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Inventory

Treehoppers (Hemiptera, Auchenorrhyncha: Aetalionidae and Membracidae) from western Acre, Brazil, with emphasis on the fauna of Serra do Divisor National Park

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Abstract: The first list of Aetalionidae and Membracidae species for western Acre is presented, including the Alto do Juruá regions of Serra do Divisor National Park and the Campus Floresta of the Federal University of Acre. In total, 94 species of treehoppers were collected, of which Centrotinae (Membracidae) is recorded for the first time for Brazil (*Abelus maculatus* Schimidt), another 16 species are new Brazilian records, and 69 species (Aetalionidae and Membracidae) are new records for Acre. Data on type locality, geographic distribution and images of all species are presented. The males of *Lophyraspis fenestrata* Sakakibara & Creão-Duarte and *Erechtia sanguinolenta* (Fairmaire) are known for the first time. The species diversity was compared to four other treehopper surveys in the Amazon region, with similarity indices of about 43.6% for Colombian Amazon (at least 650 km away), 27.6% for Panguana Biological Research Station, Peru (250 km), 20.2% for Adolpho Ducke Forest Reserve, Brazil (1,600 km) and 8.5% for Villa Carmen Biological Station/Los Amigos Biological Station, Peru (600/700 km). The estimated richness of Serra do Divisor National Park was just over 70%, suggesting that local diversity could be significantly higher than that presented in this study.
Keywords: *Amazon forest; biodiversity; new records; geographical distribution; Membracoidea.*

Soldadinhos (Hemiptera, Auchenorrhyncha: Aetalionidae e Membracidae) do extremo oeste do Acre, Brasil, com ênfase na fauna do Parque Nacional Serra do Divisor

Resumo: A primeira lista de espécies de Aetalionidae e Membracidae para o extremo oeste do Acre é apresentada, incluindo as regiões do Alto do Juruá do Parque Nacional da Serra do Divisor e o Campus Floresta da Universidade Federal do Acre. No total, foram coletadas 94 espécies de soldadinhos, das quais Centrotinae (Membracidae) é registrada pela primeira vez para o Brasil (*Abelus maculatus* Schimidt), 16 outras espécies de membracídeos são novos registros para o Brasil e 69 espécies (Aetalionidae e Membracidae) são novos registros para o Acre. Dados sobre localidade-tipo, distribuição geográfica e imagens de todas as espécies são apresentados. Os machos de *Lophyraspis fenestrata* Sakakibara & Creão-Duarte e *Erechtia sanguinolenta* (Fairmaire) são conhecidos pela primeira vez. A diversidade de espécies foi comparada a outros quatro levantamentos de soldadinhos na região amazônica, com índices de similaridade de cerca de 43,6% para a Amazônia colombiana (pelo menos 650 km de distância), 27,6% para a Estação de Pesquisa Biológica de Panguana, Peru (250 km), 20,2% para Adolpho Reserva Florestal Ducke, Brasil (1.600 km) e 8,5% para Estação Biológica Villa Carmen/Estação Biológica Los Amigos, Peru (600/700 km). A riqueza estimada do Parque Nacional da Serra do Divisor foi de pouco mais de 70%, sugerindo que a diversidade local pode ser significativamente maior do que a apresentada neste estudo.
Palavras-chave: *Floresta Amazônica; biodiversidade; novos registros; distribuição geográfica; Membracoidea.*

Introduction

Treehoppers constitute a monophyletic group of three families within the Auchenorrhyncha hemipterans: the cosmopolitan Aetalionidae (6 genera, 42 species) and Membracidae (427 genera and more than 3,450 species), and the South American Melizoderidae (three genera and nine species), restricted to the south of Argentina and Chile (Dietrich et al. 2017, Hu et al. 2022). In Brazil, 16 species of Aetalionidae are listed in five genera, whereas 701 species are listed in 124 genera belonging to Membracidae (Evangelista et al. 2023a, b).

Treehoppers are phytophagous in all life stages, establishing an antagonistic interaction with host plants from more than 100 botanical families (Godoy et al. 2006). Although characterized by their phytophagous habit, no commercial interest occurs. Few species can act as agricultural pests, mainly due to the high population density and the damage caused by the egg laying in the plant tissue (Deitz & Wallace 2010).

These insects show various forms of social behavior, from solitary to gregarious forms. The gregarious, nymphal and imaginal generations overlap, and highly elaborate maternal care is displayed, such as egg and nymph guarding (Cocroft 2002, Lin 2006). Vibrational communication has already been reported in these hemipterans in male-to-male dispute, copulation and warning behavior (Cocroft 2001, Lin 2006). Generally, the gregarious species develop mutualistic relationships with assistant ants and other hymenopterans, exchanging their honeydew for protection against natural enemies (Godoy et al. 2006). Membracids also exhibit a complex and unique variety of pronotum shapes, with various types of projections, forms and colors, which gives them mimicry, camouflage, aposematism, and defense against predators (Evangelista et al. 2017).

The study presents the first inventory of treehoppers (Hemiptera: Aetalionidae and Membracidae) from western Acre in the Alto Juruá, within the Serra do Divisor National Park, including specimens collected at Campus Floresta of the Federal University of Acre.

Material and Methods

1. *Study area*

The collection was conducted between May 12 and 18, 2019, in two areas of western Acre: (I) the Serra do Divisor National Park, around the Pé da Serra Community (07º27'05.06"S 73º39'52.9"W), in the municipality of Mâncio Lima; and (II) the Campus Floresta of the Federal University of Acre (7°33'37.0"S 72°42'48.3"W), in the municipality of Cruzeiro do Sul (Figure 1).

The state of Acre has 45.66% of its territory made up of Protected Natural Areas, i.e., Indigenous Lands, Full Protection or Sustainable Use Conservation Units (Acre 2010, Bernarde et al. 2017). One of the protected areas included is the Serra do Divisor National Park (hereafter SDNP), which is located in the municipality of Mâncio Lima. The SDNP has about 8,350 km² and is located on the border with Peru, making it one of the largest national parks of Brazil. Its governance comes from the Brazilian Institute for Environment and Natural Resources (IBAMA) (Acre 2010).

The topography of the region is formed by plains and hills whose altitudes vary from 130 to 600 m. The highest altitudes at Acre are found in the SDNP. The highest locations in the SDNP physiographic complex include a transient climate range from humid to super-humid, with a relative humidity index of about 100%. The climate of the region is Am based on the Köppen classification (SEMA 2012). The annual temperature ranges from 24.4ºC to 28.8ºC (Acre 2010). The temperature in June and July can drop considerably under Amazonian standards, up to 7ºC (Bernarde et al. 2017, Esteves & Luz 2019). Precipitation is common all year round, with precipitation rates above 2,500 mm/year (IBAMA et al. 1998).

Two important phytoecological regions are found in the area of the SDNP the Dense Ombrophilous Forest, which predominates in the whole Amazon, and the Open Ombrophilous Forest. However, other plant formations can be characterized, which differ mainly in the quality of the soils on which they occur (SEMA 2012).

The Campus Floresta is the third campus of the Federal University of Acre (hereafter UFAC) and is situated in the municipality of Cruzeiro do Sul, at the western end of Acre. This is the second largest city in Acre, with an area of 8,816 km² (Bardales et al. 2021). The phytophysiognomies and abiotic conditions of the UFAC are similar to those described for the SDNP.

2. *Specimen collection*

The collections of specimens were made with the permission of SISBIO (#68353-1). The collection methodology followed Cabral et al. (2020) except for the lower sticky cards that were not used and the total number of light traps was only four. Among the 30 active collections, 29 were carried out in the SDNP and one in the UFAC.

3. *Identification*

Taxonomic identification was done comparing collected specimens with material deposited in the Coleção Entomológica of the Departamento de Sistemática e Ecologia (DSEC) of the Federal University of Paraíba, images of type specimens, original descriptions and identification keys for genera and species. Taxonomic determination was performed by the first and second authors, except for specialists in some groups, such as Heteronotinae and *Cladonota* Stål. The species list follows the classification of McKamey (1998) and Wallace & Deitz (2004). Species not identified (referred to as "sp.") are likely undescribed species. However, the description of these species depends on genera revisions, which are not the subject of this study.

Each species is accompanied by type locality given in its original form, material examined, distribution and comments. The information regarding distribution was extracted mainly from the catalogs organized by Funkhouser (1927), Metcalf & Wade (1965) and McKamey (1998), as well as from recent bibliography.

Data labels are arranged according to the following criteria: bracketed information complements abbreviated words; backslash indicates different lines within the same label; vertical slash indicates different labels. Family, subfamily, tribe, genus and species are listed alphabetically and preceded by author and year, following Deitz & Wallace (2010). Species listed as new records for Brazil are highlighted in the comments. All specimens are vouchered and deposited at the Entomological Collection of the Department of Systematics and Ecology (DSEC), from Federal University of Paraíba, Brazil.

4. *Imaging*

Photographs of the specimens in vivo were obtained with a Nikon D3200 camera. Images of the pinned specimens were taken in left

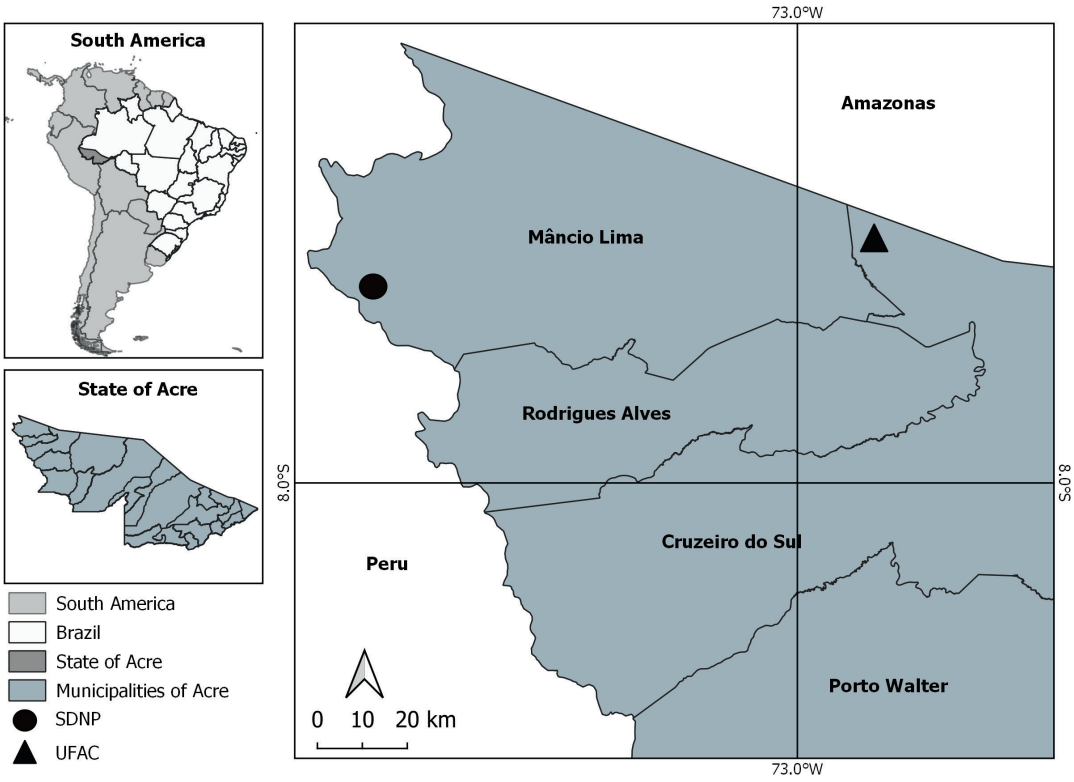

Figure 1. Map of the study area from western Acre, Brazil. SDNP – Serra do Divisor National Park (black dot), and UFAC – Campus Floresta of the Federal University of Acre (black triangle).

lateral view and obtained using a Leica® M205C-A stereomicroscope coupled with DFC450 camera and Leica® Application Suite (LAS) image capture system. The processed images were later edited using Adobe Photoshop CS5.

5. *Data analysis*

EstimateS 9.1 software (Colwell 2013) was used to estimate species richness through the Chao1 and Chao2 estimators and to construct the collector curve to SDNP. The data were submitted to 1000 randomizations without replacement, in classic mode without bias-correct formula (Walther & Moore 2005).

Results

A total of 920 specimens of 94 treehopper species were collected (Table 1). In the Aetalionidae, only the Biturritiinae had representatives, with nine species and two genera. Among these, three species are new records for the state of Acre. In the Membracidae, the richness was 85 species and 49 genera, where only Centronodinae Deitz, 1975 was not present in this study. *Abelus maculatus* Schmidt, 1927 is the first official record of the membracid Centrotinae for Brazil. Other 16 species are new records for Brazil: *Anobilia invariabilis* Tode, 1966; *Anobilia nigra* Tode, 1966; *Aphetea parvula* (Fabricius, 1803); *Bocydium nigrofasciatum* Richter, 1955; *Cladonota gonzaloi* (Peláez, 1945); *Colisicostata albata* (Tode, 1966); *Enchophyllum ucayaliensis* Strümpel, 2006; *Erechtia sanguinolenta* (Fairmaire, 1846); *Leioscyta maculata* (Funkhouser, 1914); *Lycoderides phasianus* (Fowler, 1896); *Membracis obliquifasciata* Evangelista & Sakakibara, 2010; *Stilbophora luteimaculata* (Funkhouser, 1914); *Stilbophora sagittata* (Tode, 1966); *Todea incerta* (Tode, 1966); *Tropidoscyta brunneidorsata* Funkhouser, 1914; and *Tropidoscyta neglecta* Haviland, 1925. In addition, 66 species are new records for the state of Acre and they are listed under the Checklist section.

The subfamilies with the highest species diversity were Smiliinae, Membracinae, and Biturritiinae, comprising more than 78% of the total species richness observed. These subfamilies also accounted for 81% of the overall abundance. Among the tribes studied, the most abundant ones were Membracini, Tragopini, and Polyglyptini, contributing to nearly 60% of the total insect abundance observed. The ten most abundant species represent 45.76% of the total abundance. Of the 94 species collected, 11 were represented by two individuals (doubletons) and 29 were represented by only one (singletons) (Table 1). The richness values observed for the SDNP represent 71.43% (Chao1) and 72.22% (Chao2) of the estimated richness.

Most treehoppers were collected in the SDNP, with a total of 89 species. The UFAC showed a diversity of 15 species. Of the total species, 10 are shared between the two areas: *Anobilia guianae* Haviland, 1925; *Bolbonota inaequalis* (Fabricius, 1803); *Ceresa distans* Butler, 1877; *Ceresa* sp.; *Enchenopa albidorsa* (Fairmaire, 1846); *Enchenopa amazonensis* Strümpel & Strümpel, 2014; *Enchenopa concolor* (Fairmaire, 1846); *Enchenopa squamigera* (Linnaeus, 1758); *Hypsoprora erecta* Fonseca, 1933; and *Tropidoscyta brunneidorsata* Funkhouser, 1914; and five were exclusive to UFAC: *Amblyophallus exaltatus* (Fabricius, 1803); *Leioscyta* sp.; *Neotynelia nigra* (Funkhouser, 1940); *Neotynelia* sp.; and *Ramedia juncta* Creão-Duarte & Sakakibara, 1989.

Table 1. Treehoppers (Hemiptera: Aetalionidae and Membracidae) collected in the Serra do Divisor National Park (SDNP), Comunidade Pé da Serra, municipality of Mâncio Lima and Campus Floresta of the Federal University of Acre (UFAC), municipality of Cruzeiro do Sul. New records to Brazil are highlighted with *.

Taxa	SDNP	UFAC	Abundance total
Aetalionidae	**111**	**–**	**111**
Biturritiinae	111	–	111
Biturritiini	111	–	111
Lophyraspis fenestrata Sakakibara & Creão-Duarte, 2004	50	–	50
Lophyraspis scutellata (Fabricius, 1803)	9	–	9
Lophyraspis sp. 1	2	–	2
Lophyraspis sp. 2	1	–	1
Tropidaspis sp. 1	32	–	32
Tropidaspis sp. 2	1	–	1
Tropidaspis sp. 3	6	–	6
Tropidaspis sp. 4	4	–	4
Tropidaspis sp. 5	5	–	5
Tropidaspis sp. 6	1	–	1
Membracidae	**700**	**109**	**809**
Centrotinae*	1	–	1
Centrotini*	1	–	1
Abelus maculatus Schimidt, 1927*	1	–	1
Darninae	13	–	13
Darnini	12	–	12
Alobia alutacea (Stål, 1869)	11	–	11
Darnis partita Walker, 1858	1	–	1
Procyrtini	1	–	1
Procyrta pectoralis (Fabricius, 1803)	1	–	1
Endoiastinae	27	–	27
Endoaistini	27	–	27
Scytodepsa sp.	27	–	27
Heteronotinae	29	–	29
Heteronotini	29	–	29
Allodrilus nitidipennis (Funkhouser, 1922)	4	–	4
Anchistrotus obesus Buckton, 1903	1	–	1
Anchistrotus consentanneus (Fairmaire, 1846)	18	–	18
Heteronotus belliger (Butler, 1878)	1	–	1
Heteronotus mourei Creão-Duarte & Sakakibara, 1993	1	–	1
Rhexia semiatra (Fairmaire, 1846)	1	–	1
Smiliorachis sp.	3	–	3
Membracinae	255	64	319
Aconophorini	22	–	22
Aconophora cultellata (Walker, 1858)	20	–	20
Guayaquila tenuicornis (Walker, 1858)	2	–	2
Hypsoprorini	13	1	14
Cladonota amazonica (Andrade, 1978)	2	–	2
Cladonota apicalis (Stål, 1869)	1	–	1
Cladonota gonzaloi (Peláez, 1945)*	2	–	2
Hypsoprora erecta Fonseca, 1933	5	1	6
Notocera crassicornis (Fairmaire, 1846)	2	–	2
Notocera sp.	1	–	1
Membracini	207	63	270
Bolbonota inaequalis (Fabricius, 1803)	10	32	42
Bolbonota sp.	1	–	1
Enchenopa albidorsa (Fairmaire, 1846)	10	1	11
Enchenopa amazonensis Strümpel & Strümpel, 2014	1	5	6
Enchenopa concolor (Fairmaire, 1846)	5	14	19

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Taxa	SDNP	UFAC	Abundance total
Enchenopa squamigera (Linnaeus, 1758)	13	8	21
Enchophyllum ucayaliensis Strümpel, 2006*	1	–	1
Erechtia trinotata Funkhouser, 1930	8	–	8
Leioscyta maculata (Funkhouser, 1914)*	1	–	1
Leioscyta sp.		1	1
Membracis foliatafasciata (DeGeer, 1773)	34	–	34
Membracis juncta Walker, 1858	2	–	2
Membracis lefebvrei Fairmaire, 1846	14	–	14
Membracis obliquifasciata Evangelista & Sakakibara, 2010*	1	–	1
Membracis tectigera Olivier, 1792	13	–	13
Tritropidia bifenestrata (Funkhouser, 1922)	15	–	15
Tropidoscyta brunneidorsata Funkhouser, 1914*	37	2	39
Tropidoscyta neglecta Haviland, 1925*	8	–	8
Tropidoscyta sp. 1	6	–	6
Tropidoscyta sp. 2	11	–	11
Tropidoscyta sp. 3	9	–	9
Tropidoscyta sp. 4	7	–	7
Talipedini	13	–	13
Erechtia sanguinolenta (Fairmaire, 1846)*	13	–	13
Nicomiinae	1	–	1
Nicomiini	1	–	1
Tolania sp.	1	–	1
Smiliinae	277	45	322
Amastrini	13	2	15
Amastris dissimilis Broomfield, 1976	2	–	2
Amastris elevata Funkhouser, 1922	1	–	1
Amastris sp. 1	8	–	8
Amastris sp. 2	1	–	1
Harmonides dispar (Fabricius, 1803)	1	–	1
Neotynelia nigra (Funkhouser, 1940)	–	1	1
Neotynelia sp.	–	1	1
Ceresini	13	15	28
Amblyophallus exaltatus (Fabricius, 1803)	–	4	4
Ceresa distans Butler, 1877	1	10	11
Ceresa sp.	3	1	4
Cyphonia clavata (Fabricius, 1787)	4	–	4
Cyphonia trifida (Fabricius, 1775)	3	–	3
Tapinolobus albifasciatus (Funkhouser, 1922)	2	–	2
Micrutalini	3	–	3
Micrutalis binaria (Fairmaire, 1846)	3	–	3
Polyglyptini	98	17	115
Aphetea parvula (Fabricius, 1803)*	27	–	27
Entylia carinata (Forster, 1771)	57	–	57
Hemiptycha cultrata (Coquebert, 1801)	4	–	4
Hemiptycha obtecta (Fabricius, 1803)	10	–	10
Ramedia juncta Creão-Duarte & Sakakibara, 1989	–	17	17
Thuridini	1	–	1
Thuris binodosus (Goding, 1926)	1	–	1
Tragopini	149	11	160
Anobilia guianae (Haviland, 1925)	36	11	47
Anobilia invariabilis Tode, 1966*	3	–	3
Anobilia nigra Tode, 1966*	1	–	1

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Taxa	SDNP	UFAC	Abundance total
Anobilia sp.	15	–	15
Chelyoidea dohrni (Fairmaire, 1846)	1	–	1
Colisicostata albata (Tode, 1966)*	2	–	2
Horiola ferruginea Fairmaire, 1846	6	–	6
Horiola picta (Coquebert, 1801)	8	–	8
Stilbophora luteimaculata (Funkhouser, 1914)*	2	–	2
Stilbophora sagittata (Tode, 1966)*	44	–	44
Todea incerta (Tode, 1966)*	1	–	1
Tragopa corniculata Stål, 1869	1	–	1
Tragopa fasciata (Funkhouser, 1922)	14	–	14
Tropidolomia auriculata (Olivier, 1792)	15	–	15
Stegaspidinae	97	–	97
Stegaspidini	97	–	97
Bocydium globulare (Fabricius, 1803)	10	–	10
Bocydium nigrofasciatum Richter, 1955*	2	–	2
Flexocentrus felinus (Haviland, 1925)	1	–	1
Lycoderes luteus Funkhouser, 1940	35	–	35
Lycoderides marginalis (Walker, 1851)	1	–	1
Lycoderides phasianus (Fowler, 1896)*	7	–	7
Stegaspis fronditia (Linnaeus, 1758)	41	–	41
Abundance	**811**	**109**	**920**
Species richness	**89**	**15**	**94**

CHECKLIST OF TREEHOPPER GENERA AND SPECIES OF WESTERN ACRE

AETALIONIDAE Spinola, 1850
Biturritiinae Metcalf, 1951
Biturritiini Metcalf, 1951

***Lophyraspis fenestrata* Sakakibara & Creão-Duarte, 2004**
(Figs. 2A, 3A-B)
Type locality. Brazil, Amazonas, Manaus.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 10\ Creão & Rothéa cols.', 32♀♀ 'Membracidae/ DSEC – 0010387-418', 7♀♀ and 7 nymphs 'Membracidae/ DSEC – 0010419-25', 26♂♂ 'Membracidae/ DSEC – 0010426-51', 5♂♂ and 5 nymphs 'Membracidae/ DSEC – 001452-56'.
Distribution. Brazil (Acre [new record], Amazonas).
Comments. Males of this species were not previously known (Sakakibara & Creão-Duarte, 2004). They are similar to the females, but smaller and possessing a less prominent scutellar process. The nymphs listed above are pinned together the adult individuals, and share the same voucher.

***Lophyraspis scutellata* (Fabricius, 1803)**
(Fig. 3C)
Type locality. "America Meridionali".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 22\ Creão & Rothéa cols.', 1♂ 'Membracidae/ DSEC – 0010457', and 8♀♀ 'Membracidae/ DSEC – 0010458-65'.
Distribution. Brazil (Acre [new record], Pará, Maranhão, Mato Grosso) (Sakakibara & Creão-Duarte, 2004).

***Lophyraspis* sp. 1**
(Fig. 3D)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 20\ Creão & Rothéa cols.', 2♀♀ 'Membracidae/ DSEC – 0010466-67'.
Comments. It was impossible to include these specimens in one of the known species of the genus. The genus has six described species of which five occur in Brazil: *L. diminuta* Sakakibara & Creão-Duarte, *L. fenestrata* Sakakibara & Creão-Duarte, *L. muscaria* (Fabricius), *L. pygmaea* (Fabricius) and *L. scutellata* (Fabricius) (Sakakibara & Creão-Duarte, 2004; Evangelista et al. 2023a).

***Lophyraspis* sp. 2**
(Fig. 3E)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 10\ Creão & Rothéa cols.', 1♂ 'Membracidae/ DSEC – 0010468'.
Comments. It was impossible to include this specimen in one of the known species of the genus. It resembles *Lophyraspis diminuta* Sakakibara & Creão-Duarte, 2004, differing by having the upper margin of the vertex higher and a deep depression between the eyes.

***Tropidaspis carinata* (Fabricius, 1803)**
(Fig. 3F)
Type locality. "America Meridionali".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 11\ Creão & Rothéa cols.', 1♂ 'Membracidae/ DSEC – 0010502', 2♀♀ 'Membracidae/ DSEC – 0010503-04'. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 20\ Creão & Rothéa cols.', 3♀♀ 'Membracidae/ DSEC – 0010505-07'.

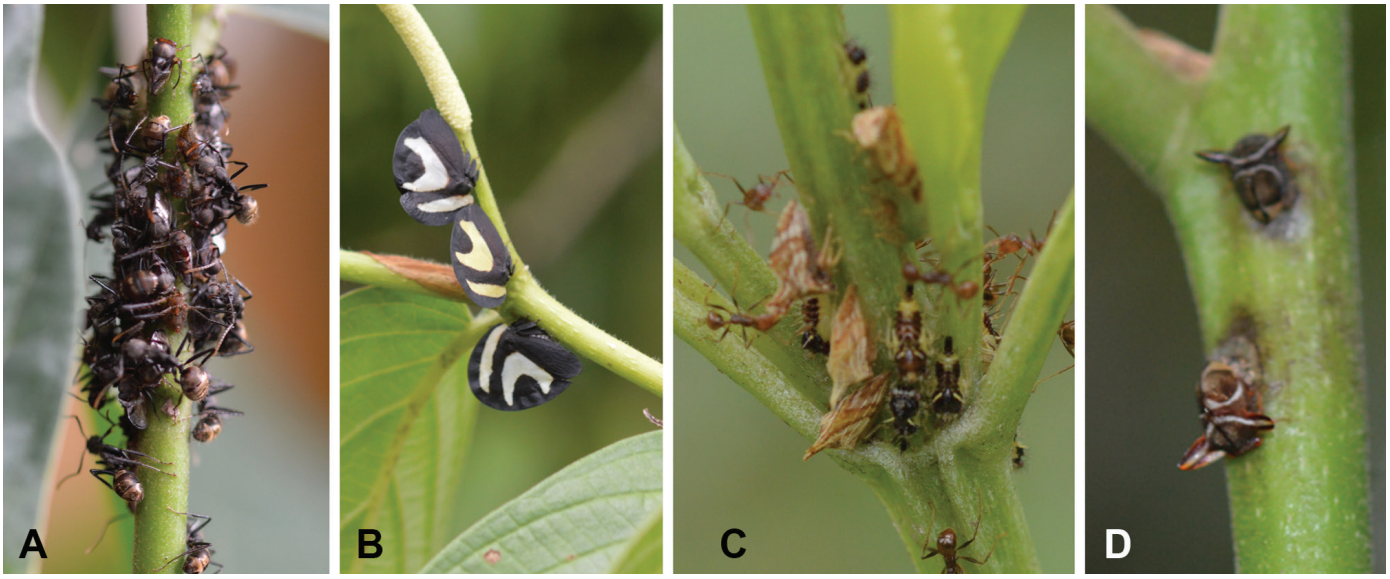

Figure 2. Treehoppers from western Acre, Brazil. (A) Adults and nymphs of *Lophyraspis fenestrata* Sakakibara & Creão-Duarte, 2004 and ants; (B) *Membracis foliatafasciata* (DeGeer, 1773); (C) Adults and nymphs of *Entylia carinata* (Forster, 1771) and ants; (D) Females of *Tropidolomia auriculata* (Olivier, 1792) lying on egg mass.

Distribution. Brazil (Acre [new record]), Colombia, Guyana (Metcalf & Wade, 1965), Peru.
Comments. Listed for Panguana by Schulze et al. (2016). According to McKamey (1998), this species is already registered in Brazil, but with no precise locality.

***Tropidaspis* sp. 1**
(Fig. 3G)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 18\ Creão & Rothéa cols.', 18♀♀ 'Membracidae/ DSEC – 0010469-86', 14♂♂ 'Membracidae/ DSEC – 0010487-500'.
Comments. The genus includes seven described species, but only *Tropidaspis carinata* (Fabricius, 1803) and *Tropidaspis truncaticornis* Goding, 1927 are known from Brazil (Mckamey, 1998; Evangelista et al. 2023a).

***Tropidaspis* sp. 2**
(Fig. 3H)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 14\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0010501'.

***Tropidaspis* sp. 3**
(Fig. 3I)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 23\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0010508'; 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 23\ Creão & Rothéa cols.' 2♀♀ 'Membracidae/ DSEC – 0010508-10', 1♂ 'Membracidae/ DSEC – 0010511'.

***Tropidaspis* sp. 4**
(Fig. 3J)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 23\ Creão & Rothéa cols.', 2♂♂ 'Membracidae/ DSEC – 0010511', 3♀♀ 'Membracidae/ DSEC – 0010508-10'; 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 22\ Creão & Rothéa cols.' 1♀ 'Membracidae/ DSEC – 0010508'.

MEMBRACIDAE Rafinesque, 1815
Centrotinae Amyot & Serville, 1843
Boocerini Goding, 1892

***Abelus maculatus* Schimidt, 1927**
(Fig. 4A)
Type locality. Bolivia, Provincia Sara.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 22\ Creão & Rothéa cols.', 1♀ 'Membracidae\ DSEC – 0010345'.
Distribution. Bolivia (Metcalf & Wade, 1965), Brazil (Acre [new record]), Peru.
Comments. First record of the subfamily from Brazil**.** Listed for Madre de Díos by Lin et al. (2019) as *Abelus* sp.

Darninae Amyot & Serville, 1843
Darnini Amyot & Serville, 1843

***Alobia alutacea* (Stål, 1869)**
(Fig. 4B)
Type locality. Suriname.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa \ Creão & Rothéa cols.', 7♀♀ 'Membracidae/ DSEC – 0010304-10', and 4♂♂ 'Membracidae/ DSEC – 0010311-14'.
Distribution. Brazil (Acre [new record], Amazonas), Suriname (Metcalf & Wade, 1965).
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009).

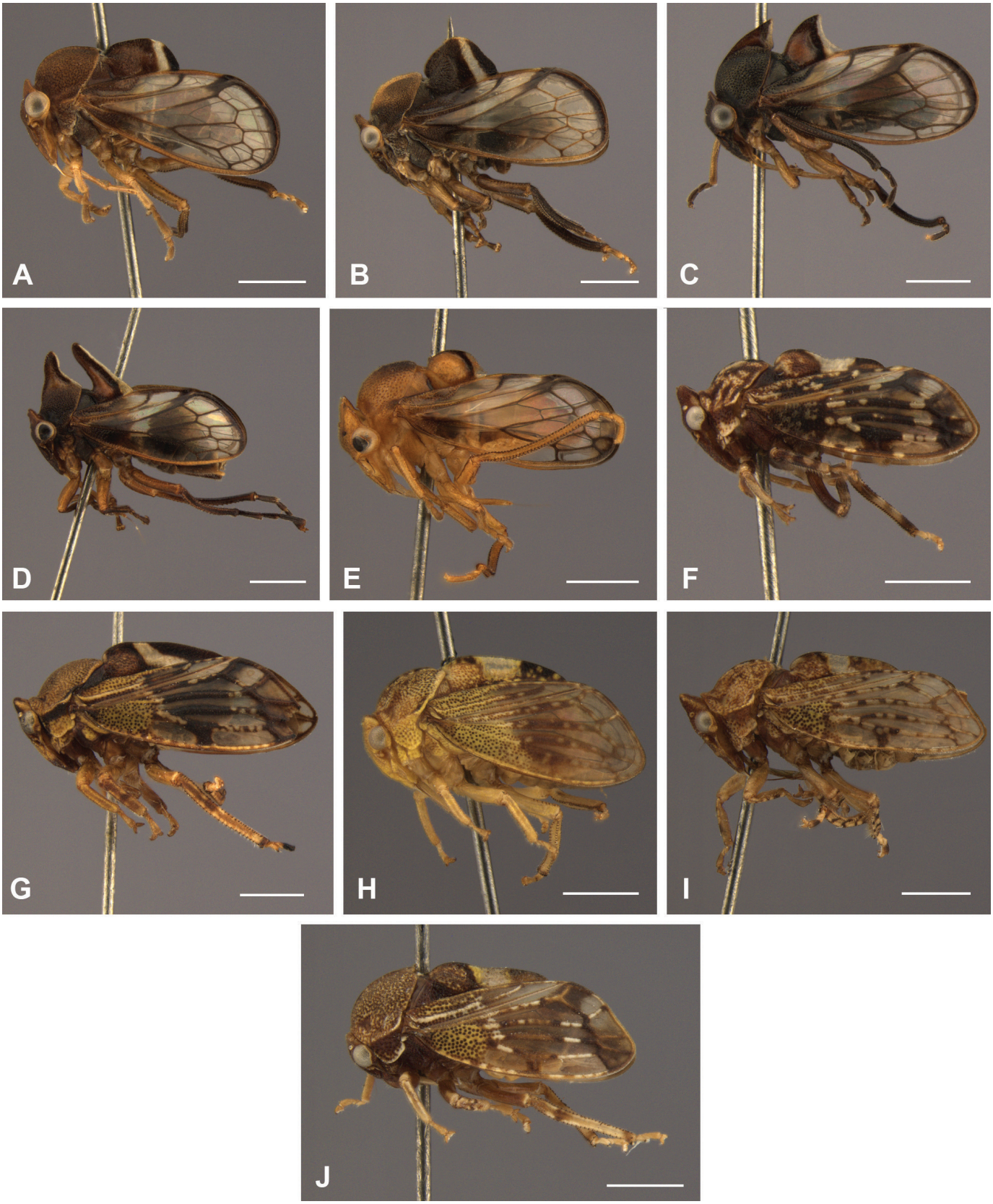

Figure 3. Treehoppers from western Acre, Brazil. Habitus, lateral view: (A) *Lophyraspis fenestrata* Sakakibara & Creão-Duarte, 2004, female; (B) *ibid*, male; (C) *Lophyraspis scutellata* (Fabricius, 1803), male; (D) *Lophyraspis* sp. 1, female; (E) *Lophyraspis* sp. 2, male; (F) *Tropidaspis carinata* (Fabricius, 1803), female; (G) *Tropidaspis* sp. 1, female; (H) *Tropidaspis* sp. 2, female; (I) *Tropidaspis* sp. 3, female; (J) *Tropidaspis* sp. 4, female. Scale bar 1 mm.

***Darnis partita* Walker, 1858**
(Fig. 4C)
Type locality. "Amazon Region".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 20\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0010315'.
Distribution. Brazil (Acre [new record], Amazonas), Colombia, Ecuador, Guyana, Mexico, Nicaragua, Panama, Peru (Metcalf & Wade, 1965; McKamey, 1998).
Comments. Listed for Colombia by Floréz-V. et al. (2015).

***Procyrta pectoralis* (Fabricius, 1803)**
(Fig. 4D)
Type locality. "America Meridionali".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Dossel 5\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0010316'.
Distribution. Bolívia, Brazil (Acre [new record], Paraíba (Cabral et al. 2020)), Ecuador, Guatemala, Honduras, Mexico, Panama (McKamey, 1998).

Endoiastinae Deitz & Dietrich, 1993
Endoiastini Deitz & Dietrich, 1993

***Scytodepsa* sp.**
(Fig. 4E)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 11♂♂ 'Membracidae/ DSEC – 0010318-28' and 16♀♀ 'Membracidae/ DSEC – 00103129-44'.
Comments. It was impossible to include these specimens in one of the known species of the genus. *Scytodepsa* consists of three described species, of which *Scytodepsa exigua* (Fabricius) and *Scytodepsa tricarinata* Funkhouser are reported for Brazil (McKamey, 1998; Evangelista et al. 2023b).

Heteronotinae Goding, 1926
Heteronotini Goding, 1926

***Allodrilus nitidipennis* (Funkhouser, 1922)**
(Fig. 4F)
Type locality. Peru, Iquitos.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 3♀♀ 'Membracidae/ DSEC – 0010168-70' and 1♂ 'Membracidae/ DSEC – 0010171'.
Distribution. Brazil (Acre, Amazonas, Pará), Ecuador, Peru (Evangelista et al. 2014).

***Anchistrotus consentaneus* (Fairmaire, 1846)**
(Fig. 4G)
Type locality. "Brésil".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 9♂♂ 'Membracidae/ DSEC – 0010175-83' and 9♀♀ 'Membracidae/ DSEC – 0010184-92'.
Distribution. Brazil (Acre [new record], Amazonas (Metcalf & Wade, 1965), Colombia.
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009) and for Colombia by Floréz-V. et al. (2015).

***Anchistrotus obesus* Buckton, 1903**
(Fig. 4H)
Type locality. Amazonas.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 22\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0010193'.
Distribution. Brazil (Acre [new record], Amazonas (Metcalf & Wade, 1965)), Colombia.
Comments. Listed for Colombia by Floréz-V. et al. (2015).

***Heteronotus belliger* (Butler, 1878)**
(Fig. 4I)
Type locality. [Brazil], St. Paulo.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Dossel 17\ Creão & Rothéa cols.', 1♂ 'Membracidae/ DSEC – 0010195'.
Distribution. Brazil (Acre [new record], São Paulo), Ecuador (Metcalf & Wade, 1965).

***Heteronotus mourei* Creão-Duarte & Sakakibara, 1993**
(Fig. 4J)
Type locality. [Brazil], Paraíba, Conde, Vale das Cascatas.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 3\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0010196'.
Distribution. Brazil (Acre [new record], Amazonas, Paraíba), Peru.
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009) and for Madre de Díos by Lin et al. (2019).

***Rhexia semiatra* (Fairmaire, 1846)**
(Fig. 4K)
Type locality. Brazil, Minas Gerais, Coromandel.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Dossel 20\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0010194'.
Distribution. Brazil (Acre [new record], Amazonas, Minas Gerais), Colombia, Panamá (Metcalf & Wade, 1965; McKamey, 1998).
Comments. Listed for Colombia by Floréz-V. et al. (2015).

***Smiliorachis* sp.**
(Fig. 4L)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 21\ Creão & Rothéa cols.', 3♂♂ 'Membracidae/ DSEC – 0010172-74'.
Comments. The genus comprises eight species, of which seven have been recorded for Brazil: *Smiliorachis bracaatingae* Sakakibara & Laroca, *Smiliorachis concinna* Stål, *Smiliorachis discrepans* Goding, *Smiliorachis nubilis* Goding, *Smiliorachis octilinea* Stål, *Smiliorachis proxima* Berg, *Smiliorachis variegata* Fairmaire (Evangelista et al. 2023b).

Membracinae Rafinesque, 1815
Aconophorini Goding, 1892

***Aconophora cultellata* Walker, 1858**
(Fig. 5A)

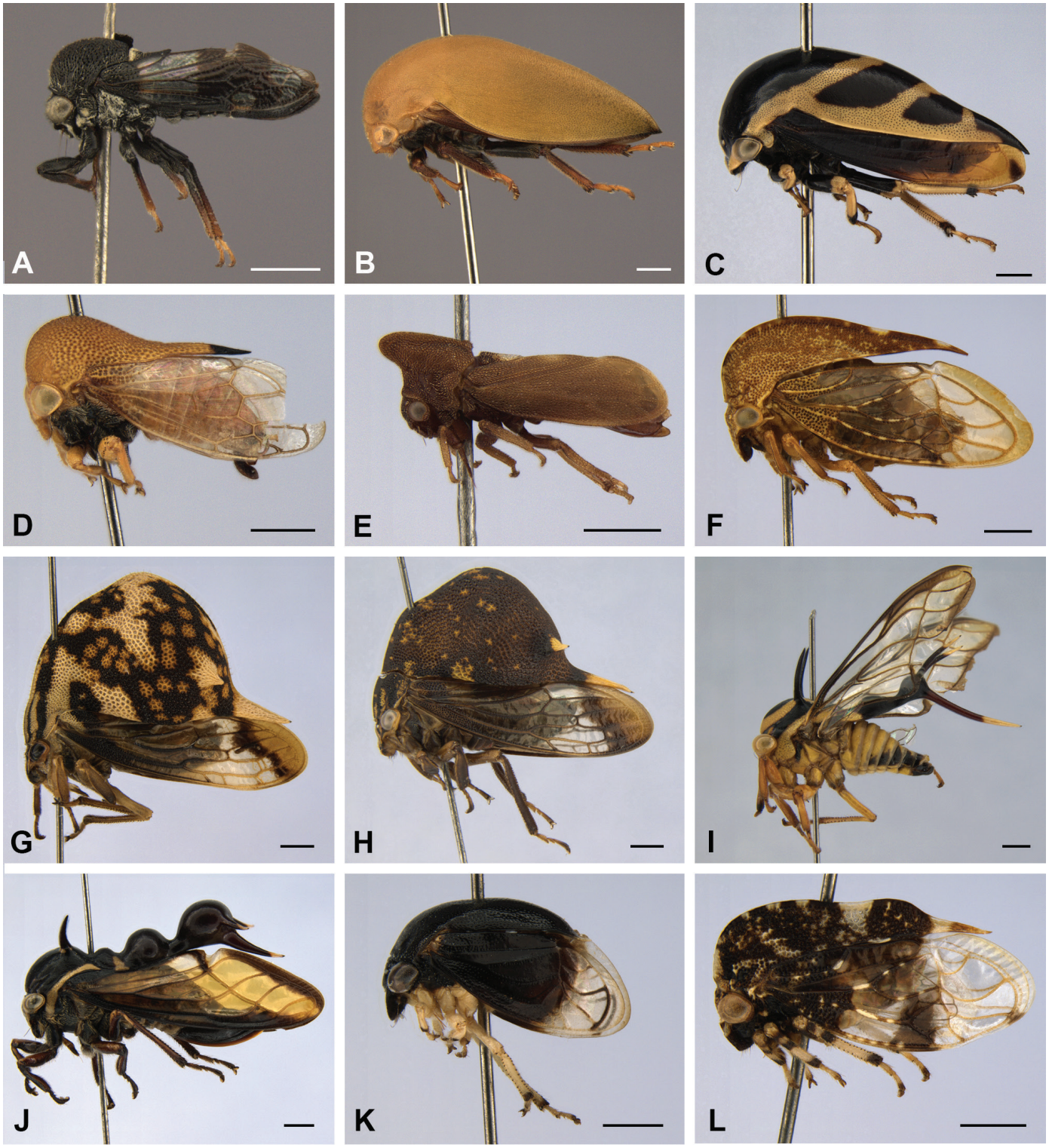

Figure 4. Treehoppers from western Acre, Brazil. Habitus, lateral view: (A) *Abelus maculatus* Schimidt, 1927, female; (B) *Alobia alutacea* (Stål, 1869), female; (C) *Darnis partita* Walker, 1858, female; (D) *Procyrta pectoralis* (Fabricius, 1803), male; (E) *Scytodepsa* sp., female; (F) *Allodrilus nitidipennis* (Funkhouser, 1922), female; (G) *Anchistrotus consentaneus* (Fairmaire, 1846), female; (H) *Anchistrotus obesus* Buckton, 1903, female; (I) *Heteronotus belliger* (Butler, 1878), male; (J) *Heteronotus mourei* Creão-Duarte & Sakakibara, 1993, female; (K) *Rhexia semiatra* (Fairmaire, 1846), female; (L) *Smiliorachis* sp., male. Scale bar 1 mm.

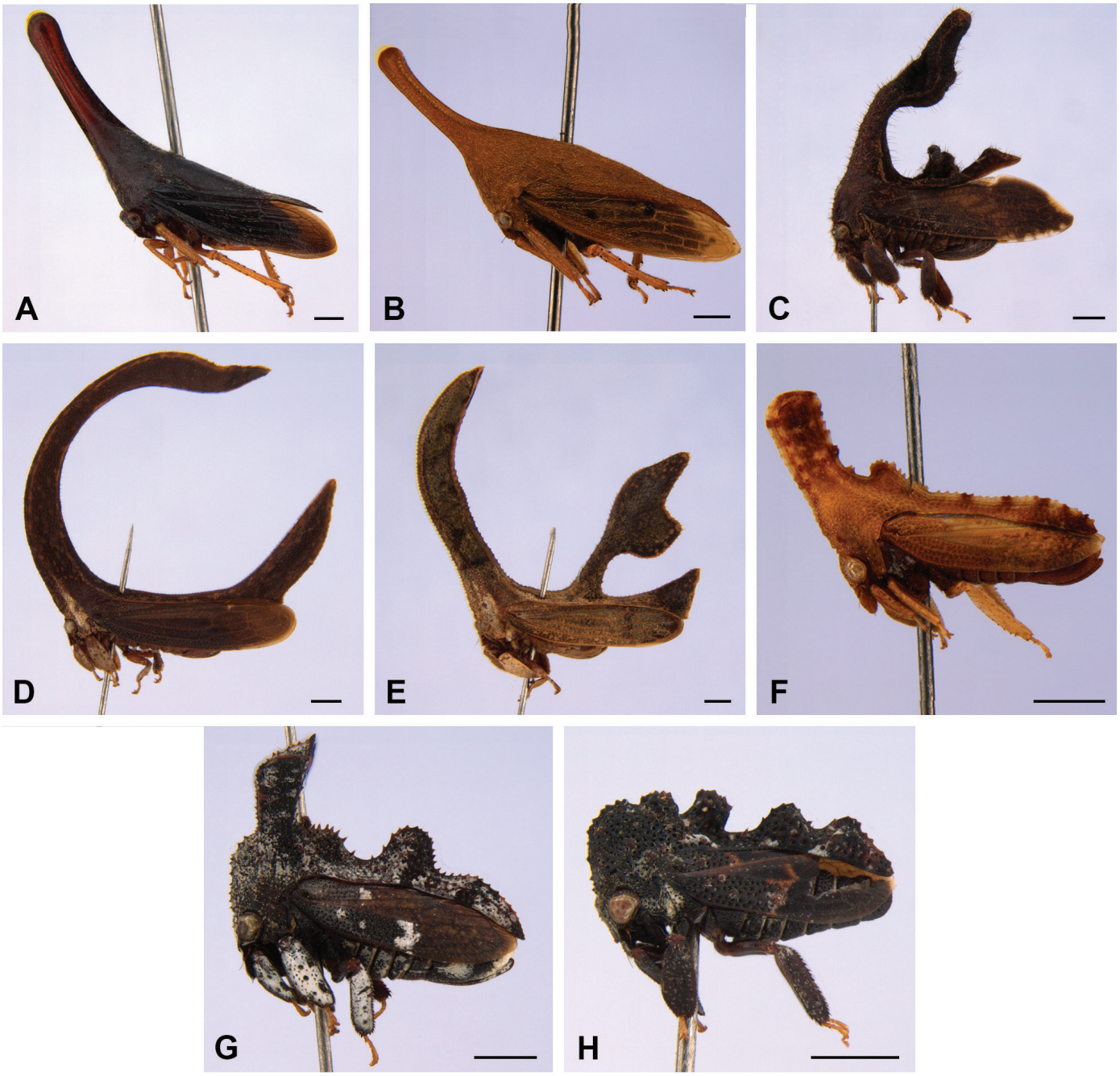

Figure 5. Treehoppers from western Acre, Brazil. Habitus, lateral view: (A) *Aconophora cultellata* Walker, 1858, male; (B) *Guayaquila tenuicornis* (Walker, 1858), female; (C) *Cladonota* (*Cladonota*) *amazonica* (Andrade, 1978), female; (D) *Cladonota* (*Falculifera*) *apicalis* (Stål, 1869), female; (E) *Cladonota* (*Lecythifera*) *gonzaloi* (Peláez, 1945), female; (F) *Hypsoprora erecta* Fonseca, 1933, female; (G) *Notocera crassicornis* (Fairmaire, 1846), female; (H) *Notocera* sp., male. Scale bar 1 mm.

Type locality. "Amazon Region".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 18♀♀ 'Membracidae/ DSEC – 0009544-61' and 2♂♂ 'Membracidae/ DSEC – 0009562-63'.
Distribution. Bolívia**,** Brazil (Acre [new record], Amazonas, Mato Grosso, Minas Gerais, Pará, Paraná, Rio de Janeiro, Rondônia, São Paulo), French Guyana, Guyana, Peru (Dietrich & Deitz, 1991), Mexico (Metcalf & Wade, 1965).
Comments. Listed for Panguana by Schulze et al. (2016).

***Guayaquila tenuicornis* (Walker, 1858)**
(Fig. 5B)
Type locality. "Amazon Region".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 2♀♀ 'Membracidae/ DSEC – 0009564-65'.
Distribution. Brazil (Acre [new record], Amazonas), Ecuador, Panama, Mexico**,** Peru (McKamey, 1998).

Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009).

Hypsoprorini Haupt, 1929

***Cladonota* (*Cladonota*) *amazonica* (Andrade, 1978)**
(Fig. 5C)
Type locality. Brazil, Mato Grosso, Sinop.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 1♂ 'Membracidae/ DSEC – 0009955' and 1♀ 'Membracidae/ DSEC – 0009956'.
Distribution. Brazil (Acre [new record], Amazonas, Mato Grosso (Flynn, 2019)).

***Cladonota* (*Falculifera*) *apicalis* (Stål, 1869)**
(Fig. 5D)
Type locality. [Colombia], Bogotá, Distrito Capital.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 27\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0009951'.
Distribution. Bolivia, Brasil (Acre [new record], Paraíba (Cabral et al. 2020)), Colombia, Ecuador, Mexico, Panama, Peru, Venezuela (Flynn, 2018).
Comments. Listed for Panguana by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015).

***Cladonota* (*Lecythifera*) *gonzaloi* (Peláez, 1945)**
(Fig. 5E)
Type locality. [Mexico], Almoloya, Oaxaca.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 2♀♀ 'Membracidae/ DSEC – 0009952-53'.
Distribution. Brazil (Acre [new record]), Ecuador, Guatemala, Mexico (Flynn, 2020).
Comments. First record for Brazil.

***Hypsoprora erecta* Fonseca, 1933**
(Fig. 5F)
Type locality. Brazil, Rio Grande do Sul, Parecy Novo.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 6♀♀ 'Membracidae/ DSEC – 0009891-96'.
Distribution. Brasil (Acre [new record], Rio Grande do Sul), Colombia (Metcalf & Wade, 1965).
Comments. Listed for Colombia by Floréz-V. et al. (2015).

***Notocera crassicornis* (Fairmaire, 1846)**
(Fig. 5G)
Type locality. "Brésil".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 2♀♀ 'Membracidae/ DSEC – 0009958-59'.
Distribution. Brasil (Acre [new record], Amazonas, Rio de Janeiro), Colombia, Venezuela (Metcalf & Wade, 1965:1341).
Comments. Listed for Colombia by Floréz-V. et al. (2015).

***Notocera* sp.**
(Fig. 5H)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 21\ Creão & Rothéa cols.', 1♂ 'Membracidae/ DSEC – 0009957'.
Comments. The genus *Notocera* currently includes 19 valid species (Creão-Duarte et al. 2017) of which thirteen have been recorded for Brazil: *N. bituberculata* (Fowler), *N. brachycera* (Fairmaire), *N. camelina* Sakakibara, *N. colavitei* Creão-Duarte & Rothéa, *N. crassicornis* (Fairmaire), *N. cruciata* (Fabricius), *N. flavopunctata* (Buckton), *N. hispida* (Fairmaire), *N. quadridens* (Fairmaire), *N. sakakibarai* Creão-Duarte & Lourenço, *N. satanas* (Lesson), *N. tripodia* (Fairmaire) and *N. tuberosa* (Fairmaire) (Evangelista et al. 2023b).

Membracini Rafinesque, 1815

***Bolbonota inaequalis* (Fabricius, 1803)**
(Fig. 6A)
Type locality. "America meridionali".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 6♀♀ 'Membracidae/ DSEC – 0009717-22', and 4♂♂ 'Membracidae/ DSEC – 0009723-26'; 'Cruzeiro do Sul\ Campus UFAC 20.V.2020 Ativa 28\ Creão & Rothéa cols.', 21♀♀ 'Membracidae/ DSEC – 0009727-47' and 8♂♂ 'Membracidae/ DSEC – 0009748-55'.
Distribution. Argentina, Brazil (Acre [new record], Minas Gerais, Mato Grosso), Costa Rica, Ecuador, Guyana, Panama, Peru, Suriname (Metcalf & Wade, 1965).
Comments. Listed for Panguana by Schulze et al. (2016).

***Bolbonota* sp.**
(Fig. 6B)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 15\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0009716'.
Comments. *Bolbonota* in divided in two subgenera, *Bolbonota* Amyot & Serville and *Tubercunota* Goding, with 11 and eight species, respectively (McKamey, 1998). For Brazil 11 of them are registered: *B. aureosericea* Stål, *B. auripennis* Fairmaire, *B. bituberculata* Stål, *B. inaequalis* (Fabricius), *B. melaena* (Germar), *B. nisus* (Germar), *B. pictipennis* Fairmaire, *B. pusilla* Fairmaire, *B. pusio* (Germar), *B. rufonotata* Fowler and *B. tuberculata* (Coquebert) (Evangelista et al. 2023b).

***Enchenopa albidorsa* (Fairmaire, 1846)**
(Fig. 6C)
Type locality. "Brésil".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 10♀♀ 'Membracidae/ DSEC – 0009654-62, 64'; 'Cruzeiro do Sul: Campus UFAC 20.V.2020\ Creão & Rothéa cols.' 1♀ 'Membracidae/ DSEC – 0009663'.
Distribution. Argentina, Bolivia, Brazil (Acre [new record], Amazonas), Ecuador, Guyana, Colombia, Peru, Suriname, Venezuela (Strümpel & Strümpel, 2014).
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009), for Panguana by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015).

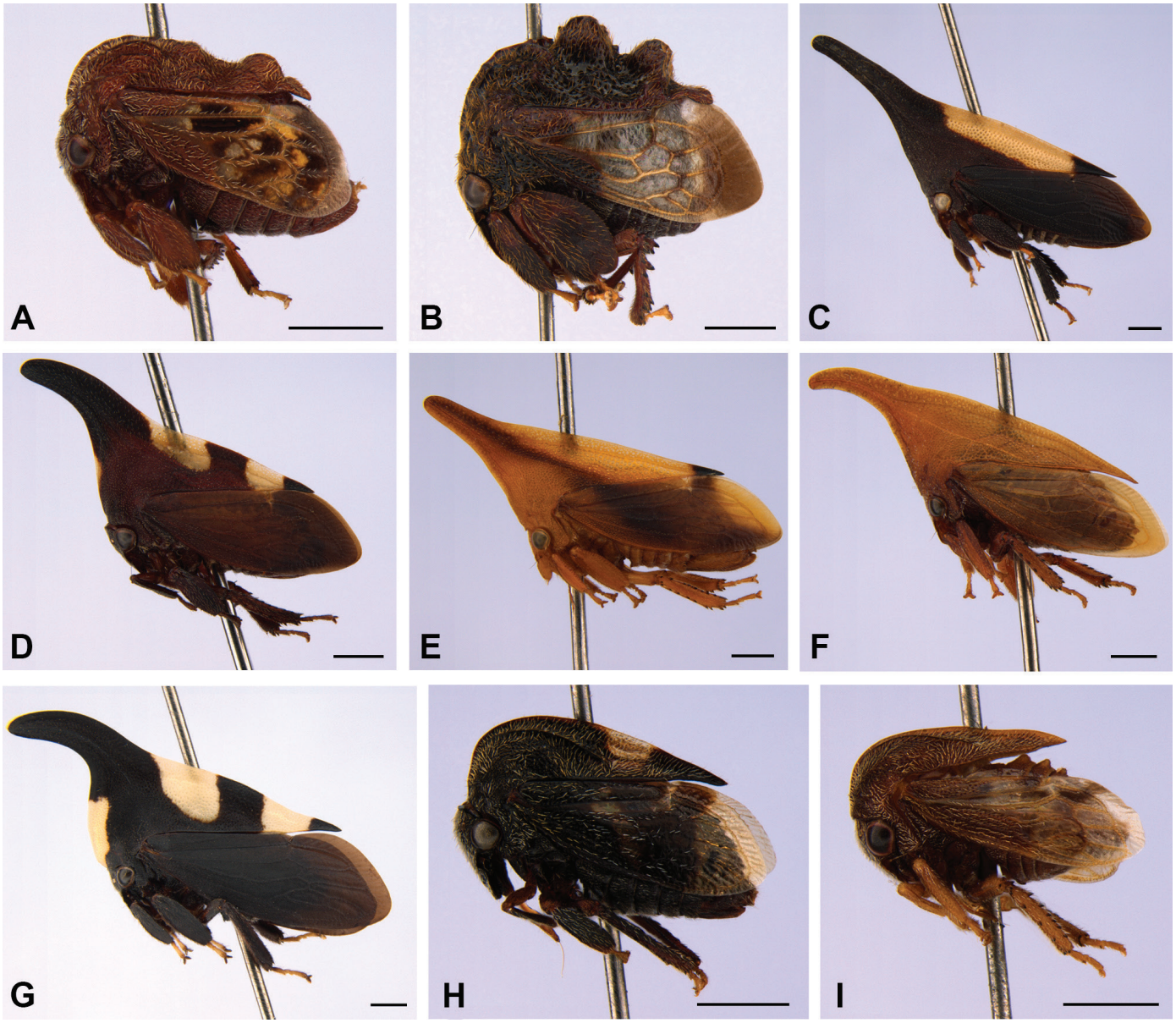

Figure 6. Treehoppers from western Acre, Brazil. Habitus, lateral view: (A) *Bolbonota inaequalis* (Fabricius, 1803), female; (B) *Bolbonota* sp., female; (C) *Enchenopa albidorsa* (Fairmaire, 1846), female; (D) *Enchenopa amazonensis* Strümpel & Strümpel, 2014, female; (E) *Enchenopa concolor* (Fairmaire, 1846), female; (F) *Enchenopa squamigera* (Linnaeus, 1758), female; (G) *Enchophyllum ucayaliensis* Strümpel, 2006, female; (H) *Leioscyta maculata* (Funkhouser, 1914), female; (I) *Leioscyta* sp., female. Scale bar 1 mm.

***Enchenopa amazonensis* Strümpel & Strümpel, 2014**
(Fig. 6D)
Type locality. Kolumbien, Leticia.
Material examined. 'Brasil, Acre, Cruzeiro do Sul: Campus UFAC\ 20.V.2020 Ativa 28\ Creão & Rothéa cols.', 5♀♀ 'Membracidae/ DSEC – 0009684-88' and 1♂ 'Membracidae/ DSEC – 0009689'.
Distribution. Brazil (Acre [new record], Amazonas), Colombia, Peru, Venezuela, French Guyana (Strümpel & Strümpel, 2014).
Comments. Listed for Colombia by Floréz-V. et al. (2015).

***Enchenopa concolor* (Fairmaire, 1846)**
(Fig. 6E)
Type locality. "Brésil".
Material examined. 'Brasil, Acre, Cruzeiro do Sul: Campus UFAC\ 20.V.2020 Ativa 28\ Creão & Rothéa cols.', 9♂♂ 'Membracidae/ DSEC – 0009631-39' and 8♀♀ 'Membracidae/ DSEC – 0009640-47'; 'Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa \ Creão & Rothéa cols.', 2♂♂ 'Membracidae/ DSEC – 0009649-50' and 4♀♀ 'Membracidae/ DSEC – 0009948, 51-53'.
Distribution. Bolivia, Brazil (Acre [new record], Amazonas, Paraíba (Creão-Duarte et al. 2017)), Colombia, Ecuador, French Guyana, Guyana, Peru, Suriname, Venezuela (Strümpel & Strümpel, 2014).
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009), for Panguana by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015).

***Enchenopa squamigera* (Linnaeus, 1758)**
(Fig. 6F)
Type locality. "America".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 2♂♂ 'Membracidae/ DSEC – 0009665-66' and 11♀♀ 'Membracidae/ DSEC – 0009667-77'; 'Cruzeiro do Sul: Campus UFAC 20.V.2020\ Creão & Rothéa cols.', 5♀♀ 'Membracidae/ DSEC – 0009678-82'.
Distribution. Bolivia, Brazil (Acre [new record], Paraíba (Creão-Duarte et al. 2017)), Colombia, Ecuador, French Guyana, Guyana, Panama, Peru, Paraguay, Suriname, Trinidad, Venezuela (Strümpel & Strümpel, 2014).
Comments. Listed for Panguana by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015).

***Enchophyllum ucayaliensis* Strümpel, 2006**
(Fig. 6G)
Type locality. Peru, Pucallpa, Yarina Cocha (Ucayali).
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 26\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0009690'.
Distribution. Brazil (Acre [new record]), Peru.
Comments. First record for Brazil. Listed for Panguana by Schulze et al. (2016).

***Leioscyta maculata* (Funkhouser, 1914)**
(Fig. 6H)
Type locality. Peru.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 22\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0009715'.
Distribution. Brazil (Acre [new record]), Colombia, Peru (Metcalf & Wade, 1965).
Comments. First record for Brazil. Listed for Colombia by Floréz-V. et al. (2015).

***Leioscyta* sp.**
(Fig. 6I)
Material examined. 'Cruzeiro do Sul: Campus UFAC\ 20.V.2020 Ativa 28\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0009714'.
Comments. The genus comprises 27 species, of which nine have been recorded for Brazil: *L. hemacroma* Fonseca & Diringshofen, *L. humeralis* Goding, *L. neivai* Fonseca, *L. pulchella* Funkhouser, *L. quadrimaculata* Fonseca, *L. rufidorsa* Goding, *L. trimaculata* Funkhouser (McKamey, 1998; Evangelista et al. 2023b).

***Membracis foliatafasciata* (DeGeer, 1773)**
(Figs. 2B, 7A)
Type locality. Suriname.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 29♀♀ 'Membracidae/ DSEC – 0009566-94' and 5♂♂ 'Membracidae/ DSEC – 0009595-99'.
Distribution. Brazil (Acre, Amazonas, Pará, Mato Grosso, Rondônia, Roraima), Peru, Suriname (Sakakibara & Evangelista, 2010).
Comments. Listed for Peru by Schulze et al. (2016).

***Membracis juncta* Walker, 1858**
(Fig. 7B)
Type locality. [Brazil], Pará.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 2♀♀ 'Membracidae/ DSEC – 0009628-29'.
Distribution. Brazil (Acre [new record], Minas Gerais, Pará), Colombia (McKamey, 1998), Peru.
Comments. Listed for Peru by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015).

***Membracis lefebvrei* Fairmaire, 1846**
(Fig. 7C)
Type locality. [French Guyana], Cayenne .
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 5♂♂ 'Membracidae/ DSEC – 0009613-17' and 10♀♀ 'Membracidae/ DSEC – 0009618-27'.
Distribution. Brazil (Acre [new record], Amazonas, Pará, Rio Grande do Sul), Colombia, Ecuador, French Guyana, Guyana, Mexico, Suriname, Venezuela (Metcalf & Wade, 1965).
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009) and Colombia by Floréz-V. et al. (2015).

***Membracis obliquifasciata* Evangelista & Sakakibara, 2010**
(Fig. 7D)
Type locality. Ecuador, Shushufindi [Sucumbius].
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 24\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0009630'.
Distribution. Brazil (Acre [new record]); Ecuador (Sakakibara and Evangelista, 2010).
Comments. First record for Brazil.

***Membracis tectigera* Olivier, 1792**
(Fig. 7E)
Type locality. Suriname.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 1♂ 'Membracidae/ DSEC – 0009600' and 12♀♀ 'Membracidae/ DSEC – 0009601-12'.
Distribution. Argentina, Bolivia, Brazil (Acre, [new record], Amazonas), Caribbean Islands, Colombia, Ecuador, French Guyana, Guyana, Mexico, Peru, Suriname, Venezuela (Metcalf & Wade, 1965).
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009), for Peru by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015).

***Tritropidia bifenestrata* (Funkhouser, 1922)**
(Fig. 7F)
Type locality. Brazil, Pará.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 11♀♀ 'Membracidae/ DSEC – 0009691-701)' and 4♂♂ 'Membracidae/ DSEC – 0009702-05'.
Distribution. Brazil (Acre [new record], Pará), Colombia, Guyana (McKamey, 1998), Peru.
Comments. Listed for Peru by Schulze et al. (2016) and Colombia by Floréz-V. et al. (2015).

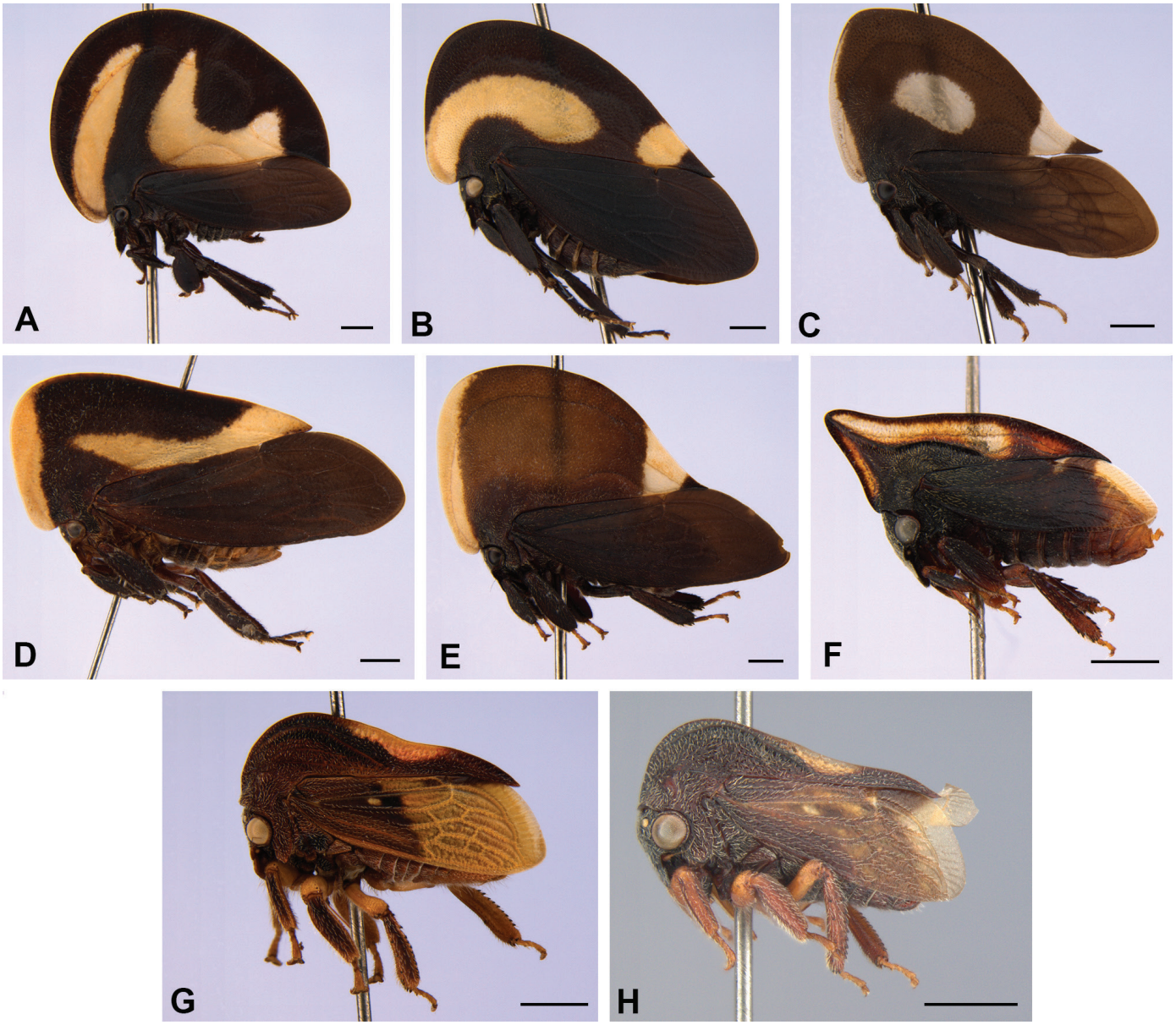

Figure 7. Treehoppers from western Acre, Brazil. Habitus, lateral view: (A) *Membracis foliatafasciata* (DeGeer, 1773), male; (B) *Membracis juncta* Walker, 1858, female; (C) *Membracis lefebvrei* Fairmaire, 1846, male; (D) *Membracis obliquifasciata* Evangelista & Sakakibara, 2010, female; (E) *Membracis tectigera* Olivier, 1792, female; (F) *Tritropidia bifenestrata* (Funkhouser, 1922), female; (G) *Erechtia sanguinolenta* (Fairmaire, 1846), female, (H) *ibid*, male. Scale bar 1 mm.

Talipedini Deitz, 1975

***Erechtia sanguinolenta* (Fairmaire, 1846)**
(Figs. 7G-H)
Type locality. [French Guyana], Cayenne.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Dossel\ Creão & Rothéa cols.', 2♂♂ 'Membracidae/ DSEC – 0009764-65'; 'Serra do Divisor\ 12-18.V.2019 Ativa 4\ Creão & Rothéa cols.', 4♂♂ 'Membracidae/ DSEC – 0009766-69' and 7♀♀ 'Membracidae/ DSEC – 0009770-76'.
Distribution. Brazil (Acre, [new record]), Ecuador, French Guyana, Suriname (Metcalf & Wade, 1965).
Comments. The species was described on the basis of a single specimen. The specimens collected exhibit variations in the intensity of the color spot and the apical half of the tegminas. Some of these specimens match the description of Fairmaire (1846). According to McKamey (1998), this species is already registered in Brazil, but with no precise locality. This is the first record of the male. They are similar to females, but smaller and with a larger yellow-orange spot on the median carina.

Membracini *incertae sedis*

***Tropidoscyta brunneidorsata* Funkhouser, 1914**
(Fig. 8A)
Type locality. Peru, Marcapata.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 30♀♀ 'Membracidae/ DSEC – 0009809-38' and 9♂♂ 'Membracidae/ DSEC – 0009839-47'.

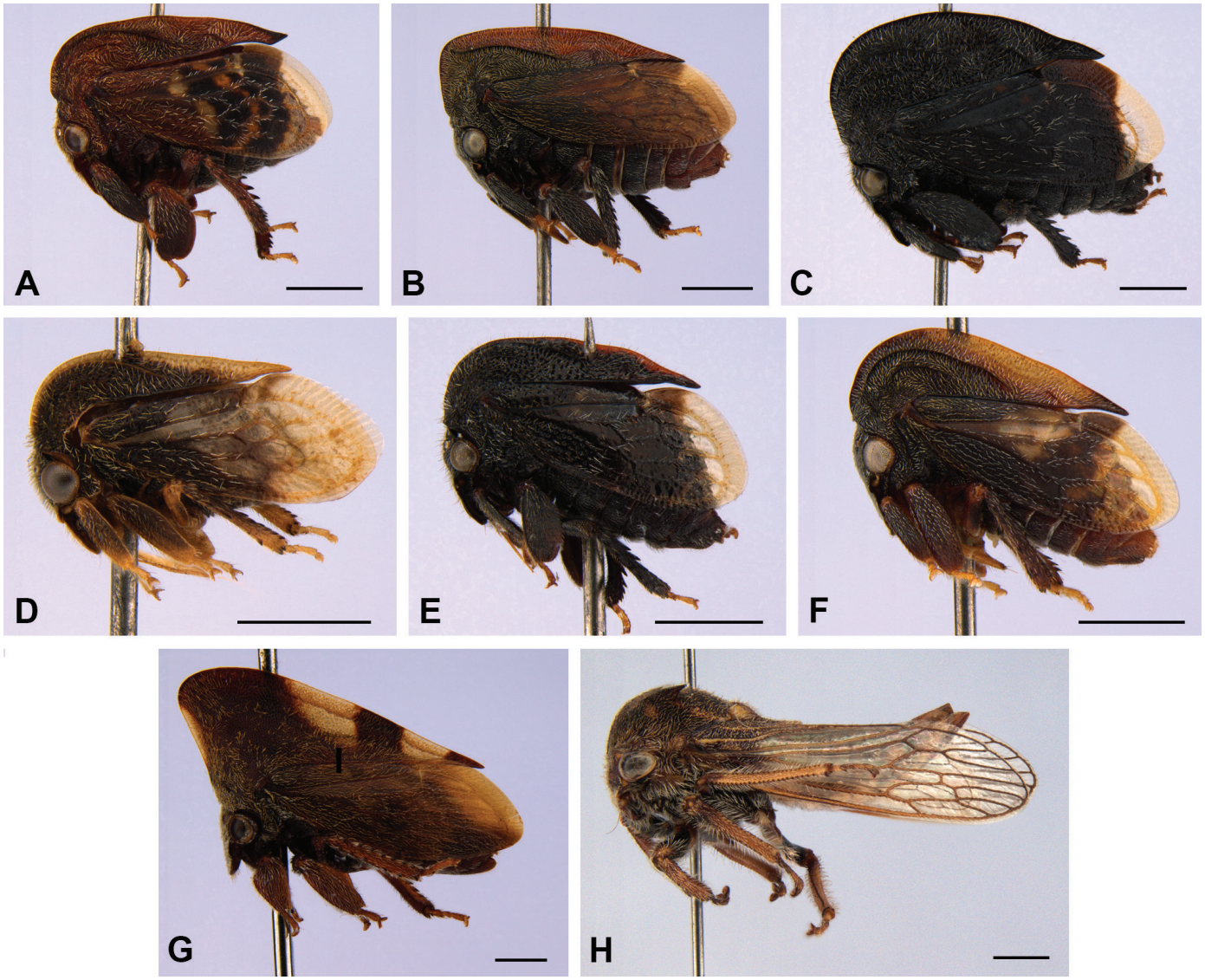

Figure 8. Treehoppers from western Acre, Brazil. Habitus, lateral view: (A) *Tropidoscyta brunneidorsata* Funkhouser, 1914, female; (B) *Tropidoscyta neglecta* Haviland, 1925, female; (C) *Tropidoscyta* sp. 1, female; (D) *Tropidoscyta* sp. 2, female; (E) *Tropidoscyta* sp. 3, female; (F) *Tropidoscyta* sp. 4, female; (G) *Erechtia trinotata* Funkhouser, 1930, female; (H) *Tolania* sp., female. Scale bar 1 mm.

Distribution. Brazil (Acre [new record]), Colombia, Peru.
Comments. First record for Brazil. The species is currently listed as *incertae sedis* (Sakakibara, 2012). Listed for Colombia by Floréz-V. et al. (2015).

***Tropidoscyta neglecta* Haviland, 1925**
(Fig. 8B)
Type locality. British Guiana, Kartabo.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 8♀♀ 'Membracidae/ DSEC – 0009706-13'.
Distribution. Brazil (Acre [new record]), Guyana.
Comments. First record for Brazil. The species is currently listed as *incertae sedis* (Sakakibara, 2012).

***Tropidoscyta* sp. 1**
(Fig. 8C)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 6♀♀ 'Membracidae/ DSEC – 0009777-82'.
Comments. This genus currently has a single valid species (Sakakibara 2012), *Tropidoscyta torva* (Germar, 1835), which differs from the specimens examined here.

***Tropidoscyta* sp. 2**
(Fig. 8D)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 18\ Creão & Rothéa cols.', 4♂♂ 'Membracidae/ DSEC – 0009783-86' and 6♀♀ 'Membracidae/ DSEC – 0009787-92'.

***Tropidoscyta* sp. 3**
(Fig. 8E)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 1♂ 'Membracidae/ DSEC – 0009793' and 8♀♀ 'Membracidae/ DSEC – 0009794-801'.

***Tropidoscyta* sp. 4**
(Fig. 8F)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 1♂ 'Membracidae/ DSEC – 0009802' and 6♀♀ 'Membracidae/ DSEC – 0009803-08'.

***Erechtia trinotata* Funkhouser, 1930**
(Fig. 8G)
Type locality. Argentina, Tucuman.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 7♀♀ 'Membracidae/ DSEC – 0009756-62' and 1♂ 'Membracidae/ DSEC – 0009763'.
Distribution. Argentina, Brazil (Acre [new record]) (Metcalf & Wade, 1965).
Comments. First record for Brazil. The species is currently listed as *incertae sedis* (Sakakibara, 2012) because it fits more naturally in the genus *Membracis* Fabricius. The specimens have been compared with the images of the holotype of *Erechtia trinotata* Funkhouser and have proved identical, but the nomenclatural acts are outside the scope of this study.

Nicomiinae Haupt, 1929
Nicomiini Haupt, 1929

***Tolania* sp.**
(Fig. 8H)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0010317'.
Comments. It was impossible to include this specimen in one of the known species of the genus, as the identification keys are based on the characteristics of the male genitalia (Albertson & Dietrich, 2006). There are currently 69 species (Albertson & Dietrich, 2006), 24 of which occur in Brazil (Evangelista et al. 2023b).

Smiliinae Stål, 1866
Amastrini Goding, 1926

***Amastris dissimilis* Broomfield, 1976**
(Fig. 9A)
Type locality. Brazil, Mato Grosso.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0009975' and 1♂ 'Membracidae/ DSEC – 0009976'.
Distribution. Brazil (Acre [new record], Mato Grosso).

***Amastris elevata* Funkhouser, 1922**
(Fig. 9B)
Type locality. Peru, Napo River.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 4\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0009977'.
Distribution. Brazil (Acre [new record], Amazonas), Guyana, Peru (Metcalf & Wade, 1965).
Comments. Listed for Panguana by Schulze et al. (2016) and Madre de Díos by Lin et al. (2019).

***Amastris rubrodorsata* Creão-Duarte & Sakakibara, 2001**
(Fig. 9C)
Type locality. Brazil, Mato Grosso, Sinop.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Dossel 8\ Creão & Rothéa cols.', 1♂ 'Membracidae/ DSEC – 0009974'.
Distribution. Brazil (Acre [new record], Mato Grosso).

***Amastris* sp.**
(Fig. 9D)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 1♀ and 3 nymphs 'Membracidae/ DSEC – 0009966, 5♀♀ 'Membracidae/ DSEC – 0009967-71' and 2♂♂ 'Membracidae/ DSEC – 0009972-73'.
Comments. The nymphs listed above are pinned together the adult individuals, and share the same voucher.. The genus presently includes 75 valid species (Wallace et al. 2015), 43 of which are found in Brazil (Evangelista et al. 2023b).

***Harmonides dispar* (Fabricius, 1803)**
(Fig. 9E)
Type locality. "America meridionali".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0009963'.
Distribution. Brazil (Acre [new record], Amazonas, Paraíba (Creão-Duarte et al. 2017), Pará), Belize, Colombia, Ecuador, Guatemala, Guyana, Honduras, Mexico, Panama, Suriname (Metcalf & Wade, 1965; McKamey, 1998).
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009) and for Colombia by Floréz-V. et al. (2015).

***Neotynelia* sp.**
(Fig. 9F)
Material examined. 'Cruzeiro do Sul: Campus UFAC 20.V.2020\ Creão & Rothéa cols., 1♀ 'Membracidae/ DSEC – 0009964'.
Comments. It was impossible to include this specimen in one of the known species of the genus. The genus currently comprises seven species (Creão-Duarte & Sakakibara, 2000), of which six occur in Brazil: *N. bandeirai* Creão-Duarte & Sakakibara, *N. martinsi* Creão-Duarte & Sakakibara, *N. nigra* (Funkhouser), *N. pubescens* (Fabricius) and *N. rafaeli* Creão-Duarte & Sakakibara (Evangelista et al. 2023b).

***Neotynelia nigra* (Funkhouser, 1940)**
(Fig. 9G)
Type locality. Peru, Leonpampa.

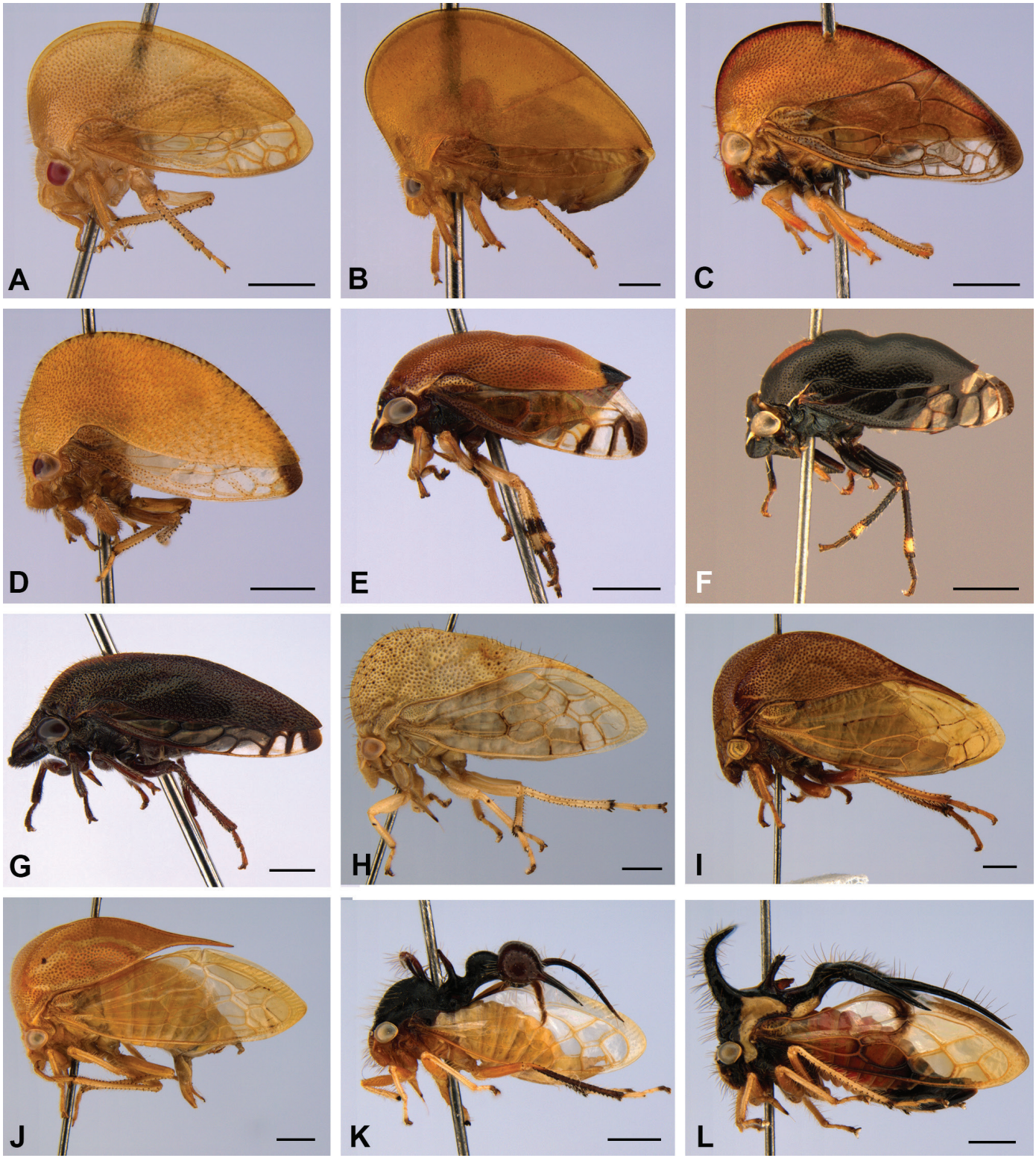

Figure 9. Treehoppers from western Acre, Brazil. Habitus, lateral view: (A) *Amastris dissimilis* Broomfield, 1976, male; (B) *Amastris elevata* Funkhouser, 1922, female; (C) *Amastris rubrodorsata* Creão-Duarte & Sakakibara, 2001, male; (D) *Amastris* sp., male; (E) *Harmonides dispar* (Fabricius, 1803), female; (F) *Neotynelia* sp., female; (G) *Neotynelia nigra* (Funkhouser, 1940), female; (H) *Amblyophallus exaltatus* (Fabricius, 1803), female; (I) *Ceresa distans* Butler, 1878, female; (J) *Ceresa* sp., male; (K) *Cyphonia clavata* (Fabricius, 1787), female; (L) *Cyphonia trifida* (Fabricius, 1775), female. Scale bar 1 mm.

Material examined. 'Cruzeiro do Sul: Campus UFAC 20.V.2020\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0009965'.
Distribution. Brazil (Acre [new record], Pará, Paraíba (Cabral et al. 2020)), Colombia, Ecuador, Peru, Suriname (Creão-Duarte & Sakakibara, 2000).
Comments. Listed for Colombia by Floréz-V. et al. (2015).

Ceresini Goding, 1892

***Amblyophallus exaltatus* (Fabricius, 1803)**
(Fig. 9H)
Type locality. "America meridionali".
Material examined. 'Cruzeiro do Sul: Campus UFAC 20.V.2020\ Creão & Rothéa cols.', 2♀♀ 'Membracidae/ DSEC – 0010146-47' and 2♂♂ 'Membracidae/ DSEC – 0010148-49'.
Distribution. Argentina, Brazil (Acre [new record], Amazonas, Paraíba (Cabral et al. 2020)), Colombia, Guyana (McKamey, 1998).
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009) and for Colombia by Floréz-V. et al. (2015).

***Ceresa distans* Butler, 1878**
(Fig. 9I)
Type locality. Brazil, Pará.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 8♀♀ 'Membracidae/ DSEC – 0010150-55, 60-61' and 6♂♂ 'Membracidae/ DSEC – 0010156-59, 62-63'.
Distribution. Bolivia, Brazil (Acre, Amazonas, Espírito Santo, Goiás, Maranhão, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Pará, Rondônia, São Paulo), Colombia, Ecuador, Peru, Suriname (Andrade, 2004).
Comments. Revalidated by Andrade (2004). Listed for Panguana by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015).

***Ceresa* sp.**
(Fig. 9J)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 2♂♂ 'Membracidae/ DSEC – 0010164, 67' and 2♀♀ 'Membracidae/ DSEC – 0010165-66'.
Comments. The genus currently comprises 35 species (Andrade, 2004; Andrade, 2015), of which 18 occur in Brazil: *C. abbreviata* Andrade, *C. atlantica* Andrade, *C. axillaris* (Germar), *C. brunnicornis* (Germar), *C. chacoana* Remes-Lenicov, *C. conica* Sakakibara, *C. cuprea* Funkhouser, *C. malina* (Germar), *C. mulsa* Remes-Lenicov, *C. paranaensis* Remes-Lenicov, *C. paulistana* Remes-Lenicov, *C. peruensis* Remes-Lenicov, *C. piramidalis* Remes-Lenicov, *C. platycera* Remes-Lenicov, *C. plaumanni* Sakakibara, *C. similis* Andrade, *C. ustulata* Fairmaire and *C. vitulus* (Fabricius) (Evangelista et al. 2023b).

***Cyphonia clavata* (Fabricius, 1787)**
(Fig. 9K)
Type locality. [French Guyana], Cayenne.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 4♀♀ 'Membracidae/ DSEC – 0010137-40'.
Distribution. Argentina, Bolivia, Brazil (Acre [new record], Amazonas, Espírito Santo, Goiás, Mato Grosso, Minas Gerais, Pará, Paraná, Paraíba, Rio de Janeiro, Rio Grande do Sul, Santa Catarina, São Paulo), Chile, Colombia, Costa Rica, Ecuador, French Guyana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Peru, Suriname, Trinidad, Venezuela (Metcalf & Wade, 1965; Sakakibara, 1972, McKamey, 1998; Cabral et al. 2020).
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009), for Panguana by Schulze et al. (2016), for Madre de Díos by Lin et al. (2019) and for Colombia by Floréz-V. et al. (2015).

***Cyphonia trifida* (Fabricius, 1775)**
(Fig. 9L)
Type locality. [French Guyana], Cayenne.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 2♀♀ 'Membracidae/ DSEC – 0010141-42' and 1♂ 'Membracidae/ DSEC – 0010143'.
Distribution. Argentina, Bolivia, Brazil (Acre [new record], Espírito Santo, Minas Gerais, Pará, Paraíba (Creão et al. 2017), Paraná, Rio de Janeiro, Santa Catarina, São Paulo), Colombia, Ecuador, French Guyana, Guyana, Mexico, Panama, Peru, Trinidad (Sakakibara, 1972; McKamey, 1998).
Comments. Listed for Panguana by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015).

***Tapinolobus albifasciatus* (Funkhouser, 1922)**
(Fig. 10A)
Type locality. Brazil, Tefé.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 12\ Creão & Rothéa cols.', 2♂♂ 'Membracidae/ DSEC – 0010144-45'.
Distribution. Argentina, Brazil (Acre [new record], Amazonas), Ecuador (Mckamey 1998:259).
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009).

Micrutalini Haupt, 1929

***Micrutalis binaria* (Fairmaire, 1846)**
(Fig. 10B)
Type locality. Colombie.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 1♂ 'Membracidae/ DSEC – 0009960' and 2♀♀ 'Membracidae/ DSEC – 0009961-62'.
Distribution. Argentina, Brazil (Acre [new record], Espírito Santo, Goiás, Mato Grosso, Minas Gerais, Paraíba (Cabral et al. 2020), Paraná, Rio de Janeiro, Rio Grande do Sul, Santa Catarina, São Paulo), Chile, Colombia, Ecuador, Guatemala, Mexico, Nicaragua, Panama, Venezuela (Metcalf & Wade, 1965; McKamey, 1998; Sakakibara, 1999).
Comments. Listed for Colombia by Floréz-V. et al. (2015).

Polyglyptini Goding, 1892

***Aphetea parvula* (Fabricius, 1803)**
(Fig. 10C)
Type locality. "America meridionali".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 16♀♀ 'Membracidae/

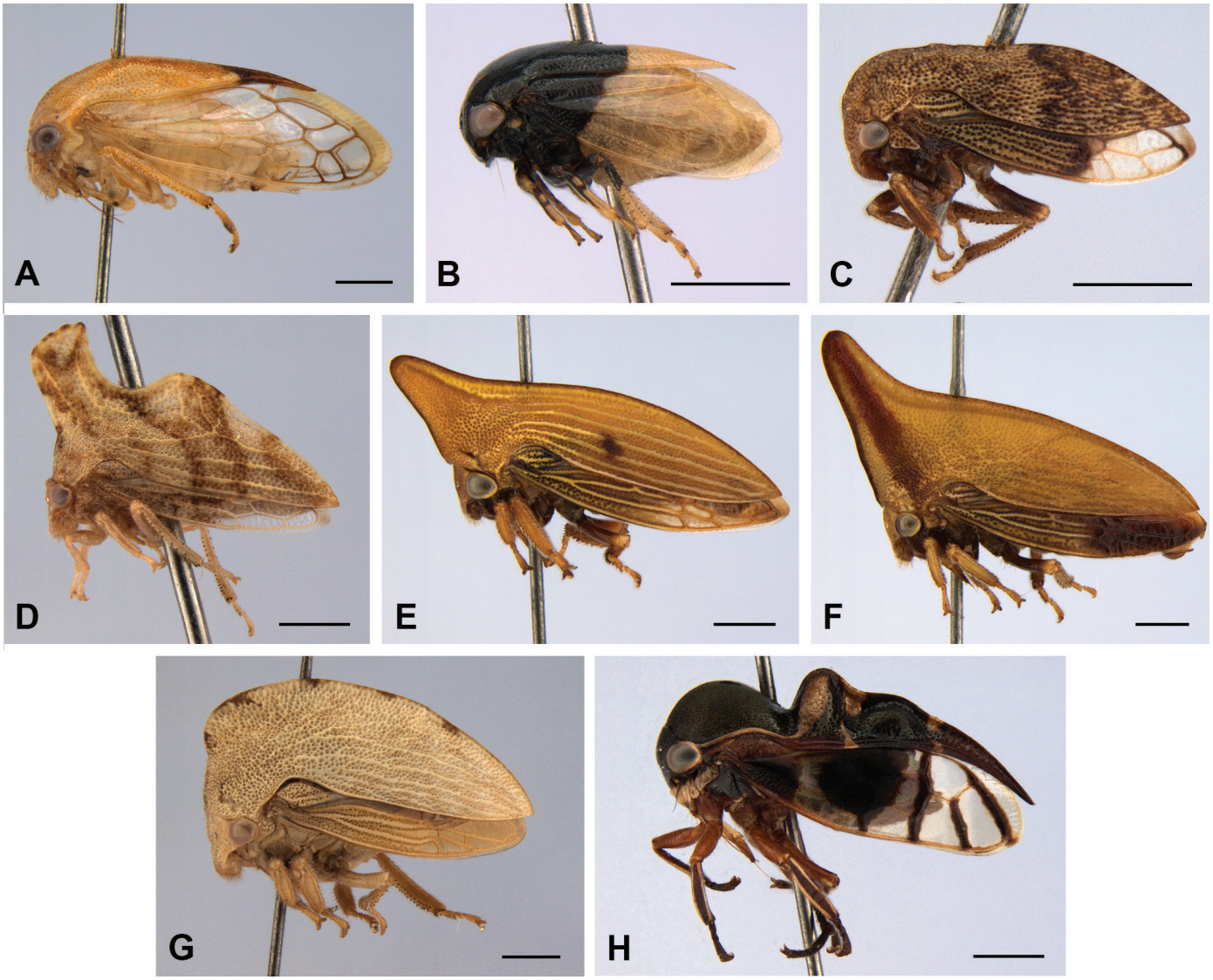

Figure 10. Treehoppers from western Acre, Brazil. Habitus, lateral view: (A) *Tapinolobus albifasciatus* (Funkhouser, 1922), male; (B) *Micrutalis binaria* (Fairmaire, 1846), female; (C) *Aphetea parvula* (Fabricius, 1803), male; (D) *Entylia carinata* (Forster, 1771), female; (E) *Hemiptycha cultrata* (Coquebert, 1801), male; (F) *Hemiptycha obtecta* (Fabricius, 1803), male; (G) *Ramedia juncta* Creão-Duarte & Sakakibara, 1989, female; (H) *Thuris binodosus* (Goding, 1926), female. Scale bar 1 mm.

DSEC – 0010276-91' and 9♂♂ 'Membracidae/ DSEC – 0010293-301', 'Serra do Divisor\ 12-18.V.2019 Dossel 19\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0010292'.
Distribution. Brazil (Acre [new record]), Colombia, Ecuador, Guyana, Peru (McKamey, 1998).
Comments. First record for Brazil. Listed for Colombia by Floréz-V. et al. (2015).

***Entylia carinata* (Forster, 1771)**
(Figs. 2C, 10D)
Type locality. "Americae Septentrionalis provinciâ Noveboracensi".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 18♂♂ 'Membracidae/ DSEC – 0010197-213,10215', 1♂ and 1 nymph 'Membracidae/ DSEC – 0010214', and 29♀♀ 'Membracidae/ DSEC – 0010216-44'.
Distribution. Brazil (Acre [new record], Espírito Santo, Rio Grande do Sul), Canada, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Haiti, Mexico, Nicaragua, Panama, Peru, United States of America, Venezuela (McKamey, 1998).
Comments. Listed for Colombia by Floréz-V. et al. (2015).

***Hemiptycha cultrata* (Coquebert, 1801)**
(Fig. 10E)
Type locality. "America meridionali".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 2♂♂ 'Membracidae/ DSEC – 0010255-56' and 2♀♀ 'Membracidae/ DSEC – 0010257-58'.
Distribution. Brazil (Acre [new record]), Argentina, Colombia, Guyana (McKamey, 1998), Peru.

Comments. Listed for Panguana by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015). According to McKamey (1998), this species is already registered in Brazil, but with no precise locality.

***Hemiptycha obtecta* (Fabricius, 1803)**
(Fig. 10F)
Type locality. "America meridionali".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 6♀♀ 'Membracidae/ DSEC – 0010245-50', 1♀ and 1 nymph 'Membracidae/ DSEC – 0010251-52', and 2♂♂ 'Membracidae/ DSEC – 0010253-54'.
Distribution. Brasil (Acre, Amazonas), Guyana (McKamey, 1998), Peru.
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009) and for Panguana by Schulze et al. (2016).

***Ramedia juncta* Creão-Duarte & Sakakibara, 1989**
(Fig. 10G)
Type locality. Brazil, Acre, Rio Branco.
Material examined. 'Brasil, Acre, Cruzeiro do Sul: Campus UFAC 20.V.2020 Ativa 28\ Creão & Rothéa cols.', 11♀♀ 'Membracidae/ DSEC – 0010259-69' and 6♂♂ 'Membracidae/ DSEC – 0010270-75'.
Distribution. Brazil (Acre, Mato Grosso).

Thuridini Deitz, 1975

***Thuris binodosus* (Goding, 1926)**
(Fig. 10H)
Type locality. Ecuador, Napo River, Tena.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 25\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0010303'.
Distribution. Brazil (Acre [new record], Mato Grosso (Sakakibara, 1975)), Ecuador (McKamey, 1998).

Tragopini Stål, 1866

***Anobilia guianae* (Haviland, 1925)**
(Fig. 11A)
Type locality. [Dominican Republic], Ocoa [San José de Ocoa].
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 37♀♀ 'Membracidae/ DSEC – 0010060-69, 71-97' and 10♂♂ 'Membracidae/ DSEC – 0010056-59, 70, 098-102'.
Distribution. Brazil (Acre [new record]), Colombia (Tode, 1966), Dominican Republic, Guyana (McKamey, 1998), Peru.
Comments. First record for Brazil. Listed for Panguana by Schulze et al. (2016).

***Anobilia invariabilis* Tode, 1966**
(Fig. 11B)
Type locality. [Colombia], Ocoa.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V. 2019 Ativa\ Creão & Rothéa cols.', 3♀♀ 'Membracidae/ DSEC – 0010105-07'.
Distribution. Brazil (Acre [new record]), Colombia (McKamey, 1998), Peru.
Comments. First record for Brazil. Listed for Panguana by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015).

***Anobilia nigra* Tode, 1966**
(Fig. 11C)
Type locality. [Colombia], Rio Guayuriba.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Dossel 4\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0010108'.
Distribution. Brazil (Acre [new record], Paraíba (Cabral et al. 2020)), Colombia (Tode, 1966), Peru.
Comments. Listed for Panguana by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015).

***Anobilia* sp.**
(Fig. 11D)
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Dossel 4\ Creão & Rothéa cols.', 10♀♀ 'Membracidae/ DSEC – 0010109-17', 1♀ and 1 nymph 'Membracidae/ DSEC – 0010118; 1♀♂ 'Membracidae/ DSEC – 0010119', and 3♂♂ 'Membracidae/ DSEC – 00101120-22' .
Comments. The genus currently comprises nine species (Tode, 1966; Flórez-V et al. 2015), of which two occur in Brazil: *A. nigra* Tode and *A. splendida* Tode (Cabral et al. 2020).

***Chelyoidea dohrni* (Fairmaire, 1846)**
(Fig. 11E)
Type locality. [Bolivia], Santa-Cruz [Santa Cruz de la Sierra].
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 11\ Creão & Rothéa cols.', 1♂ 'Membracidae/ DSEC – 0010010'.
Distribution. Brazil (Acre [new record], Amazonas, Goiás, Pará), Colombia, Caribbean Islands (Metcalf & Wade, 1965; McKamey, 1998).
Comments. Listed for Colombia by Floréz-V. et al. (2015).

***Colisicostata albata* (Tode, 1966)**
(Fig. 11F)
Type locality. [Colombia], Cano Grande, Ocoa.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 20\ Creão & Rothéa cols.', 2♀♀ 'Membracidae/ DSEC – 0010008-09'.
Distribution. Brazil (Acre [new record]), Colombia.
Comments. First record for Brazil. Listed for Colombia by Floréz-V. et al. (2015). While the species is primarily known based on male specimens, we only possess female specimens that display resemblances to the pronotum morphology of this species.

***Horiola ferruginea* Fairmaire, 1846**
(Fig. 11G)
Type locality. [Brazil] Capitainerie de St-Paul.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 6♂♂ 'Membracidae/ DSEC – 0010131-36'.

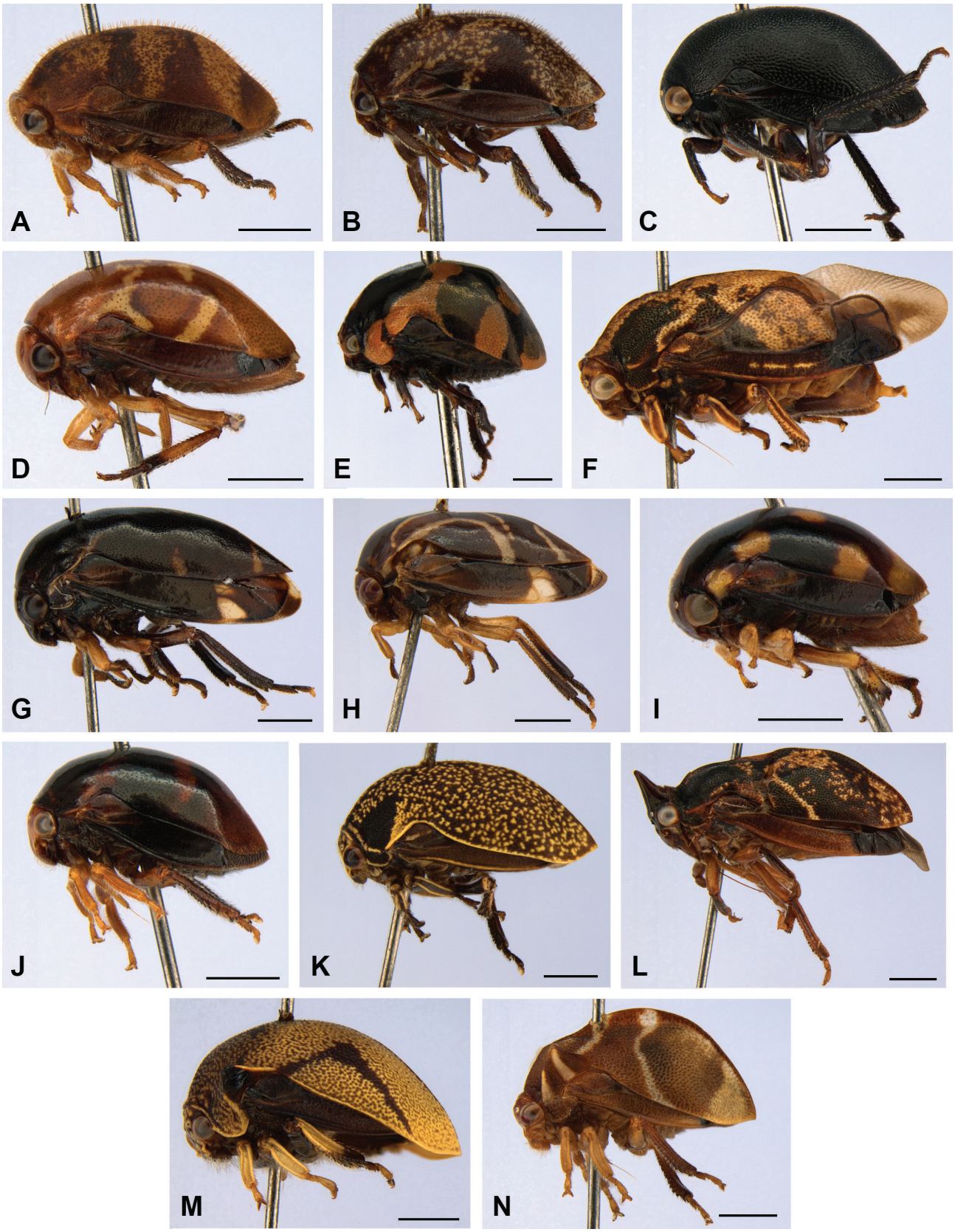

Figure 11. Treehoppers from western Acre, Brazil. Habitus, lateral view: (A) *Anobilia guianae* (Haviland, 1925), female; (B) *Anobilia invariabilis* Tode, 1966, male; (C) *Anobilia nigra* Tode, 1966, female; (D) *Anobilia* sp., female; (E) *Chelyoidea dohrni* (Fairmaire, 1846), male; (F) *Colisicostata albata* (Tode, 1966), female; (G) *Horiola ferruginea* Fairmaire, 1846, male; (H) *Horiola picta* (Coquebert, 1801), male; (I) *Stilbophora luteimaculata* (Funkhouser, 1914), female; (J) *Stilbophora sagittata* (Tode, 1966), male; (K) *Todea incerta* (Tode, 1966), female; (L) *Tragopa corniculata* Stål, 1869, male; (M) *Tragopa fasciata* (Funkhouser, 1922), female; (N) *Tropidolomia auriculata* (Olivier, 1792), male. Scale bar 1 mm.

Distribution. Bolivia**,** Brazil (Acre [new record], Bahia, Rio de Janeiro, Minas Gerais, Pará, Paraíba (Cabral et al. 2020)), Colombia, Ecuador, Guyana, Peru, United States of America (?) (Metcalf & Wade, 1965; McKamey, 1998).
Comments. Listed for Madre de Díos by Lin et al. (2019) and for Colombia by Floréz-V. et al. (2015).

***Horiola picta* (Coquebert, 1801)**
(Fig. 11H)
Type locality. "America meridionali".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 6♀♀ 'Membracidae/ DSEC – 0010123-28' and 2♂♂ 'Membracidae/ DSEC – 0010129-30'.
Distribution. Bolivia**,** Brazil (Acre [new record], Amazonas, Bahia, Minas Gerais, Pará, Paraíba (Cabral et al. 2020), Rio de Janeiro), Colombia, Costa Rica, Ecuador, French Guyana, Taboga Island, Panama, Peru, Venezuela (Metcalf & Wade, 1965; McKamey, 1998).
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009), for Panguana by Schulze et al. (2016), for Madre de Díos by Lin et al. (2019) and for Colombia by Floréz-V. et al. (2015).

***Stilbophora luteimaculata* (Funkhouser, 1914)**
(Fig. 11I)
Type locality. Peru.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 11\ Creão & Rothéa cols.', 2♀♀ 'Membracidae/ DSEC – 0010103-04'.
Distribution. Brazil (Acre [new record]), Colombia, Ecuador, Peru (Metcalf & Wade, 1965).
Comments. First record for Brazil. Listed for Panguana by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015).

***Stilbophora sagittata* (Tode, 1966)**
(Fig. 11J)
Type locality. [Colombia], Caqueta, Rio Orteguaza.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 26♀♀ 'Membracidae/ DSEC – 0010012-37' and 18♂♂ 'Membracidae/ DSEC – 0010038-55'.
Distribution. Brazil (Acre [new record]), Colombia, Peru.
Comments. First record for Brazil. Listed for Panguana by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015).

***Todea incerta* (Tode, 1966)**
(Fig. 11K)
Type locality. [Colombia], Ocoa.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 20\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0010011'.
Distribution. Brazil (Acre [new record]), Colombia.
Comments. First record for Brazil. Listed for Colombia by Floréz-V. et al. (2015). The genus consists of five known species (Tode, 1966), and only *Todea cimicoides* (Coquebert) was recorded for Brazil (Evangelista et al. 2023b).

***Tragopa corniculata* Stål, 1869**
(Fig. 11L)
Type locality. [French Guyana], Cayenne.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0010007'.
Distribution. Brazil (Acre [new record]), Colombia, French Guiana, Suriname (Metcalf & Wade, 1965; McKamey, 1998).
Comments. Listed for Colombia by Floréz-V. et al. (2015). According McKamey (1998), this species is already registered in Brazil, but with no precise locality.

***Tragopa fasciata* (Funkhouser, 1922)**
(Fig. 11M)
Type locality. Brazil, Pará.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 3♀♀ and 3 nymphs 'Membracidae/ DSEC – 0009978-80', 7♀♀ 'Membracidae/ DSEC – 0009981-87' and 4♂♂ 'Membracidae/ DSEC – 0009988-91'.
Distribution. Brazil (Acre, [new record], Amazonas, Pará), Colombia (Metcalf & Wade, 1965).
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009) and for Colombia by Flórez-V. et al. (2015). This species was originally described in *Chelyoidea* Buckton; however, these specimens may belong to *Todea* McKamey species, as they exhibit an elevated pronotum that is wide between humeral angles, almost as wide as long, and well-developed post-ocular lobes, forming ear-like processes, which are diagnostic characteristics of this genus (Flórez-V. et al., 2015). A taxonomic revision is necessary to resolve potential generic changes within this group.

***Tropidolomia auriculata* (Olivier, 1792)**
(Figs. 2D, 11N)
Type locality. Suriname.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 7♀♀ 'Membracidae/ DSEC – 0009992-98', 2♀♀ and 2 nymphs 'Membracidae/ DSEC – 0009999-0010000, 1♂ 'Membracidae/ DSEC – 0010001', 5♂♂ and 5 nymphs 'Membracidae/ DSEC – 0010002-06'.
Distribution. Brazil (Acre [new record], Amazonas, Bahia), Colombia, Peru, Suriname (Tode, 1966).
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009), for Panguana by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015).

Stegaspidinae Haupt, 1929
Stegaspidini Haupt, 1929

***Bocydium globulare* (Fabricius, 1803)**
(Fig. 12A)
Type locality. "America meridionali".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 8♀♀ 'Membracidae/ DSEC – 0009938-45' and 2♂♂ 'Membracidae/ DSEC – 0009946-47'.

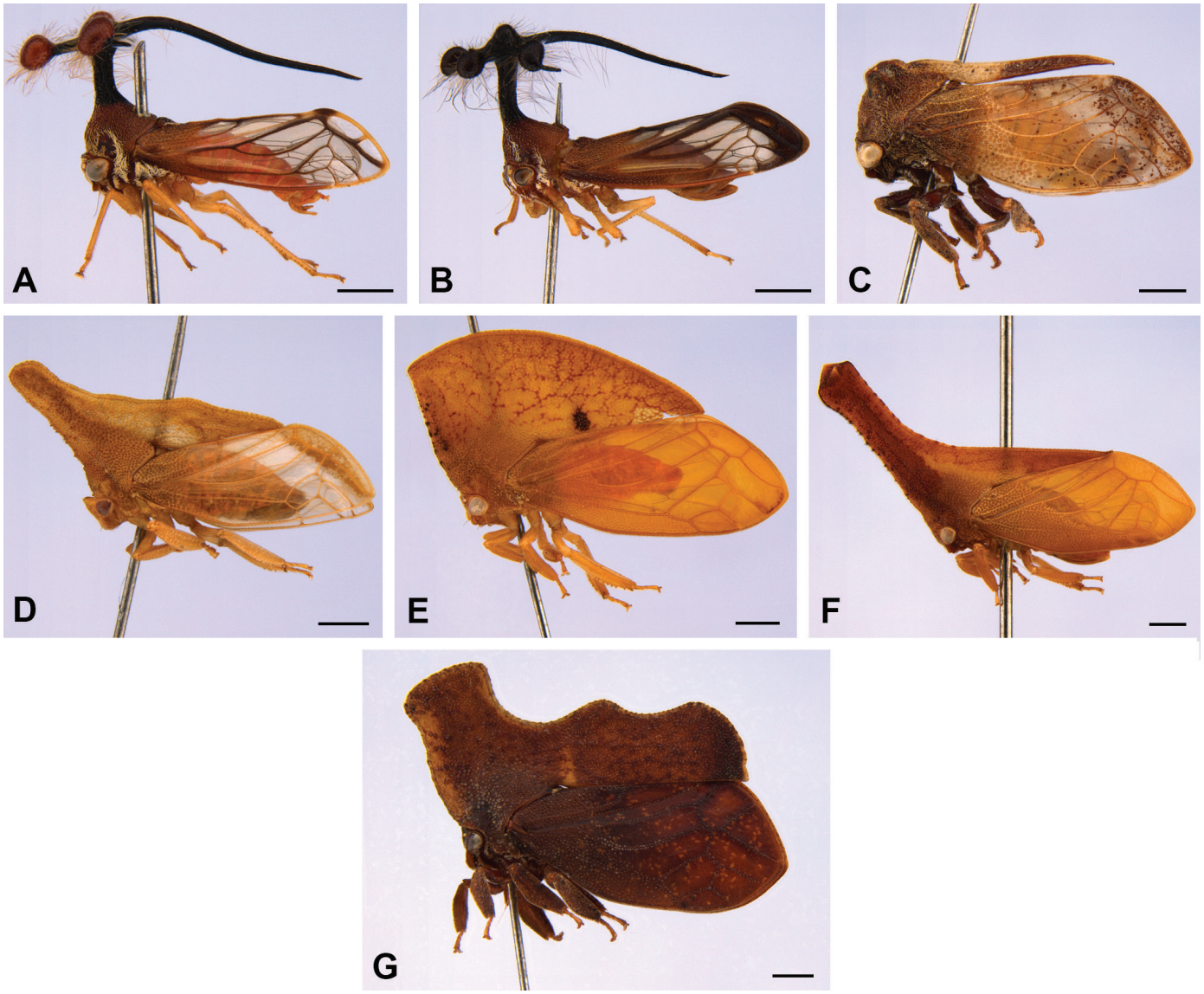

Figure 12. Treehoppers from western Acre, Brazil. Habitus, lateral view: (A) *Bocydium globulare* (Fabricius, 1803), male; (B) *Bocydium nigrofasciatum* Richter, 1955, female; (C) *Flexocentrus felinus* (Haviland, 1925), female; (D) *Lycoderides luteus* Funkhouser, 1940, female; (E) *Lycoderides marginalis* (Walker, 1851), male; (F) *Lycoderides phasianus* (Fowler, 1896), female; (G) *Stegaspis fronditia* (Linnaeus, 1758), female. Scale bar 1 mm.

Distribution. Brazil (Acre [new record], Amazonas, Bahia, Pará (Sakakibara, 1981)), Peru.
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009) and for Panguana by Schulze et al. (2016).

***Bocydium nigrofasciatum* Richter, 1955**
(Fig. 12B)
Type locality. [Colombia], Meta, Rio Guayuriba.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 26\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0009948' and 1♂ 'Membracidae/ DSEC – 0009949'.
Distribution. Brazil (Acre [new record]), Colombia (Metcalf & Wade, 1965; McKamey, 1998).
Comments. First record for Brazil. Listed for Colombia by Floréz-V. et al. (2015).

***Flexocentrus felinus* (Haviland, 1925)**
(Fig. 12C)
Type locality. Guyana, Kartabo.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 8\ Creão & Rothéa cols.', 1♀ 'Membracidae/ DSEC – 0009950'.
Distribution. Brazil (Acre [new record], Amazonas), Ecuador, French Guyana, Guyana, Venezuela (Cryan & Deitz, 2000).
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009).

***Lycoderides luteus* Funkhouser, 1940**
(Fig. 12D)
Type locality. Peru, Amazonas, Guaybamba.

Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 14♂♂ 'Membracidae/ DSEC – 0009848-61) and 21♀♀ 'Membracidae/ DSEC – 0009862-82'.
Distribution. Brazil (Acre [new record], Mato Grosso), Colombia, French Guyana, Peru (Sakakibara, 2013).
Comments. Listed for Colombia by Floréz-V. et al. (2015).

***Lycoderides marginalis* (Walker, 1851)**
(Fig. 12E)
Type locality. Brazil, Pará.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa 20\ Creão & Rothéa cols.', 1♂ 'Membracidae/ DSEC – 0009890'.
Distribution. Brazil (Acre [new record], Amazonas, Pará, Mato Grosso (Sakakibara, 2013)).
Comments. Listed for Ducke Reserve by Creão-Duarte & Sakakibara (2009).

***Lycoderides phasianus* (Fowler, 1896)**
(Fig. 12F)
Type locality. Panama, Bugaba.
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 6♀♀ 'Membracidae/ DSEC – 0009883-88' and 1♂ 'Membracidae/ DSEC – 0009889'.
Distribution. Brazil (Acre [new record]), Ecuador, Honduras, Mexico, Panama, Peru (Sakakibara, 2013).
Comments. First record for Brazil.

***Stegaspis fronditia* (Linnaeus, 1758)**
(Fig. 12G)
Type locality. "America".
Material examined. 'Brasil, Acre, Mâncio Lima: Serra do Divisor\ 12-18.V.2019 Ativa\ Creão & Rothéa cols.', 5♂♂ 'Membracidae/ DSEC – 0009897-901)', 4♀♀ and 4 nymphs 'Membracidae/ DSEC – 0009902-05', 32♀♀ 'Membracidae/ DSEC – 0009906-37'.
Distribution. Brazil (Acre [new record], Amapá, Amazonas, Maranhão, Pará), Colombia, Ecuador (Swing, 2012), Peru.
Comments. Listed for Panguana by Schulze et al. (2016) and for Colombia by Floréz-V. et al. (2015).

Discussion

In this study 94 species of treehoppers were collected, of which seventeenspecies are new records of Membracidae for Brazil, including the first record of the subfamily Centrotinae for the country, *Abelus maculatus* Schimidt.

Most of the specimens were captured by active collection, with just eight specimens collected with sticky cards, and none with light traps. Low field temperatures could be responsible for the poor efficiency of these last two sampling methods, since they require the treehoppers to be active, which is reduced at lower temperatures (Jocson et al. 2019; Leith et al. 2020). In addition, monkeys were seen destroying sticky cards placed in the canopy.

The estimated richness by Chao1 and Chao2 for SDNP were 71.43% and 72.22%, respectively, suggesting that local diversity may be much higher, especially regarding the groups with solitary behavior and thus more challenging to detect, such as Centrotinae, Darninae, Endoiastinae, and Nicomiinae. Cabral et al. (2020) proposed a collection protocol for Membracidae to be applied in humid forests, and the authors highlighted that 18.7% of the collected species were obtained exclusively by canopy cards, 17.6% only by light trap, and 2.0% by cards thrown into the understory, reinforcing that the use of other collection methods can increase the richness sampled from the area.

Treehopper species collected at SDNP and UFAC were compared with checklists from four other Amazonian locations: Brazilian Amazonia, Manaus, Adolpho Ducke Forest Reserve (03°08'S 60°02'W, 100 km², 1,600 km northeast) (Creão-Duarte & Sakakibara 2009); Peruvian Amazonia, Panguana Biological Research Station (9°36'49,2"S 74°56'8,2"W, 10 km², 250 km south) (Schulze et al. 2016); Peruvian Amazonia, Villa Carmen Biological Station (12°53'43,8"S 71°24'13,68"W, 30,65 km², 600 km southeast) and Los Amigos Biological Station (CICRA) (12°34'8,04"S 70°06'2,16"W, 4,53 km², 700 km southeast) (Lin et al. 2019); and Colombian Amazonia, several locations (at least 650 km away north) (Flórez-V. et al. 2015).

Creão-Duarte & Sakakibara (2009) listed 56 membracid species for the Adolpho Ducke Forest Reserve, where five of the nine current subfamilies were represented, being Smiliinae and Membracinae the richest taxa with 18 and 16 species, respectively. The subfamilies Centrotinae, Centronodinae, Endoiastinae and Nicomiinae had no representatives included in their listing. This study found 19 species shared with those of the Adolpho Ducke Forest Reserve.

Schulze et al. (2019) listed 74 treehopper species (73 Membracidae and one Aetalionidae) analyzing 12 other works with the fauna in Panguana, from 2003 to 2016. The authors added to their list four species of Smiliinae and Membracidae from material deposited at the Center of Natural History, in Hamburg. Once again, the species of the Smiliinae and Membracinae had the greatest richness, 37 and 23, respectively. No records of Centrotinae, Endoiastinae and Centronodinae were made. This work has 26 species in common with those on our listing.

Lin et al. (2019) listed 114 specimens, belonging to 44 species of treehoppers (two of Aetalionidae and 42 of Membracidae) using diverse collection methods such as Malaise traps (ground and canopy), flight interception traps, blue/yellow sticky cards, UV light traps, pitfall traps, sweeping nets, and manual collection. Except for Endoiastinae, all other subfamilies were represented on their checklist. Smiliinae and Heteronotinae were the richest, with 15 and nine species respectively. This work only shares seven species when compared to our listing.

Flórez-V. et al. (2015) by reviewing literature and collections (3,744 specimens in ten Colombian collections), and conducting field work between 2011 and 2014, recorded 474 species belonging to 116 genera, with specimens from all Membracidae subfamilies. In addition, 1,449 host plants and 262 hymenopterans associated with membracids were documented. Among the Colombian listed species, 41 are common to the list that we compiled.

The data presented show a slight similarity among the other surveys conducted for the Amazonian regions. Although not directly comparative —mainly due to methodological and sampling differences— the Colombian Amazon region showed species similarity of 43.6% (Flórez-V et al. 2015), followed by Panguana with 27.6% (Schulze et al. 2016), Adolpho Ducke with 20.2% (Creão-Duarte

& Sakakibara 2009) and Villa Carmen/Los Amigos with 8.5% (Lin et al. 2019). Responses to these distribution patterns, as well as rates of genetic differentiation among treehopper populations or host plants distribution, should be specifically investigated beyond the scope of this study. Finally, we highlight how a small area of extreme western Acre concentrates at least 39.2% of genera and 12.8% of species of known Brazilian treehoppers (including the new records in this study).

While this work does not permit an exhaustive analysis, there is compelling evidence suggesting the existence of New World geographic regionalism at various levels of taxonomy. Particularly, Brazil, Colombia, Ecuador, Peru, and the Guianas —notably Andes Mountains, the Atlantic Forest, and the Guiana Shield— display remarkable biodiversity in terms of subfamilies, tribes, genera, and species. In comparison, North America (north of Mexico) falls behind by approximately 40 to 60 species, totaling around 300 species. It also exhibits comparatively lower diversity in subfamilies, tribes, and genera (Wood 1993). Furthermore, it is essential to emphasize that despite the critical significance of the surveyed area for conserving biodiversity, limited efforts have been made to effectively document this diversity. South America is globally acknowledged as one of the regions with the highest treehopper diversity, with diverse regions being considered a key hotspot for these insects. Therefore, the study of treehoppers holds great importance in advancing our comprehension of the local leafhopper fauna and uncovering their ecological and evolutionary significance. Nevertheless, conducting comprehensive inventories of the Amazon Rainforest's diversity faces substantial challenges due to its vastness, intricate ecosystems, and limited resources available for research.

Checklist studies, although basic, are vital to the development of other science areas. First, the target groups are frequently reviewed by taxonomic experts to ensure the reliability of the data collected. Secondly, these data permit additional studies, providing data and specimens to support studies in taxonomy, systematics and biogeography. We stress that additional research and collections are needed to improve our understanding of treehopper biodiversity.

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Associate Editor

José Mermudes

Author Contributions

Antonio José Creão-Duarte: designed the project; conducted the fieldwork; curated the data, pinned, and taxonomically identified the specimens; drafted the initial version of the manuscript; provided financial support; contributed to the final version of the manuscript.

Aline Lourenço: designed the project; curated the data and taxonomically identified the specimens; created the map and photographed the specimens in the laboratory; provided financial support; contributed to the final version of the manuscript.

Rembrandt Romano de Andrade Dantas Rothéa: designed the project; conducted the fieldwork; photographed the specimens in the field; drafted the initial version of the manuscript; provided financial support.

Alessandre Pereira-Colavite: edited and created the figure plates; drafted the initial version of the manuscript; provided financial support; contributed to the final version of the manuscript.

Conflicts of Interest

The authors declare that they have no conflict of interest related to the publication of this manuscript.

Ethics

This study did not involve human beings and/or clinical trials that should be approved by one Institutional Committee.

Data Availability

The raw data of this study is available at <https://doi.org/10.48331/scielodata.QCGW9X>.

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