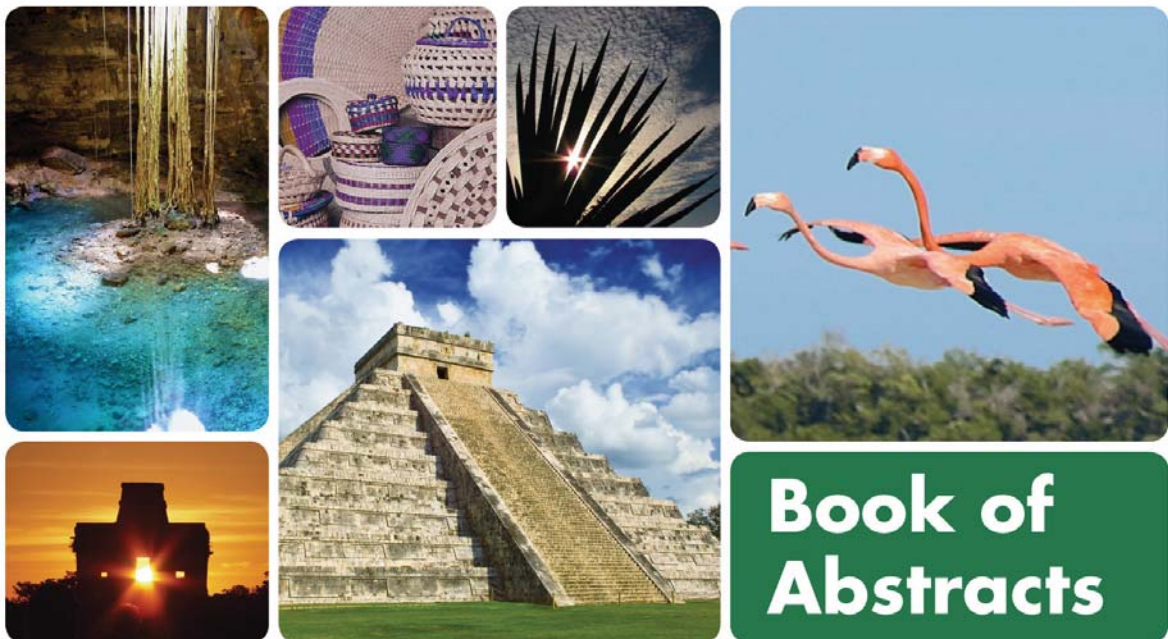




# SER2011

WORLD CONFERENCE ON  
ECOLOGICAL RESTORATION

*Re-establishing the Link between Nature and Culture*



**Book of  
Abstracts**

4<sup>th</sup> World Conference on Ecological Restoration

20<sup>th</sup> Annual Meeting of the Society for Ecological Restoration

2<sup>nd</sup> Meeting of the Ibero-American & Caribbean Ecological Restoration Network

**Mérida, Yucatán, México**

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que tienen su hábitat en estas áreas críticas. Las especies en estudio fueron *Anona glabra*, *Ceiba pentandra*, *Pachira aquatica*, *Inga vera* y *Haematoxylum campechianum*. La descripción morfológica se realizó con base en las características macroscópicas sugeridas por De Vogel (1980), Ricardi et al 1987) y la terminología botánica indicada por Moreno (1984). La emergencia fanerocotilar epigea con hipocotilo curvado se observó en tres especies, mientras que *P. aquatica* e *I. vera* fue criptocotilar con emergencia recta del epicotilo, higea y epigea, respectivamente. La presencia de cotiledones foliáceos en tres de las especies representa una ventaja en crecimiento. Se muestra la cronología del crecimiento hasta una altura de 30 cm, la cual se considera apropiada para el trasplante en campo. Las características morfológicas obtenidas en esta investigación representan un cúmulo importante de información para la identificación de especies presentes en humedales tropicales considerando que se incluyen cotiledones, protofilos, metafilos y cambios en la coloración y presencia de algunos órganos que durante la fase de desarrollo plantular ocasionalmente desaparecen

### **Geomorphic and habitats reconstruction at the restoration plan of the 'Los Quebraderos de la Serrana Quarry' (Toledo, Spain)**

**Zapico Alonso**, Ignacio; J.F. Martín Duque, N. Bugosh, L. Balaguer, J.V. Campillo, C. de Francisco, J. García, N. Hernando, J.M. Nicolau, S. Nyssen, J. Oria, M.A. Sanz, M. Tejedor  
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Mining, an essential activity for our wellbeing, is one of the human activities that causes a deep transformation of ecosystems, because it affects all of its components. The restoration of these areas allows the recovery of new landforms and ecosystems in the whole transformed land. The geomorphological reconstruction of areas affected by extractive activities is the most critical aspect of mining restorations, because it affects other key factors of restored ecosystems, such as the development of vegetation and soils, or the habitats structure, among others. The restoration plan of the 'Los Quebraderos de La Serrana' quarry (Toledo, Spain) includes a design of a geomorphological reconstruction by using the GeoFluvTM method and Natural Regrade software, based on principles of fluvial geomorphology to design stable landforms. This method allows getting: long-term stability of restored areas, increased visual appeal, reduction or elimination of maintenance and restored landforms which support functional and self-sustaining ecosystems, which replicate those of the surroundings. Because the location of the proposed project of the quarry 'Los Quebraderos de La Serrana' has been classified as an area of importance and distribution of the Spanish Imperial Eagle, the restoration plan has focused in mimicking the existing mosaic of habitats in the surrounding lands. This mosaic seeks to promote the establishment of stable and successful populations of rabbits, in order to provide prey to the Spanish Imperial Eagle populations.

### **Ecological restoration needs in oil/gas fields of Northern Patagonia, Argentina**

**Zuleta**, Gustavo; P. Tchilinguirian, J.S. Fuchs, A. Bustamante Leiva, C. Navarro  
Maimónides University

In the Monte Austral ecoregion of Northern Patagonia (semiarid steppes), construction of wells and linear infrastructure (roads, pipelines, seismic lines) accounts for more than 100,000 ha of medium-severe degradation that requires partial or complete restoration. Since first legal enforcement in 1992, and given recent (2011) updates (Neuquén Province), companies are compelled to recover pre-disturbance/exploitation conditions. Under this scenario, we reviewed restoration requirements and technical feasibilities to improve land planning and decision making. Representative study cases (practical management; scientific research) were examined over a 15-year period (1996-2011). Two major restoration approaches (passive and active) encompass most management needs, whereas feasibility of each technique/case primarily depends upon six individual factors: well density, cattle density, landscape attributes, ecological integrity, sediment accumulation, and erosion, as well as their interactions. Passive restoration (*sensu lato*) includes protection of natural areas with high conservation values, sustainable cattle raising (sites with low well density), natural regeneration monitoring (isolated well locations abandoned at least 15 years ago), closure of roads, and special management procedures (very high density of productive wells). Active restoration methods were classified in low and high-tech. Low-tech includes soil decompaction, soil/moisture amendments, and/or nebkhas/mounds regeneration (branching) in order to facilitate natural processes. High-tech rehabilitation approaches, with high costs and risks associated, also involves addition of nursery perennial plants and other germplasm (seeds mainly) of non-domesticated species, fertilization, and/or water supply. We also discuss how combinations of techniques apply for specific cases, further research needs, and legal gaps in the ecological restoration context.