The Classification of the Red-tipped Pardalotes

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The taxonomic status of the two red-tipped pardalotes continues to be exceedingly puzzling. Cooper's analysis of 18 breeding pairs sheds a great deal of light on the situation but does not resolve all the difficulties (*Emu*, 61: 1-6). The first point which is confirmed by this study is the frequent occurrence of mixed pairs in the zone of overlap between *Pardalotus ornatus* (with two white-edged primaries) and *P. substriatus* (with six to eight white-edged primaries). Nevertheless, virtually all birds in the area of hybridization fall clearly into one or the other type. The only genetic interpretation which is consistent with this finding is that the difference in edging of the wings is controlled by a single Mendelian gene. The presence of one allele will result in the production of white edging on two primaries, the presence of the other allele in the production of white edging on six to eight primaries (with the dominance relations still to be established). Under the circumstances, it becomes very important to raise the young of mixed matings at least to the point where the wing pattern of the entire brood of young can be determined. I might add that a few intermediate types do occur (Hindwood and Mayr, *Emu*, 46: 60), but at such low frequency that an additional modifying gene, rather than hybridity between the two standard types, must be suspected.

The high frequency of mixed matings established by R. P. Cooper and the indication of a single gene difference implied by the rarity of intermediates, raises the possibility that the two wing types represent color forms rather than species. This suspicion is strengthened by the fact that *P. ornatus* is not found anywhere (? except in central Queensland) where *P. substriatus* does not also occur. If the two wing types were only morphs in a single polymorph population, it would be simplest to assume random mating in the zone of coexistence of the two types. In the 18 pairs in which Cooper was able to determine the color type of both parents, seven pairs were *substriatus*, six pairs *ornatus* and five *substriatus* mated with *ornatus*. Thirteen (=72.2%) of the 18 pairs were thus "pure" and five pairs (=27.8%) mixed. On the basis of random mating one would have expected 50.4% of the pairs pure and 49.6% mixed.

It is evident that we are dealing with a most interesting, indeed a highly exciting biological situation which can be solved only by further field work. It is necessary that observers count the total number of mated pairs in given local areas and determine the proportion of pairs of the three possible combinations. An effort should also be made to determine what biological differences, if any, exist

between the two types. It has been stated that *ornatus* usually utters a double note while *substriatus* gives a triple note. There is also a suspicion that *ornatus* is more common in the hills and mountains and *substriatus* in the more open and drier lowland country. Such general impressions are not worth very much without careful census data to back them up. Cooper's study has established an excellent basis for further studies.

Until the facts are fully known, it would be futile to speculate on the origin of the various types. *P. ornatus* is often interpreted as a stabilized hybrid population between *striatus* and *substriatus*. As Hindwood and Mayr point out (*l.c.*, p. 65): "such a hypothesis faces many difficulties, the greatest of which is the necessity to explain how sexual isolation could have developed between the former 'hybrid population' *ornatus* and the two parental populations when they themselves freely interbreed." This objection is as valid now as it was when first made.

The problem of the Red-tipped Pardalotes gives the field observer a splendid opportunity to contribute to the solution of a biological puzzle. We must be aware, however, that the differences between the two types are slight and that it would be far worse than useless to publish casual observations that are not completely reliable.

Double-banded Dotterel in breeding plumage.—While at Black Rocks, near Barwon Heads, on November 1, 1959, a single Double-banded Dotterel (*Charadrius bicinctus*) was noticed in full breeding plumage, with very distinctive upper black, and lower chestnut breast-bands.

The bird was easily approached, and was constantly resting with its body on the sand, the reason for which was soon evident: the left leg, being deformed, was being held up against the side of the body.

It kept constant company with 11 Hooded Dotterels (*Charadrius cucullatus*), and, when hopping on the right leg, made no attempt to lower the left leg. Later visits revealed no trace of the bird.

My latest record for this species in Victoria is at Ercildoune, near Ballarat, on August 18, 1957. — J. R. WHEELER, Belmont, Vic., 15/6/60.