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Catching birds

2.1 INTRODUCTION

Many methods of bird capture have evolved over the centuries and we have the benefit of that accumulated experience at our disposal (see Bub 1991 for an extensive review of trapping methods). The more common methods will be briefly mentioned along with typical species captured. Mistnetting, and some other methods, will then be discussed in greater detail, providing more detailed descriptions of the equipment and its deployment along with some hints on how to obtain the best results for you and the birds. Underhill (1994) summarises capture techniques published in *Safring News* from 1972 to 1993.

2.2 METHODS OF CAPTURE AND TYPICAL SPECIES TARGETED

2.2.1 Mistnets

These include a variety of nets which differ in length, height, mesh size and strand thickness. They are normally deployed vertically to interrupt the flight of a bird, thereby capturing and restraining it in a pocket created by the net. Mistnets are normally used on land and can be used for a large number of birds ranging from sunbirds to ducks. While larger birds have been captured with mistnets, they are the exception.

2.2.2 Walk-in traps

These traps work well when trying to catch ground-feeding birds in large numbers. They work on the general principle of allowing or guiding birds into the trap, while preventing them from escaping. There are many variations of this type of trap and it can be used for a large range of birds, from seed-eaters to ducks.

2.2.3 Drop traps

As with walk-in traps, these are used mainly to catch ground-feeding-birds and can range from a tin to a net rigged with a trigger which can be operated by hand or by an automatic device fitted to the trap. As with the walk-in trap, this type of trap can be used for a wide range of birds.

2.2.4 Cannon nets

Most often used for trapping shorebirds, the cannon net can also be used on concentrations of other species as with the walk-in and drop traps. Large birds, such as vultures, can also be trapped by using this device.

2.2.5 Zap net

This device works on the same principle as the cannon net, but is propelled by rubber bands instead of an explosive charge.

2.2.6 Bal-chatri

This device consists of a double cage covered in fine nooses containing live bait or a lure. The bal-chatri was originally developed in India and the Middle East for the purpose of capturing birds for training in falconry. The bal-chatri is a portable trap and is responsible for the vast majority of captures of free-flying raptors, and a few other species, that will respond to the bait and become ensnared in the nooses. It is used with great success to trap perched raptors along roadsides, but is unsuccessful for raptors on the wing for reasons that are not understood. Specific training is required before this method is used, and the ringer must have a 'bal-chatri endorsement' on their SAFRING authority card before they may ring raptors using this method.

2.2.7 Clap traps

The clap trap consists of two halves which, when triggered, close in on each other, trapping the bird between them. The clap trap is deployed as a perch in an area or over an expanse of water. Typical target species include kingfishers and shrikes.

2.2.8 Torch trapping

This method is used to capture nocturnal species, e.g. nightjars, dikkops and plovers, and is carried out with the help of a strong torch or spotlight. A handnet or similar device is normally used to confine the bird at the moment of capture.

2.2.9 Nestling ringing

Ringling nestlings is often the most efficient method of ringing many species, especially colonial waterbirds, such as gulls, terns, egrets and herons, and some vulture species. Nestlings may also be ringed in the individual nests of non-colonial species. The ringling of nestlings allows birds to be aged exactly when they are recovered and can also provide accurate data on many important aspects including breeding success, parentage, lineage, natal dispersal and site fidelity provided the site is properly monitored on an ongoing basis.

These are some of the most commonly used catching methods, both locally and world-wide. Most bird ringers learn to catch their birds in mistnets. It is a good idea to

attempt to become proficient at several other techniques as well. This will provide you with a greater measure of both success and enjoyment. A safe catching technique has been devised for most species. If you want to study a particular species, and mistnets are not appropriate, discuss your study species with the Ringing Coordinator and other experienced ringers. There are resource books at SAFRING which can provide guidance in most situations. Do not experiment with new ideas until the tried-and-tested ones are exhausted.

2.3 MISTNETTING

2.3.1 Mistnet sizes

Appendix 1 shows different types of nets, the habitat they can be used in, and the species they can be expected to catch. Those marked with an asterisk (*) are currently not readily available from SAFRING, but some can be obtained at an increased cost. Nets may either be tethered or untethered. Tethering means that small knots tie the net at intervals along the top and bottom shelf-strand. This prevents bunching of the mesh in windy conditions. Before ordering nets, seek the advice of the Ringing Coordinator or the ringers responsible for your training.

Net quality varies considerably between manufacturers. Where a RETE 12 m × 2.4 m net is popular for being durable, strong and having deep pockets at relatively low cost, it is also criticised for being too visible and too stretchy. The same strength and durability, without the stretch, is available in North Ronaldsay (NR) nets, but at more than twice the price of the RETE net.

Yamada and Bleitz nets have been used over a long period in southern Africa; Spydertech nets have been available only over the last few years. In the commonly used sizes, a finer mesh is used, reducing visibility at the expense of a more fragile net. While they do not feature the deep pockets of the heavier nets, they have proved popular and effective.

2.3.2 Erecting nets

Mistnets are erected vertically singly or in a line. This is done by opening the net on a pole to deploy the full height of the net. This can be done just off the ground or 10 m up. The pole system you use can be vital in operating efficiently with a minimum amount of time spent erecting the nets or in removing birds.

In southern Africa there are nearly as many pole systems as there are bird ringers, ranging from bamboo poles to leftovers from scrapped army tents. Anchoring methods demonstrate as many variations; some are much more successful than others.

2.3.3 How a mistnet works

The mistnet is deployed in an area in which the target species occurs. The ringer sets the net so that it is not readily visible to the bird, against a dark background or in the shade. The net traps the bird in flight. A mistnet has considerable 'give', and the bird is quite gently decelerated to a stop, drops into the pocket created by the shelf-strings of the net and gets entangled. Most individual birds of most species lie quite still in the net soon

after being caught. Sometimes, the bird sees the net shortly before contact, stops flying and is carried into the net by its momentum. This gives the appearance of flopping into the net. In some cases, notably among weavers and bishops, after one bird is captured, the rest of the flock fly around to investigate the situation and several more get caught. In other species, such as babblers and Terrestrial Bulbuls, the net is attacked fiercely and vocally in an attempt to free the trapped bird, and more get caught in the process.

2.3.4 Deployment of nets

2.3.4.1 Target species

The abundance of target species and the opportunities to catch them varies a great deal from place to place, even over short distances. Success or failure in mistnetting depends on your ability to identify this and plan the deployment of your nets accordingly.

The behaviour of species varies enormously, and you need to identify the opportunities this offers in terms of catching your target species. These behaviours include roosting, breeding, feeding, watering, habitual flight paths, etc. Having decided which species you wish to trap, you can then go about selecting the site, time and equipment needed to get the job done.

2.3.4.2 Timing

For the majority of species, the best times for mistnetting are either at dawn and dusk, occasionally both. This is because nets tend to be least visible and most likely to be effective. Also, birds tend to move between roosting or feeding areas at these times. Generally speaking, the hours immediately after sunrise are the period of greatest flight activity, especially in summer. Another factor that comes in to play favouring the early morning is that this is the time of day when there is the least wind. Yet other species are caught throughout the day; and others are best caught at night. Having observed and studied the behaviour of your target species, you will rapidly identify the best period during which to set your nets.

Seasonal migrations also play a major role in the trapping of certain species; obviously it is nonsensical to target the summer-visiting migrants during the winter months.

2.3.4.3 Frequency

A ringing site should be trapped on a regular basis to give meaningful results over a period of time. This can vary from weekly to three-monthly or even annual visits to a site.

A ringer should be wary of trapping at a site too often because this could cause the population or parts of it to move away. Birds quickly learn the location of mistnets; if you leave nets at the same place for a few days, the birds local to an area fly round or over them as if they were brick walls. While no hard-and-fast rules exist for how frequently nets can be set up at the same place, a useful rule is once a week. Trapping near a breeding colony, for example of weavers, requires special sensitivity; if it needs to be done at all, it should take place for short periods only, and should be stopped immediately if there is any indication that desertion of nests is taking place.

2.3.4.4 Terrain

The site at which you attempt to trap your target birds should give you as many advantages as possible. It should also avoid as many risks as possible, to yourself as ringer, to the birds and to your equipment. Local conditions should be carefully considered and identified. You need to plan your activities, taking into account the possibility of unwelcome moving objects, such as livestock, game animals, vehicles and even boats destroying nets (or threatening the ringer). Predators such as mongooses and bird-eating raptors may visit your nets and injure or even kill birds. Static hazards include cliffs, sinkholes, dongas and fences. In intertidal habitats, the rising tide may pose problems. In areas prone to thunderstorms, both lightning near hill tops and flash floods in dry riverbeds are hazards. The dry winter season in much of the interior of southern Africa poses the problem of veld fires and you should be constantly aware of this possibility. Know the likely directions from which a fire might approach and monitor these areas carefully for the earliest possible signs of danger.

At some sites, vegetation needs to be trimmed to prevent entanglement of your nets; this should be done sensitively with pruning shears to avoid unsightly damage to vegetation. Reeds, rushes and other offending low vegetation below the net can be removed or flattened with a slasher, panga or pole. In reedbeds, try to make a bend at the entrance of the 'lane' for your nets, so that it is less visibly intrusive. Having trimmed branches and other vegetation, clear the debris away from the net so that it does not become an obstacle at a later stage, and so that it does not snag onto the net.

When putting a net across a river, check that it will not droop into the river with the weight of captured birds.

If small predators such as mongooses are present at the ringing site, the nets should be set in such a way that the bottom shelf is well clear of the ground. Avoid placing nets so far apart that checking them all becomes difficult. On the other hand, if they are very close together, this can reduce the total catch.

2.3.4.5 Visibility

Avoid erecting your nets in places where every bird in the district can see them. In short, camouflage, conceal, hide or do whatever it takes to make the nets less visible. Nets should be sited against an appropriate background whenever possible. This will prevent the nets being outlined against the sky, water or field, and sticking out like a sore thumb to the bird's keen eyesight. Nets in the shade, usually of vegetation, generally catch more birds than nets in the sun. The best background for mistnets is mostly dark-green vegetation. Bear in mind that the view of a bird differs from what you see from the ground. What may appear to be nets with a perfect background from your viewpoint may be sharply outlined from the bird's perspective.

2.3.4.6 Weather

A bird ringer soon takes a keen interest in weather forecasts. Two of the weather conditions which adversely affect mistnetting are wind and rain. Extreme heat and extreme cold are also hazards. Do not initiate a ringing expedition in adverse conditions. If the weather turns bad, you have a choice between dismantling the nets, and furling them.

This means that you move the loops at the ends of the shelf-strings together on each pole; this reduces the catching area of the net to a minimum, and makes the net highly visible. It is a good idea to use string to tie the netting together at intervals along its length; sometimes it is more time-consuming to untangle a furlled net than it is to take it down and re-erect it later.

Wind, depending on strength, makes nets more visible because they wave and billow. It causes bunching of the mesh, stretches the shelf-strings and can even, in extreme conditions, result in injury and even death to birds trapped in the net. In addition to this, birds striking the net on the downwind side bounce off because the nets billow out and do not form a pocket. On the upwind side, they fly out of the net because the pocket is blown open and the bird can escape. Particularly strong winds can damage your nets; the tension on the shelf-strings is formidable, and they snap, and the delicate mistnet material can tear. In general, if the day dawns windy, ringing is a waste of time; go back to bed! If wind becomes strong while you are ringing, take your nets down, rather than furling them.

Ringing in the rain is even worse than ringing in the wind. The worst-case scenario is that a wet bird in a mistnet is at severe risk from dying of exposure. The reason is that some birds are trapped belly-up in the pocket, exposing the soft ventral feathers that do not disperse water. In this way water soaks through to the skin of the bird causing a rapid loss of body heat. **Never use mistnets in rain.** If it starts to rain while you are ringing, furl your nets as rapidly as possible.

Extreme heat is also a potential cause of exhaustion and death among trapped birds. Birds which remain in the net for a long period of time on a hot day are likely to succumb to heat exhaustion. This applies to all species, but more so to the smaller species such as waxbills and white-eyes; at extremely high temperatures, waxbills can perish within as little as five minutes if netted in direct sunlight. In general, birds do not move about very much when it is so hot, and few birds get trapped. If it is so hot that the few birds you catch start looking heat-stressed (panting), furl your nets and stop ringing.

In sub-zero conditions, birds lose heat rapidly in mistnets, largely because they are stationary and their feathers are not in the best position to maximise insulation. Trapped birds should be extracted from the net, and stored in a bird bag in a draught-free environment at an appropriate temperature (see Chapter 3).

2.3.4.7 Monitoring

Nets should never be left unattended for even a short period of time. The ideal setup would allow you to view all your nets from the ringing table and be able to see any birds trapped.

If at any stage you catch more birds than you and your assistants can deal with in an hour, be prepared to furl your nets until you have processed the backlog, and then re-open the nets.

In any event, you should inspect every metre of every net at regular intervals as a matter of policy. This will ensure that you do not miss smaller birds that are not visible at a distance; birds in the bottom pocket of the net can easily be overlooked if the weight of the bird pulls the net down into any vegetation below. Frequent checking also simplifies extraction because the longer a bird remains in the net, the more entangled it tends to become. A good guideline is to do a 'net round' every 15 to 20 minutes,

bearing in mind that you also have to process the birds you have caught between net rounds. The frequency of net visits should be increased in cold weather, in hot weather and in mist, fog and the lightest of drizzles. If drizzle shows any signs of turning to rain, all nets should be furled immediately.

When inspecting nets, approach them quietly from one end so as not to disturb any birds in the immediate area. Any bird trapped in a net can usually be seen looking at the net end on while standing next to the net pole (but not always if you approach the net at right angles). As a general rule, when extracting birds from a mistnet or a line of mistnets, start from one end and work silently and steadily towards the opposite end. This will leave the remaining part of the nets unobstructed for further captures. Unnecessary noise should be avoided when at the nets, because this increases the disturbance created by your presence and the amount of time before the site returns to a natural, undisturbed state. Running and shouting are generally unacceptable human behaviours while mistnetting. Try to keep both panic and enthusiasm ('Hey, everyone, come and look what I've got here') under control.

All rules need to be broken sometimes. If you have several nets in place, it is frequently a good idea to start the net round by looking critically at all of them. Identify any birds which have been caught badly (see Chapter 3). If there are any, take them out of the nets first. If there is a net that is hanging heavy with lots of birds, then give this net a priority clearance. If, as usually happens, there are no problems, start quietly at the far end of the collection of nets, and work steadily back towards the ringing table.

The access to your sites should be as direct and easy as possible, as this will shorten the time taken to do each net round as well as enabling you to react to any emergency as quickly as possible.

Look out for predators (especially small raptors, mongooses, domestic cats and coucals) that may attempt to kill birds caught in your nets.

2.3.4.8 Net formations

By deploying your nets in certain patterns or formations you will enhance your capture rates in many cases. Formations can be placed in two categories.

The 'L' and 'V' shaped formations allow you to cover different flight paths into a netting site. If you slowly approach the nets from the open end of the formation, birds between you and the nets will be flushed towards them, increasing the chances of capture. This method will also increase the chances of capturing birds that fly parallel along the net, catching them in a net running in a different direction.

Random formations are very often needed in bushy terrain, where you cannot deploy nets in lines. By making use of different net lengths, you can deploy your nets around a series of obstacles without interrupting the net line. Net formations or trains need fewer net poles and pegs than single nets, but are generally more time-consuming to erect than are single nets.

2.3.5 Net maintenance

Nets are prone to deteriorate over a period of time. The most common problem is broken mesh strands caused by any number of incidents, including thorn trees, fast-flying geese, cattle, game and barbed-wire fences. Well-meaning members of the public may attempt

to free birds in an unattended net by cutting them free with a pair of scissors or knife. As a responsible ringer, you need to maintain your mistnets so that they trap birds efficiently. Birds that get entangled in a damaged section of net are usually more difficult to extract.

Other problems include shelf-strands breaking, tethering strands becoming unknotted and loops breaking. When you notice a breakage, take immediate steps to rectify it. Should you not do so, you may find yourself trying to repair a net in the pitch darkness of early morning while the bird world comes alive around you.

Appendix 2 attempts to illustrate a net-repair method that restores the mesh construction. Take the time to practise it and lay in a huge reserve of patience, tranquil surroundings and some good music before you start with your repairs.

2.4 WALK-IN TRAPS

These consist of a variety of traps designed to trap a wide range of birds. Through baiting or habit, the bird is guided into a position where it is confined and unable to escape. In many cases the confinement is psychological because the bird cannot retrace its access route. Walk-in traps are susceptible to predators, especially when used in the same place for days and weeks at a time

Many of the guidelines considered under mistnetting apply to most other trapping methods as well. In the case of walk-in traps there are additional considerations, i.e.

- Traps should only be deployed if and when a ringer can patrol the traps regularly.
- Unless traps are cleared at short intervals, as for mistnets, traps should be provided with suitable food and water for the target species.
- Where it is deemed necessary to empty traps after extended periods, the traps should be set in an area safe from human interference or predators. The holding section of the trap should also be inaccessible to predators.

2.5 DROP TRAPS

This basic type of trap has been used through the ages for hunting birds. Drop traps are normally set up at a feeding site, where a concentration of birds occur. To ensure that a concentration of birds occurs at the planned trapping site, a ringer can create a feeding site for a target species. Whenever possible, the site should be free from disturbance. The trap can consist of almost any material that will create a container when dropped over a bird. This can range from an oil tin to a net mounted on a frame, depending on species, target numbers and the sophistication or ingenuity of the trapper.

Triggers for the drop trap can be either manual (i.e. hand-line) or automatic (i.e. target activated). The hand-line method is by far the simplest and most reliable, although it does require that the trapper remain in the area to monitor and activate the trap. Automatic triggers are normally pressure activated (i.e. target perching on trigger) but often fail when the trigger is not sensitive enough or when birds are only part way into the trap. Most of the guidelines given in the preceding methods apply to the use of drop traps.