AN EXAMPLE OF ALBINISM IN THE AUSTRALASIAN HARRIER
Circus approximans gouldi

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ABSTRACT

An albinistic juvenile Australasian Harrier was trapped near Huntly, Waikato. Limited observation of the bird prior to capture suggests that its general behaviour and relationships with conspecifics and other species were normal. The bird's plumage is described and contrasted with that of normal harriers and the nature of its soft parts is discussed. Other occurrences of albinism in the Australasian Harrier are given.

On 12 May 1979, I trapped an albinistic juvenile female Australasian Harrier *(Circus approximans gouldi)* near Lake Kimihia, Waikato. Before its capture I was able to watch the bird for a few hours to see if it behaved typically, especially in its interactions with other harriers and birds.

All activity observed took place in or near a small swamp (c. 2 ha) in farmland about 1 km east of Huntly township and 0.5 km north of Lake Kimihia (37°32'S, 175°11'E) the predominant vegetation being wiwi *(Juncus polyanthemos)*. Much of the bird's time was spent perched on an old fence post in the swamp, or, on one occasion, in an adjacent 12-metre eucalypt (Myrtaceae). On both evenings that I watched it, the bird went to roost in the swamp about five minutes before sunset after making several low (2 m) circles around the swamp. Four harrier roost sites were found in the swamp, two of which, about 3 metres apart, were used by the bird. Although perching in a tree is rather unusual for an Australasian Harrier, much of this bird's pre-roosting behaviour is typical as noted by Gurr (1968), Hedley (1976) and Baker-Gabb (1978). As expected for this time of day I saw only a few brief flights, once when I flushed the bird from a road-killed rabbit *(Oryctolagus cuniculus)* on which it had been feeding, and once when it flew 3 metres from its fence post perch to search around wiwi clumps for 2-3 minutes. Although these flights were limited its flying ability was not impaired, as has been noted for albinistic birds of various species by McIlhenny (1940), Keeler *et al.* (1949) and Wetmore (see Delacour 1956), who gives an extreme example of albinistic ducks which could be run down and captured by hand. Obviously, any marked flying disability would be deleterious to a species such as an Australasian Harrier but this bird flew quite well and foraged in typical fashion.

Observed in a pastoral setting, this bird was highly conspicuous, even at a casual glance. Indeed its plumage was so striking that it could easily have been mistaken at a distance for a White Heron *(Egretta alba)* or a Cattle Egret *(Bubulcus ibis)*. Such distinct and unusual plumage has often been reported (for example, Sage 1962) as being disadvantageous in that albinistic birds are far more subject to predation than normal birds. Certainly, this bird was at risk from local farmers intending to shoot it as a trophy. However, one can find a few records of long-lived albinistic birds of various species. Middleton (1960) described an almost fully albinistic American Robin *(Turdus migratorius)* trapped for eight successive years and Oakley & Elitzroth (1980) described an albinistic male Red-tailed Hawk *(Buteo jamaicensis)* seen in an area from 1972 to May 1979. In New Zealand, an almost fully albinistic Australasian Harrier banded (L-3562) in 1963 was retrapped in the same area in July 1971 (W. M. Jukes, pers. comm.).

The response of other harriers toward the bird was seen on four occasions. Three showed little reaction, simply passing on over the perched bird, but one harrier, approaching rapidly down the wind 'fast contour hunting' (see Baker-Gabb 1978), veered from its path and struck twice with its feet at the perched bird, which immediately took flight and rose to a safe height while the attacking bird flew on. My impression was that I had seen an attempt at predation rather than some form of winter territorialism. When harriers are fast contour hunting, they are, in my experience, highly motivated and attack with great determination. The attacking bird was dark plumaged and so I believe the attack was one of mistaken identity by an inexperienced juvenile of the year. Fox (1976) has also noted inexperienced hunting behaviour by a juvenile Australasian Harrier.

Responses from two other species were also noted. Welcome Swallows *(Hirundo tahitica)* on several occasions flew close to or actually swooped at the bird, and I saw Pukekos *(Porphyrio porphyrio)* foraging nearby in the swamp. Neither species reacted any differently than they might have to a normal-coloured harrier.

After capture, the bird was confirmed as a female by body weight (935 g, including crop contents) and by the size of the tarsi and feet, which are much more massive in the female than the male (Ohlendorf 1972, Fox 1977, Baker-Gabb 1978). Given the absence of normal coloration, age was more difficult to tell. Although adult and juvenile forms of *gouldi* are usually easy to distinguish in the field, some care needs to be taken if certain age sex classes, for example, juvenile and young adult females, are not to be confused. However, because the bird was not in moult and I was able to locate and match up 'stress marks' (Hamerstrom 1967) on adjacent rectrices, I was able to categorise the birds as a juvenile of the year.

The plumage of this bird is white with 4-6 reddish-brown feathers on the head and neck and 8-10 similarly coloured feathers

scattered about the upper and lower body surfaces. The wings were entirely white with three normally coloured coverts and three partly coloured primaries on the right wing, and, on the left wing, three normally coloured secondaries and two normally coloured primaries, The tail was white except for a single black rachis.

With subsequent moults in captivity, although these have been seemingly incomplete, more normal feathers have appeared over the whole body surface and feathers previously somewhat dilute have darkened, but this trend has not progressed far, there still being fewer than 30 normally coloured feathers over the entire body. I have examined the feathers of the bird carefully for conditions such as 'silkiness' and for 'hairy' variations as found in other species by Chandler (1916), Hutt (1949) and Nero (1954) but found these not to be present. Some feathers examined were of coarser texture than adjacent normally coloured feathers and certainly more brittle since the effects of abrasion were noted on the primaries and particularly marked on the tips of the rectrices. It has been difficult, despite due care, to avoid the effects of normal feather abrasion against aviary perches and keep the bird in full feather in captivity (R. Wheeldon, pers. comm., 1982).

Lack of pigment was also evident in the bird's cere and orbital ring which were paler than the deep yellow of normal birds, although the irides were the normal dark brown of this bird's age class. The tarsi were very pale, again in contrast to the deep yellow of normal specimens and an abnormal number of tarsal scutella were seen to be lifting away. In one case an area 17 mm x 6 mm flaked away as one complete sheet. This amount of scutella loss seems excessive and has not been encountered in other captive or trapped harriers. Although the claws lacked pigment, the beak, and particularly the culmen, was normally coloured. Since capture, however, the beak has darkened somewhat but the claws remain pale.

Various authors mention albinism but their definitions and categories are essentially similar. Sage (1962) offered the most detailed definition, seeing albinism in birds as a condition involving the complete or partial absence or suppression of normal pigments and that its cause can be congenital (usually recessive) or environmental, that is, caused by diet, injury, senility, or possibly disease or shock. The lack of pigment in the bird I trapped tends toward the extreme, especially in the beak and claws and, less markedly, in the cere and tarsi. Given the bird's immaturity, its excellent physical state, and that there has been no marked reversion to normal plumage after subsequent moults in captivity, the bird's coloration must be genetically caused. Sage listed several categories of albinism: leucism, dilution, schizochroism, partial albinism, and pure albinism. Of these categories, the bird from Huntly is a partial 'albino' in that normal pigments are almost absent from the plumage and soft parts but are still present in the irides.

I am aware of no more than five reports of albinism in the

Australasian Harrier in the literature and know of two further occurrences. Buller (1898) recorded an adult female shot in Canterbury, probably during the summer of 1897. He described the bird as having a scattering of brown feathers over the shoulders, two normal-coloured coverts and one or two partly coloured scapulars on the right wing, one normal-coloured under covert on the left wing, a single normal-coloured feather on the left thigh, ' a wash of fulvous on the abdomen,' and the tail, with the exception of a single white 'inner vane' on one of the rectrices, of normal colour. This specimen could be classified, using Sage's terminology, as a partial albino, especially as the irides were yellow. Apart from these ' trifling exceptions,' Buller adds, the entire plumage was ' snow white,' and so with white wings and body but dark tail, the bird must have indeed presented ' a very striking appearance.' One other albinistic bird, reported in Oliver (1930), was noted in Canterbury. This bird, from Oamaru, was brown above with whitish edges to feathers and streaked with reddish brown below and therefore can be classified as a partial albino. Oliver also recorded a specimen from Riwaka, near Motueka, with an ashy grey upper surface and 'rosy purple' under surface. This bird is hard to classify from such a vague description. The rosy purple colour possibly arose through a dilution of the normal plumage pigments and so might the ashy grey of the upper surface. In this case the bird's condition could be classified as being one of dilution rather than partial albinism, but this is merely hypothetical thinking. As with the Oamaru bird there is no clue as to when the specimen was actually recorded.

More recently, in October 1963, an albinistic bird was banded (L-3562) at Springhills, Southland (W. M. Jukes, pers. comm.). An albinistic bird, presumably the same, was seen on at least four occasions within a radius of 16 km of Springhills by several observers, and in July 1971, the bird originally banded in 1963 was retrapped at Tussock Creek, Southland. I have seen a photograph of this bird, taken in 1971, from which a description, mainly of the lower surfaces, can be given: head and neck very dilute brown, under surface predominantly white with an occasional pale brown feather, underwing coverts dilute brown with very faint barring on both primaries and secondaries, flanks dilute brown and tail white with very dilute barring. The beak and claws were black with the tarsi, feet and cere pale yellow. The irides were very pale yellow. Unfortunately, a complete set of body measurements and body weight at capture were not recorded, and so it is not possible to sex this bird reliably. Given the washed-out appearance of its plumage, the condition of this bird can be classed as one of dilution.

I am aware of two other occurrences of albinism in the Australasian Harrier not mentioned in the literature. In the late 1960s or the 1970s, a bird was captured and held in captivity in Hawke's Bay. Apparently this bird was a true albino since it was reported by reliable

observers to have no colour pigments in any part of the plumage or soft parts (N. C. Fox, pers. comm.). Although details are lacking, I understand the bird suffered from defective eyesight, flew poorly, and was probably unable to forage for itself. In the early 1970s also, a bird was shot as it rose from a swamp near Cambridge, Waikato. Fortunately, a description of this bird is available; head white but with brown cheek and ear coverts, neck, scapulars, upper tail coverts and tail white, body dilute brown, making it a partial albino (D. R. Rosenberg, pers. comm.). I have other reports of supposed albinistic birds but these seem to be merely very pale aged adults.

Although other albinistic harriers may have been seen, it is apparent that albinism is rare in the Australasian Harrier and indeed, probably in any species where selective pressures are prejudicial towards albinism. Sage (1963) gave some figures on the frequency of albinism in free-living populations of various species and quoted Hicks (1934), who examined 10 000 Starlings *(Sturnus vulgaris)* and found 11 (c. 0.1%) with signs of albinism, Piechocki (1954) who examined 20 931 House Sparrows *(Passer domesticus)* and found that less than 1% showed traces of albinism, and Michener & Michener (1936), who checked 30 000 birds, excluding House Sparrows, during banding work, and found only 17 (c. 0.05%) showing some albinism. Quite large numbers of harriers have been trapped in New Zealand by Watson (1954) (206 birds), Fox (1977) (51), Baker-Gabb (1978) (212), myself (120), W. M. Jukes (pers. comm.) (2138), and R. Wheeldon (pers. comm.) (c. 300), but no further cases of albinism have been mentioned. Albinism is apparently an infrequent occurrence in *Circus approximans* in Australia also. D. Baker-Gabb (pers. comm.) has not found any albinistic birds in his trapping programme and knows of no occurrences in the literature. Albinism has been noted in other *Circus* species however, but the frequency of occurrence remains low. Watson (1977) offered detailed account of albinism in the Hen Harrier *(Circus cyaneus)* in the British Isles, finding records of at least six albinistic individuals killed in Scotland since 1870 and knowing of a further three birds, one from North Wales and two from Ireland. Balfour (cited in Watson) also noted occurrences of albinism, recording in over 40 years of careful observation in Orkney about 13 birds, one of which, seen before 1920, was apparently a pure albino. Watson, citing inbreeding as a possible reason for albinism gaining expression in a population, wondered if Balfour's series of sightings reflected a restricted gene pool on isolated Orkney but decided that this was unlikely since banding results over a long period of time showed that only 23% of 83 captured birds had hatched on Orkney.

Therefore, albinism can become apparent in a raptor population, even when a fair amount of recruitment from outside populations takes place, as has been observed for populations of the Australasian Harrier (Watson 1954, Baker-Gabb 1978). I shall be interested to follow up any new sightings of albinistic harriers so that any persistence of the

trait in a local population may be more fully documented. Since the work of Watson (1954) and particularly of Baker-Gabb (1978) suggests that adult harriers, having successfully bred, will return to their nesting area, it seems not unlikely that a local tendency towards albinism could become apparent, especially if a successfully reproducing individual, homozygous for albinism, were to be long-lived.

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