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Further notes on improved coloured-rings—Coulson (*Bird Study*, 10, 1963: 109-111) described the use of hard PVC (sold commercially by Imperial Chemical Industries as "Darvic") in making coloured-rings for marking birds. We encountered an unexpected difficulty when making rings, by this method, for use in a colour-marking scheme for Cape Barren Geese, *Cereopsis novaehollandiae*, (ring size: internal diameter 20 mm.). "Darvic" was found to fade and discolour after softening in boiling water during the manufacturing process.

In efforts to find the cause of this, the PVC was tested by immersion in pure (de-ionised) water at 58°C, 78°C, and 95°C. No effect was produced by water at 58°C, but this temperature was not high enough to soften the PVC. Water at 78°C and 95°C produced a pale mottling on black, blue, and red, although on the other available colours (pale green, yellow, and white) the effect was less noticeable. The amount of fading was roughly proportional to the temperature of the water and to the length of time the PVC was immersed; no change was noticed while the PVC remained immersed. Neither was the colour of the PVC affected by dry oven heating as high as 104°C. A saturated solution of sucrose at 80°C produced no noticeable mottling; and no effect was observed after immersion in glycerine at 90°C for periods of 30 minutes.

At this stage, the Plastics Technical Service of I.C.I.A.N.Z. was consulted. It was suggested that the whitish appearance was partly due to water absorption by the softened PVC; and this was borne out when it was found that the original colour returned to the faded rings after baking at 100°C for ten minutes in a dry oven. (A rubber band around the rings was necessary to prevent them unfolding at this temperature.)

A satisfactory method of making the rings while avoiding the above difficulty was evolved, using glycerine, as follows.

Strips were cut in a guillotine from 1/32nd inch Darvic sheet; several strips were clamped together and the corners sanded. Glycerine was held at 120°C in a constant temperature bath, and each strip was immersed for 3-5 seconds then formed into a double-circle ring, using rubber gloves (for protection against heat) and a pair of forceps. If necessary, the ring could then be heated again inside a forming-ring of the desired size, but after some practice this was found to be unnecessary and the soft rings were simply

fixed in cold water; this also removed most of the adhering glycerine. About 80 rings per hour could be produced in this way.

For rings of sizes smaller than those for geese, Coulson's method of using a series of forming rings of decreasing size might still be preferable, although Rowley (pers. comm.) has made rings for Australian Ravens, *Corvus coronoides*, using a shaping rod and artery forceps only.

Rowley had not found any fading or mottling when using hot water, but when we subjected his rings to our initial treatment, they suffered the same effect as had our Darvic. Exchange tests showed that this was not due to any difference in properties of the water used but to the fact that he had immersed each strip for a shorter period than we had. A ring fashioned by this method springs open dramatically when re-heated, and it seems possible that such rings may be under a permanent stress. Rowley, however, has had bands on birds for up to 2 years and has found no fading or loss of bands.

The adhesive recommended by ICIANZ, "Tensol 50", has been found to be a quick drying sealing agent, and necessary, because some unsealed bands are known to have been lost.

Field trials of rings and adhesive are proceeding.—D. F. DORWARD and R. A. WEST, Department of Zoology, Monash University, Victoria, Australia.

Kestrel Preys on Welcome Swallow.—At noon, July 28, 1966, a Nankeen Kestrel, *Falco cenchroides*, was seen taking a Welcome Swallow, *Hirundo neoxena*, at Barren Box Swamp, near Griffith, N.S.W. A flock of about 15 swallows was hovering over a small pool of water in the bottom of an irrigation ditch, maintaining a nearly stationary position in the face of a fair headwind. The kestrel stooped from a nearby tree and flying with the wind snatched a swallow before the other members of the flock showed any reaction. The kestrel carried its prey to a nearby fence post where it plucked and ate it. The attack caused the flock to disperse, but it was back after 20 minutes.—JOHN BYWATER, Division of Wildlife Research, CSIRO, Canberra.