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# THE CERAMBYCID FAUNA OF THE TROPICAL DRY FOREST OF "EL AGUACERO," CHIAPAS, MÉXICO (COLEOPTERA: CERAMBYCIDAE)

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## Abstract

The results of a study on the fauna of Cerambycidae of the tropical dry forest of "El Aguacero," Chiapas, Mexico are presented. Data were obtained during a year of monthly collections and records obtained during sporadic collections carried out mainly during the rainy season. A total of 203 species, representing 119 genera, 42 tribes and four subfamilies were recorded. Seventy-nine species were recorded for the first time for the state of Chiapas. The subfamilies with the greater numbers of species, genera and tribes were the Cerambycinae with 111, 66 and 22 and Lamiinae with 81, 45 and 16, respectively. The genera with the greatest numbers of species were *Stenosphenus* Haldeman, *Sphaenothecus* Dupont, *Lepturges* Bates and *Phaea* Newman with six each and *Anelaphus* Linsley, *Psyrassa* Pascoe, *Neocompsa* Martins and *Acyphoderes* Serville with five each. The largest number of species was recorded during June (101) and the least during March (two); the largest number of individuals was recorded during September and the least during February. Seasonally, 165 species were collected during the rainy season, 17 during the dry season and 21 during both. Six hundred twenty two individuals were collected during the rainy season and 249 during the dry season. The species abundance pattern showed few abundant species and many with few individuals (63% were represented by three or fewer individuals). The most abundant species were *Stenosphenus cribripennis cribripennis* Thomson (51 individuals), *Essostrutha laeta* (Newman) (45), *Ironeus pulcher* Bates (43), *Ochraethes* sp. near *O. sommeri* (Chevrolat) (38), *Sphaenothecus toledoi* Chemsak and Noguera (33), *Sphaenothecus trilineatus* Dupont (31), *Ochraethes pollinosa* Chevrolat (31) and *Sphaenothecus maccartyi* Chemsak and Noguera (30). The seasonal activity of most species as adults was restricted, with 141 species found only during one month and 37 during two months. The fauna of "El Aguacero" was compared with two other similar sites in Mexico,

[1] Deceased.

and is more similar to that of Chamela, Jalisco than to that of Huautla, Morelos; sharing 78 species with the first and only 41 with the second.

**Resúmen**

Se presentan los resultados de un estudio sobre la fauna de cerambícidos del bosque tropical caducifolio de El Aguacero, Chiapas, México. Los datos fueron obtenidos durante un año de colectas mensuales y mediante registros obtenidos durante colectas esporádicas realizadas durante la época de lluvias principalmente. En total se registraron 203 especies, que representan 119 géneros, 42 tribus y cuatro subfamilias. Se registraron por primera vez para el estado de Chiapas 79 especies. Las subfamilias más diversas fueron Cerambycinae con 111 especies, 66 géneros y 22 tribus y Lamiinae con 81, 45 y 16 respectivamente. Los géneros con mayor número de especies fueron *Stenosphenus* Haldeman, *Sphaenothecus* Dupont, *Lepturges* Bates y *Phaea* Newman con seis y *Anelaphus* Linsley, *Psyrassa* Pascoe, *Neocompsa* Martins y *Acyphoderes* Serville con cinco. La riqueza y abundancia varió en el tiempo; el mayor número de especies se registró en junio con 101 y el menor en marzo con dos. Estacionalmente, 165 especies se registraron solo en la época de lluvias, 17 en la de secas y 21 en ambas. El mayor número de individuos se registró en septiembre y el menor en febrero. En la época de lluvias se registraron 622 individuos y en la de secas 249. Las especies más abundantes fueron *Stenosphenus cribripennis cribripennis* Thomson (con 51 individuos), *Essostrutha laeta* (Newman) (45), *Ironeus pulcher* Bates (43), *Ochraethes* sp. aff. *O. sommeri* (Chevrolat) (38), *Sphaenothecus toledoi* Chemsak and Noguera (33), *Sphaenothecus trilineatus* Dupont (31), *Ochraethes pollinosa* Chevrolat (31) y *Sphaenothecus maccartyi* Chemsak and Noguera (30). El patrón de abundancia relativa de las especies mostró pocas especies con muchos individuos y muchas con pocos (63% estuvieron representadas por tres o menos individuos). La actividad de las especies como adultos fue muy restringida, 141 especies fueron registradas solo un mes y 37 dos meses. La fauna de ''El Aguacero'' es más similar a la de Chamela, Jalisco, que a la de Huautla, Morelos; con la primera se comparten 78 especies y con la segunda 41.

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This article is part of a long-term study to understand the diversity and patterns of distribution of the fauna of Cerambycidae (Coleoptera) of the tropical dry forest (= deciduous tropical forest, also known as ''selva baja caducifolia,'' and ''bosque tropical caducifolio''; abbreviated herein as TDF) in México.

The TDF is a highly threatened tropical community in America (Janzen 1988). In México it occupies 8% of the country's area (Trejo and Dirzo 2000) and harbors a large number of habitat-restricted endemic species (Rzedowski 1991; Toledo and Ordoñez 1993; Flores and Gérez 1994; Ceballos and García 1995). At present only 27% is seemingly well preserved (Trejo and Dirzo 2000) and the rest has been altered by human activities, primarily for use as agricultural lands and cattle grasslands (Toledo 1992; Maass 1995).

In Mexico much of the published biological information about this community has been derived from the area of Chamela, Jalisco (Ceballos and García 1995; Lott 1993; Noguera and Chemsak 1996), although for Cerambycidae some studies have been initiated in other regions of the country as well (Zaragoza *et al.* 2000).

A knowledge of the biodiversity of natural communities is considered basic for their conservation (Wilson 1988), and in this sense, the study of insects has been considered a high-priority aspect (Hawksworth and Ritchie 1993).

The objective of this study is to provide a better understanding of the diversity of the family Cerambycidae in the TDF from a single locality, ''El Aguacero,'' Chiapas, and also to increase the existing information on this group in the TDF in Mexico, and contribute to conservation efforts.

## Study Area

The study was carried out in the natural park ''El Aguacero,'' which is in the Central Depression of Chiapas, 16 km west of Ocozocoautla (93°31′ N, 16°45′ W). The park covers 1,250 hectares and has an altitudinal gradient of 500 to 700 m. The climate is warm subhumid, with rains in the summer. The average annual rainfall from 1981–1993 was 802.3 mm, with 92% of the total accumulating between May and October. The average annual temperature is 23.8°C, with a recorded minimum of 20.2°C and a recorded maximum of 26.4°C (Station Ocozocoautla, SARH, unpubl. data). Dominant vegetation in the area is tropical dry forest, containing the following common species: *Annona* spp., *Bucida* sp., *Bursera excelsa* (H. B. K.) Engl., *Bursera simaruba* (L.) Sarg., *Cecropia* sp., *Ceiba aesculifolia* (H. B. K.) Britt., *Heliocarpus* sp., *Leucaena* spp., *Lysiloma aurita* (Schlecht.) Benth, *Spondias* sp., *Swietenia humilis* Zucc., and *Tabebuia* sp. The hillsides of the River Canyon ''La Venta'' are covered by thorny forest and the margins of the river by subdeciduous tropical forest (Breedlove 1981).

The area is disturbed due to agricultural activities, foraging of livestock and lumber cutting, which are important to the local economy (Toledo, pers. obs.).

## Methods

Information presented in this study comes from periodical collections carried out during April 1994 to March 1995 and from records of miscellaneous collections of F. T. Hovore, E. F. Giesbert and the first author.

The periodical collections were conducted monthly, for a duration of five days during the new moon cycle. Two sampling types were used: direct collecting (netting, sweeping, beating) and light trapping. Diurnal collecting was conducted from approximately 9:00 to 15:00 h, with emphasis given to collecting from flowers and woody vegetation. Light trapping employed a vertical white sheet or screen with 20 watt ultraviolet light set against it. This was operated every night from 19:00 to 23:00 h.

For analysis of richness and phenology the data from all available collections were used; for analysis of abundance only the data obtained during the year of regular sampling were used. The rainy season was considered to be from May to October and the dry season from November to April.

With the purpose to determine whether local species richness is equal to the richness recorded during this study, we estimated a species richness value using a non-parametric method and the data obtained during the year of regular sampling. The estimator used was ICE, because it best satisfied the requirements for an ideal species-richness estimator (Chazdon *et al.* 1998). This is an incidence-based estimator, based on species found in 10 or fewer sampling units (Chazdon *et al.* 1998; Colwell 2001). The estimate was calculated using EstimateS 6.0b1 (Colwell 2001). The species collected within each month were considered one sample unit (12 in total).

Voucher specimens are deposited in the Chamela Biological Station Collection, Essig Museum of Entomology and in the private collections of Victor H. Toledo, Frank T. Hovore and Edmund F. Giesbert (the latter now in the Florida State Collection of Arthropods).

## Results

**Richness.** During the period of regular sampling 871 individuals were collected, representing 121 species, 76 genera, 32 tribes and four subfamilies.

From the additional collections another 82 species from 61 genera, 25 tribes and four subfamilies were recorded. These total 203 species (Appendix 1) from 119 genera, 42 tribes and four subfamilies (Table 1). Of the total taxa, only 146 could be determined to the specific level with certainty because the remainder belong to groups with taxonomic problems (six were determined only to tribe level). Seventy-nine of these species (54%) are recorded for the first time from the state of Chiapas.

The most diverse subfamily was the Cerambycinae with 111 (55%), followed by the Lamiinae with 81 (40%), Lepturinae with six (3%) and Prioninae with five (2%). Cerambycinae had 66 genera and 22 tribes, Lamiinae 45 and 16, Prioninae four and three and Lepturinae four and one.

The most diverse tribes were the Elaphiidini with 17 genera and 34 species, Acanthocinini with 15 and 33, Trachyderini with 11 and 20, Clytini with six and seven, Desmiphorini with five and seven and Rhinotragini with five and 11. Twenty tribes were represented by only one genus (Table 1).

The most diverse genera were *Stenosphenus* Haldeman, *Sphaenothecus* Dupont, *Lepturges* Bates and *Phaea* Newman with six species each, *Anelaphus* Linsley, *Psyrassa* Pascoe, *Neocompsa* Martins and *Acyphoderes* Serville with five species each, *Rhopalophora* Audinet-Serville, *Parmenonta* Thomson and *Urgleptes* Dillon with four and *Eburia* Lepeletier and Audinet-Serville, *Odontocera* Audinet-Serville, *Stenobatyle* Casey, *Strangalia* Audinet-Serville, *Oncideres* Lepeletier and Audinet-Serville, *Lagocheirus* Dejean and *Leptostylus* LeConte with three. Within the remaining genera 19 were represented by two species and 82 by only one. Thus 69% of genera had one species and 85% were represented by two species or fewer.

The richness of species varied with the timing of collection, and was greater during the rainy season. The largest number of species was recorded during June with 101 and the least during March, with two (Fig. 1). Seasonally, 165 species were present only during the rainy season, 17 species during the dry season and 21 were present during both. Thus, 92% of the species were active during the rainy season.

It is recognized that the inclusion of data from essentially random collections reduced the comparative value of the absolute numbers, but it is felt that the focused efforts were sufficiently consistent to compensate for the small amount of novel data contained in the other samples.

**Richness Estimation.** The richness value estimated with ICE was greater than the value observed during the year of regular collections: 228 (SD = 0) against 121. This may mean that we only recorded 53% of the true local richness during that period. On the other hand, the species-accumulation curve is still increasing (Fig. 2), therefore, depending on the accuracy of that estimator, the number of species could be greater.

**Abundance.** The abundance also varied with time and was greatest in the rainy season. The month with the most individuals was September with 160 and the least was February with eight (Fig. 1). During the rainy season 622 (71%) individuals were recorded and during the dry season 249 (29%).

The distribution of individuals per species was very heterogeneous (Fig. 3), with most of the species with few individuals. The most abundant species were *Stenosphenus cribripennis cribripennis* Thomson with 51 individuals, *Essostrutha laeta* (Newman) with 45, *Ironeus pulcher* Bates with 43, *Ochraethes* sp. near *O. sommeri* (Chevrolat) with 38, *Sphaenothecus toledoi* Chemsak and Noguera with 33, *Sphaenothecus trilineatus* Dupont and *Ochraethes pollinosa* Chevrolat with

**Table 1.** List of the Cerambycidae recorded in ''El Aguacero'', Chiapas, México.

| Subfamily<br>Tribe | No. of genera | No. of species |
|---|---|---|
| Prioninae | | |
| Macrotomini | 2 | 3 |
| Solenopterini | 1 | 1 |
| Prionini | 1 | 1 |
| Cerambycinae | | |
| Oemini | 1 | 1 |
| Methiini | 2 | 2 |
| Cerambycini | 2 | 3 |
| Eburiini | 2 | 4 |
| Hesperophanini | 1 | 1 |
| Elaphidiini | 17 | 34 |
| Piezocerini | 1 | 1 |
| Ibidionini | 2 | 6 |
| Callidiopini | 1 | 1 |
| Obriini | 1 | 2 |
| Hyboderini | 1 | 1 |
| Rhinotragini | 5 | 11 |
| Callichromatini | 3 | 3 |
| Dryobiini | 1 | 1 |
| Clytini | 6 | 7 |
| Tillomorphini | 1 | 1 |
| Rhopalophorini | 3 | 6 |
| Heteropsini | 1 | 2 |
| Platyarthrini | 2 | 2 |
| Pteroplatini | 1 | 1 |
| Lissonotini | 1 | 1 |
| Trachyderini | 11 | 20 |
| Lepturinae | | |
| Lepturini | 4 | 6 |
| Lamiinae | | |
| Lamiini | 3 | 4 |
| Tapeinini | 1 | 1 |
| Apomecynini | 1 | 4 |
| Agapanthiini | 2 | 3 |
| Onciderini | 3 | 6 |
| Desmiphorini | 5 | 7 |
| Anisocerini | 1 | 1 |
| Acrocinini | 1 | 1 |
| Acanthoderini | 4 | 5 |
| Acanthocinini | 15 | 33 |
| Colobotheini | 2 | 3 |
| Phytoecini | 1 | 1 |
| Tetraopini | 2 | 8 |
| Hemilophini | 1 | 1 |
| Aerenicini | 2 | 2 |
| Calliini | 1 | 1 |

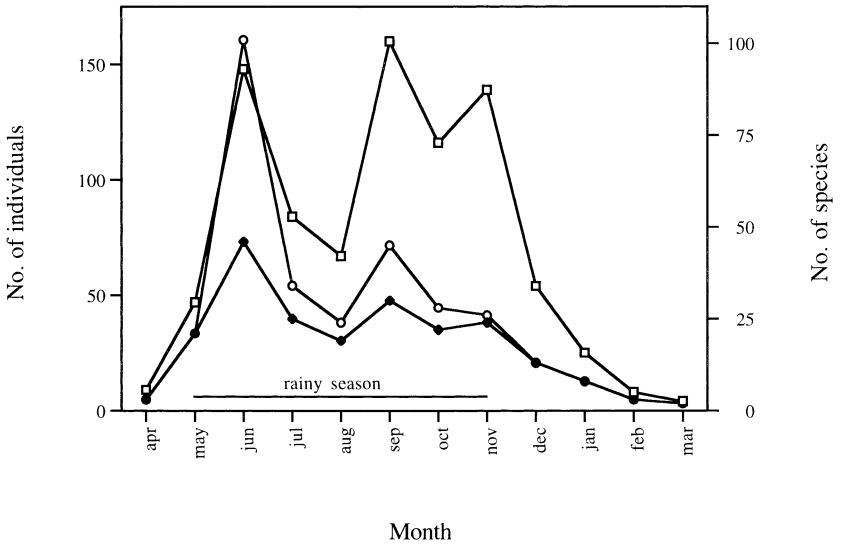


**Fig. 1.** Number of species and individuals of Cerambycidae collected monthly in ''El Aguacero,'' Chiapas, México. Diamonds, number of species obtained during the year of regular sampling; circles, number of species obtained during the year of regular sampling and miscellaneous collections; squares, number of individuals obtained during the year of regular sampling.

31 and *Sphaenothecus maccartyi* Chemsak and Noguera with 30. By contrast, almost 63% of the species were represented by three or fewer individuals.

**Phenology.** The length of activity of adults, based on the months they were recorded, was restricted. One hundred and forty-one (69.4%) were present for only one month, 37 (18%) for two months, 14 (6.4%) for three months, and the remaining 11 (6%) four or more months. This indicates that 87% of the species were active only for two months and 94% for three months.

**Composition.** Considering only firmly identified species, the composition of the fauna of ''El Aguacero'' appears to be more similar to that of Chamela, Jalisco than to that of Huautla, Morelos. The number of species shared with Chamela is 78 (54%) (Chemsak and Noguera 1996), while the total in common with the known fauna of Huautla is 42 (28%) (Noguera *et al.* submitted). At the generic level 81 (65%) genera in common with Chamela (65%), and 52 (42%) shared with Huautla.

## Discussion

The total cerambycid fauna of ''El Aguacero'' probably will be greater than that which has been recorded herein, as was shown by the estimated richness with the non-parametric estimator (ICE). That assumption is based upon three points: the proportion of species from miscellaneous collections is very great, the seasonality of the group presents sampling difficulties, and the number of species recorded is less than those of the other region with similar vegetation communities. And, differences between various collectors and field techniques tend to yield different sample sets within same-season comparisons, a factor

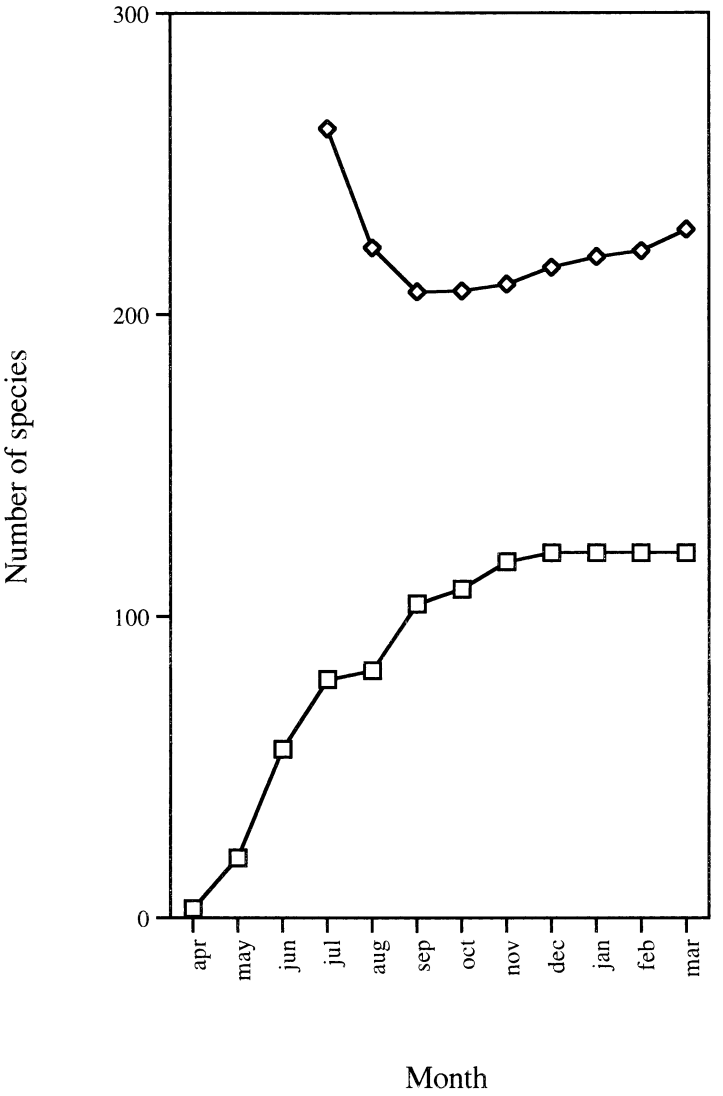


**Fig. 2.** Observed and estimated richness of the cerambycid fauna of ''El Aguacero,'' Chiapas, México. Squares, richness observed; diamonds richness estimated using ICE. The values used were only the data obtained during the year of regular sampling.

which cannot be accurately calculated before the fact, but is almost certain to result in greater numbers of species accumulated over time.

In the first point, 40% of the species were recorded from miscellaneous collections, suggesting that when focused field work was increased, the number of species encountered rises considerably. Seasonally, almost 70% of the species were recorded only during one month, which indicated that the activity

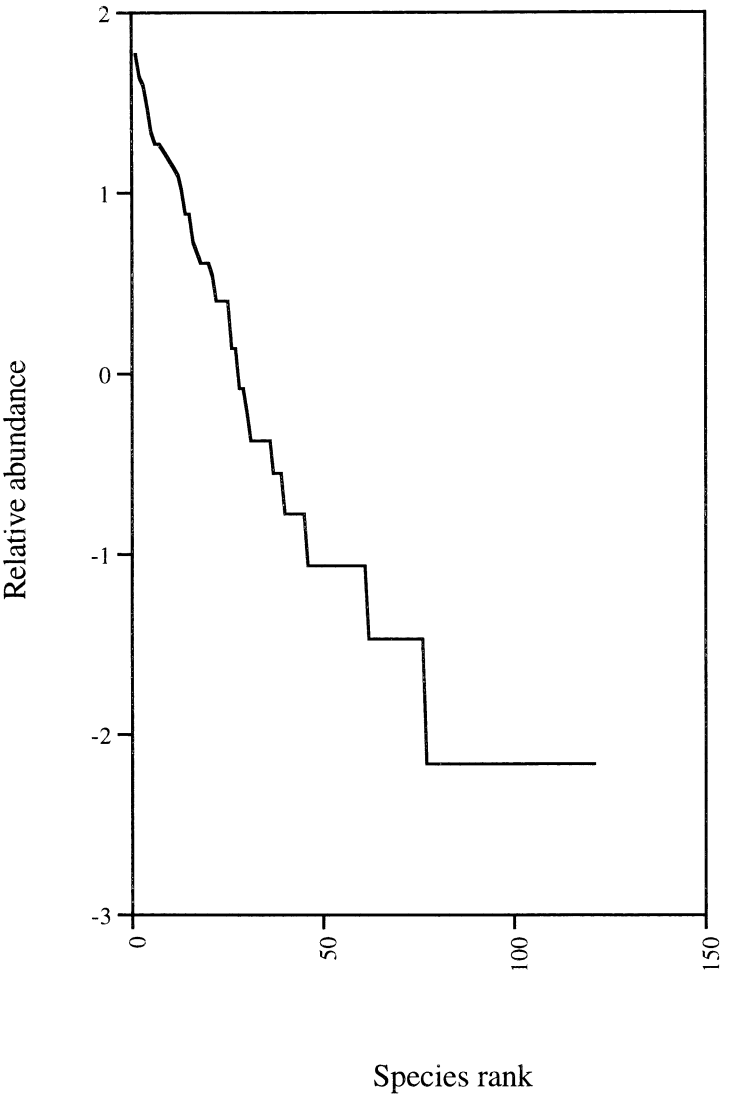


**Fig. 3.** Rank-abundance pattern of the cerambycid species recorded in ''El Aguacero,'' Chiapas, México. The values used were only the data obtained during the year of regular sampling.

of the group as adults is very limited. Since the regular collections were carried out for only five days each month, it is probable that species with periods of shorter activity as adults were not collected because they were active during the non collection intervals. And finally, in Chamela, Jalisco, a region located along the coastal strand north of ''El Aguacero,'' 306 species were recorded over a longer period of time, wherein there was a greater amount of focused

field work (Chemsak and Noguera 1993). It has been reported that in Cerambycidae the species/area relationship increases from north to south (Noguera and Chemsak 1996), so that it would be expected that a larger number of species could occur within ''El Aguacero'' than were found at Chamela. It would be necessary to carry out an effort of fieldwork similar to that given to Chamela (for approximately ten years) to determine whether or not this hypothesis is correct. The significant numbers obtained with the recording of the miscellaneous collections at ''El Aguacero,'' strongly suggests that the final number of species present will be greater than the total presently known.

The marked seasonality of the adults during the rainy season (93% of the species reported during that time), seems to be related to feeding habits and the general availability of host resources. Larval Cerambycidae mainly feed within recently dead wood or in roots or stems of herbaceous plants (Linsley 1961) and within the TDF habitat type the growth and foliation of most of the annual and perennial plants takes place during the rainy season (Bullock and Solis-Magallanes 1990), as well as the largest occurrence of dead branches (Martínez-Yrizar 1995). Thus, this is the period of greatest food resource availability. This seasonal pattern also has been noted in Chamela, Jalisco and Huautla, Morelos, both with TDF as the dominant vegetation, where 96% of the species also were collected during the rainy season (Chemsak and Noguera 1993; Noguera *et al.* submitted). A similar pattern has been noted at lowland localities within Guanacaste Province, Costa Rica, where strongly seasonal TDF type vegetation predominates, and cerambycid emergence and diversity are strongly correlated with the onset of the rainy season (F. T. Hovore unpubl. data).

The differences or similarities noted between the fauna of ''El Aguacero,'' with Huautla, Morelos and Chamela, Jalisco, are not conclusive, because at least in the first two sites, the Cerambycid fauna is not known in its entirety. Nevertheless, the apparent differences and/or similarities seem to reflect the presence of species endemic to one or the other region, particularly for species whose distributional limits are in southern Mexico, and for species with wide distributions within the TDF of Mexico. Species which have been taken within ''El Aguacero,'' but not within the other two sites, include: *Brasilianus yucatecus* Chemsak and Noguera, *Megapsyrassa chiapaneca* Giesbert, *Pachymerola toledoi* Chemsak and Noguera, *Acyphoderes magna* Giesbert, *Epimelitta postimelina* Giesbert, *Anthoboscus oculatus* Giesbert, *Choriolaus howdeni* Giesbert and Wappes, *Oncideres cumdisci* Noguera and *Phaea haleyae* Chemsak.

Finally, the high number of species recorded herein for first time for Chiapas (54% of the total determined species), indicates that our knowledge of this group is yet incomplete for that state, which is generally considered to be the most biologically diverse region in Mexico. Unfortunately this area also has one of the highest rates of deforestation in the country.

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**Appendix 1.** List of the species of Cerambycidae (Coleoptera) recorded in the natural park ''El Aguacero'', Chiapas, Mexico. The list follows the taxonomic classification of Monné and Giesbert (1993) and includes information on when adult beetles were collected, collecting method(s) used, and in some cases, records of larval hosts and/or adult food plants. An asterisk (*) indicates that the species is recorded for the first time for the state of Chiapas. Superscript letters indicate miscellaneous records collected by: [a] Frank T. Hovore, [b] Edmund F. Giesbert and [c] Víctor H. Toledo.

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PRIONINAE
Macrotomini
**Stenodontes dasytomus* (Say, 1824). June, attracted to light.
*Stenodontes* sp. May, June, August and January, attracted to light.
**Strongylaspis corticaria* Erichson, 1848. June, attracted to light.
Solenopterini
**Holonotus laevithorax* (White, 1853). May.
Prionini
**Derobrachus sulcicornis* LeConte, 1851.[c] June, attracted to light.
CERAMBYCINAE
Oemini
*Malacopterus tenellus* (Fabricius, 1801). May, September and December, attracted to light. Hosts: *Ficus* sp., *Popolus* sp. and *Salix* sp.
Methiini
*Coleomethia* sp. September, attracted to light.
*Methia* sp. December and January, attracted to light.
Cerambycini
**Brasilianus mexicanus* (Thomson, 1860).[c] June, attracted to light.
*Brasilianus yucatecus* Chemsak and Noguera, 1997. April and May.
**Coleoxestia nitida* (Bates, 1872). June, attracted to light.
Eburiini
**Eburia porulosa* Bates, 1892. May, attracted to light.
*Eburia schusteri* Giesbert, 1993. June, attracted to light.
*Eburia submutata* Chemsak and Linsley, 1973. September and October, attracted to light.
**Eburodacrys hesperidis* Chemsak and Linsley, 1970. June, attracted to light.
Hesperophanini
*Malobidion* sp.[b] June.

**Appendix 1.** Continued.

Elaphidiini
**Aneflomorpha giesberti* Chemsak and Linsley, 1975.[b] June.
**Aneflomorpha semirufa* Linsley, 1935.[b] June.
*Aneflus* (*Aneflus*) *poriferus* Giesbert, 1993.[c] June, attracted to light.
*Aneflus* sp.[c] June, attracted to light.
**Anelaphus maculatus* Chemsak and Noguera, 1993.[b] June.
**Anelaphus piceus* Chemsak, 1962. May.
Anelaphus sp. 1. May, attracted to light.
*Anelaphus* sp. 2. May and June, attracted to light.
*Anelaphus* sp. 3. May.
**Anopliomorpha reticolle* (Bates, 1885). June, attracted to light.
*Conosphaerion concolor concolor* Linsley, 1935.[b] June.
**Elaphidion mimeticum* Schaeffer, 1905. May, attracted to light.
**Ironeus mutatus* Bates, 1885.[c] June, attracted to light.
**Ironeus pulcher* Bates, 1880. June and July, attracted to light.
*Megapsyrassa chiapaneca* Giesbert, 1993.[b] June and July.
*Neotrichophoroides* sp. May and June, attracted to light.
*Nephalioides* sp. June, attracted to light.
*Orwellion gibbulum gibbulum* (Bates, 1880).[b] June.
**Pseudoperiboeum subarmatum* Linsley, 1935.[b] June.
**Psyrassa basicornis* Pascoe, 1866.[b] June.
**Psyrassa levicollis* Chemsak and Noguera, 1993. June, attracted to light.
**Psyrassa sthenias* Bates, 1892. June and July, attracted to light.
**Psyrassa tympanophora* Bates, 1885.[b] June.
*Psyrassa* sp.[b] June.
**Sphaerionillum pictum* Bates, 1885. June and September to October.
*Stenosphenus cribripennis cribripennis* Thomson, 1860. September to December, on flowers of *Serjania triqueta* Radlk., *Croton* sp., *Heliocarpus appendiculatus* Turcz., *Ceiba aesculifolia* (HBK.) Britt. and Baker.
*Stenosphenus languroides wappesi* Giesbert and Chemsak, 1989. October.
*Stenosphenus ochraceus ochraceus* Bates, 1872. September and October, on flowers of *Acacia* sp. and *Croton* sp.
*Stenosphenus protensus* Bates, 1880. September.
**Stenosphenus rufipes* Bates, 1872. September and November, on flowers of *Acacia* sp. and *Croton* sp.

**Appendix 1.** Continued.

*Stenosphenus trispinosus* Bates, 1872.[c] June and July.
**Stizocera plicicollis* (Germar, 1824). June, attracted to light.
*Terpnissa listropterina* Bates, 1867.[b] June.
Elaphidiini sp. 1. December, attracted to light.
Piezocerini
**Piezocera monochroa* Bates, 1885. June, attracted to light.
Ibidionini
**Hexoplon calligrammum* Bates, 1885. August.
**Neocompsa alacris* (Bates, 1885). June.
*Neocompsa clerochroa* (Thomson, 1867).[c] June.
*Neocompsa exclamationis* (Thomson, 1860).[c] June.
*Neocompsa macrotricha* Martins, 1970.[c] June.
*Neocompsa ptoma* Martins, 1971.[c] June.
Callidiopini
**Coscinedes gracilis* Bates, 1885.[b] June.
Obriini
**Obrium ruficolle* Bates, 1885. June, attracted to light.
*Obrium* sp. May and June, attracted to light.
Hyboderini
*Pachymerola toledoi* Chemsak and Noguera, 1997.[c] June, on flowers of *Bucida* sp.
Rhinotragini
**Acyphoderes amoena* Chemsak and Linsley, 1979. June and July.
**Acyphoderes cribricollis* Bates, 1892. June and July, on flowers of *Sambucus mexicana* C. Presl ex DC.
*Acyphoderes magna* Giesbert, 1991. July.
*Acyphoderes suavis* Bates, 1885. July and September to November, on flowers of *S. triqueta*.
*Acyphoderes yucateca* (Bates, 1892). April, June, July and September to November.
**Crossomeles acutipennis* Chemsak and Noguera, 1993.[c] June.
*Epimelitta postimelina* Giesbert, 1996.[c] June.
*Odontocera aurocincta* Bates, 1873. July.
*Odonotocera clara* Bates, 1873.[c] June and July.
**Odontocera fuscicornis* Bates, 1885.[b] October.
**Tomopterus vespoides* White, 1855.[b] October.

**Appendix 1.** Continued.

Callichromatini
**Mionochroma vittatum vittatum* (Fabricius, 1775). July and October.
*Plinthocoelium sapphirum* (Bates, 1879). July and September to November.
*Schwarzerion holochlorum holochlorum* (Bates, 1872). August and September.
Dryobiini
**Ornithia mexicana* (Sturm, 1834).[c] June.
Clytini
*Anthoboscus oculatus* Giesbert, 1992. November, on flowers of *Tithonia rotundifolia* Blake and *Cosmos sulphureus* Cav.
**Dexithea fabricii* (Chevrolat, 1860). November, on flowers of *Clematis dioica* Linn.
*Neoclytus* sp. April.
*Ochraethes pollinosa* Chevrolat 1835. October and November, on flowers of *C. sulphureus*.
*Ochraethes* sp. near *O. sommeri* (Chevrolat, 1835). June and September to November, on flowers of *T. rotundifolia* and *C. sulphureus*.
**Placosternus difficilis* (Chevrolat, 1862). June and September to November, on flowers of *Acacia angustissima* Kuntzee., *C. dioica* and *Croton* sp.
**Plagionotus astecus* (Chevrolat, 1860). November, on flowers of *Croton* sp.
Tillomorphini
*Euderces pulcher* (Bates, 1874). August.
Rhopalophorini
*Cosmisoma reticulatum* Bates, 1885.[c] June.
*Ischionodonta mexicana* Giesbert and Chemsak, 1993. July.
*Rhopalophora cupricollis* Guérin-Méneville, 1844. June, October and January, on flowers of *S. mexicana*.
*Rhopalophora lineicollis* Chevrolat, 1859. September.
*Rhopalophora miniatocollis* Chevrolat, 1859.[c] June.
*Rhopalophora punctatipennis* Linsley, 1935.[b] June.
Heteropsini
**Chrysoprasis guerrerensis* Bates, 1892. September.
**Chrysoprasis hypocrita* Erichson, 1847. July.
Platyarthrini
**Platyarthron bilineatum* Guérin-Méneville, 1844. July.
**Stenygra histrio* Audinet-Serville, 1834. August and September.
Pteroplatini
*Deltosoma guatemalense* Bates, 1880.[b] October.

**Appendix 1.** Continued.

Lissonotini
*Lissonotus flavocinctus* Dupont, 1836. November and December, on flowers of *C. aesculifolia.*
Trachyderini
*Ancylocera amplicornis* Chemsak, 1963.[c] June and July.
*Deltaspis* sp.[a] September.
**Elytroleptus scabricollis* Bates, 1892.[b] June.
*Elytroleptus* prob. *grandis* Linsley, 1935. November, on flowers of *Sapindus saponaria* L.
**Hoegea distigma* Bates, 1885.[a] September.
**Ischnocnemis caerulescens* Bates, 1885. September to November, on flowers of *T. rotundifolia*.
**Lophalia cyanicollis* (Dupont, 1838). September and October, on flowers of *T. rotundifolia* and *C. sulphureus.*
*Lophalia* sp.[a] September.
*Metaleptus pyrrhulus* Bates, 1880.[c] June and July.
**Parevander xanthomelas* (Guérin-Méneville, 1844). September and October, on flowers of *T. rotundifolia* and *C. sulphureus.*
*Sphaenothecus argenteus* Bates, 1880. August to November.
*Sphaenothecus bivittatus* Dupont, 1838.[c] November and January, on flowers of *S. triqueta, S. saponaria, C. aesculifolia* and *Acacia* sp.
*Sphaenothecus maccartyi* Chemsak and Noguera, 1997. November to March.
*Sphaenothecus toledoi* Chemsak and Noguera, 1997. December to March.
*Sphaenothecus trilineatus* Dupont, 1838. November to January, on flowers of *H. appendiculatus, S. saponaria* and *C. aesculifolia*.
*Sphaenothecus* sp. February.
*Stenobatyle eburata* (Chevrolat, 1862). August to October.
**Stenobatyle miniaticollis* (Chevrolat, 1862).[c] June and July.
**Stenobatyle prolixa* (Bates, 1892).[c] June.
**Trachyderes* (*Dendrobias*) *mandibularis* Serville, 1834.[c] November.
LEPTURINAE
Lepturini
*Choriolaus howdeni* Giesbert and Wappes, 1999.[c] June.
**Cyphonotida laevicollis* Bates, 1880. June to October.
**Strangalia bicolorella* Chemsak, 1969. July.
**Strangalia doyeni* Chemsak and Linsley, 1976. July.
**Strangalia palaspina* Chemsak, 1969. June to August.
*Strangalidium* sp.[c] June.
LAMINAE

**Appendix 1.** Continued.

Lamiini
**Mimolochus hoefneri* (Thomson, 1865).[a] September.
*Plagiohammus decorus* Chemsak and Linsley, 1986. August.
**Plagiohammus spinipennis* (Thomson, 1860).[b] June.
**Taeniotes luciani* Thomson, 1859. August.
Tapeinini
**Tapeina transversifrons* Thomson, 1857. May.
Apomecynini
**Parmenonta fulvosticta* Bates, 1885.[b] October.
**Parmenonta ovatula* Bates, 1880.[b] October.
*Parmenonta* sp. 1.[a] September.
*Parmenonta* sp. 2.[a] September.
Agapanthiini
*Pachypeza* sp.[b] June.
*Spalacopsis* sp. 1. July and November.
*Spalacopsis* sp. 2.[a] September.
Onciderini
**Lochmaeocles cornuticeps pacificus* Dillon and Dillon, 1946.[b] June.
**Lochmaeocles tessellatus tessellatus* (Thomson, 1868).[b] June.
*Oncideres albomarginata chamela* Chemsak and Giesbert, 1986. November. Host: *Spondias* sp.
*Oncideres cumdisci* Noguera, 1993.[c] June and July, attracted to light.
**Oncideres rubra* Franz, 1959. August and December, attracted to light.
**Taricanus truquii* 1868.[c] June and July. Host: *Acacia* sp.
Desmiphorini
**Atelodesmis unicolor* Buquet, 1857.[b] October.
**Cymatonycha castanea* Bates, 1874. May to July, attracted to light.
*Desmiphora* (*Desmiphora*) *aegrota* Bates, 1880.[b] June and July.
*Estoloides* sp. June, September and November.
*Eupogonius* sp. 1.[a] September.
*Eupogonius* sp. 2.[a] September.
*Desmiphorini* sp. 1.[a] September.
Anisocerini

**Appendix 1.** Continued.

*Thryallis undatus* (Chevrolat, 1834).[c] August, over dead trees of *Acacia* sp.
Acrocinini
**Acrocinus longimanus* (Linnaeus, 1758).[a] June. Host: *Ficus* sp.
Acanthoderini
*Aegomorphus* sp. 1. June, attracted to light.
*Aegomorphus* sp. 2. June, October and November, attracted to light.
**Myoxinus pictus* (Erichson, 1847). May, attracted to light.
*Nesozineus* sp.[b] June.
**Oreodera glauca* (Linnaeus, 1758). May, November and December, attracted to light. Host: *Ficus* sp.
Acanthocinini
*Astylidius* sp.[b] June.
*Atrypanius conspersus* (Germar, 1824). May and October, attracted to light. Host: *Ficus* sp.
**Atrypanius implexus* (Erichson, 1847). June, attracted to light.
**Canidia cincticornis balteatus* (Lacordaire, 1872).[c] August.
*Canidiopsis* sp.[c] August.
**Eutrichillus comus* (Bates, 1881). May, June and December, attracted to light.
*Lagocheirus cristulatus* Bates, 1872. July, attracted to light.
*Lagocheirus simplicicornis* Bates, 1872. June and December, attracted to light.
*Lagocheirus undatus* (Voet, 1778). September, attracted to light.
*Leopinus* sp. 1. June, attracted to light.
*Leopinus* sp. 2. June, attracted to light.
*Leptostylus* sp. 1. September, attracted to light.
*Leptostylus* sp. 2. May, attracted to light.
*Leptostylus* sp. 3.[c] June, attracted to light.
**Lepturges infilatus* Bates, 1872. June, attracted to light.
*Lepturges* sp. 1. September, attracted to light.
*Lepturges* sp. 2. May, attracted to light.
*Lepturges* sp. 3. June, attracted to light.
*Lepturges* sp. 4. June, attracted to light.
*Lepturges* sp. 5. November, attracted to light.
**Mecotetartus antennatus* Bates, 1872.[c] August, over dead trees of *Bursera* sp.
**Nyssodrysina haldemani* (LeConte, 1852). January, attracted to light.
**Oleonosus serrimanus* Bates, 1872. May and June, attracted to light.

**Appendix 1.** Continued.

*Pentheochaetes* sp. June, attracted to light.
*Proxatrypanius* sp.[a] September.
*Urgleptes* sp. 1.[a] September.
*Urgleptes* sp. 2.[a] September.
*Urgleptes* sp. 3.[a] September.
*Urgleptes* sp. 4.[a] September.
Acanthocinini sp. 1. June, attracted to light.
Acanthocinini sp. 2. June, attracted to light.
Acanthocinini sp. 3. July, attracted to light.
Acanthocinini sp. 4.[c] June, attracted to light.
Colobotheini
*Apechthes* sp.[c] June.
*Colobothea ramosa* Bates, 1872. July to September, attracted to light.
*Colobothea sexualis* Casey, 1913.[b] June.
Phytoeciini
*Mecas* (*Dylobolus*) *rotundicollis* Thomson, 1868. June and August to December.
Tetraopini
*Phaea haleyae* Chemsak, 1999.[c] August.
*P. kellyae* Chemsak, 1999.[c] June.
*P. maccartyi* Chemsak, 1999. September.
*P. noguerai* Chemsak, 1999. August.
*P. rufiventris* Bates, 1872. June and August.
*P. semirufa* Bates, 1872. July and August.
*Tetraopes discoideus* LeConte, 1858. August.
**Tetraopes umbonatus* LeConte, 1852. July.
Hemilophini
*Essostrutha laeta* (Newman, 1840). July and August.
Aerenicini
**Aerenicopsis championi* Bates, 1885. June.
*Pseudophaula* aff. *porosa* (Bates, 1881). June.
Calliini
*Asemolea* sp.[b] June.