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Daniel Díaz (1) and Jose Llopis (2)

(1) Ibero-rest, Madrid, Spain (info@ibero-rest.com), (2) Universitat Politècnica València, València, Spain (j.llopis.a@gmail.com)

Ecological restoration of degraded quarries in Llombai, Valencia.

Daniel Díaz Toledano°, Jose Llopis Arroyo[i], Milagros Alcántara Santillán•, José Alberto Capataz García•, Leyre Pámpanas Yustes°, Marta Martín-Borregón Gómez•, Sara Moro García•.
°Biologist and Msc Ecological Restoration, •Ambientologist and Msc Ecological Restoration, [i]Architect and Msc Sustainable Land Management.

The Spanish Mediterranean area has a high ecological value, but has suffered in the last decades a great loss of habitats and ecosystems due mainly to urban pressure. This region has always been an area dedicated to agriculture but have been gradually abandoned because of their low profitability. These situations have resulted in an abandonment of rural areas and their activities with a consequent increase in the occurrence of erosion and soil loss processes. The increasing drought coupled with lack of forest management, increases the risk of forest fires in the summer, so we have a growing loss of fertile soil and a high risk of desertification.
The region is also rich in clays, which has led to the appearance of a large number of mining operations, many times illegally, which have subsequently been left unrecovered and which aggravate the problem of erosion and desertification at the same time as they make a great visual and landscape impact.
In the district of La Ribera Alta is located a space affected by this type of quarries where there have been made great mining holes that are filling of waters when reaching the water tables. One of the flooded mining holes has been ceded to a community of irrigators who use the water accumulated in for their crops. Another problem added to this place is the uncontrolled dumping of garbage in two of the mine holes in the 1990s, leaving as landfills that, to date, are not closed and no restoration treatment has been carried out on them.
A comprehensive ecological restoration project is proposed using the application of the latest methodologies in geomorphological restoration such as the GeoFluv methodology, that once completed will be a great source of biodiversity in the area, serving at the same time as a connector between the ZEPA zone of Natura 2000 network, Sierra de Martes and the municipal natural sites of El Cerro and El Tello de Llombai.
With this project the geomorphology and reliefs of the place will be restored first, resembling those that existed before the mining activity, taking for it a series of natural referents. Given the situation of the gaps and the social uses that are developing through the community of irrigators, it is proposed to maintain and restore such gaps as natural lakes. Once the geomorphology is recovered with rates of erosion and sedimentation similar to those that should be in a similar natural space, we will carry out revegetation actions.
GeoFluv is today the most advanced method for the geomorphological reconstruction of the world. Where the topography has been transformed as a result of earth movements and the ecosystems present there have been severely degraded, it is possible to design and to construct stable relief forms similar to those that would have in that place under the present environmental conditions. Through this methodology, stable hydrographic basins similar to natural ones are reconstructed that recover the dynamics and values of the baseline with respect to the runoff, erosion and sedimentation, recovering not only the relief but also the dynamics and functionality of the ecosystem.
The most important aspect of this project is based on the ecological restoration procedures that will be applied, as well as on the participatory methodologies that will allow the inclusion in the project of all the social agents involved in it: mining companies, administration, local populations, community of irrigators and farmers. All this carried out by professionals and technicians united to the scientific knowledge provided from the university.