HUNTing for sustainability
-research on the wider meaning of hunting

SEVENTH FRAMEWORK PROGRAMME

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WP4 Hunting, sustainable harvesting and consequences for biodiversity

Key message

Research on the impact of hunting on biodiversity has shown that hunting (and its associated management) can be a strong driver in conserving biodiversity, because many of the objectives in hunting (maintaining healthy populations, preserving natural habitats, reducing limiting factors for game) are shared with those of wildlife management and conservation at large. However, sometimes hunting has negative consequences on biodiversity, usually because of certain management activities performed in unsustainable ways, and these are maintained because of economic or cultural reasons. Additionally, hunting may benefit certain species, but not others, and the overall benefit of hunting for biodiversity and conservation will depend on the relative value that is attached to different animal guilds or species in different contexts. Overall, our research indicates that hunting estates that have benefits for biodiversity should be identified and favoured over those that are not.

4.1 Relationships between hunting management and conservation of biodiversity

Miguel Delibes-Mateos & Beatriz Arroyo

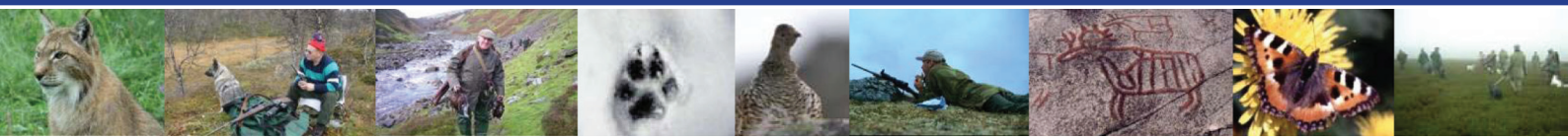
Messages from the case studies

Scottish highlands

The management objectives (game bird shooting, deer stalking, sheep production, or conservation) and activities (predator control and muirburn) examined in this study do not appear to effect upland bird diversity *per se*, but management for red grouse, deer stalking, biodiversity conservation and muirburn do appear to effect community composition. Therefore, bird diversity may be maximised by a landscape with diverse land management strategies.

Management for gamebirds on Iberian farmland estates

Estates dedicated to small game (mainly red-legged partridges) in the Iberian Peninsula are mainly farmland areas with varying degree of natural vegetation areas (mainly Mediterranean scrubland or pastures) mixed within the agricultural matrix. Management carried out to benefit partridges includes provision of supplementary food (grain) and water, predator control, the provision of game crops, or (increasingly in recent decades) the release of farm-reared partridges. Our studies have shown that, in central Spain the commercialization of hunts is associated to more intensive management and to estates with a higher proportion of natural vegetation (the latter of which is thought to be associated to higher nature value in farmland areas). In Portugal, areas managed for hunting contained higher densities of birds of conservation concern, higher densities of steppe birds and other ground-nesting species than areas not managed for hunting of similar habitats. They also contained higher densities of partridges and rabbits, which in turn was reflected in



higher raptor densities, although raptor abundance was proportionally lower than expected by game and habitat in those estates with higher gamekeeper densities, which suggested that illegal control could be existing.
Within central Spain, more detailed analyses on management activities and their effect on bird guilds showed that supplementary food benefited granivorous steppe birds like sandgrouse, and fox control benefitted non-granivourous steppe birds like little bustards. Management (in particular, habitat and supplementary food) were reflected in higher partridge densities, which in turn were associated to higher raptor richness (but not densities). In contrast, small-scale partridge releases seemed to be inefficient to increase partridge abundance or bags, but large-scale partridge releases (such as those carried out in intensive estates), although having a direct positive impact on harvest and thus estate economies, were negatively associated to steppe bird abundance or raptor diversity, suggesting lower biodiversity value of that type of management.

Broadly, our results suggest that, in Iberian farmland, game management activities directed to benefit wild red-legged partridges and other associated small game (in particular, habitat management, predator control or food enhancement) have positive effects on other farmland birds of conservation concern, but that these benefits disappear when management is intensive and based on large-scale releases of farm-reared partridges. However, the latter is much more profitable economically. Thus, there is a need to maintain economic sustainability of wild red-legged partridges estates managed in a sustainable way, and thus contributing to overall conservation of farmland wildlife.

Read more in:

Arroyo, B., Delibes-Mateos, M., Diaz-Fernandez, S., & Viñuela, J. 2012. Hunting management in relation to economic aims: red-legged partridge hunting in central Spain. *E J Wildl Res*., DOI 10.1007/s10344-012-0632-4, http://www.springerlink.com/content/970124p2221k037w/

Diaz-Fernandez, S., Viñuela, J. & Arroyo, B. 2012. Harvest of Red-legged partridge in central Spain. J. Wild. Manag. DOI: 10.1002/jwmg.391, http://dx.doi.org/10.1016/j.biocon.2010.04.048

Reports and MSc theses available online:

Daniel, B. (2010) Effects of sporting estate management practices on biodiversity in Scotland (with Dr R. Bryce & Prof S. Redpath, University of Aberdeen). http://www.iccs.org.uk/wp-content/thesis/consci/2010/Bronwen.pdf

Mustin, K., Newey, S., Irvine, J., Arroyo, B. & Redpath, S. Biodiversity impacts of game bird hunting and associated management practices in Europe and North America. (2011) Report to RSPB. http://www.hutton.ac.uk/sites/default/files/files/RSPB_ReportFINAL_Covers.pdf

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