
WING-TAGGING ROCK PIGEONS

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Introduction

In recent years, the roof tops of the University buildings have been regularly used as breeding sites for the Rock Pigeon Columba guinea. Over 100 nests were accessible and a study of breeding success in this urbanised population was begun in 1972/73. It was found necessary to mark adult birds to monitor factors such as the incidence of double-brooding, and the success of individuals from year to year. It was also anticipated that territorial behaviour might be looked at.

In the Transvaal, the species has become increasingly important

Fig.1 Pigeon tag and pin drawn to scale

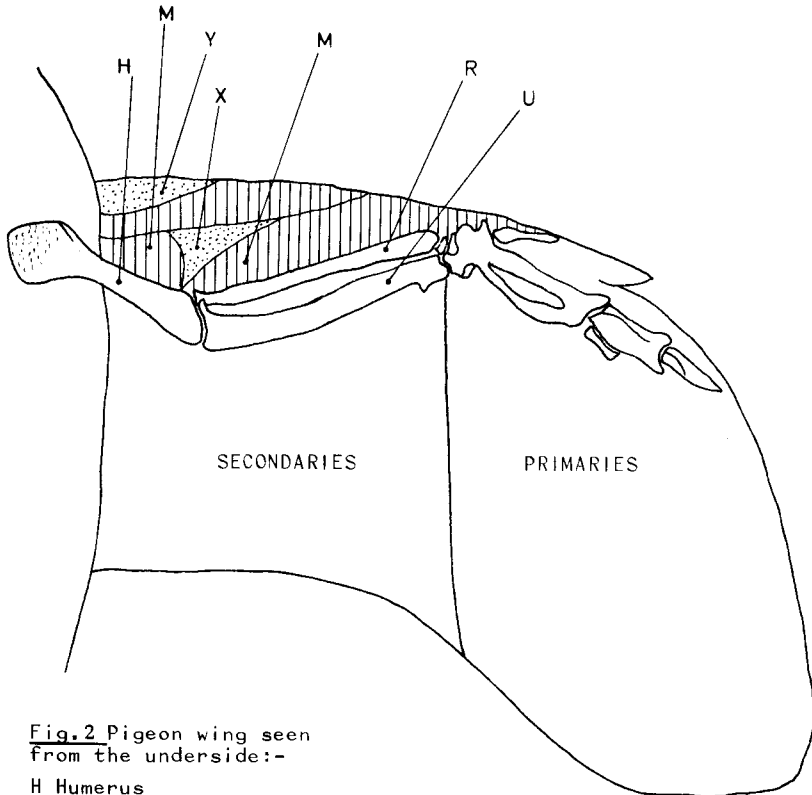
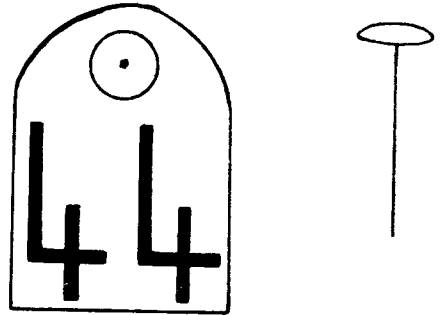


Fig.2 Pigeon wing seen from the underside:-

- H Humerus
- R Radius
- U Ulna
- M(x2) Muscle Blocks
- Y Thin skin area
- X Point where patagial tag is pushed through the skin

as a game bird. Large flocks apparently roost and breed in Johannesburg and Pretoria. They fly out to feed in the surrounding country where they face a barrage of guns. It was therefore of interest to look at the equivalent situation in the Cape in terms of local movements and mortality.

For the breeding study it was necessary to use a colour-marking scheme to allow individual recognition from a distance. Tarsal colour-rings were not ideal since the birds are fairly short-legged and individuals could not be identified while they were incubating. It was decided to test out a wing tag which closely follows the design used by Murton et al. (1971) for Columba palumbus in Europe

Wing-Tag Details

The basic material was stiff Darvic 0.6mm thickness, rectangular in shape 41mm x 25mm. One short side of the rectangle was left square and the other cut into a semi-circle. A nylon washer 9.6mm in diameter was glued to the dorsal side of the tag. The tag was given a slight curvature by heating it with the light of a match. This helps it to fit the wing's contour. Large numbers were painted in black onto the dorsal surface of the tag (see Fig.1).

The tag was attached to the bird through the patagium by a stainless steel wire 0.6mm in diameter. A small loop was made at one end of a 30mm length of wire, and it was pushed through the washer. The loop was bent at right angles and cemented into the washer with Pratleys Putty. The other end of the wire was sharpened. Once the putty had set and had been smoothed off, the wire was ready for use.

Pigeons were caught in baited traps or as pulli. Each bird was held by one person while another extended one wing. On the underside of the wing, the landmarks shown in Fig.2 can be seen. To the inexperienced, the patagium is merely the piece of loose skin on the leading edge of the wing next to the body. In fact this area is made up of muscles, blood vessels, a tendon as well as skin tissue. The first impulse is to think that the tag must be pushed through the area Y. But this has no muscular wall and the tag would soon pull out. The correct point is marked X. Care must be taken not to push the pin through too near the muscle blocks or near the tendon. A small blood vessel also runs across X and must, if possible, be avoided. With care and a sharp point, the pin can be pushed through from the ventral to the dorsal surface. It goes through the skin easily with almost no reaction from the bird. The pin appears then through the feathers on the dorsal side and the tag can be slipped on to it. Finally the point of the pin is coiled up and bent at right angles so that it is flush with the bird's wing. The following points should be noted:-

1. Do not coil the pin up too tight. The tag should be able to move up and down the wire over at least 5mm, without being forced. This eliminates any tendency to rub.
2. If, by accident, the blood vessel in X is punctured, the tag should be removed and the bird released. It was found that even with experience about 7% of the birds tagged were damaged in this way. It is not thought that any of the birds were permanently affected, but it was certainly necessary to remove the tag. It is possible that by using a bright light behind the bird's wing, it might have been possible to be sure to miss the blood vessel.

3. The main purpose of cementing one end of the pin and glueing the other washer to the tag was to give the tag greater durability. Rock Pigeons fight each other for breeding areas using their wings. This no doubt increases wear and tear on the tags. One bird was observed in the morning with both tags intact. It then had a protracted battle on a ledge. By mid-afternoon one of the tags had broken off half way down. It is estimated very roughly that within six months of attachment about one third of the birds had lost at least one tag. The pigeons were always tagged on both wings. They were all ringed with NUBRA metal rings.
4. The area X in adults is smaller than in pulli. Fig.1 was drawn from a pullus. In adults it may be necessary to pluck out a few contour feathers in order to expose X.

Results

In terms of visibility the tags are ideal. They can be seen on flying birds at a range of up to 200m, though of course the numbers cannot be read until the bird is stationary. Different colours were used for adults and for chicks with the result that the age class of a bird could be told at a glance. About 120 birds have been tagged. Of these an adult, with only one tag remaining in situ, has kept that tag for 20 months. At least five other adults have both tags intact after seven months. One chick which returned to breed at almost exactly 12 months of age had one tag still intact. The adult first mentioned has successfully raised at least two broods of chicks.

As a subsidiary experiment an additional sample of chicks was ringed with only tarsal colour-rings and NUBRA metal rings. We wanted to see if the tag influenced the rate of recovery, either by making the bird more conspicuous or because they placed it at some significant disadvantage. To date, three tagged birds and one ringed bird have been recovered, so there are insufficient data to compare.

Conclusion

The above study shows that wing-tags can be useful for marking birds for the observation of individuals from a distance. With experience, I think that tag loss can be reduced to an acceptable level and I would expect tags put on now to last at least two years. However the tendency to make the birds bleed in a small percentage of the cases is worrying. I therefore would not recommend the method to inexperienced ringers, nor for use on species which are at all uncommon. At this stage, I would still describe the technique as experimental. In Murton's (loc. cit) study, tags in good condition were observed on some birds after 5 years. Others (unspecified) lost them much sooner. There was 'no indication that the birds were injured as a result of the marking technique'.

Acknowledgements

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Ref: Murton, R.K., Isaacson, A.J. & Westwood, N.J. (1971) 'The significance of gregarious feeding behaviour and adrenal stress in a population of Wood Pigeon Columba palumbus' J.Zool.Lond 165:53-84.