

# Ecological restoration of slopes and recovery of *Maytenus senegalensis* populations.

## Mediterranean highway (A-7). Stretch: Polopos interchange- Albuñol interchange. Granada

The complex orography and tectonics of the work sites' soils implies big clearing activities in arid terrains in which recovery is specially complicated. The presence of protected endemism reinforces the necessity of revegetation works.

The works realized cover several actions:

- Land compensation to reduce the necessities of affected soils by landfills and materials loans.
- Adaptation of slopes' surfaces to favour the implementation of typical species of dry littoral zones.
- It has tried to adapt to the maximum slopes' morphology to the preexistent topographies, maintaining the gradients and orientations.
- The scarcity of vegetal soil that characterizes the area is compensated with micro panels and the surfaces roughness of slopes finishes which allow the spontaneous implementation of autochthonous seeds and its securing to the terrain in intensive rain periods.
- Recovery of Arto's population, Ibero-African endemism of warm littoral zones.

In spite of not stablishing any corrective measures relating to the affected units, they continue to grow with vegetative reproduction and by seeds in the following ways:



Spring of 2007: 5 transplants  
Winter of 2009: 30,000 cuttings  
Spring of 2009: 5,000 seeds  
Primavera de 2010: 4,000 seeds  
November of 2013: transplant of 1,000 individuals  
October 2013/March of 2014: 11,237 cuttings

The works monitoring and their results are realized in collaboration with the Regional Council for the Environment of Junta de Andalucía.

It is proven the viability of ecological restoration techniques in such arid ecosystem with revegetation results far superior to the conventional ones in terms of species diversity, as well as landscape integration. It has achieved to regrow big slopes of cuttings and embankments without employing neither vegetal soil nor complex hydroseeding techniques.

Moreover, different reproduction techniques of *Maytenus senegalensis* are applied in practice, evaluating their results.



## Environmental advantages:

- Recovery of endemic populations. Reintroduction of a **467%** times more than existing.
- Recovery of slopes from up to **130 m** with typical vegetation of this environment using ecological restoration techniques.
- Minimization of earth movements and work materials contribution. All the excavated soil has been reused including an excess of **3M** of m<sup>3</sup> that was not considered.

