

## ODONATA FROM THE YUCATAN PENINSULA, MEXICO

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**Abstract** — Sixty-eight spp. of Odon. are at present known from the Yucatan Peninsula, the present paper adding 25 spp. and many new localities to the published record. *Protoneura corculum*, *Argia gaumeri*, *Anax concolor*, *A. junius*, *Coryphaeschna* new. sp. *Macrodiplax balteata*, *Micrathyria hageni*, *Perithemis intensa*, *P. mooma*, *Tramea binotata* and *T. lacerata* are discussed in greater detail.

### Introduction

Details on the distribution of Odonata in Mexico remain much as they were when the *Biologia Centrali-Americana* was published (CALVERT, 1901-1908). The entire Yucatan Peninsula (Campeche, Yucatan and Quintana Roo) remained *terra incognita odonatologica* until the publication of WILLIAMSON's (1936) paper on the dragonflies of the region,

based on collections that were extensive but nevertheless made by nonspecialists. Thirty-five species were reported from Campeche and Yucatan in that paper, and essentially nothing has been published about the region subsequently.

GLOYD (1938), CALVERT (1956) and LEONARD (1977) renamed *Belonia croceipennis*, *Aeshna cornigera* and *Acanthagrion gracile* of earlier publications as *Libellula gagei*, *Aeshna psilus* and *Acanthagrion quadratum* respectively. BORROR (1942), DONNELLY & ALAYO (1966), PAULSON & GARRISON (1977) and DE MARMELS & RÁCENIS (1982) each added another species to the list of those known to occur on the peninsula.

I visited this region twice, once very briefly in July 1965 and again for a longer period in November 1983. I collected 219 specimens of 45

species, and, in addition, I observed 11 species that I did not collect but am confident of their identification.

#### Localities

These are numbered to correspond with the numbers listed after each species in Table I. The localities are listed from the base to the tip of the peninsula.

(1) CAMPECHE, Rio San Pedro at San Pedro, 9 July 1965; — (2) CAMPECHE,

roadside 6.3. mi. SW Sabancuy, 5 July 1965; — (3) CAMPECHE, rain ponds 24.7 mi. NE Sabancuy, 9 July 1965; — (4) CAMPECHE, rain pond 11.3 mi. E Castamay, 8 July 1965; — (5) CAMPECHE, rain ponds 0.7 mi. E Ichek, 8 July 1965; — (6) YUCATAN, estuary and ponds at Celestún, 6 November 1983; — (7) YUCATAN, ponds and forest edge at Uxmal, 7, 15 & 16 November 1983; — (8) YUCATAN, aguada 8.8 mi. N Muna, 8 July 1965; — (9) YUCATAN, Mérida, 8 July 1965; — (10)

Table I — List of the Odonata recorded from the Yucatan Peninsula, Mexico

Species	States			Years		Records
	C	Y	QR	65	83	
<b>Lestidae</b>						
* <i>Lestes forficula</i>	x	x		x	x	3, 4, 5, 7
<i>L. tenuatus</i>	x	x		x		L, 8
** <i>L. tikalus</i>					x	7
<b>Protoneuridae</b>						
<i>Neoneura amelia</i>	x					L
<i>Protoneura corculum</i>		x		x	x	L, 8, 11
<b>Coenagrionidae</b>						
** <i>Acanthagrion inexpectum</i>	x	x		x	x	5, 7, 8
<i>A. quadratum</i>		x				L
<i>Anomalagrion hastatum</i>		x				L
<i>Argia gaumeri</i>	x	x		x	x	L, 7, 8
<i>A. translata</i>		x				L
** <i>Argiallagma minutum</i>	x	x		x	x	5, 7, 8
<i>Enacantha caribbea</i>	x	x		x	x	L, 5, 7
* <i>Ischnura capreola</i>	x			x		5
<i>I. ramburi</i>	x	x		x	x	L, 3, 4, 5, 6S, 7, 8
<i>Leptobasis vacillans</i>		x				L
** <i>Neoerythromma cultellatum</i>	x	x		x		3, 8
<i>Telebasis collopistes</i>		x				L
<i>T. filiola</i>	x	x		x	x	L
<i>T. salva</i>	x	x		x	x	L, 5S, 7, 8
<b>Aeshnidae</b>						
<i>Aeshna psilus</i>		x				L
* <i>Anax amazili</i>	x			x		5
* <i>A. concolor</i>		x			x	7
* <i>A. junius</i>		x	x		x	6S, 7, 10S, 12S
* <i>Coryphaeschna adnexa</i>		x		x		8S
* <i>C. viriditas</i>		x	x		x	7, 12S, 13S
** <i>Coryphaeschna</i> sp. n.		x			x	7S
* <i>Gynacantha mexicana</i>		x			x	7
* <i>G. nervosa</i>	x	x		x	x	2, 6S, 7
* <i>Triacanthagyna caribbea</i>	x			x		2
* <i>T. septima</i>	x			x		2

Table 1 — (continued)

Species	States			Years		Records
	C	Y	QR	65	83	
<b>Libellulidae</b>						
* <i>Anatya normalis</i>		x		x		7
<i>Brachymesia furcata</i>	x	x		x		L, 3S, 8
<i>B. herbida</i>	x	x		x	x	L, 3S, 7, 8
<i>Cannaphila insularis</i>		x		x		L, 8
<i>Dythemis sterilis</i>	x	x		x		L, 9
* <i>Erythemis attala</i>		x			x	7S
<i>E. haematogastra</i>	x					L
<i>E. mithroides</i>	x	x		x		L, 7S
<i>E. plebeja</i>	x	x		x		L, 3, 5, 8
<i>E. simplicicollis</i>	x	x		x		L, 3S, 8
<i>E. vesiculosa</i>	x	x	x	x	x	L, 3, 5S, 6S, 7S, 8, 10S, 12S, 13S
<i>Erythrodiplax berenice</i>	x	x	x	x	x	L, 3, 6S, 10S, 13S
<i>E. fervida</i>	x	x		x	x	L, 7S, 8S, 10S
<i>E. fusca</i>	x	x		x		L, 5, 8
<i>E. umbrata</i>	x	x	x	x	x	L, 3S, 5, 6S, 11S, 12, 13S
* <i>Idiataphe cubensis</i>	x	x		x		3S, 8S
<i>Libellula gaigei</i>		x				L
<i>L. herculea</i>		x				L
<i>Macrodiplax balteata</i>		x		x	x	L, 6S, 8S, 10S
* <i>Miathyria marcella</i>		x			x	7S
<i>Micrathyria aequalis</i>	x	x		x		L, 3
<i>M. debilis</i>	x	x		x		L, 3, 8
<i>M. didyma</i>	x	x		x		L, 8
<i>M. hageni</i>	x	x		x	x	L, 3, 5, 7
<i>Orthemis ferruginea</i>	x	x	x	x	x	L, 3S, 5, 6S, 7, 8, 11S, 13S
<i>O. levis</i>		x		x		L, 8S
<i>Pantala flavescens</i>	x	x	x	x	x	L, 2, 4S, 5S, 6S, 7S, 8S, 10S, 11S, 12S, 13S
* <i>P. hymenaea</i>	x	x		x	x	2, 4S, 5, 6S
<i>Perithemis domitia</i>		x	x	x	x	L, 7, 8, 13S
<i>P. intensa</i>		x				L
<i>P. mooma</i>	x	x		x	x	L, 7, 8
<i>Planiplax sanguiventris</i>	x	x		x		L, 8
* <i>Tholymis citrina</i>	x	x	x	x	x	2, 13S
<i>Tramea abdominalis</i>	x	x		x	x	L, 5, 7
* <i>T. binotata</i>			x		x	13S
<i>T. calverti</i>	x	x	x	x	x	L, 1, 3, 5S, 6, 7, 8, 10S, 12S
* <i>T. lacerata</i>		x	x		x	6S, 13S
* <i>T. onusta</i>		x	x		x	6S, 7, 10S, 12S, 13S

States: C = Campeche, Y = Yucatan, QR = Quintana Roo. — Years: 65 = July 1965, 83 = November 1983. — Records: L = literature, numbers as indicated in text; S = sight record only. — \* = first record for Yucatan Peninsula. — \*\* = first specified locality for Mexico.

YUCATAN, coastal scrub and mangroves east of Chicxulub, 14 November 1983; — (11) YUCATAN, cenote and rain puddles at Chichén-Itzá, 5 November 1983; — (12) QUINTANA ROO, rain puddles and forest edge at Cancún airport, 17 November 1983; — (13) QUINTANA ROO, Isla Cozumel, 3 November 1983.

#### List of species

Table 1 lists all species presently known to occur on the Yucatan Peninsula, with records from each of the three states indicated. They total 68 species, of which 25 (37%) are first recorded from the peninsula herein. Five of them are first recorded from a specified locality in Mexico, although all were listed by PAULSON (1982) with no localities specified. The occurrence of 8 species of Anisoptera is based solely on my sight records, but they are all species that are readily identifiable in the field and with which I have had considerable experience. Sight records of Odonata should be as readily acceptable (and as critically judged) as those of birds, at least for many species.

#### Discussion

Both visits were during the rainy season, although the 1983 one took place during an unusual prolongation of that season, perhaps another of the far-reaching effects of "El Niño" of that year. Everywhere I travelled was lush and green, many dragonflies were on territory and mating, and young individuals of some species indicated continued emergence. In most years it would be drier in November, and Odonata activity might be more reduced by that time in a normal year. Forty-three species were recorded in July 1965 and 37 species in November 1983. Only 24 species (35% of the total) were observed on both visits, 19 were seen in July but not November, and 13 were seen in November but not July. These differences may stem primarily from the fact that different localities were visited on each trip, but some species present during the July visit may well have ended their flight seasons by November, and certain species (*Anax junius*, *Tramea lacerata* and perhaps *onusta*) seen in November are probably not present in July.

Although my observations on Isla Cozumel

were not exhaustive, I did look for Odonata at ponds and ditches representative of all the aquatic habitats seen on the island, and I was surprised at the relatively low diversity of species there, in particular the lack of Zygoptera. In addition to the species recorded in Table 1, I saw an unidentified *Anax* and members of the group of red species of *Tramea* with narrow wing markings (*abdominalis*, *calverti* and *insularis*); thus at least 13 species occur on the island, and future visits will doubtless add others.

The following species merit additional comment.

*Protoneura corculum* and *Argia gaumeri* — Unlike other members of their genera in Middle America, these are pond species and are thus adapted for distribution on the streamless Yucatan Peninsula. Even more interesting is the apparent abundance of *Argia translata* at Xtoloc Cenote, Chichén-Itzá (WILLIAMSON, 1936), as this species is always on streams in my experience.

*Anax concolor* and *Micrathyria hageni* — These two species were abundant at forest ponds at Uxmal, and I was surprised to see both species on territory and mating at 17:20 hours after the sun had disappeared behind the forest and light levels were so low that it was difficult to see them very well. I thought at first the *Anax* were *Gynacantha* until I saw them more clearly, and I have never seen any other *Anax* on territory so late in the day. MAY (1980) found *hageni* to be one of the species of *Micrathyria* that began flying early and at relatively low temperatures, but I was nevertheless amazed to see what I considered a normally heliophilic libellulid reproductively active under such low light intensity.

*Anax junius* — Males were seen on territory at localities 7 and 12, and a pair oviposited in tandem at the latter. Individuals were seen flying over coastal scrub at localities 6 and 10. These records are the first to be published of this species breeding in tropical Mexico (I have similar records for Mazatlán, Sinaloa, on 31 August 1965) and furnish support for the hypothesis that individuals of *A. junius*, after emergence in the North, migrate south in fall to breed in southern United States and parts of tropical America. I suspect that the offspring of

these individuals emerge in late winter or spring and migrate north, providing the early records that are a well-known part of the phenology of this species in northern North America (CALVERT, 1934; TROTTIER, 1966). My observations in southern Florida (PAULSON, 1966) and information I have accumulated subsequently (Paulson, ms.) about emergence and flight seasons support this hypothesis, but larvae have not been followed through the winter in any southern locality so far, nor is there direct evidence of this migration based on marked individuals.

*Coryphaeschna* new species — This species, larger than *C. viriditas* and with brown abdomen and green, brown-flecked thorax, is known at present from six specimens from southern Mexico and Costa Rica. A female that cruised by me at Uxmal was unmistakable.

*Macrodiplax balteata* — At Celestún, males were common and on territory over extensive beds of *Chara* in a brackish estuary. I have often seen this species associated with *Chara* and consider it an important larval habitat. The observation at locality 8, a fresh-water pond 80 km from the coast, was unusual for this primarily coastal species.

*Perithemis intensa* — This species, recorded from Yucatan by both CALVERT (1901-08) and WILLIAMSON (1936), has otherwise not been collected east of Puebla and Guerrero (RIS, 1930; my collections) I have found it common in the lowlands of western Mexico and on the Mexican Plateau but never in the Gulf lowlands, the Isthmus of Tehuantepec or Chiapas. Perhaps an isolated population of this species occurs in Yucatan, but I suggest that the anomalous nature of these records be kept in mind pending reexamination of the specimens in question.

*Perithemis mooma* — Two of the specimens from locality 8 are extremely small, much smaller than any other of the 175 specimens of *mooma* in my collection and smaller than any other *Perithemis* I have seen. The hind wing length of 13.5 mm and abdomen length of 11 mm of the smaller individual make it smaller than any specimen examined by RIS (1930), including the South American specimens that he considered very small. From direct comparison, its wing area is less than that of most specimens

of *Nannothemis bella*, generally considered the smallest western hemisphere anisopteran. Only *Nannophya pygmaea* from Asia, the smallest anisopteran in the World, is smaller than this individual *P. mooma*.

*Tramea binotata* — This is the black species of RAMBUR (1842), renamed as *Tramea walkeri* by WHITEHOUSE (1943), not the red Antillean species that should be known as *Tramea insularis* HAGEN (1861) but has been called *binotata* throughout the literature. This black species occurs at least as far north as central Veracruz (17.6 mi. N & E Huatusco, 11 August 1965, specimens in my collection) and widely in Middle and northern South America. The red species appears to be restricted to the West Indies and southern Florida.

*Tramea lacerata* — A few were seen at ponds at both Celestún and the east side of Isla Cozumel, appearing to be on territory along with other species of *Tramea*. Known previously in Mexico only from Matamoros, Tamaulipas (HAGEN, 1861), at the United States border, this species probably occurs regularly in far northern Mexico, as it is common in the border states (I have collected it just north of the border in both California and Texas), but I had never observed it before in the course of travels throughout Mexico. The Yucatan Peninsula population is surely isolated from the rest of the North American range. *T. lacerata* is thought to be a fall emigrant from southern Canada (CORBET & EDA, 1969), and it may have in part a life cycle like that of *Anax junius* postulated above. If so, the Yucatan Peninsula may receive at least a fraction of the individuals that migrate south through eastern North America.

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