Aberrant plumage in the Yellow-billed Pintail Anas georgica

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Abstract

Plumage aberrations are common, particularly in waterfowl. There have been numerous proposed causes including the retention of ancestral plumage characters that contain phylogenetic information. A partial white neck ring was observed in Yellow-billed Pintail *Anas georgica spinicauda* near Cusco, Peru. Non-typical white neck rings have been reported in other waterfowl species. Although the exact cause is unclear, its reoccurrence in other species and the consistent placement suggest that this unusual plumage could be of evolutional significance.

Key words: plumage aberration, Yellow-billed Pintail, Anas georgica, Peru.

Plumage aberrations that deviate from typical plumage colour patterns are common, and their prevalence varies among species (Hicks 1934; Michener & Michener 1936; Nero 1954; Gross 1965; Jehl 1985). Multiple causes of plumage aberrations have been proposed. These include injury, disease, diet, partial leucism, recurrent mutation, infrequent expression of genes that have low expressivities, pigment concealment, or atavistic retention of ancestral traits (Hubbs

1936;have been well documented to show unusualiltipleplumage patterns. In some cases, these

abnormal plumages resemble characters of other closely related species (Harrison 1953, 1955). For example, Northern Shoveler *Anas clypeata* males in eclipse plumage have a white facial crescent that resembles the facial pattern of the Blue-winged Teal *A. discors*

& Bartholomew 1951; Nero 1954, Harrison 1955; Gross 1965; Enders & Post 1971).

Waterfowl (Anseriformes: Anatidae)

and the Australasian Shoveler *A. rhynchotis.* But in cases of hybridisation, plumage patterns also can resemble non-parental species (e.g. Harrison 1954; Harrison & Harrison 1959a,b).

Plumage series and variants have been thought to be evolutionarily significant because different plumage states may reflect phylogeny (Harrison & Harrison 1959b; Olson 1973; Hosner & Lebbin 2006). Therefore, closely related species such as Mallard A. platyrhynchos and Northern Pintail A. acuta may be more likely to produce common features of the other species occasionally (e.g. white neck ring) that are not necessarily due to recent hybridisation. One of the most well documented cases of aberrant plumages in waterfowl is the presence of a white neck ring. Unusual white neck rings have been described in Green-winged Teal A. crecca, Speckled Teal A. flavirostris, Blue-winged Teal, Gadwall A. strepera, and Northern Shoveler (Harrison 1946; Harrison & Harrison 1958, 1959a,b,c; Trauger 1976). These white neck rings have been proposed to be analogous to the white neck ring of the male Mallard, a typical plumage character that also is common in several other species of waterfowl (Harrison & Harrison 1959b). However, Trauger (1976) suggested that the white neck ring of Bluewinged Teal was due to leucism - complete loss of pigmentation in birds ranging from just one feather to the entire body (Buckley 1982) - because it was found in both males and females along with unusual white feathering on other parts of the body.

A Yellow-billed Pintail male *A. georgica spinicauda* was collected in a flock of approximately 15 individuals on 15 October

2002 in the Department of Cusco, Peru (UAM-20670, Field catalogue number: REW-251). This individual had an incomplete white neck ring, which did not connect on the nape. This unusual plumage has not previously been reported in this species (Fig. 1). Typically, the throat area is pale brown or white and finely mottled (Blake 1977; Madge & Burn 1988). Three other specimens also were collected from this locality and, in total, 86 Yellow-billed Pintails were collected elsewhere in Argentina, Bolivia and Peru from 2001 to 2003. None of the other specimens collected had a white neck ring. However, Yellow-billed Pintail has been known to occasionally exhibit a partial white neck ring in captivity at the Wildfowl & Wetlands Trust (N. Jarrett, pers. comm.). Additionally, a photograph of a South Georgia Pintail A. g. georgica shows a male with a faint partial neck ring (Ogilvie & Young 1998). White neck rings have been observed in other pintail species. Northern Pintail have been observed with a transient white neck ring during eclipse moult (Harrison 1978).

Most cases of plumage aberrancy have been reported as partial leucism. Individuals with abnormal plumages typically do not resemble plumage characters of other species. The amount and location of white spotting can be quite variable, as seen in the Eared Grebe (*Podiceps nigricollis*; Jehl 1985). It is evident in these cases that the cause is leucism. However, the recurrence and consistent placement of non-typical white neck rings in several waterfowl species is noteworthy, and researchers should not dismiss the possible phylogenetic significance of this character. It could be that the expression of a set of genes for this

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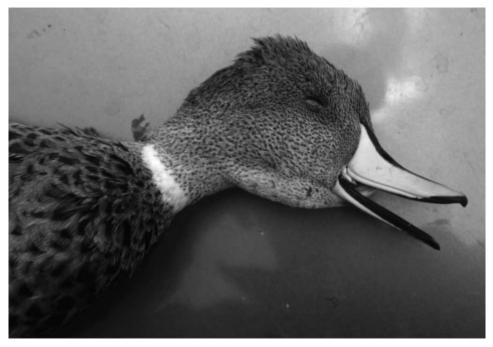


Figure 1. Male Yellow-billed Pintail Anas georgica with aberrant white neck ring (University of Alaska Museum catalogue number: UAM-20670, Field catalogue number: REW-251).

common colour pattern has been activated but its expression is low outside the few species that retain this character. The retention of ancestral plumage traits has been proposed in the Red-legged Seriema *Cariama cristata*. For example, an aberrant individual had dark, streaky plumage that was thought to be ancestral to the typical lighttone plumage that is seen as an adaptation to arid grasslands (Olson 1973).

Another mechanism that might indicate that there is a phylogenetic component responsible for aberrant plumages is that expression of darker pigments could mask expression of lighter pigments. For example, Nero (1954) argued that the aberrant ©Wildfowl & Wetlands Trust plumages (red on the metacarpal) of the Red-winged Blackbird *Agelains phoenicens* are a regular occurrence but are normally masked by a darker pigment. When expressed, this plumage variant showed similarities to closely related South American blackbirds, where the colouration is normal.

The mechanism producing the aberrant white neck ring in waterfowl is still not clear. Harrison (1946, 1953) suggested that it was due to an autophoric reverse mutation, the recombination of gene(s) resulting in a mutation that causes characters (e.g. plumage features) to resemble a different species in the absence of hybridisation. Whether it is due to the low expression of a set of genes, mutation or pigment masking, these aberrant plumages cannot be solely seen as abnormalities and warrant further investigation.

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