

REVIEW FOR PEERJ

by Dennis R. Paulson, 2 June 2020

Dragonflies and damselflies (Odonata) from Puerto Rico: A checklist with notes on distribution and habitat, by Alonso Ramírez, Norman Maldonado-Benítez, Ashley Mariani-Ríos, & Javier Figueroa-Santiago

The paper is brief, well-written, and an update on the fauna of this tropical island. It supports the hypothesis of no or little change to the Puerto Rican odonate fauna after many years of reforestation.

line 91 - there are actually 6,338 described species (Paulson & Schorr, 2020). Paulson, D., & M. Schorr. 2020. World List of Odonata, downloadable from Slater Museum of Natural History, University of Puget Sound, Tacoma, WA 98416 (<https://www.pugetsound.edu/academics/academic-resources/slater-museum/biodiversity-resources/dragonflies/world-odonata-list2/>)

I find the habitat designations in Table 1 not very helpful, as in many cases they do not indicate clearly the breeding habitats, which would be detected by the presence of larvae and/or exuviae, or at least ovipositing individuals. But if they are intended just to show where specimens were captured, with no attempts to correlate species with breeding habitats, then that should be made clear in the introduction.

There is a record of *Crocothemis servilia* from Puerto Rico (Fliedner, H. 2009. Two remarkable observations from Puerto Rico. *Argia* 21(1): 8-9. This was a sight record, but if the authors don't believe it, they should at least include it in the paper and comment why they have chosen not to put it on the PR list. The observer was confident of the identification, *C. servilia* is known from other Greater Antillean islands, and its dispersal powers are great. Also, Meurgey (2013) lists the record.

I would like to see an explanation of why no specimens of *Lestes* were collected during the present survey.

I am pasting in my field notes from a trip to Puerto Rico in March 2009, in case it contains anything of interest to the authors. It does mention two

species of *Orthemis*, and I think there is a widely held attitude that there are indeed two very similar species throughout the Greater Antilles and Virgin Islands. That is still an open question and doesn't need to be dealt with in this paper, but it would be an interesting project for a student.

## PUERTO RICO

10-17 March 2009; Dennis R. Paulson, Netta Smith; one day at E end of island, rest of time at and near W end; weather mostly favorable for odonates; spent some time at following places:

rocky rivers at some elevation on S side of El Yunque, 10 Mar

Humacao Nature Preserve, 10 Mar (virtually nothing at good-looking wetlands)

river in Susua State Forest, 11 & 17 Mar

river in Maricao, 12 Mar

Laguna Tortuguero, 13 Mar (late afternoon, cloudy)

dried river bed with few puddles on S side of Sierra Bermeja, 14 Mar

Laguna Cartagena NWR, 14 & 15 Mar

Boqueron Bird Refuge, 14 & 15 Mar

Guánica area, 16-17 Mar (very little in the way of wetlands, spent much time on roads through woodland in Guánica Biosphere Reserve)

*Enallagma coecum* - 4m (river in Susua State Forest, 17 Mar) males common at several rivers; few females and immatures in vegetation near water; mature males purple, immatures blue; could see no difference in habits from *cardenium*, perhaps more common

*Ischnura hastata* - female at Laguna Cartagena, male at Boqueron

*I. ramburii* - common in most lowland lentic habitats, including a wooded slough at Humacao; all have S8-9 blue

*Leptobasis vacillans* - males & females common in grass along shaded road through woodland at Boqueron; mangroves on one side, fresh water on other

*Neoerythromma cultellatum* - males com at Laguna Tortuguero

*Telebasis dominicana* - few of both sexes at Laguna Tortuguero, in dense grass and shrubs along shore; females common on road through woodland at Boqueron

*T. vulnerata* - few males on roadside flowing ditch on S side of El Yunque; few males and pairs on river at Susua

*Coryphaeschna viriditas* - one flying back and forth over road through woodland on sunny morning at Boqueron, perhaps flushed by us

*Brachymesia herbida* - few at Laguna Tortuguero; abundant at Laguna Cartagena, most common anisopteran; many immature and mature; both sexes virtually swarmed over levee through marsh, especially when very windy in afternoon

*Dythemis rufinervis* - at least two males on river at Susua

*Erythemis plebeja* - few of both sexes in roadside weeds at Laguna Cartagena

*E. vesiculosa* - few just about everywhere at lowland wetlands, also few at upland rivers, where oviposition indicated breeding

*Erythrodiplax berenice* - few males at beach on Bahia Salinas

*E. umbrata* - few immatures just about everywhere in woodland, usually in little groups with gaps between groups; mature males common in shallow marsh at Boqueron, few seen elsewhere

*Macrothemis celeno* - 1 m (river in Susua State Forest, 17 Mar); males fairly common at all upland rivers; rest on rocks and, commonly, paved and gravel roads; one male at puddle on dried river bed in Sierra Bermeja

*Miathyria marcella* - swarms, mostly immature, at Laguna Cartagena, where *Pistia* covered large stretches of water, with scattered small patches of *Eichhornia*

*Micrathyria aequalis* - male at pond at Boqueron, female seen from road

*M. didyma* - few of each sex perched on twigs in woodland at Boqueron; one immature on open weedy levee at Laguna Cartagena, surprising habitat; also saw several unidentified *Micrathyria*, which might have included *dissocians*

*Orthemis cf. macrostigma* - 1 m (river at end of hwy 191, S side of El Yunque, 10 Mar); few males on most upland rivers, also on river in Sierra Bermeja; quite purple-looking; female perched well up on tree twig in Guanica Biosphere Reserve

*O. Antillean red* - 1 m (pool in Guanica Biosphere Reserve, 17 Mar); male on road through woodland at Boqueron, another on Sierra Bermeja river, another two on tiny concrete-lined pool in dry forest at Guanica; also unidentified female *Orthemis* on Sierra Bermeja river

*Pantala flavescens* - one came to shiny car in hills near Susua, another near Rincón; large swarm over flooded field east of Laguna Cartagena after it rained substantially the evening before; not seen anywhere else

*Perithemis domitia* - males present at wooded sloughs in several areas, including Boqueron and Humacao

*Scapania frontalis* - few immature males at upland rivers, including El Yunque and Susua; one female hanging up near river at El Yunque

*Tholymis citrina* - few flushed from next to road through woodland at Boqueron in late morning, flew around and hung up or disappeared; common at dusk on road through dry forest at Guanica, could not find any in same area next morning

*Tramea abdominalis* - male at Laguna Cartagena

*T. calverti* - few males and females at Laguna Cartagena, male at Boqueron