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Problems for the Conservation and Measures for the Protection of the nesting population of the Cinereous Vulture *Aegypius monachus* in Sierra Pelada (Huelva, SW Spain)

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SUMMARY

Problems for the conservation and measures for the protection of the nesting population of the Cinereous Vulture *Aegypius monachus* in Sierra Pelada (Huelva, SW Spain).

In this article the main problems for the conservation of this population are described, their significance and consequences: the species suffers the greatest degradation of its breeding habitat out of all the European colonies; it has been exposed to the carrying out of forestry works with almost exclusively profit-making criteria at the time of building nests and, in present conditions, an integral management of the colony is not feasible.

The necessary measures for the species' protection are also set out. The most important measures are:

- The setting up of co-ordination programmes among the official and private bodies in the breeding areas, to avoid human interferences during nest building.
- Enlargement of the territorial limits of the protected area created to preserve this species.
- Increase of the breeding habitat area and restoration of the native vegetation covering.

The necessary procedures to achieve these goals are described.

INTRODUCTION.

We present the main problems of the Cinereous Vulture *Aegypius monachus* breeding population conservation in Sierra Pelada, which, since 1989, has settled in the protected area of the "Natural Site of Sierra Pelada and Rivera del Aserrador". We also give guidelines for measures necessary to protect this population.

From 1983-94, the maximum number of nesting pairs in this colony was 80 (1993).

CONSERVATION PROBLEMS.

Deterioration of nesting habitat.

70% of the area occupied by the colony is affected by non-indigenous tree cultivation (*Eucalyptus* and *Pinus*). In the period 1984-92, four forest fires affected 27% of the annual mean of nesting pairs (Galán *et al.*.present volume). 75% of breeding platforms (1994) are accessible by means of nearby forest tracks.

This situation makes this the colony whose breeding habitat has been degraded more than any other in Europe. In Spain, the Cinereous Vulture breeds in 26 other nuclei or breeding colonies (González, 1990); three of these are equally affected by activities linked with forestry cultivation (Avila: Bermejo; 1991; Salamanca: Blanco, 1995; Sierra de Gata: A. Gentil, pers. comm.).

The lack of instruments of management to cope with a protected area with many problems.

The diversity of the breeding area ownership and the fact that the Natural Resources Management Plan (P.O.R.N.) has not been drawn up, have led to the colony's inadequate management; indeed forestry work carried out during the breeding season has been the order of the day in Sierra Pelada, even after part of the area became a protected site to preserve the Cinereous Vulture.

Management of timber has been based on criteria which favour production. The result of this is that Sierra Pelada has had the least increase in nesting pairs (1986-93) out of the four large Spanish colonies, and that during years of greatest forestry activity the breeding success fell to 60-65% (Andrés *et al.*, 1996).

Shortage of financial and human resources for the protected area.

The small amount of financial resources the Administration devotes to the Protected Area has caused great unhappiness amongst local workers, who belong to one of the most economically depressed areas in the European Union.

The lack of technical staff exclusively devoted to the site, and the fact that only two forest guards have been allocated to a protected area of 12 980 ha, (this level of surveillance is simply not enough), greatly restricts the future application of instruments of management.

According to ICONA, the necessary ratio for surveillance in a natural site is one security guard to each 1000 has. (Fuentes, 1993).

Insufficient level of protection for the breeding colony.

20% of pairs (1993) nest outside the protected area's limits, which prevents the possibility of overall management of the colony in the future.

Serious shortage of indigenous trees (Quercus suber and Q. rotundifolia) for nesting bases.

Sierra Pelada has been the only European colony with Cinereous Vulture nests on rocks since 1971 (Hiraldo, 1974; own data). 17% of pairs (1994) breed on isolated trees which are not indigenous (*Pinus*).

Nests on pine (nearly always *P. pinea*) are more prone to collapsing, moreover, these trees cannot regenerate after being affected by fire.

Scarce natural nutritive resources in the area of the colony.

Cattle rearing (pastureland) covers less than 5% of the colony's area. In spite of the fact that the colony occupies a large part of the mountain range (approx. 50 000 ha.) the nutritive resources are insufficient to maintain the Cinereous Vulture population. With this in mind the Regional Government of Andalucía's Environment Agency has regularly put out carrion for the population since 1985.

PROTECTION MEASURES

Conservation of the Cinereous Vulture nesting population in Sierra Pelada comes under a plan for Natural Resources Arrangement (P.O.R.N.), which should contain the following as its main measures, listed in order of importance.

A. Co-ordination between the administrative and private bodies in the breeding area.

This measure is aimed to avoid human activity interfering with the species nesting on land owned publicly or privately. The general criteria which should be followed are 1) not to carry out forestry work on mountains with breeding platforms in the period February to August, regardless of whether the nests are occupied or not or whether there is a breeding failure or not; 2) the goals and procedures of forestry work, carried out from September to January on the mountains where the species nests, should be technically controlled as well as approved by

the conservationist group studying the Cinereous Vulture in this area.

B. Extension of the protected area's territory.

The proposed extension (Figure 1) is based on the redistribution of nests which has taken place in this colony from 1983 to 1994.

Those nests excluded from the extension proposal and others which could lie outside the extended limits in the future, must be guaranteed protection by applying proposal A, and eventually this area should be bought by the Administration in charge of timber-growing companies.

C. Appointment of a management team and an increase in human and financial resources for the protected area.

The management team must include technicians solely devoted to this end.

The number of forest guards, as recommended by ICONA for protected areas, is essential.

Annual budgets must be devoted to financing measure D as well as to study and research.

D. Increase the original nesting habitat area and restore native vegetation cover.

The forestry projects put forward for vegetation units in Sierra Pelada have been designed with the following objectives in mind (Figure 2): 1) Rule out the use of heavy forestry machinery; this type of machinery has mainly been used

Figure 1. Present-day boundaries of the protected area (continuous line) and proposals for enlargement of its territorial boundary (discontinuous line). The black circles indicate breeding platforms of the Cinereous Vulture existing in 1992 and/or in 1993. E. 1:100.000

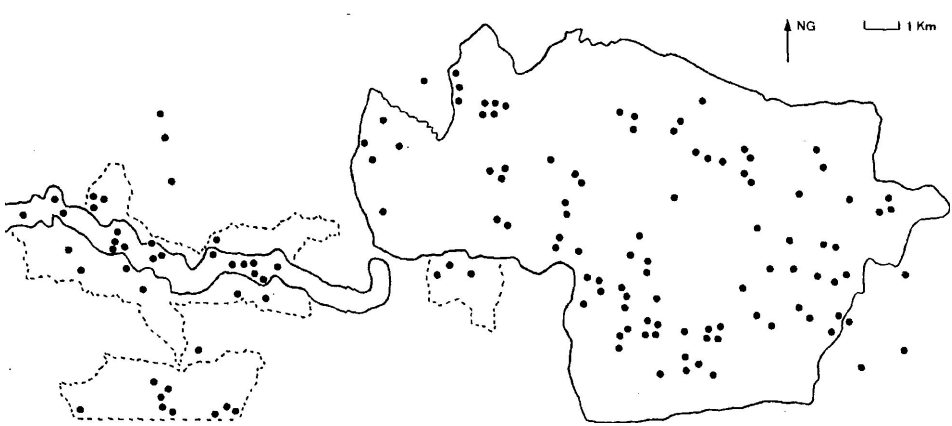
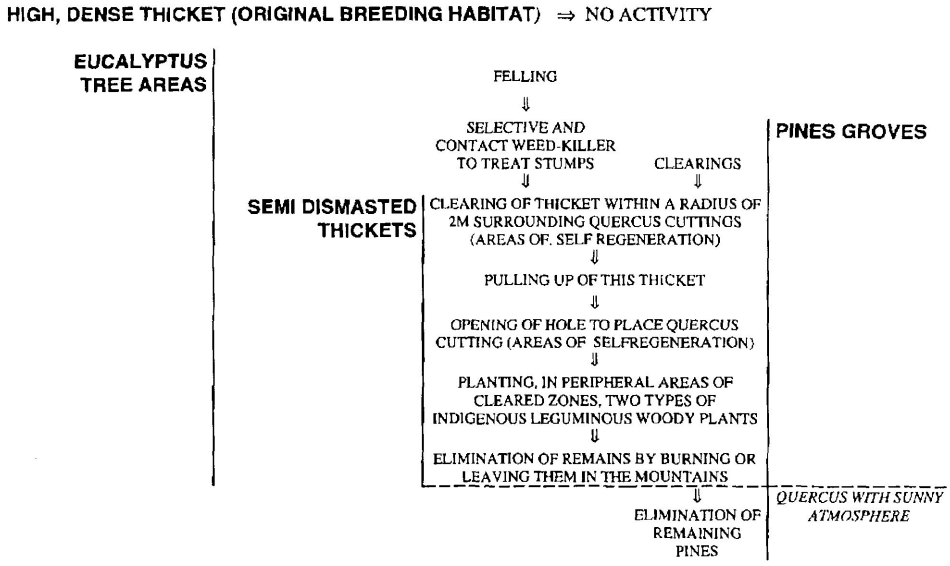


Fig. 2.- Diseño de los proyectos forestales propuestos en las unidades de vegetaicón de Sierra Pelada y sus objetivos.
Design of forest projects proposed in the vegetation units of Sierra Pelada and their aims.



AIMS OF FORESTRY PROJECTS	QUERCUS DENSITY AND PLANTING DESIGN	PRESENT VEGETATION UNITS
INCREASE THE ORIGINAL NESTING HABITAT AREAS	VERY LOW: LOCATED MAINLY ON LOWER THIRDS OF SLOPES AND WITH LOW DEGREE OF EXPOSURE AMONGST TREES AND WITH REGARDS TO EXISTING BREEDING TERRITORY	SEMIDISMASTED THICKETS EUCALYPTUS TREE AREAS WITHOUT TERRACES IN AREAS OF HIGH SLOPE PINE GROVES IN AREAS OF HIGH SLOPE
RESTORE NATIVE VEGETATION COVER	SIMILAR TO PASTURELANDS	EUCALYPTUS TREE AREAS WITH TERRACES EUCALYPTUS TREE AREAS WITHOUT TERRACES IN AREAS OF SLIGHT SLOPE PINE GROVES IN AREAS OF SLIGHT SLOPE RIVERBEDS WITH NO VEGETATION
CINEREOUS VULTURE NUTRITION	SIMILAR TO PASTURELANDS	ALL THE ABOVE, EXCEPT FOR RIVERBEDS WITH NO VEGETATION

Table 1. ***Other measures for the protection of the Cinereous Vulture in Sierra Pelada.***

MEASURES	CONTENTS
General Plan for Prevention and fighting of Forest fires must be drawn up.	---
Where and in which season carrion should be left must be studied.	---
Minimise disturbances to the breeding process by modifying the network of paths	List of breeding platforms whose nearby forest slopes must be either completely or partly closed.
Ordering of beekeeping activity.	Locating or relocating beehives so that they do not disturb nesting, either due to their situation or to access to them.
Fixing of protected area's boundaries.	Installing gates where forest paths intersect the protected area's boundaries.
Forestry treatment in areas of platforms with difficult access for the pairs using them.	List of nests with difficult access for the pairs using them, to be checked yearly. To enable this to be done, part of the surrounding non-indigenous trees must be eliminated.

in forestry work carried out up till now by the Administration, with aims other than those described in this document. This has caused a great impact on the environment and a reduction in the number of day workers; 2) Avoid pulling up eucalyptus stumps; this work greatly disturbs the ground; 3) Thin out the clumps or seedlings of *Quercus (Q. suber* and *Q. rotundifolia)* in the immediate vicinity; 4) Improve ground conditions by planting indigenous leguminous vegetation; which also acts as fertilisers (Blanco, 1994); 5) Reduce the mortality of *Quercus* seedlings and encourage their development, using shade from existing adult pines; young holm oaks and cork trees present a degree of shade which then changes to a definite sunny

atmosphere.

E. Other measures (see Table 1).

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