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# The Odonata (Insecta) of Patagonia: A synopsis of their current status with illustrated keys for their identification

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## Abstract

Patagonia is a vast landmass with a distinctive environmental and biotic heterogeneity. Its Odonata biodiversity is the best known of South America, and it is composed of 36 species, of which more than 50% are endemic. We summarize the main taxonomic, distributional and biological information including illustrated keys for adults and known larvae, and distributional maps.

**Key words:** Zygoptera, Anisoptera, larva, adult, southern Argentina, southern Chile, key, distribution maps

## Introduction

Patagonia represents one of the main austral landmasses of the World. It is characterized by a distinctive environmental heterogeneity consisting of a narrow ecotone between two main biomes: the subantarctic forests and the arid or semiarid areas of the steppe. This ecotone runs parallel a few kilometers east of the Andes, so arid areas of Patagonia are mostly developed in Argentina, with the exception of part of Magallanes region in southern Chile which is also arid. The environmental heterogeneity is clearly reflected in almost all biotic components, which contain subantarctic and neotropical representatives.

The order Odonata is represented in Patagonia by 36 species arranged in nine families and 18 genera (Table 1. Authors' names and year of description for each species are only included in this table). Approximately 60% of the species and 40% of the genera are endemic (Muzón 1995; 1997a; 2009), the monotypic family Neopetaliidae being one of the most remarkable endemisms. We do not expect to find any as yet undescribed species here, but new records are still likely, such as *Phyllopetalia altarensis* (Carle 1996), a central Chilean species, or some subtropical species in northern Patagonia in Argentina (e.g., Colorado river basin).

Biogeographical aspects of Patagonian odonates have been treated previously (Jurzitza 1989a; Muzón 1995, 1997a, 2009; Muzón *et al.* 2005). They follow a general biodiversity pattern characterized by two main faunistic components: the subantarctic, restricted to the *Nothofagus* forest on both slopes of the Andes, and a widespread neotropical component mainly distributed in the steppe (Table 1). The subantarctic faunistic component can be tracked further north up to central Chile (Roig 1994; Roig & Flores 2001) whereas the neotropical one is represented either by widespread species, e.g., *Ischnura fluviatilis*, *Lestes undulatus*, *Rhionaeschna absoluta*, or by species more restricted in distribution, e.g., *Andinagrion peterseni*, and Patagonic endemics, e.g., *Cyanallagma interruptum*, *Erythrodiplax connata*, *Sympetrum villosum*.

The most significant biodiversity patterns observed in Patagonia are the latitudinal species richness decline, from more than 30 species in the north to only one, *Rhionaeschna variegata*, in Tierra del Fuego island, and the striking differences between the composition and richness of the forest and steppe taxocoenosis; these patterns determine two diversity gradients: north to south and west to east, resulting in highest differences among northwestern (more rich and diverse) and southeastern areas. These gradients could be partially explained by the

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The genus *Gomphomacromia* was revised by von Ellenrieder & Garrison (2005), who synonymized *G. mexicana* Needham, 1933, with *G. chilensis,* and *G. etcheverry* Fraser, 1957, with *G. paradoxa*. *Gomphomacromia chilensis* is a poorly known species endemic to central Chile, reaching Patagonia at its northern border, approximately 35º S; locality data are few. *Gomphomacromia paradoxa* occurs all along the Andean range approximately from 32º to 51º S.

The larvae of *Gomphomacromia paradoxa* and *Rialla villosa* have been described (Needham & Bullock 1943; Theischinger & Watson 1984); that of *G. chilensis* remains unknown.

*Gomphomacromia paradoxa* inhabits mountain streams, seepages and bogs, and it can be found in large numbers; males defend their territory and tandems land by the side of the streams (von Ellenrieder & Garrison 2005). Larvae of this species seem to be semi-terrestrial (von Ellenrieder & Garrison 2005).

*Rialla villosa* inhabits lakes and ponds in the *Nothofagus* forest. Adults fly straight close to the water; copulation takes place during flight; tandems perch on trees (Jurzitza 1975), adults perch occasionally on grass and bushes, usually in vertical position (Jurzitza 1989a). Larvae were collected in oligotrophic lakes with the aid of dredges from 20 m depth (Muzón 1995).

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