

Landfill habitat restoration can reduce the incidence of vertebrate pest species

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Abstract

We monitored over one annual cycle the abundance of vertebrate species in three landfills, one of them still in use and the other two abandoned since 2004. We found that the presence of vertebrate pest species or their abundance was lower in the abandoned landfills than in the one in use. Restoration actions and habitat management in sealed up landfills can reduce pest incidence and related damage or health risks in the surrounding habitats or urban areas.

Introduction

Pest species can be abundant in landfills (Camiña and Montelío, 2005). In the context of a landfill we considered a species as a pest if it uses the landfill as a habitual habitat or takes temporal advantage of their resources and can therefore produce damage to landfill facilities, surrounding crops, livestock or game harvesting; or if it can carry germs or act as a vector for diseases or be harmful for humans. We have monitored during one year the presence, use and abundance of vertebrate species in three landfills, one of them still in use and the other two abandoned and sealed up.

Material and methods

The study area was located in the south of Spain (Málaga province, Andalucía). The landfill in use was the Complejo Medioambiental de la Costa del Sol (Casares). The two abandoned were Ronda landfill and Viñuela landfill, partnerships of the Sulfanet4EU project (European Community) for the sustainable use of abandoned landfills. These two landfills have been sealed up and restoration actions carried out. We tried to compare the incidence of vertebrate pest species between landfills.

Results

We found seven species that fulfil the criterion of pest: the yellow-legged gull (*Larus cachinnans*), the black kite (*Milvus milvus*), the cattle egret (*Bubulcus ibis*), the wild boar (*Sus scrofa*), the red fox (*Vulpes vulpes*), the feral cat (*Felis catus*) and the feral dog (*Canis familiaris*). Presence of gulls and egrets follow an annual pattern in the landfill in use. Gulls are frequent in the landfill all year round except in summer when they disappear. The gull population size using the landfill is estimated at 1,614 to 2,646 birds (95% confidence interval). Egrets are also frequent every season except in spring. Their population size is estimated between 250 and 466 birds (95% confidence interval). Gulls are completely absent from the abandoned landfills (even when they are present in a surrounding water reservoir) while egrets on some occasions use the abandoned landfills. Black Kites are present in the landfill in use in spring and early summer while they use the abandoned landfills only in autumn. Kites use the landfill in use as settling places during their pre-nuptial migration, staying for 15-30 days and looking for food. The abandoned landfills are used only to settle for one or two nights during the post-nuptial migration.

The use of the landfills by carnivorous mammals and wild boars is high. Boars, feral dogs and cats and red foxes are frequent in both types of landfills. However, we find significant differences in the abundance of these species between in-use and abandoned landfills, as they are more abundant in the first type of landfill.

Discussion

The abandonment and sealing up of a landfill accompanied by habitat restoration actions can reduce the incidence of some vertebrate pest species. Restoration actions and habitat management can help to reduce investments on pest species management (Álvarez and Chico, 2003) even in active landfills. Wild boars cause damage to crops and golf courses while carnivores can limit some game species. In the case

of gulls it is important to consider habitat restoration in landfills. Gulls are in direct contact with rubbish and they tend to nest in buildings. Gull populations are increasing in coastal areas causing health risk and attacks to humans during their breeding season. Indirect management of pests through habitat manipulation can also help to improve the habitat quality for other endangered species (Orueta, 2007).

References

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