

FEATHER-CLIPPING: A NAURUAN TECHNIQUE FOR SHORT-TERM RECOGNITION OF INDIVIDUAL BIRDS

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Marking birds for individual recognition is an essential part of much ornithological research. Techniques currently in use can be divided into two categories: permanent (colour bands, wing tags, collars and nasal saddles) and temporary (staining, bleaching, tail clipping or imping). Temporary marks applied to the feathers suffer from two drawbacks: the small number of birds that can be individually marked and possible alteration to behaviour. Dye or bleach is useful for marking many birds in a few cohorts but can be used to distinguish relatively few individuals. Clipping the tails of birds with tails large enough for such marks to be visible can reduce breeding success (Geis and Elbert 1956), while imping (Harting 1898) tail feathers to make them longer can increase their breeding success at the expense of normal individuals (Andersson 1982). Permanent marks can also affect behaviour (Burley 1985) or the probability of predation (Saunders 1982, Rowley 1983). A method for recognising individual birds that does not have undesirable side-effects therefore appears to be lacking.

A traditional sport on the island of Nauru (0°32'S., 166°55'E.) is the capture, taming and release of wild Great and Least Frigate-birds *Fregata minor* and *F. ariel*. The sport, *Ibbon Itsi*, is a competition between two teams to see how many can be caught in a specified period. All captured frigate-birds are then tamed and marked. Young birds are released. They continue to return to the site of their capture for food, acting as decoys for other wild birds. It is the mark applied to these birds that is described in this note.

Frigate-birds were observed on Nauru in September 1985 and March 1986. On both occasions

marked birds were seen and their behaviour compared to unmarked birds when diving for fish thrown up by their Nauruan keepers. The method of marking the birds was explained to me and the distance at which individual birds could be recognised estimated.

The frigate-birds were marked by clipping the primary feathers into different shapes. Some were clipped in a saw-tooth pattern for their entire length, others were clipped only at the base, creating a window effect. One had had secondaries clipped creating an additional window near the base of the wing. For most, the pattern of clipping was duplicated on the two wings. Some of the different markings observed on Nauruan frigate-birds are shown in Figure 1.

Most birds could be distinguished at 30 m with the naked eye. A few with particularly drastic clipping, were visible from at least 50 m. With binoculars, frigate-birds circling overhead could be distinguished at about 300 m.

Marked birds, even one in which the three longest primaries on each wing had been reduced almost to bare shafts, were all capable of catching fish tossed up by Nauruans, apparently without difficulty. However the Nauruans themselves were able to distinguish marked from unmarked birds by the nature of their flight before the marks were visible. Unmarked birds were considered more graceful, but as they had a higher value in the competition, such laudatory description may not reflect aerodynamic agility. As no frigate-birds were seen chasing other seabird species or feeding from the surface, the capabilities of marked birds under more normal conditions are not known.



Figure 1. Examples of markings observed on Nauruan frigate-birds created by clipping flight feathers.

The technique of clipping primaries, if not carried to extremes, would seem to have application for marking individually a large number of birds. Identification is possible at considerable distances and many combinations are potentially available. Duplication of the pattern on each wing would reduce the chance of mistaking the mark for accidental feather damage although they would have to be cut in a way that did not appear as partial moult.

Functionally, however, the clipping would be similar to partial moult and therefore the marked birds should not be greatly handicapped. In fact a hole in the wing surface should cause less turbulence in the air flow than would the space left by a missing feather. Since birds in partial moult are unexceptional, clipped birds should not be subject to the increased predation observed in species with wing tags (Rowley 1983). Breeding success could be affected if partial moult were interpreted by prospective mates as post-breeding plumage, but such confusion would probably be overcome by other reproductive behaviour.

The technique should be most suitable for birds that are commonly seen gliding, such as raptors and large waterbirds, particularly as the primary feathers in some of these groups are retained for more than a year. Smaller species, however, such as bee-eaters and corvids could also be marked using the same technique.

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