State of Conservation of the Native Forests in Entre Ríos (Argentina) and Changes in Land Use

R. A. Sabattini (1), S. M. Sione (1), S. G. Ledesma (1), J. A. Sabattini (1), M. G. Wilson (1,2)

(1) UNER Facultad de Cs. Agropecuarias, Cátedra de Ecología, Ruta 11 km 10.5 (3101), Oro Verde, Entre Ríos, Argentina (e-Mail:rsabatti@fca.uner.edu.ar), (2) INTA EEA Paraná, Ruta 11, km 12.5 (3101), Oro Verde, Entre Rios, Argentina (e-Mail:mwilson@parana.inta.gov.ar)

The native forest area of Entre Ríos province (Argentina) is associated with a constant change in land use, with an increase in recent years in agricultural use, especially for soybean crop. In addition, since its inadequate management has triggered degradation processes of the natural forest structure, the implementation of strategies for the restoration and conservation of native forests has become a priority. The aim of this study was to diagnose the conservation state of the native forest in the basin of the Estacas Stream (Entre Ríos, Argentina) after the change in land use, to help design guidelines for the restoration and sustainable management of these ecosystems. The field study was conducted in October 2010, in a representative area of the native forest of 73,000 ha. Using Landsat 5-TM images (INPE), environments were separated by manual vectorization, identifying and classifying native forests and other lands (agricultural, urban). Using a field exploratory survey (58 geo-referenced sampling points), we developed patterns corresponding to the different types of forests, contrasting this information with the digital data of the images. The native forests were classified according to type (high/low forest, open/closed forest, savanna), successional stage (climax, successional or regeneration forest) and degree of disturbance (weed growth, erosion, fire), and their frequency determined. Each classification was assessed by a contingency matrix, and global reliability index and the Kappa index. The information obtained generated a classification map of native forests in the basin scale. We found that the native forest covered an area of 42,726.91 ha, accounting for 58.52% of the total basin area, and that the rest corresponded to other land uses. The most frequent native forests (59.09%) were climax forest, but accounted for only 8.2% of the basin area. Within this group, the most important were the low and open forest, with Prosopis affinis and Prosopis nigra as the dominant tree species. Although the successional forests were not the most frequent, they occupied the greater area of the basin (30.8%), being low and open forest the dominant type. The regeneration forest dominated by Acacia caven, represents 18.71% of the basin area. Weed shrub species growth was the most frequent disturbance. We determined a severe weed shrub growth in 41% of the sampling points, with Baccharis punctulata and Eupatorium buniifolium as the dominant species. According to state of conservation of native forest, 7,797.03 ha have a high conservation value, while 21,272.17 ha and 13,657.71 ha have a medium and low conservation value, respectively.