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Short communication

Sex determination of the agile wallaby (*Macropus agilis* (Gould)) using adult skulls

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Summary

A discriminant function to determine the sex of adult skulls of the agile wallaby (*Macropus agilis* (Gould)) is presented.

Introduction

During April 1965 and June 1966 a study of field reproduction was carried out on the agile wallaby (*Macropus agilis* (Gould)) (Kirkpatrick and Johnson 1969). The opportunity was taken to devise a method for determining the sex of adult individuals using skull measurements, similar to the method used for both the grey and the red kangaroos *(Macropus giganteus* and *Macropus rufus)* (Kirkpatrick 1967).

A sample of 274 skulls of known sex was prepared and from these the basal length of the skull (B.L.) (that is, from the anterior tips of the premaxillae to the anterior rim of the foramen magnum) and the molar index (M.I.) (as defined by Kirkpatrick 1964), as measures of size and age respectively, were calculated.

The following discriminant function was calculated:

$$Y = 20.69 + 2.21 \text{ B.L.} - 2.32 \text{ M.I.}$$

The calculated discriminant value of $Y = 41.53$

An appropriate substitution of basal length (in centimetres) and molar index for a particular skull indicates that a value of Y greater than 41.53 was from a male and less than 41.53 was from a female. Accuracy was tested using an independent sample of 58 agile wallaby skulls (36 males and 22 females), with a resultant success of 32 and 21 respectively.

Calculated molar indices giving discriminant values for adult skulls are presented in Table 1. For a skull of a particular basal length, a molar index above that listed indicates a female and below a male.

Table 1. Discriminant values of molar index for skulls of particular basal length of the agile wallaby

Basal length (cm)	Molar index	Basal length (cm)	Molar index
10.5		12.6	3.02
10.6		12.7	3.12
10.7		12.8	3.21
10.8	1.31	12.9	3.31
10.9	1.40	13.0	3.40
11.0	1.50	13.1	3.50
11.1	1.59	13.2	3.59
11.2	1.69	13.3	3.69
11.3	1.78	13.4	3.78
11.4	1.88	13.5	3.88
11.5	1.97	13.6	3.97
11.6	2.07	13.7	4.07
11.7	2.16	13.8	4.16
11.8	2.26	13.9	4.26
11.9	2.35	14.0	4.36
12.0	2.45	14.1	4.45
12.1	2.54	14.2	4.55
12.2	2.64	14.3	4.64
12.3	2.74	14.4	4.74
12.4	2.83	14.5	4.83
12.5	2.93	14.6	4.93

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