An aberrant plumaged chestnut teal anas castanea with a white neck-ring

Corella, 2010, 35(2): 57-58

An aberrant plumaged Chestnut Teal *Anas castanea* with a white neck-ring

P. J. Guay

School of Engineering and Science, and Institute for Sustainability and Innovation,
Victoria University – St-Albans campus,
PO Box 14428, Melbourne MC, VIC 8001, Australia; email: patrick.guay@vu.edu.au

Received: 10 March 2010

INTRODUCTION

Plumage aberrations are not uncommon in wild birds (e.g. Gross 1965; Hosner and Lebbin 2006). These abnormalities can take on many forms, but albinism and leucism (sometimes wrongly called partial albinism) are the most common plumage aberrations in birds (Sage 1963; Gross 1965). Albinism is the complete loss of all pigments in both plumage and skin. Albinistic birds have completely white plumage, red eye, and pale skin (e.g. Northern Mockingbird *Mimus polyglottos*; McIlhenny 1940). Leucism is the complete loss of all pigment for all or part of the plumage but not from soft parts. Leucistic birds present a varying extent of white feathers, but have normal coloured skin, beaks, and eyes (e.g. Eared Grebes *Podiceps nigricollis*; Jehl 1985).

Albinism is caused by a recessive mutation while genetic mutation, diet, disease, and injury have been implicated in leucism (Sage 1962; Buckley 1969). The frequency of albinism and leucism is highly variable among species (Gross 1965), but important variation can also occur between populations within species (Rollin 1953).

White neck-rings are an example of leucistic plumages observed in multiple dabbling ducks (genus *Anas*) species (e.g. Wilson *et al.* 2006). They have been suggested to result from hybridization (Bonhote 1907), haphazard leucism (Trauger 1976) or expression of an atavistic phenotype (Harrison and Harrison 1963). Here I describe two Chestnut Teal *Anas castanea* drakes presenting white neck-rings and postulate on the cause of these aberrations.

OBSERVATION

As part of a study on waterfowl harvest in Tasmania during the 2006 (11 March to 12 June) and 2007 (24 March to 11 June) duck shooting seasons, the head and one wing of ducks shot were collected from hunters by the Tasmania Game Management Service Unit. For each head/wing set obtained, I assigned species, age and sex phenotypically, where possible, and measured culmen length (to the nearest 0.1 mm using dial calipers) and wing chord (to the nearest 1mm using a butt-ended ruler). One adult male Chestnut Teal in breeding plumage had a white ring at the border between the dark iridescent green feathers of the head and the chestnut chest feathers (Fig. 1). The ring was incomplete, it did not connect at the nape, and was composed of a single tract of all white feathers. This plumage variant has not been reported in Chestnut Teal. The specimen was shot around Little Swanport (42°19'S, 147°56'E), south-eastern Tasmania on 12 May 2006. The culmen measured 39.7 millimetres and the wing chord 216 millimetres which is within the range for male Chestnut Teal (Marchant and Higgins 1990). The head and wing were donated to Museum Victoria (NMV B.32806). No other aberrant plumaged male was observed amongst the specimens processed during the 2006 or 2007 hunting seasons (n = 73). No trace of a white neck-ring was observed in drakes in breeding plumage from the Museum Victoria skin collection (n = 28). In contrast, one of 14 male Chestnut Teal skins from the Australian National Wildlife Collection presented a partial white neck-ring. That teal (ANWC 16837) had been collected at Gal Gal Swamp (34°10'S, 142°15'E) southern New South Wales (NSW) on 8 February 1974.

Figure 1. *Head of the aberrant Chestnut Teal* Anas castanea *(NMV B.32806) showing the presence of a partial white neck-ring.*

DISCUSSION

White neck-rings have been observed in various *Anas* species including Northern Shoveler *Anas clypeata* (Harrison and Harrison 1959a), Eurasian Teal *Anas crecca* (Harrison and Harrison 1959b), Gadwall *Anas strepera* (Harrison and Harrison 1959c), Brown Pintail *Anas georgica* (Wilson *et al.* 2006), South American Teal *Anas flavirostris* (Harrison and Harrison 1958), and Blue-winged Teal *Anas discors* (Trauger 1976). Three main processes have been proposed to explain this aberrant plumage. It may be the result of hybridization, haphazard leucism, or expression of an atavistic phenotype.

Mallard *Anas platyrhynchos* drakes display a clear white neck-ring in breeding plumage and some hybrids with Mallards also present a white neck-ring (Bonhote 1907). Thus the observed specimen could be a Chestnut Teal X Mallard hybrid. Mallards have been introduced in Australia and hybridization with Chestnut Teal has been observed in the wild (Whatmough 1978). With the exception of the white neck-ring, the specimen presented all diagnostic characters of Chestnut Teal. It seems unlikely the teal was a hybrid because its body measurements were within the range for Chestnut Teal. Mallards are much bigger (Marchant and Higgins 1990) and hybrids between two species with marked differences in size are usually intermediate in size (e.g. Lavery 1966).

Alternatively, this variant may be regarded as a case of haphazard leucism which has been reported in many bird families including *Anatidae* (Sage 1963; Gross 1965). Aberrant white neck-rings have been recorded in drakes, but not females, of *Anas* species (Harrison and Harrison 1963). In contrast, white neck-rings have been observed in both Blue-winged Teal drakes and females (Trauger 1976). Trauger (1976) suggested that the white neck-ring variant in Blue-winged Teal was caused by leucism because it was present in both sexes and was associated with white marking on the body. I could not examine the whole body of the Tasmanian specimen to look for the presence of other white areas of the plumage, and cannot completely discount leucism. However, leucism is unlikely to be responsible for the presence of white neck-rings in drakes of many different dabbling duck species.

Finally, white neck-rings may be caused by expression of an atavistic phenotype (Harrison and Harrison 1963). With the exception of the Blue-winged Teal (Trauger 1976), white neck-rings, have never been observed in females. Drakes from only four species normally display a white neck-ring in their breeding plumage: Mallard, Baikal Teal *Anas formosa*, Brown Teal *Anas chlorotis*, and Falcated Duck *Anas falcata* (Todd 1997). The presence of a white neck-ring variant in multiple species has been suggested to be caused by the expression of an ancestral phenotype and to have significant phylogenetic implications (Harrison and Harrison 1963). For example, the white neck-ring of the Gadwall is thought to confirm its close relatedness to the Falcated Duck (Harrison and Harrison 1963). The Chestnut Teal is closely related to the Brown Teal (Livezey 1991; but see Johnson and Sorenson 1999). Thus, I propose that the white neck-ring variant plumage in Chestnut Teals may be caused by the expression of an ancestral phenotype that correlates with its close phylogenetic relationship with Brown Teals.

ACKNOWLEDGEMENTS

I thank the members of the Tasmania Game Management Service Unit and the duck hunters that participated in the 2006 and 2007 Tasmanian duck head and wing collection program. I also thank C. Scarpaci for thoughtful comments on a previous version of this manuscript and Museum Victoria and CSIRO Sustainable Ecosystems, Australian National Wildlife Collection for access to their collection. Funding was provided by the then Tasmanian Department of Primary Industry and Water, by Museum Victoria and by Victoria University in the form of a Victoria University Fellowship to P.J.Guay.

REFERENCES

Bonhote, J. L. (1907). Some notes on the hybridising of ducks. *Proceedings of the International Ornithological Congress* **4**: 235–264.

Buckley, P. A. (1969). Genetics. In 'Diseases of Cage and Aviary Birds'. (Ed. M. L. Petrak). Pp. 23–43. (Lea & Febiger: Philadelphia, USA.)

Gross, O. (1965). The incidence of albinism in North American birds. *Bird-banding* **36**: 67–71.

Harrison, J. M. and Harrison, J. G. (1958). The white neck spot variant in the European Green-winged Teal and the Yellow-billed Teal. *Bulletin of the British Ornithologists' Club* **78**: 104–105.

Harrison, J. M. and Harrison, J. G. (1959a). Evolutionary significance of certain plumage sequences in Northern Shoveler. *Bulletin of the British Ornithologists' Club* **79**: 135–142.

Harrison, J. M. and Harrison, J. G. (1959b). Further remarks on the white neck-spot variant in the European Green-winged Teal. *Bulletin of the British Ornithologists' Club* **79**: 25–27.

Harrison, J. M. and Harrison, J. G. (1959c). Plumage variants in drake Gadwall. *Bulletin of the British Ornithologists' Club* **79**: 78–79.

Harrison, J. M. and Harrison, J. G. (1963). A Gadwall with a white neck ring and a review of plumage variants in wildfowl. *Bulletin of the British Ornithologists' Club* **83**: 101–108.

Hosner, P. A. and Lebbin, D. J. (2006). Observations of plumage pigment aberrations of birds in Ecuador, including Ramphastidae. *Boletín Sociedad Antioqueña de Ornithologia* **16**: 30–43.

Jehl, J. R. (1985). Leucism in Eared Grebes in Western North America. *Condor* **87**: 439–441.

Johnson, K. P. and Sorenson, M. D. (1999). Phylogeny and biogeography of dabbling ducks (genus: *Anas*): A comparison of molecular and morphological evidence. *Auk* **116**: 792–805.

Lavery, H. J. (1966). A wild hybrid in the genus *Anas* L. (Anatidae). *Queensland Journal of Agricultural and Animal Sciences* **23**: 329–331.

Livezey, B. C. (1991). A phylogenetic analysis and classification of recent dabbling ducks (tribe *Anatini*) based on comparative morphology. *Auk* **108**: 471–507.

Marchant, S. and Higgins, P. J. (1990). 'Handbook of Australian, New Zealand, and Antarctic Birds. Vol. 1B Pelican to Ducks'. (Oxford University Press: Oxford, UK.)

McIlhenny, E. A. (1940). Albinism in Mockingbirds. *Journal of Heredity* **31**: 433–438.

Rollin, N. (1953). A note on abnormally marked Song Thrushes and Blackbirds. *Transactions of the Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne* **10**: 183–184.

Sage, B. L. (1962). Albinism and melanism in birds. *British Birds* **55**: 201–225.

Sage, B. L. (1963). The incidence of albinism and melanism in British birds. *British Birds* **56**: 409–416.

Todd, F. S. (1997). 'Natural History of the Waterfowl'. (Ibis Publishing Company: Vista, USA.)

Trauger, D. L. (1976). Plumage aberrancy in Blue-winged Teal. *Auk* **93**: 646–650.

Whatmough, R. J. (1978). Birds of the Torrens River, Adelaide. *South Australian Ornithologist* **28**: 1–15.

Wilson, R. E., Valqui, T. H. and McCracken, K. G. (2006). Aberrant plumage in the Yellow-billed Pintail *Anas georgica*. *Wildfowl* **56**: 192–196.