

# THE INCIDENCE OF ALBINISM AND MELANISM IN AUSTRALIAN BIRDS: A REVIEW OF THE LITERATURE

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## INTRODUCTION

Plumage abnormalities in birds has long been a neglected field of study in Australia. Apart from some short articles published mainly early this century (Hall 1900; Le Souëf 1912; Mattingley 1922), and comments by workers such as Campbell (1900) and North (1901-1914), no attempt has yet been made to examine the extent and incidence of plumage abnormalities in detail. A number of studies have been published by foreign workers (Clegg 1931; Hicks 1934; Lee and Keeler 1951; Nero 1954; Sage 1963), and the format of this study is based on Sage (1963). However, no attempt is made here to examine the data any further other than to tabulate the results so they may serve as a base-line for future, more detailed research.

## METHODS

Available literature (current to December 1986) was searched for records, which were then classified as either albinism or melanism. To avoid confusion, and in keeping with other studies (see Introduction), the similar albinistic plumage variants of schizochroism and leucism (Harrison 1963a, 1963b; Rollin 1962) have been included under albinism.

Publications searched were as follows (volume numbers for periodicals in brackets) *ARA News* (1-7), *Australian Bird Bander* (1-14), *Australian Birds* (6-20), *Australian Bird Watcher* (1-11), *Australian Museum Magazine* (11-12), *Australian Naturalist* (1-12), *Australian Natural History* (13 - no vol. number: 1986), *Australian Wildlife* (2 - no vol. number: 1980), *Australian Zoologist* (1-22), *Bird Observer* (no vol. numbers: 1939-1986), *Birds* (5-8), *Canberra Bird Notes* (1-11) *Corella* (1-10), *Emu* (1-86), *Geelong Naturalist* (1-23), *Hunter Natural History* (1,5-10), *Natural History*

*in Australia* (no vol. number: 1965), *North Queensland Naturalist* (no. vol. numbers: 1955-1986) *NSW Field Ornithologists Club Newsletter* (no vol. numbers: 1974-1986), *Queensland Naturalist* (15-27), *Queensland Ornithologists Society Newsletter* (1-15), *South Australian Naturalist* (1-60), *South Australian Ornithologist* (1-31), *Sunbird* (1-16), *Victorian Naturalist* (1-103), *Victorian Wader Study Group Bulletin* (1-10), *V.O.R.G. Notes* (1-21) *Western Australian Naturalist* (1-16), *Wildlife in Australia* (1-15), *Wildfowl Trust Journals* (1-37), Campbell (1900), Chisholm (1958), Immelman (1968), North (1901-1914), and Reader's Digest (1986). The avicultural literature was not searched.

Calculations have been carried out on the family level (see Appendix 1 for list of species and number of records for each), and nomenclature follows Schodde *et al.* (1978), except for the exclusion of doubtful species or extreme vagrants.

## RESULTS AND DISCUSSION

### *Albinism*

Table 1 gives an analysis of the 298 published instances of albinism located by the author. Of the 87 currently recognized Australian families, 45 (51.7%) have provided records and 95 (12.8%) of our 740 species have been noted as being affected with this condition.

Closer examination of the data reveals that six families account for some 50 per cent of the records; these are: Muscicapidae (15%), Cracticidae (10%), Platycercidae (10%), Meliphagidae (6%), Polytelitidae (6%) and Alcedinidae (5%). The high percentages for the Muscicapidae, Cracticidae, Platycercidae, Alcedinidae, and to a lesser extent Polytelitidae, can be attributed to the

TABLE 1

Analysis by family of 298 published records of albinism in Australian birds.

Family	Number of:		Records	% of total records
	Species	Species with records		
Dromaiidae	1	1	2	<1
Casuariidae	1	1	1	<1
Diomedidae	9	1	1	<1
Procellariidae	40	2	9	3
Phalacrocoracidae	5	2	2	<1
Ciconiidae	1	1	1	<1
Anatidae	23 (2*)	5	8	3
Accipitridae	17	2	6	2
Falconidae	6	2	2	<1
Phasianidae	7 (3*)	1	4	1
Rallidae	16	3	4	1
Burhinidae	2	1	1	<1
Haematopodidae	2	1	1	<1
Charadriidae	16	3	9	3
Scolopacidae	24	2	2	<1
Laridae	6	2	4	1
Columbidae	22 (3*)	2	3	1
Cacatuidae	11 (3*)	1	4	1
Loriidae	7	1	1	<1
Polytelitidae	6	3	14	5
Platycercidae	26	6	29	10
Cuculidae	13	1	1	<1
Podargidae	3	1	1	<1
Alcedinidae	10	1	14	5
Menuridae	2	1	4	1
Alaudidae	2 (1*)	1	1	<1
Hirundinidae	6	3	10	3
Motacillidae	5	1	1	<1
Muscicapidae	55 (2*)	9	45	15
Sylviidae	9	1	2	<1
Maluridae	18	2	9	3
Acanthizidae	41	3	9	3
Climacteridae	7	3	7	2
Meliphagidae	67	8	19	6
Epthianuridae	5	1	1	<1
Zosteropidae	3	1	2	<1
Fringillidae	2 (1*)	1	1	<1
Passeridae	2 (1*)	1	9	3
Ploceidae	19 (1*)	1	2	<1
Sturnidae	3 (2*)	2	4	<1
Paradisaeidae	13	1	3	1
Corcoracidae	2	2	2	<1
Grallinidae	1	1	5	2
Cracticidae	8	4	27	10
Corvidae	4	2	10	3

\*Number of introduced species

presence of one or two common, familiar species often found near habitation, albinistic individuals of which, as stated by Sage (1963), stand a good chance of being seen and reported. The high value for the Meliphagidae is due to a small number of records for numerous species and reflects the diversity of this family in Australia. Notably, the Acanthizidae, another large, diverse Australian family, has in comparison very few records.

Examination of the data at the species level presents a different picture: no single species or group of species accounts for any significant portion of the records, the most frequently affected species (see below) accounting for a mere 8 per cent of the total. The five species found to be most often affected are Australian Magpie *Gymnorhina tibicen* (8%), Willie Wagtail *Rhipidura leucophrys*, Black-bird *Turdus merula* and Laughing Kookaburra *Dacelo novaeguineae* (all 5%), and Crimson Rosella *Platycercus elegans* (4%). The high frequency of albinism in the Laughing Kookaburra and Australian Magpie has been noted previously (Campbell 1900; Buzacott 1966; Haines 1945; North 1901–1914; Robinson 1951). North also states albinism is 'not uncommon' in the Welcome Swallow *Hirundo neoxena* and Australian Raven *Corvus coronoides*; both species were found to be the most frequently affected members of their respective families in this study.

### Melanism

As was found by Sage (1963) for British species, melanism in Australian birds is far less frequent than albinism. I located only 13 records for ten species (1.3%) of ten families (11.4%); these are presented in Table 2. (See Appendix 2 for list of affected species and number of records for each.) While the data are too scanty to permit meaningful analysis, it is perhaps significant that two of the three families that account for the greatest percentage of the records, Alcedinidae (15%) and Muscicapidae (15%), also figure prominently in the previous analysis of albinism, while the poorly represented Acanthizidae constitute some 15% of the total records for melanism.

TABLE 2

Analysis by family of 13 published records of melanism in Australian birds.

Family	Species	Number of:		% of total records
		Species with records	Records	
Diomedidae	9	1	1	8
Pelecanidae	1	1	1	8
Ardeidae	15	1	1	8
Columbidae	22 (3*)	1	1	8
Cacatuidae	11	1	1	8
Alcedinidae	10	1	2	15
Cuculidae	13	1	1	8
Acanthizidae	41	1	2	15
Muscicapidae	55 (2*)	1	2	15
Cracticidae	8	1	1	8

\*Number of introduced species

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### REFERENCES

- Buzacott, A. H. (1966). Gympies albino Kookaburras. *Bird Observer* 411: 3.
- Campbell, A. J. (1900). 'Nest and Eggs of Australian Birds'. (Author: Sheffield.)
- Clegg, W. E. (1931). Heterochrosis in Essex birds and in their eggs. *Essex. Nat.* 23: 171-202.
- Haines, L. C. (1945). Albino Kookaburra. *Emu* 45: 217.
- Hall, R. (1900). Notes on some abnormal-plumaged birds. *Vict. Nat.* 16: 171-180.
- Harrison, C. J. O. (1963a). Grey and fawn variant plumages. *Bird Study* 10: 219-233.
- Harrison, C. J. O. (1963b). Non-melanic, carotenistic and allied variant plumages in birds. *Bull. Brit. Ornith. Club* 83: 90-96.
- Hicks, L. E. (1934). Individual and sexual variations in the European Starling. *Bird Banding* 5: 103-118.
- Le Souëf, D. (1912). Albinism. *Emu* 12: 266.
- Lee, F. C. and Keeler, C. E. (1951). Pigment variations and their correlates in birds. *Auk* 68: 80-85.
- Mattingley, A. H. E. (1922). Is albinism connected with sex characteristic? *Emu* 22: 73.
- Moffat, R. (1979). Confirmed occurrence of the Northern Shoveller in Australia. *Aust. Birds* 13: 67.
- Nero, R. W. (1954). Plumage aberrations in Redwings (*Agelaius phoeniceus*). *Auk* 71: 137-154.
- North, A. J. (1901-1914). Nests and Eggs of Birds Found Breeding in Australia and Tasmania. *Aust. Mus. Spec. Cat.* 1. Vols 1-4.
- Robinson, A. (1954). A melanistic Kookaburra. *W.A. Nat.* 3: 44.
- Rollin, N. (1962). Abnormal yellow, white and fawn plumages. *Bull. Brit. Ornith. Club* 82: 83-86.
- Sage, B. L. (1962). Albinism and melanism in birds. *Brit. Birds* 55: 201-225.
- Sage, B. L. (1963). The incidence of albinism and melanism in British birds. *Brit. Birds* 56: 409-416.
- Schodde, R., Glover, B., Kinsky, F. C., Marchant, S., McGill, A. R. and Parker, S. A. (1978). Recommended English names for Australian birds. *Emu* 77: 245-307.

### APPENDIX 2

#### *Species in which melanism has been recorded in Australia*

The following species provided records in the literature search; the number of records for each species is shown in brackets.

#### Black-browed Albatross

- |  |     |  |     |
|--|-----|--|-----|
| <i>Diomedea melanophrys</i>                        | (1) | Laughing Kookaburra <i>Dacelo novaguineae</i>    | (2) |
| Australian Pelican <i>Pelecanus conspicillatus</i> | (1) | Pheasant Coucal <i>Centropus phasianinus</i>     | (1) |
| Rufous Night-Heron <i>Nycticorax caledonicus</i>   | (1) | White-throated Gerygone <i>Gerygone olivacea</i> | (2) |
| Crested Pigeon <i>Ocyphaps lophotes</i>            | (1) | Willie Wagtail <i>Rhipidura leucophrys</i>       | (2) |
| Sulphur-crested Cockatoo <i>Cacatua galerita</i>   | (1) | Australian Magpie <i>Gymnorhina tibicen</i>      | (1) |

## APPENDIX 1

*Species in which albinism has been recorded in Australia*

The following species provided records in the literature search; the number of records for each species is shown in brackets.

Emu <i>Dromaius novaehollandiae</i>	(2)	Richard's Pipit <i>Anthus novaeseelandiae</i>	(1)
Southern Cassowary <i>Casuarius casuarius</i>	(1)	Song Thrush <i>Turdus philomelos</i>	(1)
Shy Albatross <i>Diomedea cauta</i>	(1)	Blackbird <i>Turdus merula</i>	(14)
Short-tailed Shearwater <i>Puffinus tenuirostris</i>	(8)	Flame Robin <i>Petroica phoenicea</i>	(3)
Slender-billed Prion <i>Pachyptila belcheri</i>	(1)	Scarlet Robin <i>Petroica multicolor</i>	(5)
Little Black Cormorant <i>Phalacrocorax sulcirostris</i>	(1)	Eastern Yellow Robin <i>Eopsaltria australis</i>	(3)
Little Pied Cormorant <i>Phalacrocorax melanoleucus</i>	(1)	Jacky Winter <i>Microeca leucophaea</i>	(2)
Black-necked Stork <i>Xenorhynchus asiaticus</i>	(1)	Grey Shrike-thrush <i>Colluricincla harmonica</i>	(1)
Australian Shelduck <i>Tadorna tadornoides</i>	(1)	Grey Fantail <i>Rhipidura fuliginosa</i>	(1)
Pacific Black Duck <i>Anas superciliosa</i>	(3)	Willie Wagtail <i>Rhipidura leucophrys</i>	(15)
Grey Teal <i>Anas gibberifrons</i>	(2)	Golden-headed Cisticola <i>Cisticola exilis</i>	(2)
Northern Shoveler <i>Anas clypeata</i>	(1)*	Superb Fairy-wren <i>Malurus cyaneus</i>	(7)
Maned Duck <i>Chenonetta jubata</i>	(1)	White-winged Fairy-wren <i>Malurus leucopterus</i>	(2)
Wedge-tailed Eagle <i>Aquila audax</i>	(3)	Brown Thornbill <i>Acanthiza pusilla</i>	(1)
Swamp Harrier <i>Circus aeruginosus</i>	(3)	Buff-rumped Thornbill <i>Acanthiza reguloides</i>	(1)
Brown Falcon <i>Falco berigora</i>	(1)	Yellow-rumped Thornbill <i>Acanthiza chrysorrhoa</i>	(7)
Australian Kestrel <i>Falco cenchroides</i>	(1)	White-throated Treecreeper	
Stubble Quail <i>Coturnix pectoralis</i>	(4)	<i>Climacteris leucophaea</i>	(1)
Dusky Moorhen <i>Gallinula tenebrosa</i>	(2)	Red-browed Treecreeper <i>Climacteris erythrops</i>	(1)
Purple Swamphen <i>Porphyrio porphyrio</i>	(1)	Brown Treecreeper <i>Climacteris picumnus</i>	(5)
Coot <i>Fulica atra</i>	(1)	Red Wattlebird <i>Anthochaera carunculata</i>	(3)
Bush Thick-knee <i>Burhinus magnirostris</i>	(1)	Noisy Miner <i>Manorina melanocephala</i>	(3)
Sooty Oystercatcher <i>Haematopus fuliginosus</i>	(1)	Singing Honeyeater <i>Lichenostomus virescens</i>	(4)
Masked Lapwing <i>Vanellus miles</i>	(7)	Mangrove Honeyeater <i>Lichenostomus fasciocularis</i>	(2)
Double-banded Plover <i>Charadrius bicinctus</i>	(1)	Fuscous Honeyeater <i>Lichenostomus fuscus</i>	(1)
Red-capped Plover <i>Charadrius ruficapillus</i>	(1)	White-plumed Honeyeater <i>Lichenostomus penicillatus</i>	(1)
Latham's Snipe <i>Gallinago hardwickii</i>	(1)	New Holland Honeyeater <i>Phylidonyris novaehollandiae</i>	(4)
Curlew Sandpiper <i>Calidris ferruginea</i>	(1)	Eastern Spinebill <i>Acanthorhynchus tenuirostris</i>	(1)
Silver Gull <i>Larus novaehollandiae</i>	(1)	White-fronted Chat <i>Ephthianura albifrons</i>	(1)
Black Noddy <i>Anous minutus</i>	(3)	Silvereye <i>Zosterops lateralis</i>	(2)
Topknot Pigeon <i>Lopholaimus antarcticus</i>	(2)	European Goldfinch <i>Carduelis carduelis</i>	(1)
Spotted Turtle-Dove <i>Streptopelia chinensis</i>	(1)	House Sparrow <i>Passer domesticus</i>	(9)
Galah <i>Cacatua roseicapilla</i>	(4)	Red-browed Firetail <i>Emblema temporalis</i>	(2)
Musk Lorikeet <i>Glossopsitta concinna</i>	(1)	Common Starling <i>Sturnus vulgaris</i>	(2)
Australian King-Parrot <i>Alisterus scapularis</i>	(9)	Common Mynah <i>Acridotheres tristis</i>	(2)
Red-winged Parrot <i>Aprosmictus erythropterus</i>	(3)	Satin Bowerbird <i>Ptilonorhynchus violaceus</i>	(3)
Superb Parrot <i>Polytelis swainsonii</i>	(2)	Apostlebird <i>Struthidea cinerea</i>	(1)
Red-capped Parrot <i>Purpureicephalus spurius</i>	(1)	White-winged Chough <i>Corcorax melanorhamphos</i>	(1)
Crimson Rosella <i>Platycercus elegans</i>	(12)	Magpie Lark <i>Grallina cyanoleuca</i>	(5)
Eastern Rosella <i>Platycercus eximius</i>	(6)	Pied Currawong <i>Strepera graculina</i>	(1)
Pale-headed Rosella <i>Platycercus adscitus</i>	(2)	Grey Butcherbird <i>Cracticus torquatus</i>	(1)
Mallee Ringneck <i>Barnardius barnardi</i>	(4)	Pied Butcherbird <i>Cracticus nigrogularis</i>	(2)
Red-rumped Parrot <i>Psephotus haematonotus</i>	(4)	Australian Magpie <i>Gymnorhina tibicen</i>	(23)
Common Koel <i>Eudynamis scolopacea</i>	(1)	Australian Raven <i>Corvus coronoides</i>	(8)
Tawny Frogmouth <i>Podargus strigoides</i>	(1)	Little Crow <i>Corvus bennetti</i>	(2)
Laughing Kookaburra <i>Dacelo novaeguineae</i>	(14)		
Superb Lyrebird <i>Menura novaehollandiae</i>	(4)		
Skylark <i>Alauda arvensis</i>	(1)		
Welcome Swallow <i>Hirundo neoxena</i>	(7)		
Tree Martin <i>Cecropis nigricans</i>	(2)		
Fairy Martin <i>Cecropis ariel</i>	(1)		

\*(Moffat 1979)