

2.3. Bird Dispersal, with Acoustical and Visual Means.

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Bird dispersal with acoustical and visual means

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The following is a short account of the progress made in two research projects:

a. Response and habituation of starlings to acoustic stimuli, distress and alarm calls in particular, and b. effect of extended polystyrene models on gulls on airfields.

a. Response and habituation of starlings to acoustic stimuli.

Some years ago a project started on effect of various stimuli on starlings under standardised experimental conditions in a cage. Following work by Brémont and others, Hartby and Langowski and others it was felt that experimental work on different lines was required, in particular because the effect of season, volume and quality of sound, interval between emissions and nature of the stimulus on response and habituation can not reliably or in sufficient detail be studied in the field. Therefore a symmetrical Z-shaped cage was built in such a way that starlings could feed on either wing of the thirteen meter long cage. The one feeding place however was situated in the bundle of sound of three speakers. Both wings were acoustically isolated as best we could.

In this cage groups of 25 starlings were exposed to different situations. The habituation of the group was followed by regular observations and photographic recording. This procedure can successfully be used to study habituation of groups to programs of different kinds and of different and changing volume or frequency.

This procedure however, is very time consuming. Therefore series of individual starlings were tested as to their response to various stimuli. In this way effect of volume, quality of sound, season, age and various specific stimuli have been tested.

There appeared to be very little variation in response in different seasons, though for a short period after fledging juvenile starlings responded, slightly better than adults. Volume of the stimulus was found to be of much more influence than quality. With volume the % response shows a virtually linear correlation from 0% at about 40 dB to 95% at about 100 dB. Background noise such as wind decreased the response. Loudspeakers differing greatly in quality of performance gave very similar percentages response. Effect on habituation though remains to be tested. Low-pass or high-pass filters were used to reduce the spectrum emitted. When using low-pass filters it appeared that one can cut off frequencies above 2500 Hz without

affecting the percentage response. Removing all frequencies below 2500 Hz, however, does not influence the percentage response either. The preliminary conclusion is that both the range under 2500 Hz as well as that between 2500 and 5000 Hz contains essential information, but either can be missed. This point needs further attention.

The normal starling distress call is about as effective as the alarm call, described by Hartby as "snarl". The warning sound of rising pitch and one other call, presumably an alarm call, were clearly less effective.

Several series with groups of 25 starlings, left in the cage to habituate, lead to the conclusion that habituation can be suppressed several times in succession by reducing the interval between emissions and the volume of the emission or both, and by substituting the distress call for alarm calls, be it that habituation evolves quicker every time. Research will be continued.

b. Models of gulls and their effect as a scaring.

Various people have experimented with polystyrene models of gulls, but the effect was usually disappointing. Only Caithness claims good results. On Schiphol airport experiments were carried out in two successive summers with stuffed birds and extended polystyrene models of the herring gull and the blackheaded gull. The effect of birds and models (both coloured and white) was little, of short duration and at short distance. However models suspended on a rope from a bamboo pole and moving freely in the wind were effective at ranges of several Hundred meters, as long as they were intact there was any wind. Gulls feeding on a field where harvesting or ploughing was in progress disappeared within minutes and stayed away for several days, certainly until the field was no longer attractive. There were indications that shape, size and type of movement are of influence on the results. During a period of 4 months no signs of habituation were seen.

Many details have to be investigated further. The effect on the population level of gulls on the airfield has to be checked and some technical points, in particular the problem of increasing strenght of the model while keeping the weight extremely low, have to be cleared up.