

*G. modestus* on the Chatham Islands, New Zealand.

isolated throughout their existence. phylogenies can be used to define colonisation patterns

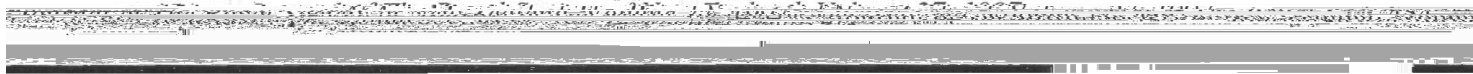
(Thorne & Mahotra 1996) and it is possible to make inferences about the circumstances that

*modestus* has been considered to be the juvenile of *G dieffenbachu* (Buller 1873, Forbes 1892), and also the sole representative of a monotypic genus, *Cabalus* (Hutton 1874). *G*

*dieffenbachu* was also, at one stage, assigned to a monotypic genus (*Nesolimnas* Andrews 1896b) but has also been relegated to subspecific status as a variant of the volant species *G philippensis* (Ripley 1977). This latter situation presumably resulted from examination of the only skin specimen in existence (the holotype at BMNH, Tring), which shows that *G dieffenbachu* had very similar plumage to *G philippensis* (Diamond 1991) and does not

data does not support this conclusion, and indicates that *G dieffenbachu* and *G modestus* were about equally diverged from *G philippensis* (Trewick 1997).

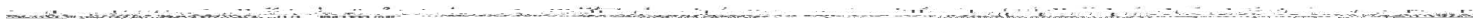
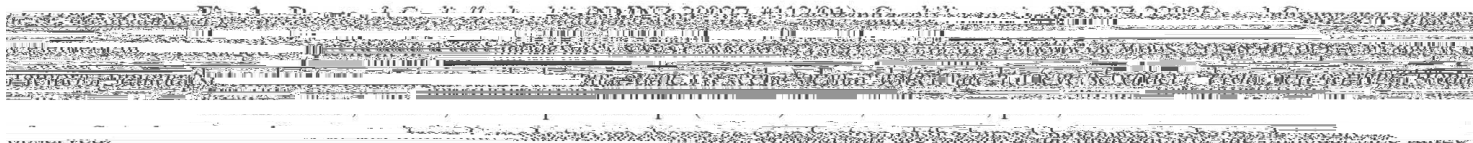
Fossil bones from both species were found during the last century in limited quantities (Eschsché 1902, Andrews 1906a, 1906b). This material, and that collected later, indicated that



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premaxillae were drawn and fitted with linear regressions which were compared using ANOVA (Fig. 4). A three-variable discriminant plot of maximum length versus maximum width of the

kernel smoothing was produced (Fig. 5)

## RESULTS

Fossil material of the two species endemic to the Chatham Islands is readily distinguished by eye (Fig. 1). Dimensions of bone elements assigned to the three species (*philippensis*,

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1.4

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Frequency

0.25

0.20

0.15



1873), *modestus* is superficially reminiscent of an extremely small kiwi. As such, it would appear that *modestus* had joined the guild of probing specialists, and presumably fed on

complex history for these birds. If their similarities were the result of common ancestry rather than convergence, then evolution of *modestus* on the Chatham Islands could have involved little change other than flightlessness. In fact, there were few similarities between

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Cooper, A. M., Rhymer, J., James, H. F., Olson, S. L., McIntosh, C. E., Sorenson, M. D., Fleischer, R. C. 1996

Independent origins of New Zealand moas and kiwis *Proceedings of the National Academy of*

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Cooper, A., Rhymer, J., James, H. F., Olson, S. L., McIntosh, C. E., Sorenson, M. D., Fleischer, R. C.  
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Diamond, J. 1991 A new species of rail from the Solomon Islands and convergent evolution of insular  
flightlessness *Auk* 108 461–470

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