Bio. Sci. Tech. 21: 75-87.

18. Triapitsyn, S. V. and **M. C. Hernández.** 2011. Egg parasitoids of *Taosa* spp. (Hemiptera: Dictyopharidae) in Formosa, Argentina, with descriptions of two new species. Rev. Soc. Entomol. Argent. 70 (1-2): 55-61.
19. Wheeler, G. S., Geiger, J., **Mc Kay, F**., Rendon, J., Chawner, M. and Pratt, P. D. 2011. Defoliating broad-nosed weevil, *Plectrophoroides lutra*; not suitable for biological control of Brazilian pepper (*Schinus terebinthifolius*), Bio. Sci. Tech. 21: 89-91.

Manuscripts in press

1. Davis, D. R., **Mc Kay, F.,** Oleiro, M., Diniz Vitorino, M., and Wheeler, G. S. 2011. Biology and systematic of the leafmining Gracillariidae of brazilian peppertree, *Schinus terebinthifolius* Raddi, with description of a new genus and four new species (Lepidoptera). J. Lep. Soc.
2. **Hernández, M. C**., J. Sacco and **G. Cabrera Walsh**. 2011. Biology and host preference of the planthopper *Taosa longula* (Hemiptera: Dictyopharidae), a candidate for biocontrol of water hyacinth. Bio. Sci. Tecnol.
3. **Hernández, M. C.**, M. E. Brentassi, **A. J. Sosa**, J. Sacco and E. Elsseser. 2011. Feeding behaviour and spatial distribution of two planthoppers, *Megamelus scutellaris* (Delphacidae) and *Taosa longula* (Dictyopharidae), on water hyacinth. Bio. Sci. Tecnol.
4. **Logarzo G. A.**, Virla E. G., Luft Albarracin E., Triapitsyn S. V., Jones W. A., de León J. H., and **J. A. Briano**. 2011. Host range of *Gonatocerus* sp. near *tuberculifemur* "Clade 1" in Argentina, an egg parasitoid newly associated to the glassy-winged sharpshooter, *Homalodisca vitripennis* (Hemiptera: Cicadellidae), and candidate for its biological control in California, USA. BioControl.
5. McConnachie, E. Retief, L. Henderson and **F. Mc Kay**. 2011. The initiation of a biological control programme against pompom weed, *Campuloclinium macrocephalum* (LESS.) DC. (Asteraceae), in South Africa. African Entomol.

Meetings, Seminars, Workshops, and Training

Parisi, M. F., **F. Mc Kay, A. J. Sosa**, and T. Heard. 2010. Biología y evaluación de *Eueupithecia cisplatensis* (Lepidoptera: Geometridae) como agente de control biológico de *Parkinsonia aculeata* (Caesalpinioideae). IV Reunión Binacional de Ecología, School of Natural and Exact Sciences, University of Buenos Aires, Buenos Aires, Aug 8-13, 2010. Poster presentation.

Sosa, A. J., M. Telesnicki, M. V. Cardo, M. E. González Márquez, C. Rodríguez and M. Julien. 2010. Estudio de la interacción insecto–planta de crisomélidos alticinos (Coleoptera) y *Phyla canescens* (Verbenaceae). IV Reunión Binacional de Ecología, School of Natural and Exact Sciences, University of Buenos Aires, Buenos Aires, Aug 8-13, 2010. Poster presentation.

Varone, L. 2010. Postgraduate course taken on Ecological Interaction Networks. Doctoral program, School of Natural and Exact Sciences, University of Buenos Aires. Aug 17-21, 2010.

Briano, J. A. 2010. Exchanging Natural Resources for Biological Control in Argentina. Round Table "Importation and Application of Natural Enemies for Biological Control - Is it a Rocky Road?" Brazilian Congress of Entomology, Natal, Brazil, Sep 26-29, 2010. Oral presentation.

Cabrera Walsh, G. 2010. Introductory Course to Biological Control given at the School of Natural and Exact Sciences, University of Buenos Aires. Oct 13, 2010.

Sosa, A. J. 2010. Control of invasive plants. Lecture for the postgraduate course Plant Biological Invasions, School of Natural and Exact Sciences, University of Buenos Aires, Nov 2010.

Cabrera Walsh, G. 2010. Biological Control of Weeds. Lecture at the Agricultural School, University of Córdoba. Nov 11, 2010.

Cabrera Walsh G. and J. A. Briano. 2010. Biological control and regulations in favor of biodiversity. 1st Latin American Congress of Biodiversity Conservation, Tucumán, Argentina. Nov 24, 2010. Oral presentation.

Briano, J. A. 2010. Foreign Exploration-Determining Appropriate Places to Collect Agents. Microbial Biological Control Symposium, Invasive Terrestrial Animals and Pathogens, National Conservation Training Center, Shepherdstown, WV, US. Nov 28-Dec 2, 2010. Oral presentation.

Logarzo, G. A., Varone, L., Briano, J. A., Higth S., Carpenter, J., and Ruiz D. 2010. Diverse mortality factors for *Cactoblastis cactorum* and the insects' response in its native Argentine range. Symposium on *Cactoblastis cactorum,* 58th Annual Meeting of the ESA. December 12-15, 2010, San Diego, CA. Oral presentation.

Varone, L., Manteca Acosta, M., **Logarzo, G. A., Briano, J. A**., Higth S., and Carpenter, J. 2010. Preference and survival of *Cactoblastis cactorum* on a diversity of host plants in the insects' native Argentine range. Symposium on *Cactoblastis cactorum,* 58th Annual Meeting of the ESA. December 12-15, 2010, San Diego, CA. Oral presentation.

Varone, L. 2011. Postgraduate Course taken on Introduction to Systematic and Taxonomy of Ants. Doctoral program, School of Natural and Exact Sciences, University of Buenos Aires. Mar 14-19, 2011.

Varone, L. 2011. Conceptual issues on biological control and the cactus moth case study. Lecture at the Agricultural and Environmental Biosciences Research Institute, School of Agronomy, University of Buenos Aires. Apr 29, 2011.

Miscellaneous activity

Briano traveled to the Police Station at Durazno, Entre Ríos, to receive the SABCL vehicle involved in the road accident in October 2005. 6-7 Jul 2010.

Briano and SABCL scientists prepared and delivered to USDA-OSQR the SABCL Project Plan for 2010-2015. After moderate revision, the project was approved in September 2010. Project Title: Discovery, Identification, and Risk-Assessment of Biological Control Agents for Suppression of South American Invasive Weeds and Insects in the U.S. Project Number: 0211-22000-006-00D.

Briano, J. A., D. Mergen, D. Strickman, R. Moore, and E. Herrera. 2010. Report on SABCL. Document delivered to the Argentine Government with information on: 1- Legal Status, 2- Labor Relationship and Applicable Laws, 3- Mission and Functions, 4- Activities with National and Provincial Organizations, 5- Legal Status of USDA Laboratories in France, Australia and China, 6- Conditions for Access and Participation, 7- Scientific Advances, and Appendices with: 1- AFIP registration, 2- Letters of SABCL establishment, 3-Science and Technology Agreement, 4- Internship Agreement with the UBA, 5- SABCL quarantine design for SENASA approval, 6- SABCL registration form for Secretariat of Environment, 7- New species for Science, 8- SABCL publications, 9- Natural enemies field released, and 10- Targets studied at SABCL.

Logarzo was appointed as external surveyor for CONICET (=NSF) to evaluate projects and research activities.

SABCL provided logistic support to INTA Castelar for the shipment of scientific supplies from ARS-CMAVE in Gainesville, FL. February 2011.

Visitors

Marcelo Sanchez, Silvia Passalacqua, SENASA, Mariana Viscarret and Andrea Andorno, INTA-Castelar, Dwight Wilder, María J. Balbi, and Ken Joseph, FAS-US Embassy-Buenos Aires. They visited facilities. Briano gave a presentation on SABCL. 15 Jul 2010.

Alba Enrique and Guadalupe Montes, SENASA. They visited the lab and discussed with Logarzo on the presence of certain Proconiini species in northern Patagonia. These insects might interfere with the export of Argentine fruits to Mexico. Logarzo delivered a report with the requested information. Nov 2010.

Dick Shaw and Djami Djeddour, CABI-UK. They traveled to Entre Ríos, Corrientes and Santa Fe with Cabrera for *Hydrocotyle ranunculoides*. 26 Nov-4 Dec 2010.

Gary Ervin and Christopher Brooks, Mississippi State University. They traveled to eastern Argentina and Uruguay with Varone for *Cactoblastis cactorum*. 2-9 Dec 2010.

Martin Hill and Julie Coetzee, Rhodes Univ., South Africa. They traveled to Santa Fe, Chaco, Corrientes and Misiones with Cabrera for Waterhyacinth and Brazilian waterweed.

Phil Tipping, ARS-IPRL-Ft. Lauderdale, FL. He traveled to Formosa with Sosa to collect *Megamelus scutellaris* and *Taosa longula*. 14-23 Mar 2011.

Juan Bouvet, INTA-Concordia. He visited facilities and discussed with Logarzo collaboration on *Tamarixia radiata* against the Asian citrus psyllid, *Diaphorina citri*. 18 Mar 2011.

Tim Heard, CSIRO, Australia. He and Mc Kay surveyed northern Argentina for natural enemies of *Parkinsonia aculeata*. 29 Mar-8 Apr 2011.

Michael Gates, USDA-ARS-SEL, Washington DC. He visited SABCL facilities and assisted with parasitoids identifications.