PRESENTATION

INTRODUCTION TO THE OECOLOGIA AUSTRALIS SPECIAL ISSUE: PANTANAL ECOLOGY

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The Pantanal is an enormous alluvial floodplain (~160,000 km²; 80-190 m altitude) that encompasses the upper Paraguay river basin, in central South America. It is one of the last wilderness sites on earth (Mittermeier *et al*. 2003), and declared as world heritage (whc.unesco.org/en/list/999). The landscape is composed of a mosaic of habitats shaped by seasonal flood pulses, whose intensity is considerably variable between years and among subregions (Hamilton 2002). The commonest habitats are ephemerous rivers and lakes, seasonally flooded grasslands, savannas, and semideciduous forest patches (Adámoli 1982). Such variety of habitats presents remarkable plant diversity, and maintains an extraordinarily rich fauna which includes several threatened species (Junk *et al*. 2011). The scientific knowledge on the Pantanal biota and ecosystem functioning has increased fast in the last decades, but it is still incipient relatively to other major physiognomic domains in South America. Large areas are nearly inaccessible during flooding periods, and accessibility is a challenge even in the dry season. The current research intensification has been supported by the rising excellence of local academic institutions and by government investments, which have enhanced infrastructure and logistical support for scientific studies in the Pantanal.

This special issue of Oecologia Australis is a contribution to the knowledge on the Pantanal ecosystem and biodiversity. It was widely announced, and articles were accepted based on peer reviewing. Among the contents, Souza *et al*. show that denitrification in typical Pantanal lakes are regulated mainly by the very low nitrate concentrations, although microorganisms that carry out denitrification are present. Malone *et al*. describe particular microflora in extreme alkaline lakes (*salinas*) as a tool to evaluate natural or anthropogenic disturbances in the Pantanal. Santos *et al*. present the diatom flora of shallow lakes, and describe 21 species for the first time in the Brazilian Pantanal. Loverde-Oliveira *et al*. report that flood pulses do not guide spatial distribution of phytoplankton, but it is related to local limnological conditions. Other findings are reported by Catian *et al*. and Rebellato *et al*. on herbaceous flora. They show, respectively, that aquatic floras and plant life forms differ between lotic and lentic environments, and that seasonal flooding causes a dynamic variation of herb life forms in the Pantanal. High density and increased dominance of *Vochysia divergens* trees on more acids soils are reported by Arieira & Nunes da Cunha, whereas Amador *et al.* found that composition of plant communities in monodominant forests of *Copernicia alba* palm trees is associated with soil fertility and time of flooding. Urbanetz *et al*. report tree species composition throughout the altitudinal gradient in the Urucum Mountain, and Arruda & Nunes da Cunha found no effect of treefall gaps' area on plant richness in a monodominant forest.

Among studies on the Pantanal fauna, Tondato *et al*. report that recruitments of *Odontostilbe pequira* fishes into higher age classes are positively correlated with river water level, and Vicentin *et al*. note that breeding activity of *Prochilodus lineatus*

fishes occurs during the beginning of the rainy season. Preference for open grasslands by Greater Rhea is pointed out by Gräbin *et al*., which suggest that introduced pastures might favor its abundance in the Pantanal. Layme *et al*. describe a quite variable composition of small mammal communities assessed at small spatial and temporal scales, and Rimoli *et al*. highlight that diet and behavior patterns of Black Howler Monkey in Cerrado-Pantanal transition are marginal to those found elsewhere. Tomas *et al*. show that Pampas Deer can occur in habitats dominated by exotic grasses but it feeds mainly on pristine vegetation distributed in small patches, and Alho & Sabino close this issue with a reviewing on the implications of Pantanal flood pulses for biodiversity conservation. We expect that readers enjoy the present issue, and find here useful information for helping the understanding of Pantanal ecology and for guiding conservation initiatives.

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