

indigenous species that may feed on the same food is the South Island Piopio (the native thrush) which, however, is very rare and restricted in distribution. It is hard to imagine that competition should occur between the native and naturalized thrushes in low density areas of indigenous forest, especially as two naturalized species of thrushes can coexist in high densities in settled areas where they utilize the same resources. Other naturalized species (e.g., Hedge Sparrow, Chaffinch) are also opportunistic feeders and not likely to "eat out" one type of food. They occur in large numbers in settled areas where some insect-eating indigenous species also maintain high densities.

Predation by naturalized predatory mammals must have affected populations of indigenous species, but this could not be the single factor responsible for the rarity of certain species at present. Marshall (1963) concluded from an extensive survey of mustelids in New Zealand that the effect of mustelids on native birds appears to have been of relatively small significance.

TABLE XVIII.

Comparison of breeding capacity and habitat selection between rare, irregular, and common species of passerines in the South Island of New Zealand (modified from Oliver, 1955, with the results of Potts, Buller, Fleming, and the present work).

Species	Clutch Size	Laying Season	Habitat Selection
<i>Rare or Near Extinct Species</i>			
Saddleback	2-3	Oct.-Dec.	Podocarp forest ?
Kokako	2-3	Dec.-Jan.	Podocarp forest (irregular)
Piopio	2	Dec.-?	Podocarp forest ? of valleys (local)
<i>Species With Irregular Occurrences</i>			
Brown Creeper	2-4	Oct.-Jan.	Wide, but irregular
Robin*	2-3(4)	Oct.-Dec.	Wide, now irregular
Yellowhead	3-4	Nov.-Dec.	<i>Nothofagus</i> forest, irregular
<i>Common Species</i>			
Grey Warbler	4(5, 6)	Aug.-Jan.	Wide
Fantail	3-4	Sept.-Jan.	Wide
Yellow-breasted Tit	3-4(5)	Sept.-Dec.	Wide
Silvereye	2-4(5)	Sept.-Feb.	Wide, forest edge
Bellbird†	3-5	Sept.-Jan.	Wide
Tui	3-4	Oct.-Jan.	Podocarp forest
Rifleman	4(5)	Aug.-Dec.	<i>Nothofagus</i> forest

\* The Robin was once an abundant species in most localities and is still common in restricted areas. Its highly sedentary habits and relatively low reproductive rate may account for the retardation of re-distribution into areas from which they have disappeared, whatever the cause may be.

† The Bellbird in the North Island once disappeared from north of Auckland (disease being the likely cause), but is now spreading again (Turbott, 1953).

As discussed in the preceding section, there does not appear to be a drastic change in the habits of birds in modified conditions, showing positive adaptation. Why, then, can indigenous species in man-induced habitats and naturalized species in indigenous forest maintain themselves? We may be able to explain their commonness and rarity in changed environment by considering two aspects of their pre-adaptive conditions. Firstly, the habitat selection of indigenous species which are now common in settled districts was essentially the same before and after European settlement. Some modified habitats contain corresponding or identical