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Grow your own REE deposits: Novel observations from the soils of Southern Portugal

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Industrialised eucalyptus farming in Serra de Monchique has been well documented for its regional impacts on water flow, for its destructive centralisation of local economics (Jenkins, 1979) and for its derogatory impacts on local ecology (Brito, 1999) (Matias & Lamberts, 2011), it is another story of cash cropping for short term gain in an area of sensitive environmental balance which had previously been suitably subsistence farmed for some 700 years with no outside influence until the early 1950s (Jenkins, 1979).

The farming has irreversibly changed local customs, soil and water systems, but formed new and intricate relationships between the troposol, oxisol and latosol formations and plants which have not previously been studied in this region in terms of soil geochemistry.

During research in the region (as part of the SoS Rare/NERC-UK program) into metal and clay interactions in the troposol formations of Monchique, it was noted that rare earth elements (REEs) and other soluble ions were being mobilised in the upper half of the profiles by some seasonal cycle other than the natural meteoric input/leaching expected during classical lateritisation (Tardy, 1997). It was observed that some 40% of Fe and some 30% of Y were leaving the profile during wet season and concentrating at specific depths during dry seasons to a grade of some 160ppm Y and were thus, potentially viable as an economic resource of Heavy REEs.

This PICO presentation discusses the proposed anthropogenic/biogenic mechanism for this concentration and how you too could potentially grow an economically viable REE enriched garden.

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