

**EIGHT NEW *LEPTAGRION* LARVAE FROM BRAZIL
(ZYGOPTERA: COENAGRIONIDAE)**

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The ultimate instar larvae of *L. andromache* Hag., *L. bocainense* Santos, *L. capixabae* Santos, *L. dardanoi* Santos, *L. elongatum* Sel., *L. macrurum* (Burm.), *L. perlongum* Calv. and *L. vriesianum* Santos are described and illustrated from the states of Rio de Janeiro, Espírito Santo, Minas Gerais, Pernambuco, and Santa Catarina. All specimens are deposited in Museu Nacional, Rio de Janeiro, Brazil. A comparative tab. of the structural characters is included.

**ODONATA OF YAKUTIA (RUSSIA)
WITH DESCRIPTION OF
CALOPTERYX SPLENDENS NJUJA SSP. NOV.
(ZYGOPTERA: CALOPTERYGIDAE)**

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A short overview of the history of odonatological exploration of Yakutia and an annotated checklist of 35 spp. currently known from its territory are provided with reference to all earlier records and lists of hitherto unpublished specimens. *Calopteryx splendens*, *Aeshna grandis* and *Ophiogomphus obscurus* were not previously known from Yakutia. *C. splendens njuja* ssp. n. is described and illustrated. Holotype ♂: Russia, Sakha Republic, Yakutia: Lena Ulus, the Nyuya river at the mouth of the Chayanda; 14-VII-2006; deposited in Institute of Animal Systematics and Ecology, Novosibirsk. It is characterised by a drastic reduction of wing pigmentation in ♂♂.

**BIDIRECTIONAL GENDER BIASES OF GREGARINE
PARASITISM IN TWO COEXISTING DRAGONFLIES
(ANISOPTERA: LIBELLULIDAE)**

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Parasitism affects all taxa and influences individual and population success. Parasitism of adult dragonflies is widespread and frequently includes gregarine (Apicomplexa) life stages in the gut of the host. This research investigates variation in gregarine parasite prevalence and load in ♂ versus ♀ adults of *Erythemis simplicicollis* and *Brachymesia gravida* associated with 2 central Texas reservoirs in close proximity. Parasite prevalence was biased toward ♂♂ *E. simplicicollis* and toward ♀♀ *B. gravida*. Results suggest that gender bias in parasite prevalence is influenced by gender behavior and environment more so than by immuno-response differences between genders.

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**CHANGES IN THE NUMBER OF SPERMATOZOA
IN THE FEMALE SPERM STORAGE ORGANS OF
ISCHNURA ASIATICA (BRAUER) DURING COPULATION
(ZYGOPTERA: COENAGRIONIDAE)**

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Spermatozoan dynamics in the ♀ sperm storage organs of *I. asiatica* were examined with interrupted copulation experiments in the field. The copulation process was divided into 3 stages (I, II and III) according to the movements of the ♂ abdomen. ♀♀ interrupted just after the termination of stage I of copulation contained a much lower number of spermatozoa, both in the bursa copulatrix and in the spermatheca, than solitary ♀♀ captured before being attached by ♂♂. At the tip of the ♂'s secondary genitalia, there was a pair of horns which might be used to remove sperm from the bursa copulatrix and the spermatheca during copulation. The latter was joined to the base of the former by a spermathecal duct. Since each horn of the ♂ genitalia was significantly shorter than the spermathecal duct, the spermatheca might be inaccessible to ♂♂. The actual position of the horns in the ♀ sperm storage organs during stage I of copulation was observed by freezing copulating pairs using quick-freeze aerosol sprays. The horns were in the bursa copulatrix, but no horns had entered the spermatheca. Additional mechanisms of sperm removal from the spermatheca are proposed.

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SHORT COMMUNICATIONS

ODONATA FROM AGUASCALIENTES STATE, MEXICO

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A list is presented of 58 spp., including their distribution by municipalities; 50 of these are new records for the state. Information on general distribution of selected spp. is also provided. In accordance with the non-parametric estimation Chao2, the number of observed spp. represents ca 87.8% of the total number of spp. estimated for the state of Aguascalientes.

**WANDERING MALES ARE SMALLER THAN TERRITORIAL
MALES IN THE DAMSELFLY *CALOPTERYX VIRGO* (L.)
(ZYGOPTERA: CALOPTERYGIDAE)**

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In territorial Odonata, adult ♂♂ may use 2 mating tactics that may be genetically or environmentally determined: territoriality and non-territoriality. The non-territorial tactic has been sometimes found to include 2 additional males: sneaking and wandering. The non-territorial ♂♂, however, often have lower reproductive success than territorial ♂♂. Studies on various *Calopteryx* spp. have repeatedly shown that territorial and non-territorial behaviours are conditional mating tactics and that body size does not predict ♂ resource-holding potential and territorial behaviour. Instead, the resource holding potential seems to depend on the amount of ♂ fat resources. Here, both territorial and wandering *C. virgo* ♂♂ were collected from a creek in central Finland. It was found that territorial ♂♂ were larger and heavier than wandering ♂♂. The data show that the size of the individual may predict the reproductive tactic of some odon. ♂♂ to a greater degree than previously thought.

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**OVERWINTERING DRAGONFLIES
IN AN AFRICAN SAVANNA
(ANISOPTERA: GOMPHIDAE, LIBELLULIDAE)**

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To better understand overwintering capability of dragonflies in the African savanna, observed individuals were placed into predetermined age categories at sites along the Mogalakwena river, Limpopo province, South Africa, during mid-winter. Age categories were determined by degree of wing wear each individual had sustained. The Dragonfly Biotic Index (DBI) was used to categorize spp. into rare, widespread generalists versus rare, narrow-range specialists. All the recorded spp. were common, widespread generalists, occupying microhabitats created by the winter dry season decrease in water level and flow rate, and able to survive seasonal habitat changes. Seven of the 8 spp. were libellulids, and 1 gomphid. Their ability to thermoregulate by selecting appropriate perch sites, in addition to their high habitat tolerance, plays an important role allowing them to survive as adults throughout winter. It is confirmed that the libellulids observed here were highly habitat tolerant, common and widespread spp. whose success comes about at least partly from their ability to overwinter and be ready to take advantage of the first rains.

**FIRST DESCRIPTIONS OF THE LARVA AND ADULT MALE
PARAGOMPHUS WUZHISHANENSIS LIU
(ANISOPTERA:GOMPHIDAE)**

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The descriptions and illustrations are based on specimens reared in the laboratory from larvae collected from the type locality of Hainan, China. A comparison is also provided between adult ♂ *P. capricornis* (from Guangdong), and *P. wuzhishanensis* and *P. pardalinus* (both from Hainan).

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