APPLICATION OF CO-ORDINATED RESEARCH ON BIRDS TO AUSTRALIAN CONDITIONS

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Birdwatching, like surfing, horse-riding and poker, is a hobby. As a hobby it needs to be enjoyed. Perhaps this idea is the one that should be uppermost in the mind of the Field Investigation Committee of the RAOU when its members are discussing the contribution of amateurs to co-ordinated projects in the study of Australian birds.

There are, of course, many different ways of enjoying a hobby. For some it is the physical pleasure of doing it, for others the pleasure lies in the satisfaction of seeing tangible results and still others relish the planning stages more than the actual performance. Birdwatching should be capable of accommodating all these ways of enjoyment, but it is important to recognize at the outset that different birdwatchers will be enthusiastic about different parts of any project.

A co-ordinated birdwatching project is only 'successful' if it leads to one or more significant published papers that answer the question posed at the outset. One factor in making co-ordinated birdwatching projects successful is that many people enjoy helping each other. To enable them to do this to the utmost, there must be someone to lead the whole group and to take responsibility. My experience suggests that this adoption of responsibility by a leader is the vital ingredient that leads to the enjoyment of the collaborators and ultimately to the success of the project. The role of a leader has been described by Peter Balmford in an address entitled 'Co-operation by Amateurs in Ornithological Research' to the Launceston Congress of the RAOU in 1969. He said: '. . . the selection of a leader. . . . I would regard as highly important for the success of a project. There must be a sense of direction and a degree of uniformity in approach which can, I think, only be imparted by a leader. A group where all are chiefs will spend too much time in discussing things which do not call for elaborate discussion but only for decision. This is not to say that the leader must be dictatorial and always demonstrating the fact that he is leader. But there must be some organization and supervision and this will come best from one person. The leader must of course be acceptable as such to the other members, by reasons of age or experience or personality, and I think that a good leader will take a very active part in all the different jobs that need to be done. Moreover, a good leader will be slow to interfere with things that do not really matter, swift to praise and encourage, alert to check departures from good practice and always ready to allow others to assume responsibility for matters within their competence.'

I argue, then, that the Field Investigation Committee should spend more time looking for good leaders and helping them to develop co-ordinated projects suitable to their field of study than in looking for suitable co-ordinated projects as such.

SHORT-TERM CO-ORDINATED PROJECTS

Short-term projects involve a number of people for a relatively short time, probably no longer than a week, to do a specific piece of work, the results of which must be amenable to rapid analysis and publication.

Such projects have a limited application in the study of bird biology, but in such concentrated efforts it is often possible to maintain the enthusiasm of a large number of people and therefore get an otherwise tedious job done quickly. Furthermore, because most short-term projects involve many repetitions of the same kind of observation, it is worthwhile to invest a little of the time at the beginning of the project in a detailed and highly specialized training session.

The success of most short-term projects depends upon the investigation of the use by birds of a limited resource. Within this general framework wide variation is possible, for example, the capture and banding of large numbers of nomadic nectar-eaters, observations at drinking points, observation at carcasses, observations of food brought to nestlings of colonial or highly synchronized species and so on.

People enjoy a short-term project, not only because it brings them close to the birds, but also because it brings them together, keeps them busy and yet gives ample time for comparison of results.

From the scientific point of view the leader of a short-term project can check the quality of the results and make specific suggestions to improve these before it is too late. It also enables data to be collected on specific problems at a much faster rate than can be achieved by one or a few observers.

The leader of a short-term exercise must be pre-

pared to work very hard, both in prior organization, to see that the project is feasible, and also during the field work to maintain the momentum and control the quality.

Apart from the immediate benefit, the participants in a short-term project have the opportunity to learn to use the techniques employed (these should be limited to one or two), and to benefit from the example of experienced colleagues who are doing exactly the same job.

LONG-TERM PROJECTS

The important difference between long and short-term projects lies in the continuity over a long period that must be achieved by its leader. Overseas and Australian experience suggests that the leader will need to keep in close and, if possible, personal touch with all the collaborators, to ensure that they feel they are really contributing to a substantial piece of work and to maintain the scientific standards of results. In particular, Australian experience suggests that, despite the large distances often involved, co-ordinated projects can only be maintained if the leader is willing to spend much time visiting individual observers or leading individual forays.

To succeed, long-term projects need to be ones that interest a large number of people, so that a large number of observers can be assembled, and their interest maintained over a long period so that adequate data are collected for a significant publication. Long-term studies are really a series of short-term studies, each of which must give immediate satisfaction to the participants, just as short-term studies need to do. It does not matter so much, therefore, if some collaborators in long-term studies cannot stay the whole course, so long as the leader retains his vision of the completed task. But by the same token, he is unlikely to be able to achieve as high a standard of uniformity and quality in the special techniques used as can the leader of a short-term study, whose collaborators are in close contact with him throughout the period of the study. It follows that because each segment of long-term studies is a short-term one, the project must be designed to give collaborators the satisfaction of short-term rewards. Unless this can be achieved there is great danger of the project failing through a dwindling number of enthusiastic helpers. Often it can be achieved by giving a collaborator a proprietary interest in the results that come from his own area, simply by making comparisons between one year's data and the next, indicating to him how his data fits into the total picture, and above all, how important observations from his area are to the whole emerging pattern.

PERPETUAL PROJECTS

Australia already has several perpetual co-ordinated projects concerned with bird biology. The Australian Bird-banding Scheme is run by CSIRO, a Commonwealth instrumentality. Several States run waterfowl banding projects of their own. The RAOU itself has sponsored the Nest Record Scheme and the Individual Observation Point Scheme. These perpetual projects differ in two respects from other long-term projects. First, the aim is to amass data in the hope that some of it will be useful one day. The projects are used by individuals to obtain data on particular species, and these individuals may inspire the perpetual project to increase its efforts in certain directions at particular times, but the project as a whole is basically a means for collecting data. The second way in which such projects differ from long-term projects is that they lack a leader as such. Each is set up because the project is desirable and each is merely a succession of co-ordinators. The co-ordination may pass from one person to another over a period without loss of continuity. In a sense the amount of data these projects collect is so vast that no one person can take in and appreciate it all. All he can do is to see that, because the method gives some interesting results in the long term, it is worth promulgating and organizing. There are serious disadvantages of this state of affairs, particularly with regard to quality control of the results. The British Trust for Ornithology Nest Record Scheme has been criticized because its contributors search diligently for nests in spring when the trees are bare, but neglect to do so in summer when they are in leaf, and enthusiasm has waned. The result is that the Scheme's records give a false indication of breeding season even though large numbers of records are obtained (Murton 1965). Such criticisms must be taken seriously; for, it is of little value to promote and finance elaborate techniques and surveys, if the results are open to scientific criticism of this kind.

SOME AUSTRALIAN EXAMPLES

Many co-ordinated projects have been and are being conducted in Australia. The RAOU meeting in Perth in 1948 initiated one of the first, a study of the pattern of movement of the Black-faced Cuckoo-shrike *Coracina novaehollandiae*, the Rainbow Bee-eater *Merops ornatus* and the Pallid Cuckoo *Cuculus pallidus* (Sedgwick 1948). Crosbie Morrison organized the project, largely in his capacity as Editor of the magazine *Wildlife* (Anon. 1949), but the results were unfortunately not published in full (Anon. 1952).

It is useful to give examples illustrative of the various types of co-ordinated study that have been undertaken, but it would be impracticable and unnecessary to attempt a review of all the published co-ordinated work on Australian birds. The selection

is based largely upon the author's personal familiarity with particular projects.

The drinking patterns of birds studied at Wanjarri by the RAOU Field-outing in 1970 (Davies 1972) is an example of a short-term co-ordinated project. The requirement for the success of this project was to have a large number of observers available for a short time to watch several waterholes. The whole operation took less than two days but involved forty-four people and produced results that it would have been hard to obtain in any other way. It was essential that the observers were familiar with the species that they would see, and to this end the first day of the field-outing was devoted to showing the party round the habitat, so that they should have the opportunity to become familar with species that they did not know.

In retrospect it was unfortunate that more thought was not given before the watches began as to how the observations were to be recorded. It was extremely difficult to count the precise numbers of unmarked birds visiting a water-point because some came before others left. In this situation an estimated maximum was probably the best solution, but participants should have been told this before they started and given practice at making such estimates.

The exercise succeeded both in giving satisfaction to the participants, because it brought them close to birds and because under the conditions of a field-outing it gave them a common interest which could be the basis for lively conversation in 'off-duty' periods, and in gathering results suitable for publication.

The study of speciation and distribution of some inland passerines, especially quail-thrushes (*Cinclosoma*), by Ford (Ford 1971a and b; Ford and Sedgwick 1967) is a good example of a long-term study in which a leader employs collaborative methods for short segments of the study, leading expeditions of colleagues into arid lands to collect his material. Each of these carefully planned excursions is complete in itself, giving the participants the satisfaction of a visit to new places and the sight of new birds, but each also adds to the general picture that the leader is attempting to obtain. The co-ordinated nature of such studies should not be overlooked, nor should the valuable contribution of members of the excursion other than the leader be minimized. Much of what we know of the biology of some species living in remote parts of the continent comes from studies like Ford's.

Serventy's work on the muttonbirds of Bass Strait (Serventy 1956, 1957a and b, 1961, 1963, 1967) is a co-ordinated project that has similarity to Ford's work. Here one professional biologist has used a large number of amateur helpers in a series of excursions to one study-site. From the banding records and observations of these helpers he has built up over twenty-five years a picture of life-history of the Short-tailed Shearwater *Puffinus tenuirostris* that is as detailed as any study of shearwaters anywhere. The success of the project has depended upon Serventy's patience in training group after group of amateurs to use his techniques and also upon his exercise of meticulous quality-control over their results, re-checking himself doubtful observations. This study is an excellent example of the vital role of a leader and of the amount of hard work a leader takes on when he involves himself in running a study that depends on the help of many people.

The Victorian Ornithological Research Group, growing out of the Altona Survey, has several co-ordinated projects running that are similar to the excursion-type approach described above, but require somewhat more specialized skills than mere observation. The reports of some of the projects carried out by these groups have already been published; for example, studies of the Silver Gull *Larus novaehollandiae* (Wheeler and Watson 1963), the Superb Lyrebird *Menura novaehollandiae* (Kenyon 1968, 1972; Moroney 1972; Reilly 1970), the Fairy Penguin *Eudyptula minor* (Reilly and Balmford 1972) and the Short-tailed Shearwater (Norman and Gottsch 1969a and b). All projects are organized by a leader who often accompanies the observers into the field although the members of the Victorian Ornithological Research Group are so familiar with each other's methods and techniques that many successful excursions are made without the appropriate leader. In this respect the group has gone beyond the excursion type of co-ordinated project, by training a number of enthusiasts and using a few of them each weekend. In this way detailed studies of an aspect of a species's biology can be made at a faster rate and with greater regularity than by an individual observer working alone. Each member of the group not only knows what to do, but sees clearly the long-term aims in almost as much detail as the leader. The group has achieved a truly co-operative type of co-ordinated study, but the achievement carries with it one drawback. Because the members must be fully involved in the study, maintaining their own enthusiasm even when results accrue very slowly, most birdwatchers will not participate because there are so few short-term rewards. This limits the scale of operations of such groups, although it does much to enhance the quality and uniformity of the work.

In the minds of many people a co-ordinated study involves large numbers of observers covering a big geographical area, along the lines of the British Trust for Ornithology's studies (Ridpath 1973). Apart from studies associated with the Australian Bird-banding Scheme, the Nest Record Scheme and the Individual Observation Point Scheme, there seem to be only

three large-scale long-term Australian studies that have been brought to a successful conclusion, that is, the results of which have been published.

Frith (1959) used a network of amateur observers to study the movements of waterfowl. Davies (1966) used a similar network to study the movements of the White-tailed Black Cockatoo *Calyptorhynchus baudinii* in south-western Australia and Readshaw (1968) used primary school pupils to help plot the movements of Pied Currawongs *Strepera graculina* in south-eastern Australia. The common salient features of these studies are that they were led by professional biologists and made of conspicuous birds. All three leaders found that their observers needed frequent, and sometimes flattering, encouragement throughout their study. This often involved the leaders in lengthy 'public relations' tours. Davies and Readshaw both used non-ornithologists extensively (because there were few ornithologists in the areas in which they were interested) and found that provided the recordings required were simple and observations on which they were based needed little time, the non-ornithologists were often more meticulous and provided better data than the amateur bird-watchers. Both these leaders used members of Public Service departments with success, but the final conclusions of all three authors were only reached after a great deal of sifting of the data of individual observers and the exercise of some discretion in accepting or rejecting individual observations based on each leader's personal knowledge of his observers.

All three surveys achieved their objectives; all asked simple questions about conspicuous birds and involved the leaders in much personal contact with a widely spread network of observers.

Two studies in which the techniques and services of the Australian Bird-banding scheme have been used by individuals in co-ordination with a team of observers may be mentioned. Rowley (1971) was able to study the movements of ravens in south-eastern Australia by organizing an extensive banding programme lasting many years and involving 71 banders, although the bulk of the banding was done by eleven of them. Ravens are conspicuous and quite easily trapped but difficult to identify. Because the existence of three rather than one species of raven was not recognized until 1965 (Rowley 1970), much of the early information had to be discarded. This experience emphasizes the continuous critical evaluation of the data that is an essential task of the leader of any co-ordinated study.

A second study that made use of the Australian Bird-banding Scheme and a team of observers is that of the Silver Gull (Carrick and Murray 1964; Carrick, Wheeler and Murray 1957; Murray and Carrick 1964). These authors organized the banding of Silver Gulls over a wide area of south-eastern Australia, and made use of the recoveries of dead Gulls reported through the Australian Bird-banding office as well as a team of observers who made sightings of banded Gulls round the coast. Although the authors acknowledge some bias in this survey, stemming largely from the uneven distribution of human population over the coastline, they were able to obtain a coherent picture of movements of Silver Gulls in quite a short time (eight years) over a wide area. The Silver Gulls had the advantages of conspicuousness and ease of capture, common to several species studied in a co-ordinated way.

SOME SUGGESTIONS FOR THE FUTURE

The preceding section has shown that several kinds of co-ordinated survey have been conducted successfully in Australia, and there is no doubt that the Field Investigation Committee of the RAOU should be looking confidently forward to inspiring the conduct of many more.

The unique difficulties of co-ordinated ornithology in Australia are often stressed. The sparse population, mostly concentrated in a few cities on the periphery of a vast empty continent, is held to make Australian ornithology especially difficult. It is interesting then to look at the several successful co-ordinated projects that have already been conducted in the sparsely populated interior, trying to evaluate the reasons for success and the methods by which limitations have been overcome. Ford's work on *Cinclosoma*, Frith's work on ducks and Rowley's on ravens all needed critical observations from the arid interior. Each of these people, or their assistants, travelled widely and were able to enlist the aid of the few interested people in the sparsely populated area that made the crucial observations. Ford, often working in areas where there were no people, simply had to take expeditions there himself, in his own time, supported by grants from private foundations. In each of these studies the leader was determined to get the data to answer his question, and often found willing helpers where armchair opinion had suggested there was none. The problems of Australian deserts require no more and no less ingenuity than those of Scottish moors and Atlantic islands, but all require the same determination by the leaders of co-ordinated studies to succeed.

Perhaps this is the key to the role of the Field Investigation Committee. I have deliberately avoided references to co-ordinated studies, mooted with enthusiasm, which achieved no tangible results. At least some of these have been designed as abstractions. Someone or some group of people thought up a subject that needed study and then tried to build up a co-ordinated project round that. The successful studies have been built up by a single person who knew what he wanted and was prepared to work to get it.

The Field Investigation Committee could do well to look for leaders rather than projects, to let potential leaders convince them that such projects were feasible (and I emphasize that this means first of all enjoyment to a large number of amateurs) and then support these leaders with such advice, office facilities and equipment as they have at their disposal.

Rapid publication of results is a tremendous stimulus to collaborators. Perhaps another essential role of the Field Investigation Committee is to stimulate publication of the results, both by prodding organizers and by helping those who find composition difficult. It might even be desirable for regular accounts of co-ordinated projects sponsored by the Committee to be prepared by one of its members for inclusion in the RAOU newsletter, in this way sharing the load of the preparation of preliminary reports with the organizer. Nothing seems to be so discouraging to collaborators as the lack of any tangible printed evidence that their observations are a valued contribution to the whole. Amateur ornithologists are willing to pool their observations co-operatively so long as they are not asked to slave at rather than enjoy their hobby.

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