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Phylogeny and biogeography of the Platystictidae (Odonata)

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Photo: Sami Kefman

Jan van Tol (1951) has studied the diversity, phylogeny and biogeography of dragonflies and damselflies since the 1980s. His research focuses on the fauna of southeast Asia.
He is head of the department of terrestrial zoology at the National Museum of Natural History Naturalis in Leiden.

Front cover
Above: *Protosticta linnaei* van Tol. Southern Vietnam 2007.
Below: *Protosticta satoi* Asahina. – Northern Vietnam 2007.

Back cover
From left to right: 1 and 2, Small stream in Chu Yang Sin National Park, Vietnam 2007. – 3, Ligula of *Protosticta geijskesi* van Tol. – 4, Hind margin of head of *Protosticta grandis* Asahina.

Photos: Jan van Tol; ligula by Dirk Gassmann.

Forest damselflies (family Platystictidae) are widespread in southeast Asia from Sri Lanka to New Guinea, and are also known from Central America and the northern part of South America. The larvae of most species live in small streams or seepages under forest canopy. Adults are found hanging from the tips of leaves or twigs along streams.

The family is thought to have evolved more than 100 million years ago. Only 213 species are known worldwide, of which the author described 46 as new to science. Although most species are remarkably similar in general appearance, they show significant variation in structural details such as wing venation, pronotum, and secondary genitalia of the male. The group is ideal for biogeographical studies, since most species have small distributional ranges.

A reconstruction of the phylogeny shows that several ancient lineages occur along the margin of the Indian Plate. Although Platystictidae are not known from Africa, it is hypothesized that the family evolved on that continent. The ancestors of the subfamilies Platystictinae and Sinostictinae drifted with India to Asia between 100 and 45 Ma. A scenario of the historical biogeography of the Platystictinae is described in relation to the palaeogeography of southeast Asia since the Eocene. The subfamily Palaemnematinae most likely dispersed from Africa to the New World via Europe and the 'North Atlantic Land Bridge'.

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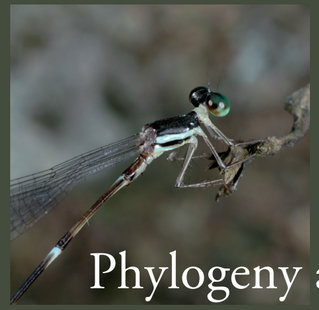

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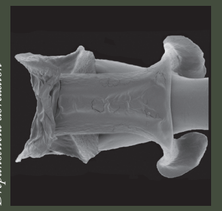
Jan van Tol

Ligula of various species of Platystictidae.

Protosticta grandis

Protosticta lepteca



Drepanosticta dorcadion

Sinosticta ogatai

Photos: Dirk Gassmann