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# Rangelands management in Spanish Natura 2000 sites.

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Spanish open oak woodlands have had multiple land uses such as firewood extraction and grazing through centuries. Consequently, 20% of the Spanish forest is coppice forest. This particular agrosilvopastoral system is well widespread in the southern and western part of the Iberian Peninsula.

As a result of the implementation of Natura 2000 in Spain, many of these habitats have been included in this network listed as “Dehesas” with evergreen Quercus spp. (Sclerophyllous grazed forests -dehesas-). The main goal of Natura 2000 is assuring "favourable conservation status” of natural habitats and species within these areas (Habitats Directive 92/43/ECC). This is the case of the study area, “Dehesa Boyal” (Ávila), which management plan has been carried out in a public forest land. The current situation is a degraded coppice forest, Quercus pyrenaica and Q.ilex, with a shrub encroachment due to previous firewood extraction. Besides, problems such as soil compaction and lack of sexual have been observed presumably related with livestock (180 horses, 1100 goats, 900 sheeps and 190 cows distributed in different seasons). Livestock feed on the acorns and hedge young sprouts making them sprouting again. The shrub encroachment is far from “conservation status” required in Natura 2000. Furthermore, the livestock cannot be removed because it is an important part of this agrosilvopastoral system not only for the landscape but also for its economic importance to local owners.

Management plans should consider all of these circumstances and propose an integrated approach. To achieve this goal, the area was accurately classified in age classes by “stands” (oak shrubland, low pole stages, coppice tall shrub and sapling) in each habitat, using Geographic Information Systems (G.I.S), remote sensing techniques and detailed field work. Then, the “conservation status” of each stand is classified in A (Favourable), B (Inconvenient) and C (Unfavourable conservation status) considering some features such as vital functions, restoration, floral richness and structure.

Finally, the implemented management plan proposes a sustainable solution to restore the habitat and maintain the livestock. Conversion by thinning on coppice forest to high forest is a popular recommendation by expert managers. It is proposed in high polewood (with B: inconvenient conservation status), sapling (A) and coppice tall shrubs (C) during the first fifteen years. Low-intensity thinning on sprouts, less than 35% of the basal area. Besides, the cattle will be led to these areas to control the sprouts. Low polewood (C) is left to grow with livestock and only the best trees will survive. Oak shrubland will be tested. The main purpose is avoiding the whole forest to become a coppice forest (C) without acorn regeneration. Therefore oak shrubland will be fenced and different measures tested (brush out, bulldozer scalping, intensive and medium thinning and no treatment) in order to choose the most suitable one for future management. In conclusion, the proposed selvicultural measures use the livestock as a part of the solution to ensure biodiversity.