

## Long-term compensatory measures in EIA?: agri-environmental schemes in an airport

Oñate, J.J.<sup>1</sup>, Hervás, I.<sup>1</sup>, Suárez, F.<sup>1</sup> and Pérez, D.<sup>2</sup>

<sup>1</sup>: Dept. of Ecology. Universidad Autónoma de Madrid. Spain (juan.onate@uam.es).

<sup>2</sup>: Aeropuerto de Ciudad Real, S.A. Spain.

### Abstract

Implementation of compensatory measures under EIA procedures is facilitated by their precise location in space, their restriction to a given time lapse, and a careful design considering promoter's ability. Compensatory measures demanded to the Ciudad Real airport (Central Spain) contradict these conditions, which might hinder their full implementation and effectiveness. Given the extension and nature of the impacted area and its socioeconomic circumstances, a strategic-level assessment would have been a much more appropriate tool in this case.

### Introduction

Mitigation of habitat losses through compensatory measures has long been applied in North America when avoidance, minimization and rectification of impacts are not feasible. Off-site restoration, enhancement, and construction of wetlands (Zedler *et al*, 2001) and other fish habitats (DFO, 2002) have been the most frequent compensations.

In the European Union (EU), article 6.4 of the Habitats Directive states that: *"If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out [...], the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected"*. This provision forms part of the authorization procedure of projects likely to affect designated sites integrating Natura 2000<sup>1</sup>. Compensatory measures can consist of: restoration or enhancement of the affected habitat in the site; enlargement of the affected site recreating an equivalent habitat; proposal for a new site to be included in Natura 2000 (European Commission, 2007). The range of considered measures includes species reintroduction, recovery or reinforcement, land purchase or rights acquisition, and incentives for economic activities sustaining key ecological functions.

Some of these measures have been thoroughly considered in the case of the first private airport authorized in Spain, located in Ciudad Real, Central Spain, in the vicinity of a Natura 2000 Special Protection Area for birds (SPA). We use it here to illustrate the uncertainties linked to the effectiveness of long-term compensatory measures in the framework of project-EIA.

---

<sup>1</sup> Natura 2000 is the EU network of nature protection areas established under the 1992 Habitats Directive with the aim to assure the long-term survival of Europe's most valuable and threatened species and habitats.

## Case study

Construction of the Ciudad Real airport was finished in 2007 and flight operations will begin in 2008. The airport area is 1234.45 ha, including one runway 4 km long, airport installations and an industrial area. Foreseen passenger traffic is initially 2 million/yr, reaching 9 million/yr when fully operating. The airport, located in the vicinity of a high speed rail and two highways, is expected to stimulate the socio-economic development of the entire province.

The original EIA considered two runways 4.6 km-long, both inside the SPA of “Campo de Calatrava” (6530 ha), declared to protect important populations of cereal-steppe bird species (Table 1), particularly concentrated there during winter.

**Table 1. Main bird species in the Special Protection Area of “Campo de Calatrava”**

Species	Population (individuals)		Conservation status		
	Breeding	Wintering	IUCN	EU	Spain
<i>Otis tarda</i>	55	270	Vulnerable	Annex I	Vulnerable
<i>Falco naumanni</i>	38	-	Vulnerable	Annex I	Vulnerable
<i>Tetrax tetrax</i>	500	1300	Near threatened	Annex I	Vulnerable
<i>Pterocles alchata</i>	300	500	-	Annex I	Vulnerable
<i>Pterocles orientalis</i>	13	52	-	Annex I	Vulnerable

IUCN: International Union for Conservation of Nature (Red List). EU: Birds Directive of the European Union (Annex I encompass endangered species deserving habitat conservation measures). Spain: Spanish Red Book List.

Due to its unacceptable impacts, the project was rejected in May 2001. A second project, not invading the SPA, was then presented. This obtained a positive impact statement (EIS) in December 2002, was then declared of overriding public interest, and its construction commenced. However, in 2003, after denounce by environmental NGOs, the European Commission (EC) demanded a better appraisal of impacts on birds’ habitats. Consequently, construction was stopped and a new impact report was prepared. In February 2006 a positive EIS was issued, establishing the following compensatory measures:

- Enlargement of the SPA “Campo de Calatrava” to 2200 ha and elaboration of a management plan.
- Declaration of a new SPA on a site 130 km north of “Campo de Calatrava”.
- Permanent acquisition of hunting rights in both sites.
- Habitat enhancement measures to be implemented on 3690 ha during the life-time of the airport, including:
  - Construction of 2 breeding towers for *Falco naumanni* and 4 drinking sites for *Pterocles* species.
  - Incentives to be voluntarily adopted by cereal farmers in the area willing to undertake any of the following agri-environmental measures: adaptation of harvest date to birds’ breeding

calendar; extension of traditional fallow; restoration of field boundaries; conversion of arable crops to permanent pastures; and establishment of no-harvest crops.

- Acquisition of 1100 ha in the area, in order to guarantee a minimum level of the measures' implementation.
- Constitution of a financial endorsement for the total yearly budget of the compensatory program.

### **Implementation of compensatory measures**

The EIS specified that compensatory measures should be implemented six months after the EIS was issued, but this time-lapse has proven too short for some measures. The enlargement of the existing SPA and the designation of the new one still have not been totally fulfilled due to administrative delays. SPA's declaration is in the ambit of the EC after proposal by the national and regional administrations, a responsibility clearly exceeding the competency of the promoter.

Acquisition of hunting rights and purchase of land were delayed due to negotiations between the promoter and owners towards fair deals (13% of demanded land is still to be purchased). The same happened to the agri-environmental measures. To date, only 24% of the targeted surface is under management contracts, including 654 ha outside the SPA (of which 650 ha are owned by the promoter) and 1171 ha inside the SPA (312 ha owned).

The only obligations fulfilled in time have been the construction of breeding towers and drinking sites for birds, and the constitution by the promoter of a 386000 € financial endorsement, corresponding to the 2008 budget for the compensatory program.

### **Issues for debate**

Five main issues deserving debate emerge from this case study: 1) Location for compensatory measures; 2) Measures exceeding the competences of the promoter; 3) Viability of incentive schemes as effective measures; 4) Evaluation of the schemes' effects; 5) Appropriateness of EIA instead of SEA in these complex cases.

1) Locating compensatory measures far away from the project site (the new SPA to be created 130 km north of Ciudad Real airport), may not be the best option. The limited extent of the area and time-frame considered in project-EIA compromises the study of the temporal distribution and conservation status of key species in relation to wide areas. In our case, despite being within the same biogeographical region (Mediterranean) and offering the same cereal-steppe habitat, the compensatory site is far enough away that it might not provide the same functions as wintering ground for pseudo-steppe birds as the impacted SPA. In this sense, only an "EIA-based SEA"

(Partidário, 2007) could have extended the assessment to an area and time-lapse wide enough to ensure the persistence of ecological coherence and network functionality after compensation.

2) SPA designation or enlargement involve administrative decisions well beyond a promoter's ability and should not be considered in EIA. Would it be the case that such designation is delayed due to, e.g. political controversies or conflict with local populations, shall the promoter be sanctioned or the project execution halted due to breach of the EIS? This type of compensatory measure should only be considered under an EIA-based SEA, where the role of administrations in sharing responsibilities with the promoter as to problem solving is more relevant.

3) Compensatory measures which viability depends on the willingness of third parties should be considered with caution. The demand to purchase land is not controversial when the land area to be purchased is relatively small. But in our case, the 1100 ha to be acquired by the promoter is a huge area in a place where land property is relatively concentrated and land owners can easily ask for inflated prices once they come to know the obligation to buy that the promoter bears. The same concern applies to the demanded agri-environmental measures. This type of instrument, widely implemented across the EU in the framework of agricultural policy (Buller *et al*, 2000), consists of specific environment-oriented farming management practices to be voluntarily adopted by local farmers in return of an economic reward, calculated as a compensation for income forgone plus a certain incentive. In our case, farmers' willingness to participate in the scheme has proven mainly dependent upon the reward level, being the case that some are asking for inflated compensation. Anticipating this possibility, the EIS demanded the promoter constitute a yearly financial endorsement, so that if measures are not fully executed in a given campaign, the remaining yearly budget will accumulate for the next campaign. Consequently, the different measures will be under/over implemented in different years. Since targeted bird species rely on the availability along their yearly life-cycle of different soil cover types (crops, stubble, fallow, pastures, etc.), being species richness dependant upon diversity of these components of the farmed landscape (Suárez *et al*, 1997), limited and uneven implementation of measures from year to year puts at risk their supposed beneficial effects.

4) Recent European-wide studies (Kleijn and Sutherland 2003) have highlighted the difficulties involved in the scientific determination of the effectiveness of agri-environmental measures for biodiversity conservation. In our case, long-term monitoring of bird populations under Before-After-Control-Impact approaches (Stewart-Oaten *et al*, 1986) might become unfeasible, given the limited and uneven implementation of these measures from year to year. Therefore, questions surround the soundness of effectiveness evaluation.

5) The induced developments that the airport operation might bring to the area (e.g. urbanization, road construction and traffic), involve cumulative impacts which have not been considered in the project-EIA. Although the elaboration of a management plan for the SPA must be financed by the promoter, the regulation of those activities and the treatment of their detrimental effects are clearly beyond his responsibility. Unlike EIA, a “strategic-level” cumulative effects assessment (Therivel and Ross, 2007) could have considered larger areas and longer time periods and hence a wider range of cumulative effects.

Concluding, the case of the Ciudad Real airport illustrates the inconsistencies of the project-EIA framework to deal with the impacts of such a big infrastructure and the demanded ambitious program of compensatory measures. Any form of strategic-level assessment tool would have better tackled with expanded area and time frames for the management of impacts and of compensatory measures, including cumulative effects and a more active involvement of the administrations and the wider public.

## References

- Buller, H., Wilson, G. and Höll, A. (eds.). 2000. Agri-environmental policy in the European Union. Ashgate, Aldershot. 291 pp.
- DFO (Fisheries and Oceans Canada). 2002. Practitioners guide to compensation. Ottawa, Ontario. 23 pp.
- European Commission, 2007. Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. European Commission, Brussels. 30 pp.
- Kleijn, D. and Sutherland, W.J. 2003. How effective are European agri-environment schemes in conserving and promoting biodiversity? *J. Appl. Ecol.*, 40: 947-969.
- Partidário, M.R. 2007. Scales and associated data. What is enough for SEA needs? *Environmental Impact Assessment Review*, 27: 460-478.
- Stewart-Oaten, A., Murdoch, W.W. and Parker, K.R. 1986. Environmental Impact Assessment: "Pseudoreplication" in Time? *Ecology*, 67: 929-940.
- Suárez, F., Naveso, M.A. and De Juana, E. 1997. Farming in the drylands of Spain: birds of the pseudosteppes. In: Pain, D.J. and Pienkowsky, M.W. (eds.). *Farming and Birds in Europe. The Common Agricultural Policy and its Implications for Bird Conservation*, Academic Press, London. pp. 297-330.
- Therivel, R. and Ross, B. 2007. Cumulative effects assessment: Does scale matter? *Environmental Impact Assessment Review*, 27: 365–385.
- Zedler, J., Shabman, L., Alvarez, V., Evans, R.O., Gardner, R.C., Gibbons, J.W., Gilliam, J.W., Johnston, C.A., Mitsch, W.J., Prestegard, K., Redmond, A.M., Simenstad, C. and Turner, R.E. 2001. *Compensating for wetland losses under the Clean Water Act*. National Academy Press, Washington D.C. 322 pp.