and nesting requirements. They are unique in the Family Recurvirostridae (stilts and avocets) in their preference for braided river systems where they nest as solitary pairs on mid-channel islands. Chicks are reared along the invertebrate-filled side-channels of the riverbed. Destruction of riverbed channels through damming for hydro-electricity generation, creation of artificial channels, diversion of water and water abstraction, together with the drainage of wetlands has forced some birds to nest in more marginal areas where there is less food for chicks and a higher risk of predation (Pierce 1982). The average black stilt fledgling will die before it becomes a productive breeder (Pierce 1986).

While black stilts have declined, opportunistic pied stilts have taken advantage of modified habitats and have expanded in number and range since the mid-1850s. In part, success of pied stilts in contrast to poorer survival of blacks can be attributed to their colonial nesting habits, shorter fledgling period, more effective distraction displays and later more synchronised nesting at a time when predation risk is lower (Pierce 1986). There are then, considerable ecological, behavioural and morphological differences between the two species.

Hybridisation is partly a result of reproductive compatibility with the pied stilt, since the two species were probably not geographically separated long enough to evolve complete behavioural or ecological barriers to interspecies reproduction. It has been promoted by low black stilt numbers and an imbalance in the sex ratio, biased toward males. Male black stilts tend to take hybrid or pied mates if no other black is available. This mate choice is not random as Williams would suggest. Pierce (1982) experimentally demonstrated positive assortitive mating in black stilts. That is, they tend to choose the darkest plumaged mate available.

Environmental pressures

The parallel drawn by Williams between hybridisation of stilts and that of grey and mallard ducks does not take into account the environmental pressures being exerted in each case. Where black stilt hybridisation can be attributed to low population numbers spread over a million hectares, the duck dilemma has arisen through encroachment of grey duck habitat by the more aggressive successful mallard, a less well defined species discrimination in mate choice and the phenomenon of rape as a sexual strategy in mallards. Perhaps a separate case can be made for conservation of both black stilts and grey ducks, but the type of mangement involved in each case

If one takes the extreme view of what constitutes a species, perhaps we should discount black stilts as such by pure virtue of the fact that they hybridise with a different taxa. Taking a less extreme view, evidence for obvious morphological, ecological and behavioural differences between pied and black stilts, in conjunction with positive assortitive mating led Pierce (1982) to conclude that black stilts should "retain their full specific status".

This then draws attention to the question

put by Williams of what is worth saving. Where on the continuum of species, subspecies and colour morph do we draw the line of conservation? I suggest that endemic forms having evolved within and being unique to the New Zealand environment, are worthy of preservation irrespective of taxonomic status.

Captive breeding – the last resort?

Human nature persists in leaving action on wildlife preservation until it becomes a matter of urgency.

The propagation of endangered species in captivity is attempted too often at a late stage of population decline when recovery is uncertain. It takes enormous resources to avoid total loss of a species if there is not already a captive breeding population available. The California condor captive propagation project runs at a cost of \$2 million per year and is now the only option left for this species. Similarly the Hawaiian crow (Alala) is all but extinct in the wild and attempts to breed them in captivity have not succeeeded to date. Instead of viewing captive breeding as a final alternative, we should realise that it takes years to develop techniques necessary to propagate a species. An understanding of behavioural constraints and nutritional requirements are vital to maintaining and breeding endangered species. When this option is left to a last resort, there is no longer the genetic background left in a wild population from which to draw founder members of a captive stock. Through the knowledge and experience gained over many years by aviculturalists at the National Wildlife Centre and keen members of Ducks Unlimited, the future of the blue duck and brown teal are at least assured in captivity. Methods of release back into the wild can be investigated. Unfortunately the same cannot be said for black stilts, kakapo and Campbell Island teal at present although captive breeding programmes are being intensified.

A species taken from the wild and represented by captive individuals ceases to be a complete behavioural representation of that species. But at the very least, they still offer an accessible resource for public viewing and are a representation of a unique genetic form.

We should heed the warning of Murray Williams and not leave action on any of our native species until too late for successful recovery. Instead of reallocating existing restricted resources from endangered to the less critical species, we should recognise the value of the former in generating further public support, financing, research and habitat acquisition to benefit all our native wildlife.

References

Pierce, R.J. 1982. A comparitive ecological study of Pied and Black Stilts in South Canterbury. PhD thesis, University of Otago.

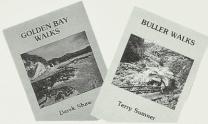
Pierce, R.J. 1986. Differences in susceptibility to predation during nesting between pied and black stilts (Himantopus spp.) *The Auk* 103: 273-280.

Williams, G.R.; Given, D.R., 1981 *The Red Data Book of New Zealand* Nature Conservation Council, Wellington, New Zealand. 62 pp.

FREE GREETING CARDS!!

Yes, free!! Receive ten different greeting cards, absolutely free, when you buy 20 assorted colourful Nikau Press cards for only \$19.50! These scenic and natural NZ cards are blank, folding cards with envelopes. Thirty cards for less than \$20 — GST included! See coupon below.

'GOLDEN BAY WALKS' by Derek Shaw 'BULLER WALKS' by Terry Sumner



Two very popular holiday destinations have now received full justice with these attractive, informative guidebooks. Each covers over 50 walks, with a wealth of natural and human history. These are 48pp quality productions, illustrated with colour photographs, drawings and maps, and with a services directory at the back. \$9.95 each, or \$17.95 for both. See coupon below.

'TE MOA: The Life and Death of a Unique Bird' by Barney Brewster

Just what sort of bird was the late great moa? How did it live and why did it die out? Did any Europeans ever see one? In 'Te Moa' — the result of two year's research — Barney Brewster (author of 'Antarctica: Wilderness at Risk') looks at the mystery and history of the moa and produces fresh evidence for the bird's final extinction in European times. Illustrated in black & white and in colour; 48pp. Advance orders taken at \$9.95 each — publication in October. The first 300 copies, numbered and signed by the author, will be reserved for Forest & Bird readers.

To: Nikau Press, PO Box 602, Nelson, NZ

11010011, 112	
Please send me:	\$
☐ Your 20 card selection \$19.50	
(plus 10 free cards)	
\square A double selection (40cds) \$39	
(plus 20 free cards)	
☐ 'Golden Bay Walks' \$9.95	
□ 'Buller Walks' \$9.95	
☐ Both books for \$17.95	
☐ 'Te Moa' (available Oct.) \$9.95	
(prices incl GST & free postage)	
Total \$	S

Name:

Address:



Nikau Press the Nelson publishers