

**USE OF DISTRESS CALLS TO DETER BIRDS
FROM LANDFILL SITES NEAR AIRPORTS**

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Abstract

It is well known that domestic waste landfill sites can attract large numbers of flocking birds. When situated in close proximity to airports, these sites can cause a major hazard to the aircraft. In some countries the development of landfills is prohibited within a set distance of airfields, whilst in others landfill operators are required to prevent birds from accumulating on the site by some means of bird control. Problems are also encountered if birds transport litter off the landfill site or there is the possibility of transmission of disease in the bird's droppings. In the UK, those wishing to operate landfills near airports are required to exclude all birds, usually by the use of a netting enclosure, which is both expensive and inconvenient to operate. The data presented here form part of a project designed to critically evaluate a variety of alternative techniques to manage birds on landfill sites. The ultimate objective is to identify successful techniques and to develop integrated strategies which have been tested and are known to provide a given level of control if applied properly.

This paper reports the viability of using one of these techniques (Bioacoustic distress calls) for short and long term bird control on landfill sites.

Six distress call recordings were used to deter birds at two domestic waste landfill sites during the summer of 1999. Results from both sites showed that the effectiveness of the technique reduced with time. Calls were played by trained personnel on weekdays during landfill operating hours. Deterrence was successful in stopping birds from loafing and feeding on the site during the initial period. Birds did, however, remain in the general area and fed on the waste each day before and after the use of calls. After four to six weeks habituation began to occur. Numbers of birds returned to pre-trial levels after 10 weeks at both sites.

Data suggest that the use of distress calls on their own can provide short term, effective cover to control birds on landfill sites. The results of this trial also suggest that long term bird dispersal using this method at highly attractive sites such as landfills results in habituation.

Key Words: Landfills, Bird Control, Distress Calls, Bioacoustics, Netting, Food

1. Introduction

It is well documented that the majority of birdstrikes with aircraft occur on or around the airfield (Milsom & Horton (1995)). Distress calls, pyrotechnics, falconry, habitat management and lethal control are just some of the methods used for assisting bird control personnel to deter birds from airfields (CAA 1998). Whilst much can be done to remove birds from the airfield, bird management on sites in the surrounding area may be more problematic. Examples of the most bird attractive developments tend to be areas where hazardous birds can rest undisturbed (nature reserves), roost (reservoirs), or feed (landfill sites). The latter sites can attract large concentrations of birds and, if situated close to an airfield or its approaches, may greatly increase the risk to flight safety. In some countries the development of landfills is prohibited within a set distance of airfields, whilst in others landfill operators are required to prevent birds from accumulating on the site by some means of control. In the UK, those wishing to operate landfills near airports are required to exclude all birds, usually by the use of a netting enclosure, which is both expensive and inconvenient to operate. Alternative bird control methods, similar to those used on airfields are often proposed. There is little scientific evidence, however, to support their effectiveness and regulatory authorities may be reluctant to permit them for this reason. A scientific assessment of the use of these techniques to control birds on landfill sites is therefore required. The objective of this study is to identify successful bird control techniques and to combine them to form integrated strategies, which have been scientifically tested and are known to provide a particular level of control if properly applied.

This paper presents the data for a trial of distress calls (a technique often used to deter birds from airfields) to clear birds from two domestic waste landfills. The objective was to determine whether distress call have the potential for use in landfill bird control, both for short term and long term clearance of birds.

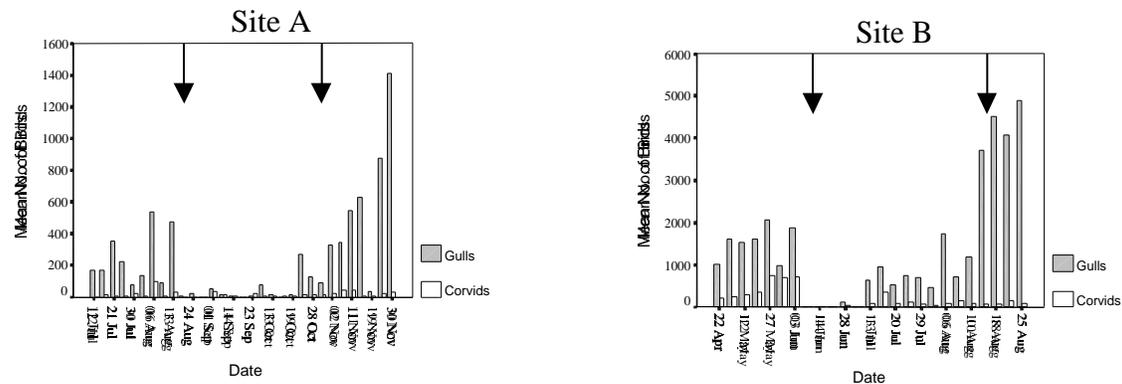
2. Methods

Monitoring was undertaken at a coastal site in Devon, England, from late April to late August 1999 and an inland site near Manchester, England, from mid July to early November 1999. A bird control company was responsible for operating a hand held megaphone equipped with digitised distress calls of Herring Gull (*Larus argentatus*), Common Gull (*L.canus*), Black-headed Gull (*L.ridibundus*), Lapwing (*Vanellus vanellus*), Starling (*Sturnus vulgaris*) and Rook (*Corvus frugilegus*). Calls were played on both sites during weekday landfill operating hours (08:30 to 16:30) at a frequency of not more than one 90 second call during every half hour. Independent monitoring was undertaken by CSL staff before, during and after the period in which distress calls were used. Monitoring was undertaken on a twice weekly basis by experienced ornithologists as part of a longer term research project sponsored by each site under the landfill tax credit scheme. Hourly counts were made on two randomly selected days in the week between dawn and midday or midday and dusk. Recording was broken down into birds feeding, loafing and bathing on site, birds flying overhead and birds loafing in surrounding fields.

3. Results

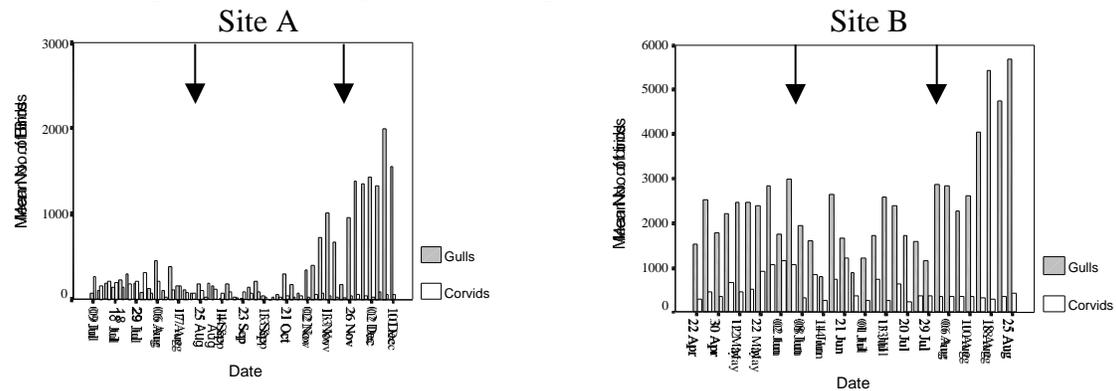
Results are presented as a series of comparative figures showing numbers of birds present at different stages of the trial. Site A is the inland site and site B the coastal site. Arrows show the start and the end of the period of bird control.

Figures 1 & 2. The numbers of birds present on each site before during and after the use of distress calls.



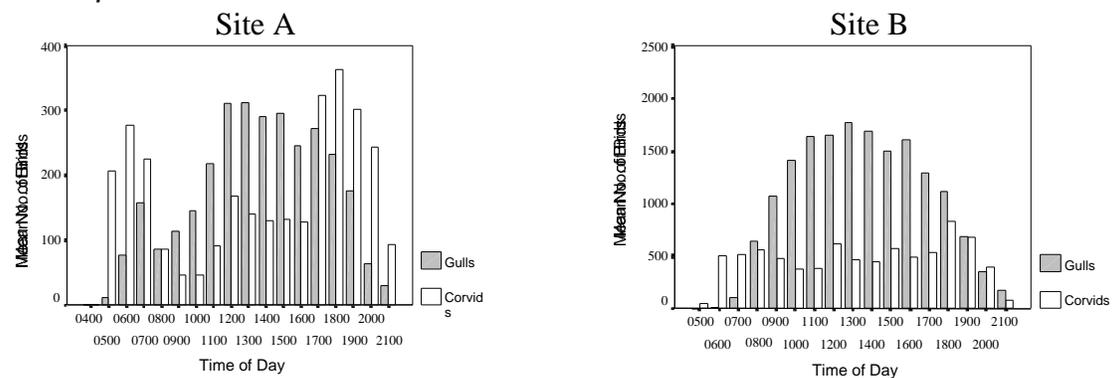
The total numbers of birds present on each site are significantly different, but the pattern of dispersal throughout each trial period is very similar.

Figures 3 & 4. The numbers of birds present on each site, circling overhead and loafing in surrounding fields during the course of the trial.



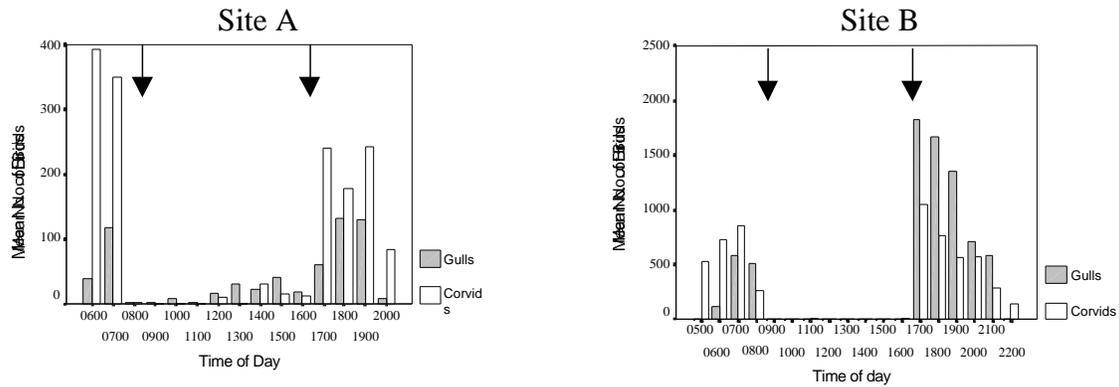
The technique was effective in both cases at reducing bird numbers on site, however it did not stop them remaining in the surrounding area awaiting opportunities to return to feed. This can be better demonstrated by looking at the variations in the numbers of birds present during each hour of the day.

Figures 5 & 6. Mean numbers of birds present on each site per hour prior to the implementation of distress calls.



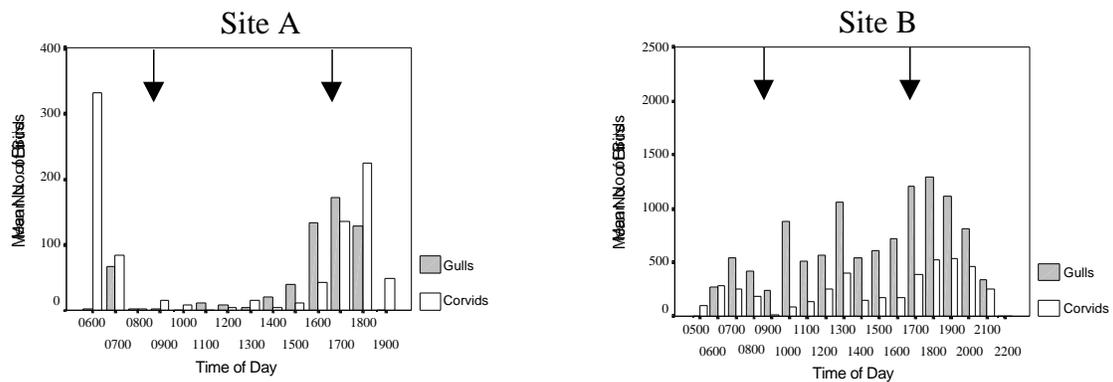
The mean numbers of birds follow a normal distribution with numbers building up to a peak around 1pm and tailing off thereafter. Over 99% of the gulls present at site B were Herring Gulls. 60% of gulls on Site A were Black-headed and 40% Lesser-black backed gulls. Mean numbers of corvids (A = 105, B = 462), increased through the day with peaks occurring early and late in the day on site A and during late afternoon on site B.

Figures 7 & 8. Mean numbers of birds during the first month of distress call trials



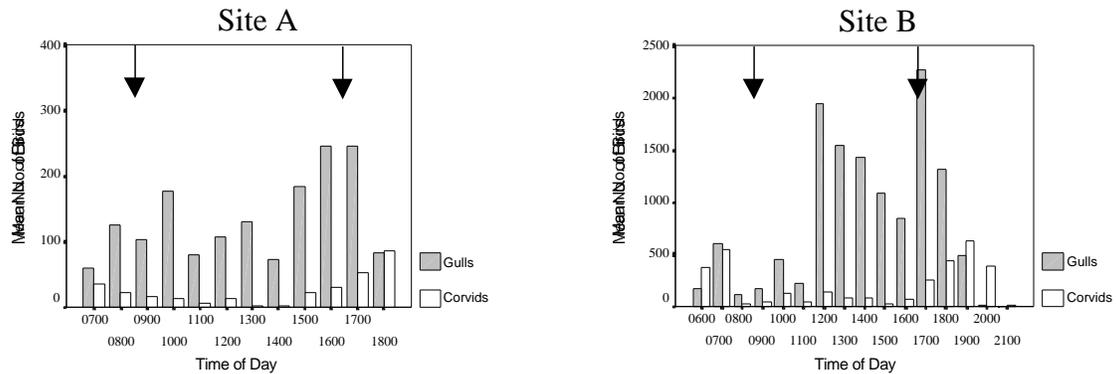
Virtually all birds were prevented from feeding or loafing during this period. Birds were observed on site before and after the calls were being operated in both instances. Mean numbers of birds seen on site A during operating hours were; 59 Gulls and 89 Corvids, and on Site B; 187 Gulls and 67 Corvids.

Figures 9 & 10. Mean numbers of birds during the second month of distress call trials



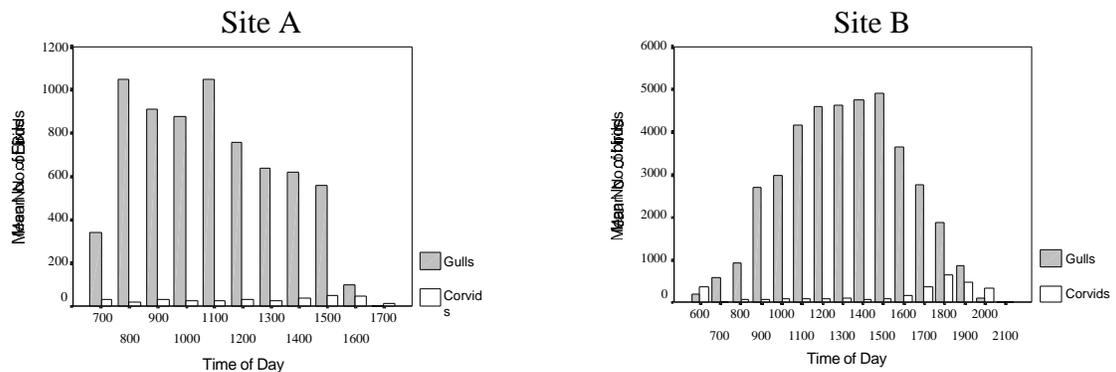
Following the reductions in numbers of both gulls and corvids on each site during the first month of the trial, bird numbers showed an increase throughout the day during the second month as habituation began to occur. Mean numbers of Gulls rose to 90 birds at site A and 666 birds at site B whilst mean numbers of corvids decreased to 59 birds at site A, and rose to 136 birds at site B.

Figures 11 & 12. Mean numbers of birds during the final month of distress call trials



By the final month of the trial, gulls were gaining access to both sites in increasing numbers during the day. Mean gull numbers increased again to 108 birds on site A and 1072 birds on Site B. Corvid numbers decreased on both sites to 22 birds on site A and 83 birds on site B.

Figures 13 & 14. Mean Numbers of birds during after distress calls discontinued



Following the removal of distress calls from both sites, the number and pattern of returning birds showed significant changes from those recorded prior to the trial starting. Gull numbers increased on Site A to a mean of 623 birds and on Site B to a mean of 4894 birds. Corvid numbers remained lower than the pre-control periods with a mean of only 29 birds on site A and 69 birds on Site B.

Throughout the trial, any monitoring undertaken on Saturdays and Sundays was removed from the results in order to present those data that applied directly to days during which control was undertaken.

4. Discussion

The similarity between the pattern of results from two geographically independent landfill sites suggests that distress calls are effective at dispersing birds from a landfill for a limited period. Habituation occurred during the second month of use, particularly during the afternoons after the operator had taken a lunch break. Observations showed that birds would begin to circle overhead prior to the operator retiring from the site at the end of each day. This suggested a learnt behaviour relating the operator to the distress calls. Almost complete failure of the technique occurred after c.10 weeks use on both sites.

Whilst the effectiveness of the technique can be clearly demonstrated during the first month of the trial, the presence of birds on site both before and after the use of the technique each day, suggests that it only works as a delaying technique. Further trials are to be conducted to determine whether attempting to keep birds off site from dawn to dusk would result in complete dispersal, or bring about a more rapid habituation.

Birds were frequently observed flying from surrounding fields to the landfill. Any lapse in the use of calls resulted in small numbers of birds gaining access to feed. The resultant visual stimulus to other birds in the surrounding fields rapidly increased the numbers on site. It is therefore important to maintain a constant vigil in order to ensure that birds do not begin to feed in the first place.

The increase in gull numbers visiting the site after the calls were discontinued in comparison to before they were started suggests that a build up of birds occurred at both sites during the trial period. This is consistent with the normal arrival patterns of migrant birds into the UK in late summer and autumn. The lower numbers of corvids present may be due to them being excluded from food resources by the larger numbers of gulls.

5. Conclusion

Distress calls were shown to be highly efficient at dispersing birds from a regular feeding site for up to one month when access to food is permitted early and late in the day. The results show that distress calls alone are not a suitable technique for longer term use at landfill sites, but would provide ideal short term cover, eg for a netting system during a breakdown period. Over time excessive use will reduce its effectiveness at dispersing birds, but in

combination with other techniques it will form an important part of an integrated strategy for landfill bird control.

6. References

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