Boletín de la Sociedad Entomológica Aragonesa (S.E.A.), nº **57** (31/12/2015): 393–399. ISSN: 1134-6094

DORYNOTA CORNIGERA (BOHEMAN, 1854) AND *PARANOTA ENSIFERA* (BOHEMAN, 1854) (COLEOPTERA: CHRYSOMELIDAE: CASSIDINAE) ARRIVED IN THE BUENOS AIRES AND ENTRE RÍOS PROVINCES (ARGENTINA) IN THE SECOND HALF OF 20TH CENTURY; WITH A CRITICAL REVISION, CORRECTIONS AND NEW RECORDS OF THE HOST PLANTS OF THE DORYNOTINI

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Abstract: Two leaf beetles, *Dorynota cornigera* (Boheman, 1854) and *Paranota ensifera* (Boheman, 1854) (Coleoptera: Chrysomelidae: Cassidinae: Dorynotini), which occurred only in northern Argentina before the middle of the 20th century, are here recorded as recently arrived in the provinces of Buenos Aires (2011) and Entre Ríos (1978). The causes of these range extensions are given and discussed. New locality and host records in the new colonized areas are presented, together with a revision of the host plants of the Dorynotini, with corrections of erroneous bibliographical records.
Key words: Coleoptera, Chrysomelidae, Cassidinae, distribution, host plants, climatic change, South America.

***Dorynota cornigera* (Boheman, 1854) y *Paranota ensifera* (Boheman, 1854) (Coleoptera: Chrysomelidae: Cassidinae) llegaron a las provincias de Buenos Aires y Entre Ríos (Argentina) en la segunda mitad del siglo XX; con una revisión crítica, correcciones y nuevas citas de plantas hospedadoras de los Dorynotini**
Resumen: Dos crisomélidos, *Dorynota cornigera* (Boheman, 1854) y *Paranota ensifera* (Boheman, 1854) (Coleoptera: Chrysomelidae: Cassidinae: Dorynotini), presentes sólo en el norte de Argentina en la primera mitad del siglo XX, se citan como incorporaciones recientes a la fauna de las provincias de Buenos Aires (2011) y Entre Ríos (1978). Se aportan y discuten las causas de esta extensión de sus áreas de distribución originales y se presentan nuevas citas geográficas y nuevas plantas hospedadoras en las zonas de colonización reciente, junto con una revisión de las plantas hospedadoras de los Dorynotini, con correcciones a las citas bibliográficas erróneas.
Palabras clave: Coleoptera, Chrysomelidae, Cassidinae, distribución, plantas hospedadoras, cambio climático, Sudamérica.

Introduction

The tribe Dorynotini (Coleoptera: Chrysomelidae: Cassidinae) is represented in Argentina by 2 genera and a total of 8 species (Monrós & Viana, 1949; Simões, 2014; Simões & Sekerka, 2015), distributed in the north of the country, reaching its southernmost limit in the province of Corrientes (Table I; fig. 1). In late September 2011, during the study of pollinating insects in cultivated "lapacho rosado" trees (Bignoniaceae) at the city of Buenos Aires, an undergraduate student call the attention about larvae and a single adult beetle that were feeding on the leaves of the trees (fig. 2). The examination of more adults probed to be one species of Dorynotini, that was never mentioned or seen before in Buenos Aires province. Therefore, the probable causes of this enlargement of the original geographic distribution are presented and discussed, together with another species found in Entre Ríos province (Ríos de Salusso, 2005). New records of localities and host plants in the new colonized areas are also given.

Materials and methods

The nomenclature of the species in Dorynotini was updated from Borowiec & Świętojańska (2014), Simões (2014) and Simões & Sekerka (2015). A complete list of citations of the species in this tribe may be consulted in Monrós & Viana (1949), Simões (2014) and Simões & Sekerka (2015). The tribe Dorynotini is used here according to Chaboo (2007). Departments (Paraguay) and provinces (Argentina) are mentioned in the text from north to south, and from west to the east, except the extensive distributions in Brazil, that can be seen in Simões (2014) and Simões & Sekerka (2015). Localities, data of specimens, number of specimens, collectors, and repository collections when they were stated in previous works are detailed in the text. All references were checked, except those given as "cited by".

Collections mentioned in literature (not examined)

CBBA. Carlos Bruch collection, Buenos Aires, Argentina (currently at MACN). **Col. Bosq**. J.M. Bosq collection, Buenos Aires, Argentina (currently at EBCC, in part; MLPA, in part; MNRJ, in part). **Col. Viana**. M. J. Viana collection (currently at EBCC, in part; MACN, in part; MLPA, in part). **DBET**. Department of Biodiversity and Evolutionary Taxonomy, University of Wrocław, Poland. **DSCI**. D. Sassi collection, Castelmarte, Italy (Borowiec, 2002). **EBCC**. Enrique Barriga collection, Curicó, Chile. **FAMC**. Francisco de Asís Monrós collection (Monrós & Viana, 1947, currently in FIML). **FIML**. Fundación e Instituto Miguel Lillo, San Miguel de Tucumán, Tucumán, Argentina. **GMMF**. G. Moragues collection, Marseille, France. **LSCC**. Lukáš Sekerka collection, Prague, Czech Republic. **MACN**. Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires, Argentina. **MLPA**. Museo de Ciencias Naturales de La Plata, La Plata, Buenos Aires, Argentina. **MNRJ**. Museu Nacional, Rio de Janeiro, Brazil.

Table I. Species of Dorynotini (Coleoptera: Chrysomelidae) by Argentinian provinces (based on Bosq, 1943; Monrós & Viana, 1949; Simões, 2014, and Simões & Sekerka, 2015). See abbreviations of Argentinian provinces in materials and methods. X, mentioned in literature; N, new record (material examined), remarked in grey color.

Region►	Northwestern			Central				Northeastern			Eastern				
Species ▼ Provinces►	Ju	Sa	Tu	SE	LR	Cb	SL	Fo	Ch	SF	Mi	Co	ER	BA	CF
Dorynota cornigera	-	X	-	-	-	-	-	-	X	-	X	-	X	-	N
Dorynota minima	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-
Dorynota monoceros	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-
Dorynota parallela	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-
Dorynota pugionata	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-
Dorynota viridisignata	-	-	-	-	-	-	-	X	-	-	X	-	-	-	-
Paranota ensifera	-	X	-	-	-	-	-	-	X	-	X	X	N	-	-
Paranota minima	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-
Paranota rugosa	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-
Paranota spinosa	-	-	-	-	-	-	-	X	-	-	X	-	-	-	-
spp. per province	-	2	-	1	-	-	-	3	2	-	8	3	2	-	1
spp. per region	2			1				5			8				

Collections mentioned in materials examined

ODIC. Osvaldo Di Iorio collection, Buenos Aires, Argentina. **PTBA**. Paola Turienzo collection, Buenos Aires, Argentina (currently ODIC).

Abbreviations of Argentinian provinces used in table and map

BA, Buenos Aires; **Ca**, Catamarca; **Cb**, Córdoba; **Ch**, Chaco; **Co**, Corrientes; **ER**, Entre Ríos; **Fo**, Formosa; **Ju**, Jujuy; **LP**, La Pampa; **LR**, La Rioja; **Me**, Mendoza; **Mi**, Misiones; **Ne**, Neuquén; **RN**, Río Negro; **Sa**, Salta; **SF**, Santa Fe; **SE**, Santiago del Estero; **SL**, San Luis; **SJ**, San Juan; **Tu**, Tucumán.

Authors, old combinations, synonymies of the Bignoniaceae plants mentioned in literature and the text

- *Tabebuia aurea* (Silva Manso) Benth. & Hook. ex Moore, = *Tecoma argentea* Bureau et Schum. (Buchinger, 1960), = *Tabebuia caraiba* (Mart.) Bureau (Zuloaga & Morrone, 1999)
- *Tabebuia impetiginosa* (Mart. Ex DC.) Standl., = *Tecoma ipe*, *auct.*, = *Tecoma ipe* var. *integra* (Sprague) Sandw. (Buchinger, 1960), = *Tabebuia avellanedae* Lor. ex Griseb. (Zuloaga & Morrone, 1999)
- *Tabebuia lapacho* (Schum.) Sandw., = *Tecoma ochracea*, *auct*., *non* Cham. (Buchinger, 1960)
- *Tabebuia ochracea* (Cham.) Carmel., = *Tecoma ochracea* Cham.
- *Tabebuia pulcherrima* Sandw., = *Tecoma ochracea*, *auct.*, *non* Cham. (Buchinger, 1960; Zuloaga & Morrone, 1999), = *Tecoma aurea*, *auct*., *non* (Silva Manso) Benth. & Hook. ex Moore (Zuloaga & Morrone, 1999)

Results

***Dorynota cornigera* (Boheman, 1854)**

Figs. 1 (distribution), 2 (host damage).

GEOGRAPHIC DISTRIBUTION: BRAZIL (see Monrós & Viana 1949; Simões & Sekerka, 2015); PARAGUAY (Monrós & Viana, 1949): Central: Asunción, XI-1990, 1 ex. [DSCI] (Borowiec, 2002); Cordillera: San Bernardino, W. Elsenlohr leg., 1 ex. [DBET], P. Sladhorn leg., 1 ex. [LSCC] (Simões & Sekerka, 2015); ARGENTINA: Salta: Cerro San Bernardo, II-1944, Monrós leg., 10 exx. [Col. Monrós; FIML] (Monrós & Viana, 1949); Misiones: XI-1941, Dirings leg., 1 ex. [MNRJ] (Simões & Sekerka, 2015); Chaco: 1 ex., F. Lynch leg. [MACN] (Monrós & Viana, 1949); Entre Ríos (Borowiec & Świętojańska, 2014; Simões & Sekerka, 2015): Liebig, 15-XII-1989, 1 ex. local collector [GM] (Borowiec, 2009).

MATERIAL EXAMINED AND HOST PLANTS: ARGENTINA: Capital Federal: Ciudad Universitaria, 26-IX-2011, 1 ex. [PTBA], Di Iorio leg., 20-XI-2011, 5 larvae fixed [PTBA], 7-XII-2011, 12 ex. [PTBA], 12-XII-2011, 3 ex. [PTBA], 16-XII-2011, 4 ex. [PTBA], 17-XII-2011, 3 ex. [PTBA], 7-I-2012, 3 ex. [PTBA], 11-I-2012, 2 ex. [DIOC], 17-XII-2012, 21 ex. [PTBA], all feeding on leaves of "lapacho rosado" (*Tabebuia impetiginosa*) (fig. 2).

***Paranota ensifera* (Boheman, 1854)**

Fig. 1 (distribution).

GEOGRAPHIC DISTRIBUTION: ECUADOR (Borowiec, 2002); PERU (Borowiec, 2002); BRAZIL (see Monrós & Viana, 1949; Borowiec, 1996, 2002; Simões, 2014); BOLIVIA: Guarayos (Borowiec, 2002); Santa Cruz: Buenavista, 1962, Campos Seabra leg., 1 ex. [MNRJ] (Simões, 2014); PARAGUAY: Central: Surubi, IV 1988, 1 [DSCI]; Naranjo, II-1995, Pena leg., 2 exx. [DSCI] (Borowiec, 2002); Ybicui, 30-I-2001, Kondler leg., 1 ex. [FKCR] (Borowiec, 2002); Itapúa: Hohenau, X-1940, Schade leg., 1 ex., Col. Monrós [FIML] (Monrós & Viana, 1949); Alto Paraná: 12 km Presidente Stroessner (Borowiec, 1996), currently Ciudad del Este; Amambay: Cerro Corá, 20-I-2001, J. Obr leg., 1 ex. [FKCR] (Borowiec, 2009); ARGENTINA: Salta: without locality, Kormilev leg., 1 ex. [MACN], 1 ex., Col. Bosq [MNRJ ?] (Monrós & Viana, 1949); Cerro San Bernardo, II-1944, Monrós leg., 20 ex., Col. Monrós [FIML], Col. Viana [EBCC ?, MACN ?, MLP ?] (Monrós & Viana, 1949); Misiones: without locality, 2 ex. [CBBA], 3 ex., Col. Breyer [MACN]; San Ignacio, Bade leg., 5 ex. [CBBA] (Monrós & Viana, 1949), 1911, 1 ex. [MNHN] (Simões 2014); Chaco: 3 ex., Col. Bosq [MNRJ ?] (Monrós & Viana, 1949); Corrientes (Monrós & Viana 1949).

FURTHER RECORDS: ARGENTINA: Entre Ríos: Paraná, 1978, larvae and adults affecting the leaves of cultivated trees of *T. impetiginosa* (Ríos de Saluso, 2005); Crespo, 1994, larvae and adults affecting the leaves of cultivated trees of *T. impetiginosa* (Ríos de Saluso, 2005).

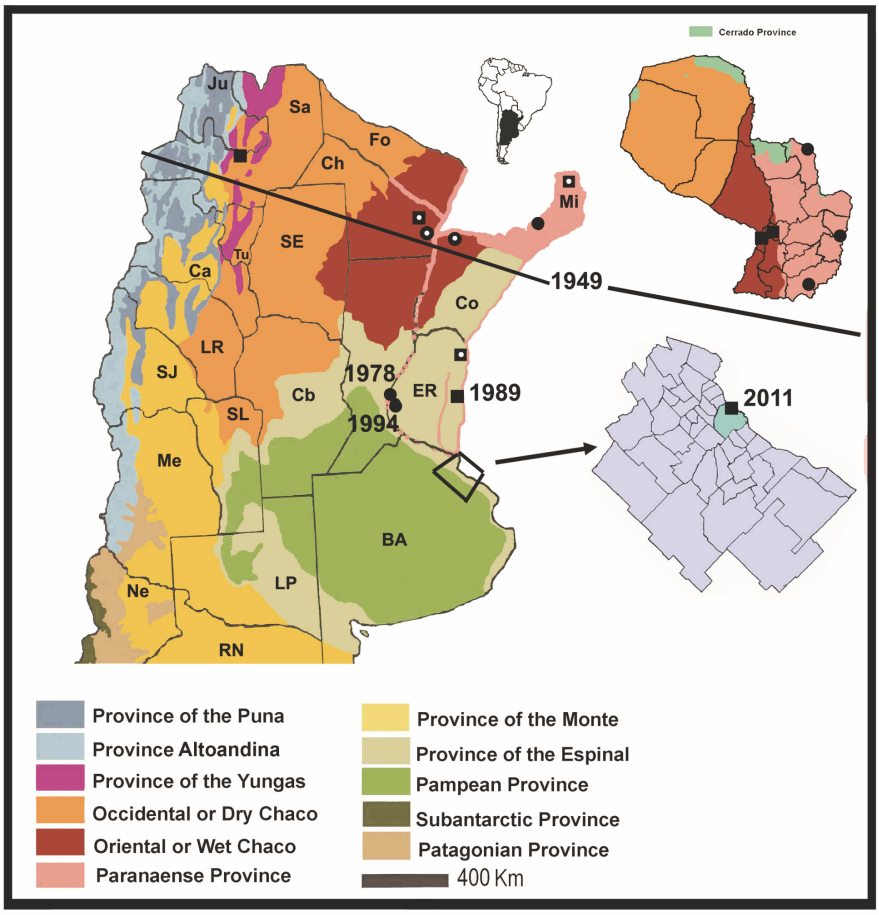

Figure 1. Geographic distribution of *Dorynota cornigera* (squares) and *Paranota ensifera* (circles) in Argentina and Paraguay. Small white circles inside specific symbols indicate provincial records without locality.

Discussion

Known geographic distributions of Dorynotini in Argentina

Until 1949, *D. cornigera* was given as distributed in Salta, and Chaco (Monrós & Viana, 1949). Borowiec (2002, 2009) gives again Salta and Chaco, and added Entre Ríos, one specimen captured in 1989. During 2011, *D. cornigera* was found for the first time in the city of Buenos Aires (fig. 1).

Similarly, *P. ensifera* was given only from Salta, Misiones, Chaco, and Corrientes (Bruch, 1915; Monrós & Viana, 1949), and the same provinces were summarized by Borowiec (2002, 2009) and Simões (2014). In 1978, *P. ensifera* was seen for the first time in Entre Ríos (Paraná) (fig. 1), and later (1994) it was observed again in Crespo, 40 km southwards from Paraná (Ríos de Saluso, 2005).

In addition, Simões & Sekerka (2015) recorded *Dorynota monoceros* (Germar, 1824) in Paysandú (Uruguay), that may be another case of recent dispersal towards the south.

Host plants of Dorynotini in Argentina and adjacent countries

The species of Dorynotini feed on more than one species of the genus *Tabebuia* (= *Tecoma*, in part) (Bignoniaceae) (Appendix), with two probably accidental records on Lecythidaceae in Brazil (Jolivet, 1988). Thus they can be considered as monophagous insects of second order, i.e., on several plants of a similar section in a single genus (Jolivet, 1992), if the records of Lecythidaceae from Brazil are really accidental or product of erroneous observations. Nevertheles, plant species, countries and previous references were erroneously attributed to some insect-host associations of species of Dorynotini in compilations from Brazil and Argentina (Table II).

Fiebrig (1910), director of the Botanical Garden of Paraguay, gave a single host record for each of three species in the tribe present in Paraguay (Table II; Appendix). Regretably, the localities of these records were not given, but Fiebrig collected materials in San Bernardino, where he have a property, and in Trinidad, where the Botanical Garden was located

Figure 2. Leave of *Tabebuia impetiginosa* (Bignoniaceae) with larval damage of *Dorynota cornigera* (Buenos Aires city: Ciudad Universitaria).

Table II. Host plants of Dorynotini (Coleoptera: Chrysomelidae) mentioned in literature. Original records and correct posterior citations are remarked in grey color. Erroneous records of host plants, countries or previous references erroneously attributed are without color. For a correct compilation of host plants of Dorynotini see the Appendix.

Species		
D. bellicosa	Silva *et al.* 1968	"ipe do brejo"
D. bidens	Silva *et al.* 1968	*Tecoma* spp.
D. monoceros	Fiebrig, 1910	*T. ipe* (Paraguay)
	Costa Lima, 1936	*T. ipe* (Fiebrig, 1910)
	Costa Lima, 1955	*T. argentea*
		T. ipe
		Tecoma spp.
	Silva *et al.*, 1968	*T. argentea* (Costa Lima, 1955)
		T. ipe (Costa Lima, 1955)
		Tecoma spp. (Costa Lima, 1955)
D. pugionata	Costa Lima, 1936	*T. heptaphylla*
	Bosq, 1943	*Tecoma* sp. (prob. Misiones)
	Costa Lima, 1955	*T. argentea*
		T. ipe
		Tecoma spp.
	Silva *et al.*, 1968	*T. argentea* (Costa Lima, 1955)
		Tecoma sp.
		T. heptaphylla (Costa Lima, 1936)
		T. obtusata (Vellozo *et al.*, 1953)
D. viridisignata	Monrós & Viana, 1949	*Tecoma* sp. (prob. Formosa)
P. ensifera	Fiebrig, 1910	*T. ochracea* (Paraguay)
	Costa Lima, 1936	*T. ochracea* (Fiebrig, 1910)
	Monrós & Viana, 1949	"lapacho" C. San Bernardo
	Costa Lima, 1955	*T. argentea*
		T. ipe
		Tecoma spp.
	Silva *et al.*, 1968	*T. argentea* (Paraguay)
		T. ipe (Paraguay)
		T. ochracea (Paraguay)
	Roig Juñent, 2004	*T. caraiba* (= *T. argentea*) (Argentina) (Monrós & Viana, 1949)
		T. ipe (Arg.) (Monrós & Viana, 1949)
		T. ochracea (Arg.) (Monrós & Viana, 1949)
P. spinosa	Fiebrig, 1910	*T. argentea* (Paraguay)
	Costa Lima, 1936	*T. argentea* (Fiebrig, 1910)
	Monrós & Viana, 1949	*T. argentea* (Fiebrig, 1910)
	Costa Lima, 1955	*T. argentea*
		T. ipe
		Tecoma spp.
	Silva *et al.*, 1968	*T. argentea* (Costa Lima, 1955)
		Tecoma sp.
		T. obtusata (Vellozo *et al.*, 1953)
	Roig Juñent, 2004	*T. caraiba* (= *T. argentea*) Argentina (Monrós & Viana, 1949)

(Di Iorio 2004b). Later, these three records were compiled by Costa Lima (1936) because the insects and the plants were present in Brazil, but clearly stating that the original records were originated in Paraguay (Table II). Bosq (1934) gives *D. monoceros* as afecting *Ipomoea* sp., obviously an erroneous observation (catalogued by Roig-Juñent, 2004), that was not repeated by Bosq himself in his posterior catalogue of 1943. The first correct host of a Dorynotini in Argentina was given by Bosq (1943) (Table II; Appendix). Several specimens of *P. ensifera* affecting the leaves of "lapacho" in Salta (Cerro San Bernardo) during february 1944, and *D. viridisignata* on *Tecoma* sp. (probably from Formosa) were given by Monrós & Viana (1949) (Table II; Appendix). According to Buchinger (1960), the species of "lapacho" present in Cerro San Bernardo corresponds to *T. impetiginosa* (given as *Tabebuia avellanedae*).

Several specimens of *D. cornigera* were also captured by Monrós in the same locality (Cerro San Bernardo), date and year than *P. ensifera*, but no host plant was indicated (Monrós & Viana, 1949). Therefore, *D. cornigera* has no mention of a host in Argentina, nor in adjacent countries (Table II; Appendix), and the first known host in Argentina is presented here (material examined).

Erroneous host records in literature beginning with Costa Lima (1955), who stated that "on ipes (*Tecoma* spp., *T. argentea*, *T. ipe* etc.), in Brazil and Paraguay (obs. of Fiebrig) live various species of *Dorynota* Chevrolat (=*Batonota* Hope): *D. ensifera* (Boheman, 1854), *D. monoceros* (Germar, 1824), *D. pugionota* (Germ., 1824), *D. spinosa* (Boh., 1854)" [translated from Portuguese]. This paragraph can be interpreted in varied manners, one of them as in Table II, but it was interpreted in another manner for each species of Dorynotini by Silva *et al.* (1968) (Table II), that also added two new original records from Brazil (Appendix).

Roig-Juñent (2004) erroneously attributed two hosts in Argentina to Monrós & Viana (1949), one of them correctly mentioned from Paraguay by Monrós & Viana (1949) based of Fiebrig (1910) (Table II). Thus all host plants of Dorynotini in Argentina compiled by Roig-Juñent (2004a) are erroneous records because they were produced outside Argentina (Appendix). Furthermore, the single original records of host plants of Dorynotini in Argentina given by Bosq (1943) and Monrós & Viana (1949) were not known to Roig-Juñent (2004).

As a result of the taxonomic history of the species of *Tabebuia*, most host records of Dorynotini previously given in literature (Table II; Appendix) needs a further corroboration. For example, the original record of *Tecoma ochracea* by Fiebrig (1910) may be the true *T. ochracea*, or misidentifications of *Tabebuia lapacho* or *Tabebuia pulcherrima* (see in materials and methods the synonymies and misidentifications of the plant species in Bignoniaceae).

Larvae and adults identified as *P. ensifera* in Entre Ríos were seen for the first time in 1978 affecting the leaves of cultivated trees of *T. impetiginosa* in Paraná, and later (1994) it was observed in Crespo on the same plant (Ríos de Saluso, 2005). The same situation occurred with *D. cornigera* in the city of Buenos Aires (material examined).

Regarding the distribution records of Dorynotini (Table I), its hosts (Table II), and the species of *Tabebuia* present in Argentina and adjacent countries (Table III), new host records are expected in the corresponding provinces where both insects and plants are naturally present, but also outside of its natural ranges, i.e, in places where these trees are cultivated as ornamentals, as happened in Entre Ríos and Buenos Aires provinces (Fig. 1).

Life cycle of *Dorynota cornigera* in Argentina

The first adult of *D. cornigera* appeared on the plants in late September (early Spring), but the overwintering stage and place are unknown. Full grown larvae are found in November and during summer, feeding on all tissues of the leaves except the major ribs, skeletonizing them (fig. 2). The pupae are located in the underside of the leaves, petioles, branches and even in the bole of the tree, resembling a bird dropping by its coloration. The peak of adults was observed in December, but it is not known if this leaf-beetle has more than one generation per year.

Expansion of some insects in Argentina in relation to its host plants and favorable weather conditions

A number of insects from Argentina enlarged their original geographic distributions after middle of XX century. Some species of Cerambycidae (Coleoptera) followed a recent historical dispersal from north to south Argentina, sometimes on

Table III. Species of *Tabebuia* (Bignoniaceae) by Argentinian provinces and adjacent countries.
See abbreviations of Argentinian provinces in materials and methods. D, dubious record (mentioned by Buchinger 1960); X, mentioned in literature (based on Buchinger 1960); Cu, cultivated as ornamental trees (new records). Shaded cells in grey color indicate the species and the country and provinces in which the plants were recorded as hosts of Dorynotini (Coleoptera: Chrysomelidae: Cassidinae).

Countries ►	BRA	PAR	ARG																		
Region ►			Northwestern			Centralwestern				Central				Northwestern			Eastern				
Province ►			Ju	Sa	Tu	Ca	LR	SJ	Me	SE	Cb	SL	LP	Fo	Ch	SF	Mi	Co	ER	BA	CF
Plant species (*Tabebuia* sp.)▼																					
T. alba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-
T. caraiba (= *T. argentea*)	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-
T. heptaphylla	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T. impetiginosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Cu	Cu	Cu
=*T. avellanedae*	-	X	X	X	X	X	-	-	-	-	-	-	-	X	X	-	X	X	X	-	-
Tabebuia ipe	-	X	-	X	-	-	-	-	-	-	-	-	-	-	D	-	-	-	-	-	-
Tabebuia lapacho	-	-	X	X	-	-	-	-	-	-	-	-	-	X	X	X	-	X	-	-	-
Tabebuia nodosa	-	-	-	X	X	X	X	-	-	X	X	-	-	-	-	-	-	-	-	-	-
Tabebuia obtusata	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tabebuia ochracea	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-
Tabebuia pulcherrima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	-	-
spp. by province	**-**	**-**	**2**	**4**	**2**	**2**	**1**	**-**	**-**	**1**	**1**	**-**	**-**	**3**	**2**	**1**	**3**	**3**	**2**	**1**	**1**
spp. by region	**-**	**-**	**4**			**2**				**1**				**3(4?)**			**5**				

native host plants cultivated outside its natural ranges or on cultivated exotic plants phylogenetically related to native hosts, i.e. in the same plant family (Di Iorio, 1993, 1995, 1998; Di Iorio & Farina, 2009). Another cerambycid species expanded its original distribution in Chile to southern Argentina on a native cultivated host, but also adopting a new exotic cultivated host (Turienzo & Di Iorio, 2014). The more extreme case is one species of Cerambycidae originally from Brazil and Misiones, without known native hosts, and that in Buenos Aires all known hosts in the country are exotics (Di Iorio, 2004a). Thus, both kind of plants play a crucial role in the colonization of new areas by native phytophagous insects, widening its original geographic distributions by antropic environmental modifications.

The new records of both leaf-beetles for the provinces of Entre Ríos and Buenos Aires (Table I) are due first to the cultivation of the native "lapacho rosa" (*T. impetiginosa*) as an ornamental tree, outside its natural distribution (Buchinger, 1960; Zuloaga & Morrone, 1999), but by the other side, these new areas were also colonized by both leaf-beetles due to favorable weather conditions, particularly by the less rigurous winters occurring year by year, that would be related to the effect of the climatic change in the Southern Hemisphere.

Finally, this relationship between the expansion of the original geographic distributions of some insects and the evident climatic change in the southern hemisphere is a long progressive process that can be better documented thanks to three items provided here: 1) historical geographic data in literature (taxonomic literature must be preferred in order to avoid erroneous identifications); 2) a series of well dated specimens examined in different collections covering consecutive time periods, and 3) a deep knowledge of the insect distributions by local entomologists that can help also in the detection of erroneous records, and accordingly, the variations of the geographic distributions along the time.

Acknowledgements

To anonymous referees by their suggestions and comments improving the text.

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Appendix

Correct records of host plants of Dorynotini from Argentina and adjacent countries. For erroneous hosts, countries, and previous references erroneously attributed see the notes below each insect species and Table II.

Dorynota bellicosa Boheman, 1854

• "ipê do brejo"
BRAZIL: **São Paulo**: Lorena, A. Azevedo pers. obs., adults feeding leaves (Silva *et al.* 1968).

Dorynota bidens (Fabricius, 1781)

• *Tecoma* spp.
BRAZIL: Rio de Janeiro: São Bento, A. Silva pers. obs., adults feeding leaves (Silva *et al.* 1968).

Dorynota monoceros (Germar, 1824)

• *Tabebuia impetiginosa*
Tecoma ipe: Fiebrig 1910; Costa Lima 1936, 1955.
PARAGUAY: [prob. San Bernardino or Trinidad] (Fiebrig 1910); (Costa Lima 1936, 1955; Silva *et al.* 1968).
NOTE: Silva *et al.* (1968) erroneously attributed *Tecoma* spp., and *T. argentea* for *D. monoceros*, given by Costa Lima (1955).

Dorynota parallela Blanchard, [1837]

• *Tabebuia speciosa* ("ipê amarelo")
BRAZIL: Bahía (Marques et al. 2006).

Dorynota pugionota (Germar, 1824)

• *Lecythis* sp. ("sapucaia")
BRAZIL: Monlevade, Ferreira pers. obs. (Silva *et al.* 1968): dubious record.

• *Tabebuia heptaphylla*
BRAZIL: Rio de Janeiro: J. Simões pers. obs. (Costa Lima 1936); (Silva *et al.* 1968).

• *Tabebuia obtusata*
BRAZIL: (Velloso *et al.* 1953; Silva *et al.* 1968).

• *Tecoma* sp.
ARGENTINA: locality not stated, prob. Misiones (Bosq 1943).

NOTE: *Tecoma argentea*, attributed to *D. pugionota*, was mentioned by Costa Lima (1955) in a general manner, later erroneously compiled by Silva *et al.* (1968) (Table II).

Dorynota viridisignata (Boheman, 1854)

• *Tecoma* sp.
[prob. ARGENTINA: Formosa: Riacho Pilagá, Estancia Guaycolec, IX-1948, A. Martínez leg., Col. Monrós], on leaves of "lapacho" (Monrós & Viana 1949).

Paranota ensifera (Boheman, 1854)

• *Tabebuia avellanedae*
"lapacho": Monrós & Viana 1949.
ARGENTINA: Salta: Cerro San Bernardo, larvae and adults feeding on leaves of "lapacho" (Monrós & Viana 1949).

• *Tabebuia ochracea*
PARAGUAY: [prob. San Bernardino or Trinidad] (Fiebrig 1910); (Costa Lima 1936); (Silva *et al.* 1968).

NOTE 1: Monrós & Viana (1949) never mentioned *T. argentea*, *T. ipe* and *T. ochracea* as host plants of this species (Table II). Thus, the records of these three plants given by Roig-Juñent (2004), based on Monrós & Viana (1949), are erroneous.
NOTE 2: *Tecoma argentea* and *Tecoma ipe* were erronoeously attributed to *P. ensifera* by Costa Lima (1955), and compiled by Silva *et al.* (1968) (Table II).
NOTE 3: *Tecoma ochracea* may be the true *Tabebuia ochracea*, or misidentifications of *Tabebuia lapacho* or *Tabebuia pulcherrima*.

Paranota spinosa (Boheman, 1854)

• *Lecythis sp.* ("sapucaia")
BRAZIL: Monlevade, Ferreira pers. obs. (Silva *et al.* 1968): dubious record

• *Tabebuia aurea*
Tecoma argentea: Fiebrig 1910; Costa Lima 1936; Monrós & Viana 1949; Silva *et al.* 1968.

• *Tabebuia caraiba*: Roig-Juñent 2004 (not in Argentina)
PARAGUAY: [prob. San Bernardino or Trinidad] (Fiebrig 1910); (Costa Lima 1936); (Monrós & Viana 1949); (Silva *et al.* 1968).

• *Tabebuia obtusata*
BRAZIL (Velloso *et al.* 1953; Silva *et al.* 1968).

NOTE 1: *Tecoma ipe* and *Tecoma* sp. were erronoeously attributed to *P. ensifera* by Costa Lima (1955), and compiled by Silva *et al.* (1968) (Table II).
NOTE 2: *Tabebuia caraiba* (= *Tecoma argentea*) was erroneously given as a host plant in Argentina by Roig-Juñent (2004).