

## ETHNOENTOMOLOGICAL AND DISTRIBUTIONAL NOTES ON CERAMBYCIDAE AND OTHER COLEOPTERA OF GUERRERO AND PUEBLA, MEXICO

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### ABSTRACT

This article presents both ethnoentomological notes on Nahuatl and Mixtec language terms as they are applied to Cerambycidae (Coleoptera) and distributional records for species collected during three projects carried out in the states of Guerrero and Puebla, Mexico. Some comparative data from other Mesoamerican and Native American languages are discussed. Indigenous common names are mapped onto current taxonomic nomenclature, and an analysis is offered of the logical basis for Indigenous classification: the exclusion of some cerambycids and the inclusion of other beetles in the nominal native “cerambycid” category. New state distributional records for the Cerambycidae collected in this study are offered for Guerrero: *Bebelis picta* Pascoe, *Callipogon senex* Dupont, *Neocompsa macrotricha* Martins, *Olenosus serimanus* Bates, *Ornithia mexicana zapotensis* Tippmann, *Stenygra histrio* Audinet-Serville, *Strongylaspis championi* Bates, *Lissonotus flavocinctus puncticollis* Bates, and *Nothopleurus lobigenis* Bates; and Puebla: *Juiaparus mexicanus* (Thomson), *Ptychodes guttulatus* Dillon and Dillon, and *Steirastoma senex* White.

Key Words: linguistics, etymology, Nahuatl, Mixtec, longhorned beetle, wood-borer

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The present article emerges from two language documentation projects in the state of Guerrero, Mexico, and one in the state of Puebla. The primary research goal in all cases was anthropological and linguistic: to document and analyze the nomenclature, classification, and symbolic and economic use of flora and fauna (for the latter, especially arthropods) among the Indigenous cultures of all three project areas. We analyzed the level of congruence of the current taxonomy from Western systematic knowledge compared to the specificity of the common names applied to them by the Indigenous peoples. This paper focuses on a well-known family of beetles, the Cerambycidae (Coleoptera), commonly called longhorned wood-boring beetles. This group of beetles is incredibly diverse, with over 35,000 species worldwide and approximately 1,620 species recorded from Mexico (Barriga-Tuñón 2012; Bezark 2016; Tavakilian and Chevillotte 2016; Monné 2017a–c). Longhorned beetles exhibit a broad spectrum of colors, sizes, and

shapes. Their conspicuous nature often makes them a favorite group of insects for collecting, study, or observation among entomologists and non-specialists alike. The morphological diversity and salience in local ecosystems make them a particularly appropriate taxon for ethnoentomological research.

From a linguistic perspective, a large sample size was necessary to reveal the degree of overlap between the Western taxonomic category Cerambycidae and Indigenous terms that, for the most part, cover this category, though certain species, particularly Batesian mimics, are invariably not included in Indigenous classification as members of what can be loosely translated as the “cerambycid” category.<sup>1</sup> Parallel to this interest in identifying Cerambycidae that are not included in an Indigenous category nominally referencing longhorned beetles is an interest in determining what non-cerambycids (e.g., Buprestidae) were categorized with cerambycids by the Indigenous groups studied.

<sup>1</sup>For further discussion of Batesian mimicry of cerambycids, see Linsley (1959), Wickler (1968), Rettenmeyer (1970), Silberglied and Aiello (1976).



**Fig. 1.** Collecting localities for Cerambycidae in Puebla and Guerrero, Mexico. The Puebla dot also includes the locality of Huitzilán de Serdán from which one specimen was collected.

This study begins with a brief overview of nomenclature and classification of cerambycids and other insects often associated with the prototypical referent of the basic Indigenous language term. The final section is a checklist of cerambycids collected in the states of Guerrero and Puebla, with new state records indicated.

#### MATERIAL AND METHODS

For this study, all Cerambycidae were collected by Amith and identifications made by Lingafelter. Voucher specimens are deposited in the National Museum of Natural History (Smithsonian Institution, Washington, DC) and The National Insect Collection of Mexico (Colección Nacional de Insectos, Instituto de Biología, Universidad Nacional Autónoma de México, Mexico City). Localities where studies were made and specimens were collected are depicted in Fig. 1.

Of a total of 132 cerambycid specimens (representing approximately 69 species and subspecies), 124 were collected in Guerrero, the major geographical focus of this article. In this state, the first

project undertaken was among Nahuatl speakers from the Balsas River valley in central Guerrero, where 46 specimens<sup>2</sup> were collected. Most of these were on community lands of San Agustín Oapan, located on the banks of the Balsas River between the old and new highways from Mexico City to Acapulco, 17° 57' 14" N, 99° 26' 21" W, 505 m elevation, in the municipality of Tepecoacuilco de Trujano. The second Guerrero project was among Mixtec speakers from Yoloxóchitl located about 1 hour inland from Marquelia on the Pacific Coast of Guerrero, 16° 48' 57" N, 98° 41' 25" W, 600 m elevation, in the municipality of San Luis Acatlán. A total of 78 specimens were collected in this community.

In the state of Puebla, incipient ethno-entomological research in Nahuatl- and Totonac-speaking communities in the Sierra Nororiental and Sierra Norte yielded eight additional cerambycid collections. In regards to Nahuatl<sup>3</sup>, three specimens were collected in San Miguel Tzinacapan (20° 01' 47" N, 97° 32' 26" W, 865 m elevation) and other Nahuatl-speaking villages in the municipality of Cuetzalan del Progreso, and one additional

<sup>2</sup>This total includes one cerambycid collected in the nearby village of San Francisco Ozomatlán, about 11 km southeast of Oapan and in Municipio Huitzuc de los Figueroa.

<sup>3</sup>Given that in the Sierra Nororiental de Puebla the /tl/ phoneme is absent and in its stead one finds /t/, the language here is often referred to as Nahuatl, not Nahuatl.

specimen was collected in the village of Xinachapan (19° 58' 06" N, 97° 40' 47" W, 1,102 m elevation), municipality of Huitzilán de Serdán (very close to Cuetzalan). In regards to Totonac, four specimens were collected in Zongozotla (municipal seat, 19° 58' 45" N, 97° 43' 36" W, 1,123 m elevation). Although the specimen inventory from the Puebla sierras is minimal, research yielded linguistic data on cerambycid nomenclature, classification, and use, which are presented to illustrate potential commonalities and variation in these parameters in distinct Indigenous cultures.

Regarding the language transcriptions used in this work, for Nahuatl a macron over a vowel indicates that it is long. For Yoloxóchitl Mixtec, the superscript numbers indicate tone: 1 (low), 2 (low-mid), 3 (high-mid), and 4 (high). Contour tones can be rising (13, 14, 24) or falling (42, 32). An apostrophe indicates laryngealization of a vowel, often realized as a glottal stop, in both Mixtec and Totonac.

## RESULTS AND DISCUSSION

**Nomenclature and Classification.** The following two subsections present the nomenclature and classification of Cerambycidae in the communities of San Agustín Oapan (Nahuatl) and Yoloxóchitl (Mixtec), respectively.

**A. San Agustín Oapan, Balsas Valley of Central Guerrero.** In San Agustín Oapan and neighboring Nahuatl-speaking villages of the Balsas River valley in central Guerrero, Mexico, the most common term for Cerambycidae is *kohtekine* (Oapan) and cognate terms in neighboring villages (*kowtekine* and *kowtekini* in San Juan Tetelcingo and Ameyaltepec, respectively). The term is a compound agentive comprising the historical roots *k<sup>w</sup>aw-* 'tree' or 'wood' (*koh-* in Oapan), the transitive verb *teki* 'to cut', and the agentive suffix *-ni* (or *-ne*) meaning 'the one that VERBS'. The term translates as 'the one who/that cuts wood' or 'woodcutter', a meaning that coincides with what some local consultants have defined as the typical behavior of this insect: girdling tree branches until they fall off. Indeed, a walk through the countryside in the fall reveals many *Leucaena matudae* (S. Zárate) C. Hughes (Fabaceae) (*chikomolin* [Oapan]; *chikimolin* [Ameyaltepec and San Juan Tetelcingo]) with branches cleanly cut off, as if by a saw. Non-quantified field observations suggest that the most common tree displaying evidence of girdling is *L. matudae*. External girdling by longhorned beetles is generally restricted to the tribe Onciderini (including the genus *Lochmaeocles* Bates that was sampled in this study).

In addition to cerambycids, several other insects were at times designated by Oapan consultants

using the same *kohtekini/kohtekine* term. These included members of the Buprestidae, Meloidae, and Scarabaeidae. The nine collected specimens of Buprestidae were identified as follows:

- *Chrysobothris multistigmosa* (Mannerheim) (2 specimens)
- *Chrysobothris paratabalipa* Nelson (male) (4 specimens)
- *Hippomelas mexicanus* (Laporte and Gory) (2 specimens)
- Unidentified larva (unnamed in Nahuatl) (1 specimen)

Paula Pantaleón, a principal consultant, designated both *C. multistigmosa* as *kohtekine*, though she further qualified one of the two collected by its host name, the *kalwāxin* (*Leucaena leucocephala* (Lam.) de Wit ssp. *glabrata* (Rose) S. Zárate); *kal-* 'house' indicates that it is cultivated in house yards. Various consultants named the four *C. paratabalipa* collections by several descriptive terms that serve to modify *kohtekine*, the nominal base: (a) *kohtekine chāneh* ('domestic or local *kohtekine*'); (b) *kohtekine yōn xkipia ikwākohtsin* ('*kohtekine* the one without horns/antenna'); (c) *kohtekine de kalwāxin, iyōlkāyo* ('*kohtekine* of the *kalwāxin* [*L. leucocephala*], its animal'); (d) *kohtekine ipan kalwāxin, panemi, kiteki, pitentsin* ('*kohtekine* found on *L. leucocephala*, it lives there, it cuts it, it is small'); and (e) *kohtekine itlaltāk* ('*kohtekine* its look-alike'). The two *H. mexicanus* were either left unnamed (by Paula Pantaleón) or designated by other consultants as *kohtekine de witskohtli* ('*kohtekine* of the *Acacia cochliacantha* Humb. & Bonpl. ex Willd. (Fabaceae); also called *witspatlaxtli* 'wide-thorned [tree]')).

The complex of terms for Buprestidae share a common feature: they all qualify the basic term *kohtekine* through some additional term, often the name of a common host plant (e.g., the domesticated *L. leucocephala* or the wild *A. cochliacantha*). As wood-boring beetles, it is not surprising that Buprestidae are classified as *kohtekine*. It is also interesting that three trees are singled out as the hosts of different *kohtekine*:

- *Leucaena matudae* prototypical host of *kohtekini*
- *Leucaena leucocephala* host of *C. multistigmosa* and *C. paratabalipa*
- *Acacia cochliacantha* host of *H. mexicanus*

Two additional species were designated by some speakers as *kohtekine*. One was *Pelidnota virescens* Burmeister (Scarabaeidae), while the other was *Cissites auriculata* (Champion) (Meloidae). In regard to the former, Paula Pantaleón initially asserted that it was not a *kohtekine* but later deferred

to her father, Silvestre Pantaleón, who considered it a type of *kohtekine*, though distinct from the cerambycids that had already been collected. According to him, this *kohtekine* has a white and wrinkled larva (*xōxoloxtik ītlākayo*) with a flattened head (*k<sup>w</sup>ātepetlaxtik*). Flattened heads are characteristic of buprestid larvae, so it is possible that, in considering *P. virescens* a *kohtekine*, S. Pantaleón was grouping this scarab with the jewel beetles, which he (and others) consider a secondary class of *kohtekine*. Thus his comment about the larvae shows a keen awareness in associating a subgroup of *kohtekine* with flat-headed larvae, characteristic of Buprestidae but not Cerambycidae.

*Cissites auriculata* was considered a cerambycid by several speakers in both Oapan (*kohtekine*, Nahuatl) and Yoloxóchitl (*ndi<sup>3</sup>xi<sup>4</sup>tu<sup>3</sup>*, Mixtec) even though almost all other Meloidae were consistently designated by a distinct single identifier in each society: *mīteka* (Oapan Nahuatl) and *ti<sup>1</sup>tu<sup>1</sup>un<sup>4</sup>* (Yoloxóchitl Mixtec).<sup>4</sup> The classification of *C. auriculata* as a cerambycid is not, however, illogical. It is one of the largest blister beetles, and its highly salient mandibles suggest wood-boring capabilities. Moreover, the female oviposits at the entrances to nests of *Xylocopa* Latreille<sup>5</sup>, near to which the adult Meloidae tends to remain. Finally, *C. auriculata* adults do not eat and thus are not found on the herbaceous plants (commonly Convolvulaceae) that are often host to this family of beetles.<sup>6</sup>

Interestingly, one cerambycid, *Euderces longicollis* (Linsley), was classified as an ant, which it mimics, in this case a winged *kōlōtsikatl* ant.<sup>7</sup> The problem that mimicry presents to native classification schemes is a topic in need of exploration. At the very least, it is important to recognize that mimicry usually generates a paraphyletic taxonomic structure in native categories. In terms of the lexico-semantics of Indigenous nomenclature, if the native term is paraphyletic considered in light of Western scientific classification (*i.e.*, it does not include all descendants of a common node), then the Indigenous word cannot accurately be translated

by the nodal term in Western classification, in this case Cerambycidae, given that the ranges of the two terms (Indigenous and Western scientific) are not equivalent. One solution is simply to articulate a caveat such as “*kohtekine* means ‘most Cerambycidae.’” Another solution, and that taken here, is more analytic. It determines which subgroups are not covered by the Indigenous term and looks at the internal structure of the native category: what are the prototypical members and what characteristics (*e.g.*, girdling, boring, long antennae) are considered basic features of the Indigenous classification. The “translation” of the Indigenous term becomes, then, an internally differentiated category (not a Boolean category as in Western taxonomy), a set of criteria along the lines of family resemblance as put forth by Wittgenstein that are often neither necessary nor sufficient for category inclusion. In sum, the native Nahuatl speakers from the Balsas valley who were consulted had little problem in creating a fairly consistent category of cerambycids named with a single basic term: *kohtekine* (or cognates in neighboring villages). Not unexpectedly, a Batesian mimic was not recognized and was mistakenly named by the term for the target of mimicry (the painful stinging *kōlōtsikatl* ant). Several consultants mentioned girdling as the prototypical and identifying characteristic of *kohtekine* and would point to the severed branches of *L. matudae* as evidence.

Peripheral *kohtekine* denotata included Buprestidae as well as one Meloidae and one Scarabaeidae. Often the term designating these beetles included some qualification such as *ītlātāk* (a possessive constructing meaning ‘its look-alike’<sup>8</sup>), mention of the host plant, or a comment on morphology or coloration.<sup>9</sup> The inclusion of a host in the name may be *ad hoc*, depending on the plant on which a particular specimen is incidentally found, though in some cases of strictly or nearly monophagous insects the name of the host has been lexicalized in the animal name.<sup>10</sup> In general, color term modification in arthropod names also often seems *ad hoc* and based on direct observation at the time of naming. Finally, morphological modifiers generally tend

<sup>4</sup>*Mīteka* (sometimes *mītekatl*) is of uncertain meaning but seems to be derived from the nominal root *mī* ‘arrow’ and the demonym ending *-teka(tl)*, meaning something like ‘the ones of the arrow’ perhaps in reference to the well-known blistering that Meloidae provoke. The Yoloxóchitl Mixtec term *ti<sup>1</sup>tu<sup>1</sup>un<sup>4</sup>*, comprising the prefix *ti<sup>1</sup>* ‘animal’ and the nominal root *tu<sup>1</sup>un<sup>4</sup>* ‘charcoal’, is perhaps in reference to the burning caused by these insects, though perhaps it is simply a reference to their color. Meloidae are rarely “misidentified” or “misclassified” in either community.

<sup>5</sup>To date, the following carpenter bees have been caught in the Oapan and Yoloxóchitl areas: *Xylocopa varipuncta* Patton, *X. mexicanorum* Cockerell, *X. tabaniformis* Smith, *X. fimbriata* Fabricius, and (one collection of) *X. guatemalensis* Cockerell.

<sup>6</sup>John Pinto (personal communication); see also Bianchi (1962).

<sup>7</sup>Several *kōlōtsikatl* (lit., ‘scorpion ant’, for its powerful sting) have been identified by Philip Ward as *Pseudomyrmex major* Forel, 1899, though the term may also cover *Pseudomyrmex gracilis* (Fabricius, 1804).

<sup>8</sup>A cognate term, *itahāy*, is found in Sierra Nororiental de Puebla Nahuatl as well as (at least) Northern Veracruz. Yoloxóchitl Mixtec has a term, *ta<sup>1</sup>ni<sup>1</sup>*, with a similar semantic meaning and use. Other Mesoamerican languages have similar terms.

<sup>9</sup>For the types of qualifications that may be used to modify basic animal terms, see Ellen (1993: table 2.6).

<sup>10</sup>For example, this occurs with *Leptinotarsa decemlineata* (Say), which is called *tēsōl īpan chikālin* (or *tēsōl yōn kik<sup>w</sup> a chikālin*), literally ‘the *Solanum angustifolium* Mill. beetle’, and is found almost exclusively on the host *Solanum* L. (Solanaceae).

to a few basic characterizations, often size. Despite the fact that these modifiers may not be lexicalized, they demonstrate that speakers often possess a keen and accurate awareness of the association of particular subcategories with given behaviors or habitats.

**B. Yoloxóchitl, Pacific Coast of Western Guerrero.** The Yoloxóchitl Mixtec term for what usually references cerambycids is  $ndi^3xi^4tu^3$  (also  $ndi^3xi^4tu^4$ ) composed of  $ndi^3$ -, an initial element found in many animal names, and  $xi^4tu^3$ , the habitual or incompletive form of a verb meaning 'to clear forest or woodlands of trees for planting'.<sup>11</sup> The name is cognate in meaning to Nahuatl *kohtekini* 'woodcutter', though rather than representing a semantic borrowing from one language to another (calque) it is more likely that the names in both languages simply refer to observed behavior.

In Yoloxóchitl,  $ndi^3xi^4tu^3$  was used by at least one consultant to designate 89 insect collections of which 78 were Cerambycidae. Of the 149 nomenclatural "data points" for these insects (a data point being the name for an insect given by a native speaker at the time of collection; usually several speakers were present at any given collection), 140 data points, or names, were  $ndi^3xi^4tu^4$  (or  $ndi^3xi^4tu^3$ ). This percentage (94%) demonstrates a very high level of consistency among speakers. Of the nine times that speakers did not recognize and name a cerambycid by its Mixtec name ( $ndi^3xi^4tu^4$  or  $ndi^3xi^4tu^3$ ), three were in reference to *Desmiphora hirticollis* (Olivier), twice named  $ndi^3yu^1u^4$ , a name that is most commonly applied to Tenebrionidae and, sometimes, Curculionidae. The misidentification is not surprising, however, given the cryptic, camouflaging morphology of *D. hirticollis*.<sup>12</sup> The only other "misapplied" term was  $ti^1tu^1un^4$  (almost exclusively and uniquely used to designate Meloidae) given by one speaker for a species of *Hippopsis* Lepeletier and Audinet-Serville; another speaker had no name for this specimen, suggesting its peripheral status. Other Cerambycidae that were not recognized by at least one speaker include *Ischnocnemis caeruleascens* Bates (one of three consultants did not name this  $ndi^3xi^4tu^4$ ), *Plagiohammus imperator* (Thomson)

(one of four), *Neocompsa macrotricha* Martins (two of seven for three collections of this species), and *Achryson surinamum* (Linnaeus) (one of 10 for four collections of this species). Thus, of 24 total data points for 10 collections of these four species, only five data points represent a failure to classify them as  $ndi^3xi^4tu^4$ .

As in the Nahuatl-speaking Balsas Valley of central Guerrero, at least one speaker of Yoloxóchitl Mixtec also named several non-Cerambycidae as  $ndi^3xi^4tu^4$  ( $ndi^3xi^4tu^3$ ) (Table 1).

Although all three consultants (see Table 1) were consistent in classifying a brentid as a  $ndi^3xi^4tu^3$ , the reason for this inclusion is not clear. The qualifier  $ndu^3ku^2$  ('rod'), which for this specimen qualifies the general term  $ndi^3xi^4tu^3$ , apparently refers to the long, straight snout of this beetle. The erotyliid was designated a  $ndi^3xi^4tu^3$  by only the speaker, Esteban Guadalupe, who collected it and qualified it as  $kwi^4in^2$  'spotted'. In commenting on his identification, he noted that he classified the specimen as  $ndi^3xi^4tu^3$  even though it lacked what he considered a defining feature of this category: long antennae. Both families, Brentidae and Erotylidae, are rarely collected and are never named by unique Mixtec terms. Their inclusion under  $ndi^3xi^4tu^3$  might simply reflect an attempt at classification of referents not normally classified, perhaps motivated by the task of collecting and naming that the collaborators were performing. The basis for the classification of *C. auriculata* as a  $ndi^3xi^4tu^3$  has already been discussed.

The motivation for classifying the remaining non-Cerambycidae as  $ndi^3xi^4tu^3$  is readily understandable. In regard to the Passalidae, Esteban Castillo found this in a dried tree trunk and for this reason considered it a  $ndi^3xi^4tu^3$  and not a  $tio^1ko^4si^14bi^3$  ('dung beetle'), one of the other nomenclatural options available. He also noted some powdered wood near the insect, which was taken as a key to the insect's wood-cutting activity and identity. Indeed, Esteban Guadalupe had seen other Passalidae previously in dry wood and for this reason he tended to include them under the gloss  $ndi^3xi^4tu^3$ . In these cases, it seems that the term  $ndi^3xi^4tu^3$  is taken in its literal sense and applied to morphologically distinct

<sup>11</sup>To date, 17 animal terms beginning with  $ndi^3$ - have been documented:  $ndi^3ba^4yu^1$  ('coyote'),  $ndi^3cho^4so^4$  ('tecolotillo', owl of the Strigidae family, perhaps *Glaucidium brasilianum* (Gmelin));  $ndi^3ka^3chi^3$  ('sheep');  $ndi^3ka^3ni^4$  (type of fish still unidentified);  $ndi^3ka^3a^3$  (large feline, probably *Panthera onca hernandesii* (Mearns); also the generic term for Mutillidae);  $ndi^3ki^4ndi^4$  ('termite');  $ndi^3ko^4o^24$  (type of lizard still unidentified);  $ndi^3ko^4ndo^4$  (type of small frog still unidentified);  $ndi^3ku^4ku^2$  ('Inca dove', *Columbina inca* (Lesson));  $ndi^3ku^4ku^2$  ('head louse', *Pediculus humanus humanus* Linnaeus);  $ndi^3ku^3un^3$  (type of large toad still unidentified);  $ndi^3kwa^4nu^3$  (*Sciurus* spp., several species of tree squirrels);  $ndi^3sa^4mi^4$  (type of edible larva, apparently of beetles, that live in trees);  $ndi^3ta^2$  and  $ndi^3te^4e^4$  (two types of shrimp and similar freshwater crustaceans);  $ndi^3xi^4li^4$  (nests of moths of the family Psychidae moths);  $ndi^3yu^1u^4$  (group of insects that includes Tenebrionidae and some Curculionidae). Other animal names begin with  $ti^1$ - (from  $ki^3ti^4$  'animal'; e.g.,  $ti^1su^3ma^2$  'scorpion', cf.  $su^1ma^4$  'tail') or are complex lexemes preceded by  $ti^4$  (a relativizer meaning 'the animal that [is]'); e.g.,  $ti^4chi^4in^24$  generic term for most Syrphidae,  $chi^4in^24$  'fingernail', i.e., literally 'fingernail insect').

<sup>12</sup>The term  $ndi^3yu^1u^4$  is derived from  $yu^1u^4$  'stone' or 'rock' in reference to the defensive mechanism of these insects, which feign death and have a hard, rock-like exoskeleton.

**Table 1.** Non-Cerambycidae named  $ndi^3xi^4tu^3/ndi^3xi^4tu^4$  by at least one speaker.

Collection number	Scientific name	Constantino Teodoro	Esteban Castillo García	Esteban Guadalupe Sierra	Various additional consultants
80555	Brentidae (genus not determined)	$ndi^3xi^4tu^4$ $ndu^3ku^2$	$ndi^3xi^4tu^4$ $ndu^3ku^2$	$ndi^3xi^4tu^4$ $ndu^3ku^2$	not named
81048	Erotylidae <i>Megalodacne</i> sp.	—————	—————	$ndi^3xi^4tu^3$ $kwi^4in^2$	—————
80853	Tenebrionidae <i>Cymatothes</i> sp.	$ndi^3xi^4tu^3$ $nda^4a^4$	$ti^1tu^1un^4$ $nda^4a^4$	$ndi^3xi^4tu^3$ $nda^4a^4$	—————
80144	Meloidae <i>Cissites auriculata</i>	—————	$ndi^3xi^4tu^4$ $k^w a^4 an^2$	—————	—————
80466	Meloidae <i>Cissites auriculata</i>	$ndi^3xi^4tu^4$ $k^w i^4 in^2$	—————	$ndi^3xi^4tu^4$ $kwa^4 an^2$	not named
81110	Meloidae <i>Cissites auriculata</i>	$ndi^3xi^4tu^4$ $k^w i^4 in^2$	—————	$ndi^3xi^4tu^4$ $k^w i^4 in^2$	—————
81422	Passalidae <i>Passalus (Pertinax) cognatus</i> Truqui	—————	$ndi^3xi^4tu^3$ $tu^{14}un^3$ ('dark')	$ndi^3xi^4tu^3$ $nda^4a^4$ (‘black’) or $tu^{14}un^3$ (‘dark’)	—————
80727	Scarabaeidae <i>Megasoma elephas</i> (Fabricius) (male)	$ndi^3xi^4tu^3$	$tio^1ko^4$ $si^{14}bi^3$ $ndi^3ki^4$ (literally, ‘horned dung beetle’)	$ndi^3xi^4tu^3$	$tio^1ko^4$ $si^{14}bi^3$
80758	Scarabaeidae	$ndi^3xi^4tu^3$ $i^3tun^4$ $ta^4yu^1$	$tio^1ko^4$ $si^{14}bi^3$	$ndi^3xi^4tu^3$	$tio^1ko^4$ $si^{14}bi^3$
80892	Scarabaeidae	$tio^1ko^4$ $si^{14}bi^3$	$ti^1tu^1un^4$	$ndi^3xi^4tu^3$ $nda^4a^4$	$tio^1ko^4$ $si^{14}bi^3$
81064	Scarabaeidae (Dynastinae)	—————	—————	$ndi^3xi^4tu^3$ $i^4yo^3$ $ix^1tin^4$	—————

species that engage in the prototypical wood-boring activity. Finally, several dynastine scarab beetles were classified as  $ndi^3xi^4tu^3$  by some and  $tio^1ko^4 si^{14}bi^3$  (lit., ‘ant excrement’, a term applied to dung beetles as well as to the sometimes fetid-smelling army ant *Labidus coecus* (Latreille)) by others. Most consultants associated these beetles with decaying wood. Indeed, one called a dynastine  $ndi^3xi^4tu^3$   $i^3tun^4$   $ta^4yu^1$ , literally, ‘ $ndi^3xi^4tu^3$  of rotting wood’, while another consultant denied that the dynastine was a  $ndi^3xi^4tu^3$  given the absence of long antennae. Instead, he associated it with dung beetles ( $tio^1ko^4 si^{14}bi^3$ ).

**C. San Miguel Tzinacapan and Xinachapan, Sierra Nororiental of Puebla.** Despite minimal collection as part of an incipient Sierra Nororiental project, the scarce data (eight collections) from San Miguel Tzinacapan (municipality of Cuetzalan), Xinachapan (municipality of Huitzilán de Serdán),

and Zongozotla (municipality of the same name) are included for four reasons.

First, two collections are new state records. Second, the most common Sierra de Puebla Nahuatl name for cerambycids is cognate to the Guerrero Nahuatl term:  $k^w owtekin$  (Tzinacapan) and  $k^w awtekk$  (Xinachapan).<sup>13</sup> Several consultants from Tzinacapan applied the name *tomakilok<sup>w</sup>ilin*, derived from *tomakilit* (plants with edible leaves of the *Solanum nigrum* complex) and *ok<sup>w</sup>ilin* (‘animal’), to *Steirastoma senex* White based on the fact that it was found on a *Solanum* of the aforementioned complex. In addition, one consultant applied the same term, *tomakilok<sup>w</sup>ilin*, to *Ptychodes guttulatus* Dillon and Dillon.<sup>14</sup> Another speaker, quite knowledgeable in these matters, vehemently denied that either of the two species were *tomakilok<sup>w</sup>ilin* and while not having a name for *S. senex* was quite sure in designating *P. guttulatus* a  $k^w owtekin$ .

<sup>13</sup> The *-keh* ending of  $k^w awtekk$  represents an alternative agentive form to *-ni*, and thus the meaning ‘the one that cuts wood’ applies to both the Tzinacapan and Xinachapan words.

<sup>14</sup> Cerambycidae have been documented as feeding on *Solanum* (Oleckers *et al.* 2002; Machado *et al.* 2012).

A third reason for including the limited Puebla data is that another cerambycid, *Callipogon barbatus* (Fabricius), called *k<sup>w</sup>awtōtolin* (literally ‘wood turkey’ or ‘tree turkey’), is eaten. It is first roasted on a clay griddle, and then the meat of its body is scooped out from its underside and eaten with tortillas. The 22 edible cerambycids reported by Ramos-Elorduy and Pino Moreno (2004) are consumed only as larvae or pupae, so this might be the first documented case for Mexico of the consumption of an adult cerambycid.<sup>15</sup> Also, given that in Balsas Nahuatl and Yoloxóchitl Mixtec a single term (*kohtekine* and *ndi<sup>3</sup>xi<sup>4</sup>tu<sup>3</sup>*, respectively) is applied to Cerambycidae, Cuetzalan Nahuatl is unusual in that a specific term distinct from the generic *k<sup>w</sup>awtekini* is used to reference *C. barbatus*, an edible beetle, and thus perhaps a more culturally salient Cerambycidae.

The fourth and final reason for inclusion is that four Sierra collections are from Zongozotla, a Totonac village. These are the only collections to date with linguistic information from this language (discussed in the following section).

### Comparative Data on Native Nomenclature and Classification of Cerambycidae

**A. Mesoamerica.** Two major studies, both by Eugene Hunn (1977, 2008), include information on Cerambycidae. Among the Tzeltal, two terms cover this family. Large cerambycids (subfamily Prioninae) are called *šulton* (in his translation, ‘horned stone’<sup>16</sup>), while others (described simply as “small long-horned beetles” (Hunn 1977) are called *hse? te? čan* (lit., ‘tree-cutter bug’). The former are edible.

Among the Zapotec of San Juan Gbëë, the classification of Cerambycidae is more complex. Hunn (2008 on CD) gives four terms that include an undetermined number of cerambycids as well as, in some cases, non-cerambycid beetles. The terms translate as: (1) ‘animal that eats grasshopper’; (2) ‘animal ox’; (3) ‘animal saw’; (4) ‘animal shell’. The limits of each category are not discussed, although the final term is said to include both Cerambycidae and Passalidae.<sup>17</sup> Interestingly, as in the Balsas Valley, girdling longhorn beetles ([4]

‘animal saw’) are associated with *Leucaena* Benth. (guajes): “[this insect] kills *guaje* trees (*Leucaena esculenta* (DC.) Benth.) by cutting the bark all around the trunk” (Hunn 2008 on CD under Cerambycidae). The first class of cerambycids ([1] ‘animal that eats grasshopper’) is, on the other hand, associated with rain: “flies when it rains, announces with its long antennae that there is food” (Hunn 2008 on CD).

Finally, Zongozotla Totonac names for the four specimens collected to date present challenges to a clear understanding of Zongozotla Totonac nomenclature and classification of cerambycids as each specimen was given a different, though thematically linked, name:<sup>18</sup>

1. *chukchuk* (perhaps an onomatopoeic word, though the verb *chukuy* signifies ‘to cut’<sup>19</sup>)  
*Taeniotus scalatus* Gmelin
2. *xchuku:n ki’wi’* (‘tree cutter’, a nominalization of the verb ‘to cut’ followed by *ki’wi’*, ‘tree’)  
*Lagocheirus araneiformis* (Linnaeus)
3. *xalhak ki’wi’ chukchuk* (*xalhak* is used in constructions indicating ‘from [toponym]’; speakers understand this term as indicating that the *chukchuk* lives inside of tree trunks and branches)  
*Juiaparus mexicanus* (Thomson)
4. *chuku:tanu:ná’* (‘the one that goes in perforating’)  
*Chlorida cinicta* Guérin-Méneville

When interviewed, some speakers divide cerambycids into two basic categories depending on certain behaviors deemed characteristic of each group: (1) *chukchuk* and (2) *xalhak ki’wi’ chukchuk*. The first is said to be characteristically grey colored and to girdle and cut down branches by gnawing off the bark in a narrow circle. The second class is said to be generally greenish brown and to live inside trees. Nevertheless, the four collections to date do not seem to represent a clear division into girdling vs. wood-boring beetles, even though the Totonac names suggest a cognitive division by speakers into these two classes: 1 and 2 ostensibly would be girdlers and 3 and 4 wood borers. Additional collections are needed to clarify the internal structure and relations of the general “cerambycid” category.

<sup>15</sup> Hunn (1977) mentions several edible beetles and true bugs; included as edible are Dynastinae (Scarabaeidae) and Prioninae (Cerambycidae). Hunn does not, however, mention the stage (e.g., larva or adult) at which the beetles are consumed.

<sup>16</sup> In the Nahuatl(l) and Mixtec languages studied here, the same term applies to both ‘horn’ and ‘antennae’. If this polysemy applies to Tzeltal, then another translation would be ‘antennae stone’.

<sup>17</sup> While the motivation for ‘animal that eats grasshopper’ is opaque, the remaining terms are more transparent. ‘Animal ox’ probably refers to the distinctive and salient ‘horns’ of cerambycids and ‘animal saw’ to their characteristic girdling activity. Finally, ‘animal shell’ would refer to the hard elytra of Coleoptera.

<sup>18</sup> The proper orthographic representation of Zongozotla Totonac is still pending final determination of this language’s phonology. Thus, there may be slight errors in the spelling of the Totonac names given here.

<sup>19</sup> Some speakers analyze the name *chukchuk* as a reduplicated and apocopated form of the verb *chukuy* ‘to cut’, a derivation that would be unusual for Totonac (David Beck, personal communication). Others suggest an onomatopoeic word, which is more in line with Totonac grammar.

**B. Non-Mesoamerica.** Only one New World source of native names for cerambycids has been found: Wyman and Bailey's study (1964) of Navajo Indian ethnoentomology. As among the Tzeltal, large prionids are separately classified and, interestingly, the term for 'rock' is also included in their name: 'rock beaver', a term that also includes some large scarabs and cockroaches and is extended by some speakers to large buprestids, stag beetles, and Dynastinae (Wyman and Bailey 1964). A more general term for cerambycids (which also can be used to include the prionines) is 'rain beetle' as they are "said to bring rain and a good year, they arrive when the rains come" (Wyman and Bailey 1964). The association of cerambycids with rain repeats an observation reported by Hunn (2008 on CD) for San Juan Gbëë Zapotec. Finally, some cerambycids were classified by native Navajo speakers with tenebrionids (called *k'inilíši*; lit., 'urine squirter') as a subclass of "horned urine-squirters".

#### New State Records for Mexican Cerambycidae

Of the 132 collections of Cerambycidae (Table 2) made in the course of the research on ethnoentomology in Cuetzalan del Progreso, Tepecoacuilco de Trujano, and San Luis Acatlán, the following 12 represent new state records for Mexico. These distributional records were based on Chemsak and Noguera (1993), Terrón (1993), Noguera *et al.* (2002), Toledo *et al.* (2002, 2007), MacRae *et al.* (2012), Noguera and Gutiérrez (2016), and Monné (2017a-c).

##### A. Guerrero: Pacific Coast: Yoloxóchtitl, Mpio. San Luis Acatlán

***Bebelis picta* Pascoe:** This species is known from Veracruz and Chiapas, Mexico, and many countries in Central and South America (Noguera and Gutiérrez 2016; Monné 2017b). Guerrero is a **new state record** for Mexico.

***Callipogon senex* Dupont:** This species is known from Mexico (Nayarit, Tabasco, Puebla, Veracruz, Chiapas, Jalisco, and Hidalgo), Guatemala, Honduras, and El Salvador (Chemsak and Noguera 1993; Terrón 1993; Monné 2017c). Guerrero is a **new state record** for Mexico.

***Neocompsa macrotricha* Martins:** This species is known from Mexico (Chiapas and Morelos), Guatemala, and Venezuela (Monné 2017a). Guerrero is a **new state record** for Mexico.

***Olenosus serrimanus* Bates:** This species is known from Mexico (Sonora, Jalisco, Veracruz, Morelos, Chiapas, Oaxaca, and Hidalgo), Guatemala, Honduras, Nicaragua, and Costa Rica (Terrón 1993; Monné 2017b). Guerrero is a **new state record** for Mexico.

***Ornithia mexicana zapotensis* Tippmann:** This species is known from Mexico (Sinaloa and Jalisco) and Guatemala (Monné 2017a). Guerrero is a **new state record** for Mexico.

***Stenygra histrio* Audinet-Serville:** This species is known from Mexico (Morelos, Veracruz, Jalisco, Chiapas, and Michoacán) to Nicaragua and Costa Rica (Monné 2017a). Guerrero is a **new state record** for Mexico.

***Strongylaspis championi* Bates:** This species is known from Mexico (Jalisco, Yucatán, and Quintana Roo), Guatemala, and Costa Rica (Monné 2017c). Guerrero is a **new state record** for Mexico.

##### B. Guerrero: central Balsas Valley: San Agustín Oapan, Mpio. Tepecoacuilco de Trujano

***Lissonotus flavocinctus puncticollis* Bates:** This species is known from the southern and western United States (California and Texas) and Mexico (Baja California and Sonora) (Monné 2017a). Guerrero is a **new state record** for Mexico.

***Nothopleurus lobigenis* Bates:** This species is known from the United States (Texas to southern California) and Mexico (Baja California, Durango, Jalisco, Sonora, Oaxaca, Nayarit, Chiapas, Puebla, Morelos, and Sinaloa) (Santos-Silva *et al.* 2010; Monné 2017c). Guerrero is a **new state record** for Mexico.

##### C. Puebla: Sierra Nororiental: San Miguel Tzinacapan, Mpio. Cuetzalan del Progreso

***Juiaparus mexicanus* (Thomson):** This species is widespread from Mexico to South America but has not been specifically recorded from Puebla. Puebla is a **new state record** for Mexico.

***Ptychodes guttulatus* Dillon and Dillon:** This species is known from Mexico (Guerrero) (Monné 2017b). Puebla is a **new state record** for Mexico.

***Steirastoma senex* White:** This species is known from Mexico (Veracruz and Hidalgo), Guatemala, Honduras, Nicaragua, Costa Rica, and Panama (Terrón 1993; Monné 2017b). Puebla is a **new state record** for Mexico.

#### CONCLUSIONS

In the two major areas researched (central Balsas Nahuatl and Yoloxóchtitl Mixtec), consultants tended to a single basic term for Cerambycidae: *kohtekine* and *ndi<sup>3</sup>xi<sup>4</sup>tu<sup>3</sup>*, respectively. In both communities, speakers were fairly consistent in applying these terms to all cerambycids, exceptions being those involved in Batesian mimicry or those that presented an unusual morphology (*D. hirticollis*). At the other extreme, the terms were extended to cover non-cerambycids that displayed behavior (wood-boring)



or morphology (pronounced mandibles) similar to longhorned beetles.

Cerambycids were associated with *Leucaena* spp. in both Balsas Nahuatl and San Juan Gbëë Zapotec. They are associated with rain in both San Juan Gbëë Zapotec and among the Navajo. The subfamily Prioninae are separately classified in both Tzeltal and Navajo. Finally, in Cuetzalan del Progreso (Sierra Nororiental de Puebla), an edible cerambycid (*C. barbatum*) receives a name distinct from the generic term for cerambycids (*k<sup>w</sup>owtekini*).

This study reveals the advantages of cross-disciplinary collaboration between an ethnobiologist and an expert taxonomist to further their respective fields of study. It enables the ethnobiologist to collect and identify enough specimens to permit a detailed analysis of an Indigenous biosemantic category, particularly its internal structure (*i.e.*, the identity of prototypical and peripheral referents) and the features that native speakers consider salient in determining category membership. Collaboration with taxonomic specialists greatly enhances the documented inventory

**Table 2.** Complete list of collected Cerambycidae and primary data. Data in bold represent new state records.

ID Number	Date Collected	Village, municipality, state (for precise data, see Material and Methods and Fig. 1)	Scientific Name
80078	Oct. 2010	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Ameriphoderes parva</i> (Chemsak and Linsley)
80136	Dec. 2010–May 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Achryson surinamum</i> (Linnaeus)
80350	May 16, 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Achryson surinamum</i> (Linnaeus)
80597	Jul. 29, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Achryson surinamum</i> (Linnaeus)
80649	Oct. 29, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Achryson surinamum</i> (Linnaeus)
81579	May 20, 2016	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Achryson surinamum</i> (Linnaeus)
81169	Jun. 4, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Aneflomorpha</i> sp.
00471	May 2008	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Aneflus rugicollis</i> Linsley
<b>80578</b>	<b>Mar. 12, 2012</b>	<b>Yoloxóchitl, San Luis Acatlán (Guerrero)</b>	<b><i>Bebelis picta</i> Pascoe</b>
00321	Jun. 2007	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Cacophrissus maculipennis</i> Chemsak and Linsley
01050b	Mar. 9, 2009	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Cacophrissus maculipennis</i> Chemsak and Linsley
60194	Nov. 24, 2013	Xaltipan, San Miguel Tzinacapan, Cuetzalan del Progreso (Puebla)	<i>Callipogon barbatum</i> (Fabricius)
81189	Oct. 17, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Callipogon barbatum</i> (Fabricius)
<b>80486</b>	<b>Jul. 2, 2011</b>	<b>Yoloxóchitl, San Luis Acatlán (Guerrero)</b>	<b><i>Callipogon senex</i> Dupont</b>
01159	Oct. 3, 2012	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Canidia canescens</i> (Dillon)
01160	Oct. 3, 2012	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Canidia canescens</i> (Dillon)
74059	Jul. 23, 2016	Zongozotla, Zongozotla (Puebla)	<i>Chlorida cincta</i> Guérin-Ménéville
81460	Jun. 2, 2014	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Colobothea leucophaea</i> Bates
81058	Jun. 12, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	Lamiinae (possibly <i>Cymatonycha</i> sp.)
00612	Nov. 10, 2008	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis auromarginata</i> Audinet-Serville
01200	Sep.–Oct. 2012	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis auromarginata</i> Audinet-Serville
81197	Apr. 29, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Delia batesi</i> Gahan
81556	2015	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Delia batesi</i> Gahan
01136	Aug.–Sep. 2012	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis cyanipes</i> Bates
01212	Spring, 2013 – Fall, 2014	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis cyanipes</i> Bates
01213	Spring, 2013 – Fall, 2014	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis cyanipes</i> Bates
01214	Spring, 2013 – Fall, 2014	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis cyanipes</i> Bates

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**Table 2.** Continued.

ID Number	Date Collected	Village, municipality, state (for precise data, see Material and Methods and Fig. 1)	Scientific Name
01215	Spring, 2013 – Fall, 2014	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis cyanipes</i> Bates
00218	Sep.–Oct. 2006	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis rubriventris</i> Bates
01155	Oct. 3, 2012	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis rubriventris</i> Bates
01156	Oct. 3, 2012	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis rubriventris</i> Bates
01199	Sep.–Oct. 2012	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis rubriventris</i> Bates
01201	Oct.–Dec. 2012	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis rubriventris</i> Bates
01216	Spring, 2013 – Fall, 2014	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis rubriventris</i> Bates
00543	Nov. 9, 2008	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis variabilis</i> Bates
00544	Nov. 9, 2008	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Deltaspis variabilis</i> Bates
80063	Oct. 2010	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Desmiphora hirticollis</i> (Olivier)
80690	Nov. 30, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Desmiphora hirticollis</i> (Olivier)
81561	Aug. 15, 2015	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Eburia</i> sp. 1
81566	Oct. 22, 2015	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Eburia</i> sp. 1
80765	Nov. 10, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Eburia maccartyi</i> Noguera
80777	Nov. 9, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Eburia maccartyi</i> Noguera
80895	Nov. 19, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Eburia maccartyi</i> Noguera
81285	Oct. 15, 2015	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Eburia maccartyi</i> Noguera
80613	Oct. 29, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Eburia maccartyi</i> Noguera
80614	Aug. 6, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Eburia maccartyi</i> Noguera
81004	Apr. 6, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Eburia nigrovittata</i> Bates
80393	Jun. 1, 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Eburia nigrovittata</i> Bates
80399	Jun. 4, 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Eburia nigrovittata</i> Bates
80405	Jun. 4, 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Eburia nigrovittata</i> Bates
81441	Jun. 3, 2014	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Euderces pulchra</i> (Bates)
01051	Jul. 6, 2011	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Elytrimitatrix giesberti</i> Santos-Silva and Hovore
01052	Jul. 6, 2011	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Elytrimitatrix giesberti</i> Santos-Silva and Hovore
01050a	Jul. 6, 2011	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Elytrimitatrix giesberti</i> Santos-Silva and Hovore
80490	Jun. 26, 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Essostrutha laeta</i> (Newman)
81059	Jul. 8, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Essostrutha laeta</i> (Newman)
81098	Jul. 7, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Essostrutha laeta</i> (Newman)
81128a	Jul. 7, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Essostrutha laeta</i> (Newman)
81266	Jul. 7, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Essostrutha laeta</i> (Newman)
81275	Jul. 7, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Essostrutha laeta</i> (Newman)
81519	Jul. 1, 2014	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Essostrutha laeta</i> (Newman)
00899	Jun. 6, 2010	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Euderces longicollis</i> (Linsley)
00900a	Jun. 6, 2010	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Euderces longicollis</i> (Linsley)
80410	Jul. 1, 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Eupogonius</i> sp.
81168	Jun. 9, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Heterachthes ebenus</i> Newman
80671	Oct. 29, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Hippopsis</i> sp.
80056	Oct. 2010	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Ischnocnemis caeruleascens</i> Bates
80798	Nov. 5, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Ischnocnemis similis</i> Chemsak and Noguera
80836	Nov. 5, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Ischnocnemis similis</i> Chemsak and Noguera

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Table 2. Continued.

ID Number	Date Collected	Village, municipality, state (for precise data, see Material and Methods and Fig. 1)	Scientific Name
<b>74009</b>	<b>Apr. 2016</b>	<b>Zongozotla, Zongozotla (Puebla)</b>	<b><i>Juiaparus mexicanus</i> (Thomson)</b>
81563	Mar. 11, 2015	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Lagocheirus</i> sp. 1
80335	May 15, 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Lagocheirus</i> sp. 1
01217	2013–2014	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Lagocheirus</i> sp. 1
01210	Mar.–Apr. 2013	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Lagocheirus araneiformis</i> (Linnaeus)
00389	Dec. 11, 2007	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Lagocheirus araneiformis</i> (Linnaeus)
01248	Spring, 2015	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Lagocheirus araneiformis</i> (Linnaeus)
01219a	Spring, 2013 – Fall, 2014	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Lagocheirus araneiformis</i> (Linnaeus)
01219b	Spring, 2013 – Fall, 2014	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Lagocheirus araneiformis</i> (Linnaeus)
01219c	Spring, 2013 – Fall, 2014	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Lagocheirus araneiformis</i> (Linnaeus)
81445	May 10, 2014	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Lagocheirus araneiformis</i> (Linnaeus)
74058	Jul. 20, 2016	Zongozotla, Zongozotla (Puebla)	<i>Lagocheirus araneiformis</i> (Linnaeus)
00922	2010	San Francisco Ozomatlán, Huitzuc de los Figueroa (Guerrero)	<i>Lagocheirus araneiformis ypsilon</i> (Voet)
80170	Dec. 2010–May 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Lissonotus flavocinctus</i> Dupont
<b>00856</b>	<b>Aug. 2009</b>	<b>San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)</b>	<b><i>Lissonotus flavocinctus puncticollis</i> Bates</b>
81198	Aug. 11, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Lochmaeocles</i> sp. 1
81562	Oct. 25, 2015	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Lochmaeocles</i> sp. 1
80055	Oct. 2010	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Lophalia quadrivittata</i> (Bates)
80403	May 31, 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Mallodon dasystemus dasystemus</i> Say
81565	July 14, 2015	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Mallodon spinibarbis</i> (Linnaeus)
81567	Oct. 29, 2015	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Mallodon spinibarbis</i> (Linnaeus)
<b>80489</b>	<b>Jul. 5, 2011</b>	<b>Yoloxóchitl, San Luis Acatlán (Guerrero)</b>	<b><i>Neocompsa macrotricha</i> Martins</b>
<b>80832</b>	<b>Nov. 7, 2012</b>	<b>Yoloxóchitl, San Luis Acatlán (Guerrero)</b>	<b><i>Neocompsa macrotricha</i> Martins</b>
<b>81187</b>	<b>Jun. 8, 2013</b>	<b>Yoloxóchitl, San Luis Acatlán (Guerrero)</b>	<b><i>Neocompsa macrotricha</i> Martins</b>
81057	Apr. 26, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Neocompsa</i> sp. (near <i>agnosta</i> Martins)
81564	Oct. 25, 2014	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Neoptychodes trilineatus</i> (Linnaeus)
<b>00006</b>	<b>Jun. 2003</b>	<b>San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)</b>	<b><i>Nothopleurus lobigenis</i> Bates</b>
<b>00158</b>	<b>Fall 2005</b>	<b>San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)</b>	<b><i>Nothopleurus lobigenis</i> Bates</b>
<b>80606</b>	<b>Aug. 15, 2012</b>	<b>Yoloxóchitl, San Luis Acatlán (Guerrero)</b>	<b><i>Olenosus serrimanus</i> Bates</b>
80997	Apr. 11, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Ornithia mexicana mexicana</i> (Sturm)
80468	Jun. 16, 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Ornithia mexicana mexicana</i> (Sturm)
<b>80591</b>	<b>Aug. 30, 2012</b>	<b>Yoloxóchitl, San Luis Acatlán (Guerrero)</b>	<b><i>Ornithia mexicana zapotensis</i> Tippmann</b>
80456	May 23, 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Orwellion gibbulum gibbulum</i> (Bates)

Continued on next page

**Table 2.** Continued.

<b>ID Number</b>	<b>Date Collected</b>	<b>Village, municipality, state (for precise data, see Material and Methods and Fig. 1)</b>	<b>Scientific Name</b>
00488	Jun. 29, 2008	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Perilasius</i> sp.
00048	Aug. 2003	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Plagiohammus imperator</i> (Thomson)
80556	Jul. 16, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Plagiohammus imperator</i> (Thomson)
81457	Jul. 9, 2014	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Platyarthron bilineatum</i> Guérin-Méneville
80590	Oct. 19, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Psapharochrus</i> sp. (near <i>borrei</i> Dugés)
80960	Jan. 20, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Psapharochrus circumflexus</i> (Jacquelin du Val)
81241	Apr. 9, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Psapharochrus circumflexus</i> (Jacquelin du Val)
<b>60201</b>	<b>Aug. 5, 2015</b>	<b>Xinacachapan, Huitzilán de Serdán (Puebla)</b>	<b><i>Ptychodes guttulatus</i> Dillon and Dillon</b>
60079	Jul. 23, 2010	San Miguel Tzinacapan, Cuetzalan del Progreso (Puebla)	<i>Ptychodes politus</i> Audinet-Serville
00105	Jan. 2004	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Sphaenothecus</i> sp. 1
00840	Nov. 2009	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Sphaenothecus trilineatus</i> Dupont
01218	Spring, 2013 – Fall, 2014	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Sphaenothecus trilineatus</i> DuPont
<b>60025</b>	<b>Mar. 9, 2009</b>	<b>San Miguel Tzinacapan, Cuetzalan del Progreso (Puebla)</b>	<b><i>Steirastoma senex</i> White</b>
80057	2010	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Stenobatyle mineatocollis</i> (Chevrolat)
<b>81094</b>	<b>Jul. 8, 2013</b>	<b>Yoloxóchitl, San Luis Acatlán (Guerrero)</b>	<b><i>Stenygra histrio</i> Audinet-Serville</b>
<b>80600</b>	<b>Oct. 10, 2012</b>	<b>Yoloxóchitl, San Luis Acatlán (Guerrero)</b>	<b><i>Stenygra histrio</i> Audinet-Serville</b>
81046	May 9, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Stizocera submetallica</i> (Chemsak and Linsley)
80497	Jun. 25, 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Stizocera submetallica</i> (Chemsak and Linsley)
<b>80380</b>	<b>Jun. 2, 2011</b>	<b>Yoloxóchitl, San Luis Acatlán (Guerrero)</b>	<b><i>Strongylaspis championi</i> Bates</b>
81082	May 27, 2013	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Strongylaspis</i> sp. ( <i>dohrni</i> ?)
74057	Jul. 2, 2016	Zongozotla, Zongozotla (Puebla)	<i>Taeniotes scalatus</i> Gmelin
00839	Nov. 2009	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Taricanus truquii</i> Thomson
00049	Aug. 2003	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Trachyderes mandibularis mandibularis</i> Dupont
00907	May 2010	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Trachyderes mandibularis mandibularis</i> Dupont
01241	Spring, 2015	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Trachyderes mandibularis mandibularis</i> Dupont
80528	Jun. 10, 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Trachyderes mandibularis mandibularis</i> Dupont
80602	Oct. 27, 2012	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Trachyderes mandibularis mandibularis</i> Dupont
81465	Jun. 23, 2014	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Trachyderes mandibularis mandibularis</i> Dupont
80532	Jun. 25, 2011	Yoloxóchitl, San Luis Acatlán (Guerrero)	<i>Tragidion carinatum</i> Thomson
01137	Aug.–Sep. 2012	San Agustín Oapan, Tepecoacuilco de Trujano (Guerrero)	<i>Urgleptes</i> sp.

of species in a given, and often undercollected, region. We hope this study will stimulate further, similar collaborations to advance ethnobiological and taxonomic disciplines.

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