TUI SOCIODYNAMICS

FORAGING BEHAVIOUR, SOCIAL ORGANISATION, AND USE OF SONG BY TUI IN AN URBAN AREA.

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To AR-RoW and her mate who inspired the study.

The trick is, to insert experiments now and then in the normal life of the animal so that this normal life is in no way interrupted; however exciting the result of a test may be for us, it must be a matter of daily routine to the animal. A man who lacks the feeling for this kind of work will inevitably commit offences just as some people cannot help kicking and damaging delicate furniture in a room without even noticing.

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-Tinbergen 1953.

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Social Behaviour in Animals. New York. John Wiley.

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ABSTRACT

This thesis describes the behavioural ecology of the tui, Prosthemadera novaeseelandiae, a member of the Meliphagidae (honeyeaters), in the suburban Auckland region of the mainland of New Zealand. Tui are highly nectarivorous but observations show differences in degree of importance between the three food categories; nectar, fruit and insects according to season. When foraging for nectar tui are not responsive to flower colour but use all flowers with nectar concentrations greater than 7% (wt. per wt.) and use fruit when nectar availability falls. Foraging observations are significantly different for male and female tui with males taking more nectar and females taking more insects, in response to greater protein requirement as well as a result of status affecting foraging. There is also a seasonal difference in method of prey capture with the more energetically expensive hawking occurring in times of greater nectar availability or when very few insects in relation to nectar are taken.

Colour-banded tui are shown to move in family groups over distances ranging from 5 to 35km in search of nectar for much of the year, but are localised into small foraging areas during breeding when nectar is abundant. Group members remain together and nest near each other, female offspring nesting closer to parents than male offspring.

There is differential access to both natural and artificial food resources and the various asymmetries of sex, age and residency determine relative status at food sources but are not absolute. Loud song is the most conspicuous behaviour and is used to mediate avoidance between individuals and between groups. An artificial food source is partitioned temporally and spatially during breeding with the local higher status birds that use the feeders having significantly greater breeding success.

Unlike results published for most passerines, both sexes of tui sing throughout the year and songs in their repertoire show sexual, seasonal, behavioural and individual variation. Pairs duet and both sexes will match songs with mates and with neighbours; resulting in apparent dialect areas corresponding with group boundaries.

Avian spirochaetosis is identified as one of the causes of death in a population with 13-30% annual loss. Losses are readily compensated for as the nesting cycle is short and the breeding season is long. This, together with an opportunistic foraging strategy, great mobility and prolonged association in family groups explains the continued presence of tui in suburban areas.

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PREFACE

The thesis has been written as four separate units of research on foraging (Chapter I), social organisation (Chapter II), vocal behaviour (Chapter III), and survivorship (Chapter IV) of the tui; the largest of the three New Zealand honeyeaters (Meliphagidae). Chapter I has been published as three shorter papers (Bergquist 1985a, b,; Bergquist 1987), and Chapter II has been published as a single paper (Bergquist & Craig 1988).

Adult male tui feeding on
Prunus campanulata.

Photo-Ian Bergquist