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## **A brief look at the Odonata from the Páramo ecosystems in Colombia, with the descriptions of *Oxyallagma colombianum* sp. nov. and *Rhionaeschna caligo* sp. nov. (Odonata: Coenagrionidae, Aeshnidae, Libellulidae)**

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### **Abstract**

Here I present the results of field work and collections of Odonata made in several páramos of Colombia between 2007 and 2014. Two undescribed species, in the genera *Oxyallagma* Kennedy, 1920, and *Rhionaeschna* Förster, 1909, respectively, were found, as well as two species not previously recorded from Colombia: *Rhionaeschna peralta* (Ris, 1918) and *Oxyallagma dissidens* (Selys, 1876). Descriptions and diagnoses of the new species, photographs, maps, illustrations, natural history notes, and comments on morphological plasticity are presented.

**Key words:** Odonata, dragonflies, new records, *Ischnura chingaza*, *Ischnura ramburii*, *Mesamphiagrion occultum*, *Mesamphiagrion gaudiimontanum*, *Oxyallagma dissidens*, *Rhionaeschna joannis*, *Rhionaeschna marchali*, *Rhionaeschna peralta*, *Erythrodiplax*, *Sympetrum paramo*, Andes

### **Resumen**

En este artículo se presentan los resultados de trabajo de campo y colectas de Odonata realizadas entre 2007 y 2014 en varios páramos de Colombia. Dos especies aún no descritas, de los géneros *Oxyallagma* Kennedy, 1920, y *Rhionaeschna* Förster, 1909, fueron encontradas, y dos especies se reportan por primera vez en Colombia: *Rhionaeschna peralta* (Ris, 1918) y *Oxyallagma dissidens* (Selys, 1876). Se presentan las descripciones y diagnosis de las nuevas especies, fotografías, mapas, ilustraciones, notas de historia natural y se comenta la plasticidad morfológica.

### **Introduction**

Páramos are unique ecosystems located principally in the tropical high Andes, between latitude 8° S in northern Peru and 11° N in Venezuela, usually found above 3,000 meters (Vásquez & Buitrago 2011). There are also páramos outside the Andes in the Sierra Nevada de Santa Marta (Colombia) and in the Cordillera de Talamanca of Panama and Costa Rica (Parsons 1982, Luteyn 1999, Rangel-Ch 2000). These are relatively new ecosystems that originated during the Pliocene period (Van der Hammen *et al.* 1973; Gregory-Wodzicki 2000; Pennington & Dick 2010, Rangel-Ch 2000, 2005, Vonhof & Kaandorp 2010), with extreme environmental conditions including intense solar radiation, strong winds, high cloudiness and strong climatic fluctuations between day and night; with winter nightly average temperatures close to 0° C and summer daily average temperatures close to 15° C, reaching over 30° C in sunny days (Parsons 1982, Rangel-Ch. 2000, 2005).

These features have created the scenario for the evolution of a particular biota, whose composition varies depending principally on three variables: geological history, anthropogenic perturbation, and annual precipitation, the latter varying from 623 mm to more than 4,000 mm per year (Rangel-Ch 2000). In Colombia, Vásquez & Buitrago (2011) grouped the páramo systems according to their geographical placement and floral affinities in 34 complexes, covering 19,330 Km<sup>2</sup> (1.69% of Colombia's territory).

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