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Starling Roost Dispersal from Woodlands

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Plate 1. The first flocks approaching a roost. There are over 1,200 birds in this picture.

Front Cover: Roost area shown by browned Sitka spruce.

STARLING ROOST DISPERSAL FROM WOODLANDS

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INTRODUCTION

Starlings (*Sturnus vulgaris*) form communal roosts throughout the year apart from the breeding season. The majority of roosts are found in rural areas with only 1 per cent of the winter population roosting in towns (Potts 1967). Reed beds, scrub and thicket stage spruce or mixed spruce and broadleaved plantations are preferred sites.

Post-breeding flocks containing many juveniles form roosts in summer but these are generally small and temporary. Between late September and early November large numbers of immigrants from the continent arrive for the winter and roosts can contain up to 1½ million birds (Symonds 1961). The total wintering starling population of the British Isles has been estimated as at least 37 million, over five times the resident breeding population of 7 million (Potts 1967). Numbers remain high until the winter visitors return to their more northern and eastern breeding ranges usually between late February and late April. Although starling numbers at winter roosts are notoriously difficult to estimate, the areas they cover in woodland can be measured by the extent of their droppings. The majority of woodland roosts are relatively small, being under 2 hectares in area. Shortly after dawn each day, flocks of starlings disperse in all directions from the roost to feed. They congregate again in the vicinity of the roost about an hour before sunset. In good weather this pre-roost gathering may produce spectacular aerobatic displays as the flocks fly into the roost (Plate 1).

There may be some breakage of branchlets and leaders of small trees due to the combined weights of many birds but generally mechanical damage appears to be negligible. Of more importance are the chemical effects droppings have upon trees. Accumulations of droppings

may exceed 300 mm in depth under the roosts and can be phytotoxic, killing the tree via the root system. Direct scorching of needles and twigs may be a contributory factor (Bevan 1962). There appears to be no clear relationship between the degree of damage and the period of occupancy. Important factors influencing the severity of damage are the density of roosting starlings, amount of rainfall and soil acidity. Rainfall may be sufficient to wash deposits of droppings rapidly from needles and surface acid conditions may help to neutralize excessive alkalinity (Bevan 1962). In a few cases the droppings have proved beneficial, enabling trees suffering from nitrogen deficiency to come out of check. Tree deaths occurring after one or more years' occupancy are usually less than 5 per cent. Over longer periods, mortality can be as high as 100 per cent in some cases, whereas in others damage has remained insignificant even after many years of use (Bevan 1962).

Woodland starling roosts may also affect other interests depending on their situation. The noise and smell of starling roosts close to habitation is unpleasant. Sporting tenants become concerned when game birds desert despoiled parts of coverts. Large pre-roost gatherings of starlings on fields close to the roost may feed on sprouting grain or food put down for cattle and poultry. Fears are often expressed that starlings carry foot and mouth, swine vesicular and other diseases, although there is no positive evidence to support this. Roosts in the vicinity of airfields can be hazardous to aircraft whilst roosts on the edges of reservoirs may cause pollution.

METHODS OF PREVENTING DAMAGE

CULTURAL TECHNIQUES

Protection from wind is the only factor common to the many diverse roosting sites used



Plate 2. Modified tape-recorder and megaphone ready for use. Spare batteries can be carried in the haversack.

by starlings during the winter (Brodie 1976). Changes resulting from normal forest management, such as clear felling and road building adjacent to roosts may alter local wind patterns causing starlings to vacate otherwise suitable roosting habitat. Broadleaved crops such as beech, occupied by roosts early in the winter, may become unsuitable later when the leaves are shed. Brushing and thinning can induce starlings to leave by reducing the amount of cover available and increasing the airflow through the canopy. It is not economic to alter brushing and thinning regimes to disperse roosts but if these operations are done within a year or so of a roost becoming established there is little point in dispersing the roost by other means.

SCARING TECHNIQUES

Oil, rubber and sulphur smoke as well as smoke canisters have been used successfully in the past (Tucker 1962), but due to the high labour requirement and fire risk these are now no longer recommended. Shooting, shouting, clapping, tin-banging, fireworks and apparatus that emits high frequency notes when used alone do not usually give any significant or long-lasting dispersal effects. Tape recordings of the starling distress call broadcast through a loudspeaker produce an effective scaring response in starling roost populations, and this is now the recommended technique (Brough 1969). When used in conjunction with bird-scaring cartridges, complete dispersal from woodland roosts can usually be

achieved after two to six consecutive evenings' and mornings' work provided that adequate coverage of the wood by the equipment is possible.

ROOST DISPERSAL EQUIPMENT

Vehicle based amplified distress call apparatus in the past had limited use in many woodlands where access was poor (Elgy 1972). The present apparatus was developed by modifying a megaphone and linking this to a portable cassette recorder (Plate 2). The main advantages over the old system are: first, complete portability since a set can easily be carried and operated by one man over any terrain; and second, relative cheapness without loss in sound, range or quality. It is also reliable, easy to operate, and requires little maintenance.

Two types of bird scaring cartridges are available. Both can be fired from 12 bore shotguns or, if available, sleeved Verey pistols. Although they increase the efficiency of dispersal operations, they can present a fire risk in dry windy weather. It is essential that guns are thoroughly cleaned immediately after each session as pitting of the barrels occurs rapidly.

PLANNING AND TIMING OPERATIONS

The object of dispersal may well vary with each situation but any operation requires to be planned and well-timed to be effective. Dispersal operations can only be considered effective if the starlings are moved to areas less vulnerable to damage. There is no gain, for example, in scaring roosting starlings from areas where they are causing no economic damage or nuisance as they might form damaging roosts elsewhere (eg from broad-leaved scrub to spruce). It is unnecessary to expend a large amount both in labour and materials on dispersal operations just because starlings are roosting in large numbers. Again there is little point in dispersing starling roosts in late February or early March as they usually break up naturally a few weeks later

with the birds returning to their breeding areas.

Large starling roosts in spruce, or other conifers vulnerable to damage, may be dispersed during the second year of occupation as little or no damage occurs in the first year. Vulnerability to damage will depend on growth rate and stocking density as well as on other factors. Roosts in broadleaved crops which are less susceptible to damage may be left until the third year of occupation. Any new roosts forming in the area as a result of dispersal operations may be left until the following winter before scaring is again considered. Although the earlier in winter the dispersal operation takes place the easier it is to scare away the starlings, it is advisable to check that the roost is being used regularly for a few weeks in the autumn before any dispersal operations are planned.

Allowing starlings to use alternate or different roosts each winter may require cooperation between different woodland owners in some areas but will result in the least expensive and time-consuming solution to a minor forest problem.

There are many factors to consider when assessing the likely success of a particular dispersal operation. Size of roost, both in numbers of birds and area, and its location within the wood are important. The size of wood being cleared may require more men and equipment than are available to give adequate coverage. In a large block of even-aged, unbrushed spruce it may only be possible and practicable to move them from the roost to another part of the wood. If alternative roosting habitat is available in the vicinity the operation is more likely to be successful. Although access will not be limiting in most areas using the recommended apparatus, the effective range of the amplified distress call can be reduced when operating under the tree canopy or in valley bottoms. Open rides, clearings, and field boundaries are important for operating the equipment and for clear views of approaching flocks.

Time of year and number of years of occupation are also important. Operations carried

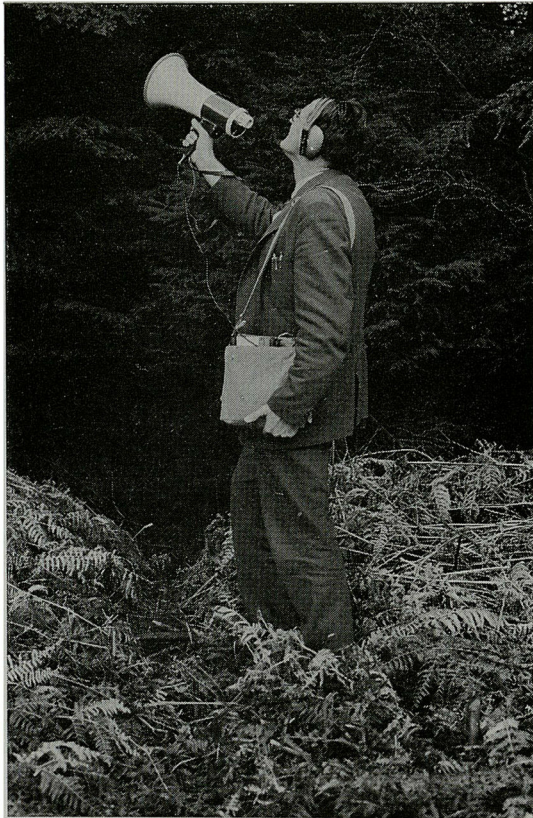


Plate 3. Operator in position. The ear-muffs are optional.

out early in the winter, before the starlings have become established, take less time to achieve complete dispersal than those carried out at well established late winter roosts. Similarly, a newly formed roost will be easier to disperse than one that has been used for many years. Starling response to dispersal equipment may vary with the population composition of the roosting birds. Some roosts prove very difficult to disperse completely due to a few local birds arriving in the evening after much of the dispersal activity has finished. In mixed roosts, especially with

redwings, identification problems for those unfamiliar with the two species' differing flight patterns, silhouettes and calls can cause confusion as to whether or not the roosts have been vacated by the starlings. Although starlings can be dispersed from a mixed roost, the continuing presence of the other species does encourage them to re-occupy the site sooner than normal and the roost may re-form in the same season. Redwings tend to roost in the lower canopy of plantations, especially where scrub is intermixed, at lower densities than starlings and consequently cause no damage.

METHOD OF DISPERSAL

The amplified distress call apparatus operator (Plate 3) takes up a position alongside the roost in the open so that approaching starling flocks can be seen and the range of the amplified call is not impaired by foliage. Personnel with Verey pistols or shotguns and bird scaring cartridges patrol sections inside the wood or compartments to be cleared and fire at flocks attempting to settle. The distress call is played intermittently, usually in five to ten second bursts, at flocks attempting to enter. In response these flocks usually veer away, increase their speed, gain height and reform to try again to gain entry to the roost, usually from a different position. Ideally two or more sets of apparatus are deployed around the wood so that all approaches are covered at any one time and the starlings are kept disturbed during dusk. If only one set is available then this will have to change position frequently to keep within range of the starling mass. Any flocks managing to settle in the trees are lifted by bird-scaring cartridges and moved on by the distress call. Up to 500 cartridges could be used during the dispersal operation. It is important to restrict their use to disturbing settling flocks rather than waste them on moving birds.

The amount of roost dispersal achieved after the first evening's work will depend largely on the resources available and the success in keeping the equipment within range of the starlings. Usually no apparent effect or reduction in numbers eventually managing to roost is achieved. However, in some cases, especially when there are alternative roosting sites available locally and the roosts are newly established, the bulk of starlings will leave. Any starlings present after the onset of darkness will only move a few metres when disturbed and there is no point in continuing. During the following morning roosting starlings should be located and moved off as soon after dawn as possible with the aid of bird scaring cartridges followed by the amplified distress call.

Starling flocks attempting to enter the roost on the second evening tend to behave more

warily. They usually arrive later and on being harassed fly further away before recircling. Provided the disturbance is maintained for subsequent evenings and mornings a gradual reduction in numbers occurs until the roost is completely cleared, usually within 6 evenings.

SUPPLY OF EQUIPMENT

Details of the tape-recorder, megaphone and their modifications are available in a free hand-out from the Librarian, Forestry Commission, Forest Research Station, Alice Holt Lodge, Farnham, Surrey, GU10 4LH. The starling distress call can be recorded onto C60 cassettes sent to the Wildlife Branch at the same address.

Bird scaring cartridges are available from Brocks Fireworks Limited, Gateside, Sankhar, Dumfriesshire, DG4 6JP. Their use requires the possession of a Firearms Certificate. Two types are available. One ejects a smoke-trailed flare which explodes at 70-90 m, and the other produces a rotating humming star that emits a high pitched note and finishes in an erratic flight pattern.

OPERATION AND MAINTENANCE

DISTRESS CALL APPARATUS: the on/off switch of the cassette recorder is operated by the trigger switch of the megaphone when linked together. Power is supplied by readily available HP11 batteries. The megaphone can be simply unplugged to function normally, (ie for shouting instructions or for shouting at starlings during dispersal operations). If a fault occurs first check the soldered joints in the jack plugs and sockets. Any other faults should be referred to a radio engineer. The apparatus being carried in a haversack, or large pocket, is reliable under normal conditions, but knocks and very wet conditions should be avoided. When storing for long periods the batteries should be removed.

SHOTGUNS AND VEREY PISTOLS: these should be

thoroughly cleaned immediately after use when firing bird scaring cartridges as corrosion soon sets in. Barrels should be scrubbed out in very hot water and detergent before being cleaned in the normal way. Cleaning is easier if one ordinary lead shot cartridge can be fired through each barrel at the end of each session in the dispersal operation.

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F/Lt. A. Edwards, R.A.F. supplied Plate I. The cover picture was taken by W. Hall and with the other two illustrations was drawn from the Forestry Commission collection.

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