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ROOT SYSTEM STRUCTURE OF WOOD SPECIES IN A CERRADO SAVANNA IN PANTANAL OF NHECOLANDIA, BRAZIL

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Pantanal vegetation is composed specially by savanna species. In savannas of the central region of Brazil, wood species are described as presenting deep roots, reaching around 15 m deep. In Pantanal, with seasonal flooding, these savanna species should present different root morphology from what is observed in non-flooded savanna sites. The objective of this work was to analyze the root morphology variation from wood savanna species in the Pantanal of Nhecolandia. The roots of 24 trees, from 9 species were dug up and exposed, in Nhumirim Embrapa's Experimental Farm, Corumba, MS. Circumference at soil level (CSL), total height, deep woody root length and length of lateral root branches were determined to each tree. The average length of mean 28 cm and the deepest recorded rooting was 90 of 140 cm, observed in *Zanthoxylum rigidum*. All species (*Casearia sylvestris*, *Cecropia pachystachya*, *Curatella americana*, *Dipteryx alata*, *Mouriri elliptica*, *Sapium haematospermum*, *Simarouba versicolor*, *Tabebuia aurea*, *Zanthoxylum rigidum*) presented the main branches in the upper soil level with circumference of 10 to 50 cm, and length of 40 to 800 cm. Similar results were shown by other authors in a densely forested savanna (cerradão) in Pantanal, where 8 species presented branched roots in the upper soil level, and the mean root reaching depths no greater than 120 cm. These results are important to understand the water dependency of these wood species in dry-wet seasonality, as this is certainly a limiting growth factor in dry years in Pantanal. (Project partially financed by Conservation International).

ASSESSING VEGETATION AND INUNDATION CONDITION OF WETLANDS OF THE PARANÁ RIVER USING OPTICAL AND RADAR SATELLITE DATA

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The Paraná river Delta is a wetland *macrosystem* that stretches through the final 300 km of the Paraná basin and covers approximately 17,500 km². The last two years (summer 2007 and early autumn 2008), this region suffered from extreme environmental events: flooding and drought. This last event contributed to the expansion of strong fires that affected the region, and large cities such as Buenos Aires and Santa Fe were covered by smoke for several days causing serious traffic accidents and health damage. During the flooding event (summer 2007) large cattle raising areas of the region were seriously affected and about 200000 cows had to be moved rapidly to avoid animal deaths and important economic losses. This region includes a complex mosaic of landscapes resulting from past and present fluvial and coastal hydrogeomorphological process. It also has a complex hydrological regime mainly determined by the influence of the Paraná and Uruguay rivers, De La Plata estuary tidal regime and local rain. It is well known that optical satellite is very useful to determine vegetation types, but unable to map underlying waters. Microwave sensors on the other hand can penetrate vegetation and, in particular, synthetic aperture radars sensors (SAR) have been successfully used to map inundation condition of wetlands vegetation and water level within floodplains. Several ENVISAT ASAR Wide Scan C band HH polarization images were acquired over the area during the periods mentioned above and used to assess changes in soil condition (only temporally flooded, permanently flooded, non flooded, dry) of different vegetation structures and to determine permanent and non permanent water bodies (mainly lagoons). Field work, helicopter and airborne flying, hydrological data, a regional land cover map obtained with optical data and radar change detection techniques were used to assess variations in inundation condition of dominant vegetation structures and land water bodies extent of burned vegetation.