



Title	How common is albinism really? Colour aberrations in Indian birds reviewed
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How common is albinism really? Colour aberrations in Indian birds reviewed

Anil Mahabal, Hein van Grouw, Radheshyam Murlidhar Sharma & Sanjay Thakur

People have always been intrigued by aberrantly coloured birds, and therefore sightings of these individuals are often reported in the literature. Contrary to popular belief, birds with a colour aberration do not necessarily fall victim to natural predators and often survive for a long time (van Grouw 2012). This also increases their chance of being seen and recorded by birders.

In general, plumage colour is the result of biological pigments (biochromes), structural colour (selective light reflection due to the structure of the feather), or a combination of the two. The two most common pigments that determine plumage colour in birds are melanins and carotenoids (Fox & Vevers 1960, van Grouw 2013). Another pigment, only found in parrots Psittacidae, is psittacin. Finally, there are the porphyrins which are relatively rare in birds.

Carotenoids are responsible for colours ranging from pale yellow to scarlet red. They cannot be synthesized by the birds themselves but have to be acquired from their food and transformed into colour pigments by enzymes. Psittacin is also responsible for yellow, orange and red but is not diet dependent. Porphyrins, which normally produce reddish brown colours, are formed by the breakdown of hemoglobin by the liver. They are sporadically found in a variety of bird groups in-

cluding galliforms Galliformes, nightjars Caprimulgidae, bustards Otidae, owls Strigidae and turacos Musophagidae.

Melanins can be divided into two forms; eumelanin and pheomelanin. Depending on concentration and distribution within the feather, eumelanin is responsible for black, grey and/or dark brown colours. Pheomelanin is responsible for warm, reddish-brown to pale buff colours, depending on concentration and distribution. Both melanins together can give a wide range of greyish-brown colours. In skin and eyes, only eumelanin is present (Lubnow 1963, van Grouw 2006, 2013). The development of melanin is the result of a biochemical process in the melanin producing cells, called melanin synthesis. Genetic mutations affecting the presence and distribution of the pigment cells, melanin synthesis or melanin distribution, and resulting in an aberrant colour, are not uncommon in birds. Besides this, pigment disturbance can also be caused by non-heritable, external and often temporary factors like injury, disease, food deficiency (Law 1921, Sage 1962) or other environmental factors (van Grouw 2013). While mutations affecting carotenoid or psittacin are rare, there are many genetic mutations which cause changes in the melanins. In domesticated pigeons for example, more than 50 different in-

heritable melanin mutations are known, which cause c 10 distinguishable colour aberrations (van Grouw & de Jong 2009). The most commonly inheritable aberrations found in wild birds are albino, leucism, brown, dilution, ino and melanism (table 1; for a more detailed description of these see van Grouw 2013).

Early records and terminology

Since the 19th century, many scientific papers have dealt with the subjects of plumage coloration, aberration and/or their genetics (eg, M'Callum 1885, Rollin 1962, 1964, Sage 1962, Harrison 1963). There has also been a wealth of published observations on individual sightings of colour aberrant birds (see appendix, published online at www.dutchbirding.nl/indian_birds_albinism) and combined records of aberrant coloration in species of particular countries or regions (eg, Deane 1876, 1879, 1880, Sage 1963, Gross 1965ab, Li et al 2011). However, until now there was no such comprehensive compilation of colour aberrations recorded from India, a gap filled by this paper.

471 Red-whiskered Bulbul / Roodoorbulbul *Pycnonotus jocosus*, Nawabganj Bird Sanctuary, Uttar Pradesh, India, 30 October 2012 (*Nandy Soumyajit*). Number 89, partial leucism, in appendix. Progressive greying in early stage.



In all these publications, a variety of names is used to identify and classify the pigment abnormalities. Albinism, for example, is defined as total or pure, partial, incomplete and imperfect (see appendix). Terms used for other aberrations are melanistic (blackish), rutilistic (reddish), flavistic (yellowish), fawn, pale and dark morph, leucistic, isabelline etc. This terminology however, is often conflicting or incorrect and is therefore confusing. Most commonly, the term albino is widely used for all sorts of different colour aberrations but in only a tiny proportion of cases it is used correctly. Partial albino as a term is wrong, as albinos cannot produce melanin pigment at all and therefore being partial albino is simply impossible. The true albino aberration is far less often encountered than many would suppose. In fact, aberrant white feathers are hardly ever caused by albinism; usually, it is either a form of leucism or a non-heritable cause such as progressive greying.

The most obvious difference between albinism and leucism is in the colour of the eyes: in an albino these are red, while in leucism the eye

472 Red-whiskered Bulbul / Roodoorbulbul *Pycnonotus jocosus*, Palakkad, Kerala, India, 23 March 2014 (*Unni Revi*). Number 91, leucistic, in appendix. Mutation brown in moderately sun-bleached plumage. This bird was nesting with normally coloured individual.

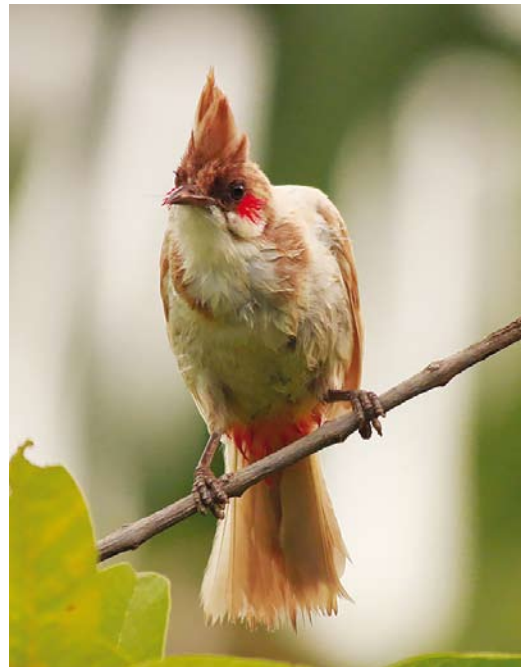


TABLE 1 Identification key for naming colour aberrations in birds

Aberration	Effect on melanins	Effect on plumage colour	Remarks
albino	total lack of both melanins in feathers, eyes and skin due to heritable absence of enzyme tyrosinase in pigment cells	all-white plumage, red eyes and pink feet and bill	albinos are rarely seen in wild as their survival chances are limited due to poor eyesight; most die soon after fledging
leucism	total lack of both melanins in all or parts of plumage and skin due to heritable absence of pigment cells in all or parts of skin	all-white plumage or all-white feathers next to normal-coloured ones (partial leucism); pink bill and feet in the all-white birds and possibly normal-coloured bill and feet in partial leucism depending on where pigment cells are missing; always normal-coloured eyes	white pattern in partial leucism is often patchy and bilaterally symmetrical; pattern is already present in juvenile plumage and does not change with age
progressive greying	total lack of both melanins in all or parts of plumage (and skin) due to progressive loss of pigment cells in all or parts of skin with age	all-white plumage or all-white feathers mixed with normal-coloured ones; bill and feet may be affected depending on form of progressive greying; always normal-coloured eyes	white feathers not present in juvenile plumage; from onset of this condition, the bird will get increasing number of white feathers after every moult
brown	qualitative reduction of eumelanin due to incomplete synthesis of eumelanin; pheomelanin unaffected	normally black parts are brown; originally reddish/yellowish brown unaffected	plumage with incompletely oxidized eumelanin is very sensitive to sunlight and therefore bleaches further rapidly to almost (dirty) white
dilution	quantitative reduction of both melanins or eumelanin only	normally black parts are silvery grey; originally reddish/yellowish brown is buff/cream or unaffected	plumage looks like pale version of their normal counterparts
ino	strong qualitative reduction of both melanins due to incomplete synthesis of both melanins	normally black parts are very pale brown/cream; originally reddish/yellowish brown hardly visible; eyes pinkish, feet and bill pink	eyesight in ino birds is much better than in albino birds and, therefore, any adult bird in the wild with 'white' plumage and reddish eyes is thus ino and not albino
melanism	abnormal deposit of melanin (not necessarily an increase of pigment)	increase of black and/or reddish brown or altered pattern	in this mutation, there is no loss of pigment (quantitative reduction) or change in shape and size of melanin granules (qualitative reduction); hence, plumage of melanistic birds is, therefore, not obviously aberrant: plumage looks 'natural' but different from that of known species

Melanin aberrations do not affect carotenoid pigments (yellow, orange and red) which, if present in the relevant species, remain present.

colour is unaffected (note that in many species 'red' is the normal eye colour but this is the colour of the iris only as the pupil is 'black'; in albinos, the original eye pigmentation is absent and the red colour of their eyes, including the pupil, is caused by blood that is visible through the colourless tissue). This seemingly minor difference between albino and leucism is related to the underlying causes of the two aberrations, which are actually completely different. An albino has pigment cells but is lacking the necessary enzyme to start melanin synthesis, whereas a leucistic bird lacks pigment cells altogether and is therefore unable to provide its feathers with melanin.

True leucism is congenital (present from birth) but a far more common cause for pigmentless feathers is 'progressive greying', a progressive loss of pigment cells that accumulates with each successive moult. In the early stages, these are usually randomly spread all over the bird but finally the entire plumage can become white. The causes for progressive greying are still unknown and it may or may not be heritable. Some forms may be related solely to age while in others the progressive loss of pigment cells may be due to (heritable) disorders such as vitiligo (pigment disease) or related to habitat. Progressive greying is the most common cause of white feathers in birds (van Grouw 2012, 2013).

Although the final appearance in albinism, leucism and progressive greying is roughly the same – white plumage – the nature and genetic background is totally different. Therefore, the terminology to distinguish them should be different, too.

Importance of correct terminology

Different aberrations may result in superficially similar plumage, or the same aberration may appear radically different, depending on taxon, sex, age, extent of plumage wear and the species' original pigmentation. The nature and genetic background of each aberration, however, is different. Therefore, to be able to correctly explore the plumage irregularities, their causes and their occurrences, it is necessary to distinguish them by their causes and not their appearance. Only by adopting a terminology that reflects the nature and causes of each abnormality is it possible to effectively document their distribution and frequency.

The recognition and naming of colour aberrations in birds, however, still causes widespread difficulties and confusion (van Grouw 2013, Koparde et al 2014). Identifying colour mutations in the field can be extremely difficult and is by no

means always possible. The views of the bird may be less than ideal: the bird in the field may be too far away or is moving too quickly to distinguish the aberration in sufficient detail, or the plumage may already be strongly bleached and no longer shows the original coloration. When trying to identify a mutation correctly, it is important to know exactly how the original plumage colour of the relevant species should look! Next, try to see parts of the feathering that are not strongly exposed to sunlight in order to determine whether the plumage appears to have been bleached differentially by light. Having done that, and with the original coloration in mind, the identification key for the seven most common plumage aberrations in table 1 should make it easier to name the mutation correctly.

Methods

For this paper, we have reviewed 180 published historical records, notes and photographs of colour aberrations in Indian birds in an attempt to determine which of the aberrations named in table 1 were responsible. The original descriptions of the aberrations in each record were carefully interpreted, based on extensive personal research by Hein van Grouw spanning 18 years. For the majority of records, a more accurate definition for each aberration could be assigned.

Some descriptions lacked detail to determine the actual aberration involved but albinism could almost always be ruled out (eg, number 46; 'A pure white bird, bill and iris black...'). Many descriptions, however (eg, number 93; '... ventral side sandy-brown; all feathers tipped with whitish...'), gave sufficient clues to make a positive identification. Also most of the records with a photograph could be re-named accurately.

The following facts were taken in account whilst reviewing the historical records: **1** often a plumage described as 'white' by an author is actually not white (lacking the pigment), but only paler than normal; **2** a secondary effect of aberrant pigmentation, especially in plumage with qualitative melanin reduction, is that colours bleach unusually quickly and feathers can become almost white; **3** albino birds do not survive for long after fledging; however, this is due to poor eyesight rather than their white plumage, so any record of a 'white' bird which is past the fledgling stage is not likely to be an albino; and **4** certain aberrations have a higher incidence within certain taxa, eg, progressive greying in coots Fulicidae, and leucism in waterfowl and Galliformes.



473 Red-wattled Lapwing / Indische Kievit *Vanellus indicus*, Pithora, Chhattisgarh, India, 28 February 2014 (*Ajmani Charandeep*). Number 38, leucistic, in appendix. Mutation brown but plumages strongly bleached further by sunlight. **474** Black-tailed Godwit / Grutto *Limosa limosa*, Mangalajodi wetlands, Odisha, India, 18 November 2012 (*Ukil Panchami Manoo*). Number 44, leucistic, in appendix. Mutation brown in sun-bleached plumage but with some new, fresh feathers in wings (tertials). **475** Common Hawk-Cuckoo / Indische Sperwerkoekoek *Hierococcyx varius*, Chandrapur, Maharashtra, India, 21 November 2014 (*Sakhare Sumedh*). Number 55, leucistic, in appendix. Mutation ino in fresh plumage and therefore original pattern still visible. **476** Red-tailed/Daurian/Chinese Shrike / Turkestaanse/Daurische/Chinese Klauwier *Lanius phoenicuroides/isabellinus/arenarius*, Mumbai, Maharashtra, India, 8 January 2012 (*Ketkar Girish*). Number 95, leucistic, in appendix. Progressive greying in advanced stage.

Results

Altogether, 180 records of colour aberrations reported in 72 different Indian bird species over a period of 129 years have been reviewed (see appendix, published online at www.dutchbirding.nl/indian_birds_albinism). Our review showed that a variety of names is (still) used seemingly randomly to identify and classify the mutations. The names which are most often applied are albino, partial albino and leucism. These names, however, are used for many different colour aberrations and in the majority of the cases have been used incorrectly.

In 85 cases (47%), the aberration involved was termed albino (albinism, albinism) by the original author but in 84% of these cases (71 records: 39% of all records) albinism was definitely *not* the cause of the aberrant colour. Of the remaining 14 records, four were confirmed albino, while 10 remained uncertain. The aberrations involved in the 71 records that were found to be non-albino were identified as: brown (15 records), progressive greying (10), leucism (eight), ino (10), dilution (two) and unknown but not albino (26).

The incorrect term 'partial albino' (incomplete albinism/albinism, albino effect) was used 25



477 Eastern Jungle Crow / Oostelijke Junglekraai *Corvus (macrorhynchos) levaillantii*, Overa-Aru Wildlife Sanctuary, Kashmir, India, 25 May 2014 (Suhail Intesar). Number 169, leucistic, in appendix. Form of dilution, resulting in grey plumage.



478 Indian Jungle Crow / Indiase Junglekraai *Corvus (macrorhynchos) culminatus*, Kuttampura, Kottayam, Kerala, India, 28 October 2012 (P S Jinesh). Number 168, albino, in appendix. Dark form of ino but bleached by sunlight.

times (14%). The aberrations involved could, however, be identified as brown (five), progressive greying (eight), leucism (four), dilution (three), food deficiency (one) and unknown (four).

In 30 cases (17%), leucism was the assumed cause of the recorded aberrant plumage but in only one case was leucism confirmed to be responsible. The other aberrations involved were brown (eight), progressive greying (12), dilution (seven) and ino (two).

Melanism is clearly easier to identify, as all nine records (5%) concerned birds darker coloured than normal. However, in two cases the darkening was most likely to be artificial and not heritable, and in one case almost certainly the result of food deficiency in captivity.

In total, we were able to re-assign 136 records (76%), which could be divided into brown (41), progressive greying (36), leucism (15), ino (13), dilution (14), melanism (nine), albino (four) and food deficiency (four). Even though 44 records could not be re-assigned, it is clear that, compared with the initial high frequency of records of albinism, albino is not the most common aberration

in Indian birds. Instead, it is brown and progressive greying. Whereas progressive greying may or may not be heritable, brown is caused by a single genetic mutation common to all bird groups (see table 1 for definition). In at least 23% of the reviewed records, brown was the aberration involved. However, this percentage was probably higher, accounting for a proportion of the records counted as 'not albino', eg, numbers 39 and 41 in appendix.

Discussion

We are confident in stating that at least a quarter of the recorded aberrations in Indian birds are the result of the mutation brown. This percentage also agrees with the results found in other studies (van Grouw 2012), so we assume that brown accounts for c 25% of all aberrations encountered in birds in general.

The mutation brown is widespread amongst all bird species but given that this is the result of a single recessive mutation, the occurrence of so many 'brown' birds seems remarkable. However, the fact that brown is also sex-linked may provide

an explanation. 'Sex-linked' means that the gene that harbours the mutation is located on the Z-chromosome, which is the avian equivalent of the mammalian X-chromosome (in birds, males have two Z-chromosomes and females have a Z and W). Therefore, when a male that is heterozygous for brown but normal-coloured, breeds with a normal female, half of his daughters (=25% of his total offspring) will be brown. And, in addition to this, half of the male offspring from a heterozygous father will also be heterozygous for brown. So, to get 25% brown offspring, only one parent, the father, needs to be a carrier of the gene for brown. By comparison, for recessive mutations that are not sex-linked, both parents need to be heterozygous in order to get 25% aberrant offspring.

The above also explains why only brown females are seen in the wild as the mutation will always be exhibited in females that carry it, since they only have a single Z chromosome.

In many species, brown females have been recorded to successfully breed in the wild (eg, number 91 in appendix).

In spite of being the most common colour mu-

tation, brown is clearly the most difficult aberration to identify. The main reason is that plumage affected by the mutation brown (= incompletely oxidised eumelanin) is very sensitive to sunlight and will bleach quickly. Consequently, older plumage becomes almost white and is hard to distinguish in the field.

Besides being named albino (15), partial albino (five) and leucism (eight), other terms used for brown were unusual plumage (one), hypochromatism (one), isabelline (two), brown and white (one), colour variety (three), brown variety/tertiary albinism (two) and, actually, brown (three).

As shown above, albino birds are rarely seen in the wild. The mutation, however, is not uncommon and occurs quite frequently in most populations (van Grouw 2012). The inheritance of albinism is recessive and therefore the proportion of birds that carry the gene is probably far higher than expected. Young birds need to receive the recessive mutation from both parents (carriers) to be an albino. However, for every albino that is hatched, two carriers are also hatched. And half of the offspring of a carrier mated with a non-carrier

479 House Crow / Huis kraai *Corvus splendens*, Bhubaneswar, Odisha, India, 20 August 2013 (*Patnaik Manindra*). Number 153, albino, in appendix. Mutation brown in medium stage of further bleaching by sunlight.



480 House Crow / Huis kraai *Corvus splendens*, Kayamkylam, Kerala, India, 14 December 2013 (*Mash Asokan*). Number 156, leucistic, in appendix. Mutation brown in rather fresh plumage with not much further bleaching by sunlight yet.





481 House Crow / Huis kraai *Corvus splendens*, Thengumarahada, Nilgiris district, Tamil Nadu, India, 3 February 2010 (P J Vasanthan). Number 149, partial albino, in appendix. Leucism in typical pattern, pigmentless feathers in face and wing, found in many species.



482 Crow / kraai *Corvus*, RS Pura, near Jammu, Jammu and Kashmir, India, 14 October 2012 (R Das). Number 177, albino, in appendix. Juvenile bird with light form of ino. This fresh juvenile plumage still shows cream colour typical for ino. In few weeks' time, plumage will be bleached further by sunlight to visually white.

will also be carriers. One would therefore expect rather more albinos than are actually encountered – so why do we see so few in the wild?

The reason for their apparent scarcity in the wild is that the absence of melanin in the eyes makes them highly sensitive to light, with a poor depth of vision. It is really their poor eyesight, rather than their white plumage, that makes albinos vulnerable, and most die soon after fledging. The four real albino birds found in this review, and the 10 possible albinos, were all fledglings or birds kept in captivity. Also, most of these cases involved corvids, large birds which frequently live and breed close to human settlements and are therefore more likely to be noticed in the few days they remain alive after fledging.

To summarise, our review showed that brown and progressive greying are the most common colour aberrations in Indian birds, while albinos were very seldom encountered in the wild. These findings agree with results found in European birds (van Grouw 2012, 2013). The term albino, however, was used frequently, and therefore often wrongly, to name colour aberrations seen in wild birds. As explained above, in order to study the causes and occurrences of colour irregularities, it is necessary to correctly identify the different aberrations. Where this cannot be done with certainty, it is preferable for observers not to attempt to name the aberration but just carefully describe and, if possible, photograph the bird. By doing so, the visible information will be on record for future

research and the record cannot be misinterpreted as a result of an incorrect name.

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Samenvatting

HOE ALGEMEEN IS ALBINISME WERKELIJK? HERZIENING VAN KLEURAFWIJKINGEN BIJ INDIASE VOGELS Afwijkend gekleurde vogels spreken tot de verbeelding en waarnemingen van zulke individuen worden dikwijls gerapporteerd in de literatuur, nu en in het verleden. De terminologie die wordt gebruikt voor het benoemen en identificeren van kleurafwijkingen is verwarrend en spreekt elkaar vaak tegen. In dit artikel worden 180 kleurafwijkingen bij Indiase vogels, gepubliceerd over een periode van 125 jaar, tegen het licht gehouden en worden indien mogelijk de werkelijke kleurafwijkingen vastgesteld (zie de appendix die alleen online wordt gepubliceerd op www.dutchbirding.nl/indian_birds_albinism). 'Albinisme' was de vaakst gebezigde term maar slechts in een zeer klein

deel van de gevallen werd die term correct gebruikt. Na herziening en heridentificatie waren de 180 gevallen als volgt verdeeld: bruin (41), 'progressive greying' (36), leucisme (15), ino (13), dilutie (14), melanisme (negen), albino (vier), gebrekkig voedsel (vier), onbekend maar niet albino (34) en onbekend en mogelijk albino (10). Voor onderzoek naar en begrip van kleurafwijkingen, hun oorzaken en het voorkomen is het noodzakelijk dat de verschillende afwijkingen worden ingedeeld en benoemd naar hun fysiologische achtergrond en niet naar hun uiterlijk.

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APPENDIX Records of colour aberrations in Indian birds between 1886-2015; for practical reasons, the taxonomy and sequence of species loosely follows Rasmussen & Anderton (2012), not that of Dutch Birding or Praveen et al (2016).

No.	Species	Description of aberration as given by original author in case no photo was presented (remarks, if any)	Aberration as named by original author (sex, if any)	Most likely aberration as per table 1	Locality (with co-ordinates) and dates (if any)	Source
1	Family: Podicipedidae Little Grebe <i>Tachybaptus ruficollis</i>	no details provided, in party of three one was albino with unusual coloration	albinism	not albino	roadside pond near Khordivillage (22°5'14.68"N 82°8'35.91"E), Bilaspur district, Madhya Pradesh (now Chhattisgarh), 10 November 1994	Bharos 1996
2	idem	photograph	leucism	dilution	Gamela Pond, Bankodavillage, (23°49'15.14"N 73°59'11.27"E), Dungepur district, Rajasthan, 9 August 2008	Mehra et al 2009, Sharma et al 2009
3	Family: Phalacrocoracidae Little Cormorant <i>Phalacrocorax niger</i>	white patch on throat as in normal bird; top of head and neck brownish; whole plumage with silver-grey tone; paler on back and abdomen; feather's edges white	unusual plumage	brown (old, sun-bleached plumage)	Kamla River (26°4'49.96"N 86°0'46.92"E), Darbhanga district, Bihar, 25 February 1935 (kept in Yale Pea Body Museum)	Ripley 1962
4	Family: Ardeidae Grey Heron <i>Ardea cinerea</i>	head, neck, crest brown-white; rest of the body plumage grey to buff-brown; legs dirty flesh, other soft parts normal	peculiar form of albinism	brown	Baghownie Fety (26°7'7.59"N 85°53'53.85"E), Darbhanga, Bengal (now in Bihar), June 1903	Inglis 1903
5	Eastern Cattle Egret <i>Bubulcus coromandus</i>	dark colour with hyper pigmentation constantly observed for more than two months (photograph)	dark morph or aberrant morph	melanism	Alinagarvillage (27°47'57.57"N 80°25'5.94"E), Lakhimpur Kheri, Uttar Pradesh	Singh 2012
6	Black-crowned Night Heron <i>Nycticorax nycticorax</i>	pure white breeding adult without tinge of cream; bill short, thick and bright yellow; iris brilliant blood-red circle; legs bright yellow; no nuchal plumes	albino / aberrant plumage	leucism	Simpson estate, Lily pond, Sembian (10°43'58.08"N 79°42'28.64"E), Tamil Nadu, 16 July 1991	Gurusami 1992
7	Family: Anatidae Lesser Whistling Duck <i>Dendrocygna javanica</i>	pure white bird with pink bill instead of slaty grey (in flock of 3000 birds); no details on colour of eyes, bill and feet provided	albino	leucism	Centenary Bird Sanctuary (22°34'51.78"N 88°16'59.62"E), a Jheel near Santragachi, 7 km SW of Kolkata, Howrah district, West Bengal, 13 January 1994	Chatterjee 1995
8	idem	pure white bird; no details on colour of eyes, bill and feet provided	albino	leucism	Kalyani Lake (22°58'12.72"N 88°26'43.86"E), 60 km north of Kolkata, Nadia district, West Bengal, January 1994	Chatterjee 1995
9	Greylag Goose <i>Anser anser</i>	single white-coloured goose in party of normal Greylag Goose; no details on colour of eyes, bill and feet provided	partial albino	leucism	Haigam Jheel (34°14'26.86"N 74°31'41.07"E), Jammu and Kashmir, February 1950	Editors 1950, Abdulali 1966, Ali & Ripley 1983
10	Ruddy Shelduck <i>Tadorna ferruginea</i>	colour of bird mostly white with some black tail-feathers; eyes, bill and legs black; along with flock of 71 Bar-headed Geese	partial albinism	probably sun-bleached brown	Shevati Reservoir (20°58'32.34"N 77°52'2.68"E), Amaravati district, Maharashtra, 30 December 2009 to 30 January 2010, also noticed in winter of 2010/11	Wadtkar & Wagh 2013
11	Knob-billed Duck <i>Sarkidornis melanotos</i>	perfectly white bird; no details on colour of eyes, bill and feet provided	albinoism	leucism	tank near Bhuj (23°15'1.01"N 69°39'52.03"E), Gujarat, 1885	Newnham & Aitken 1886
12	Gadwall <i>Anas strepera</i>	photograph	case of hypochromatism (female)	brown	Bharatpur (27°10'2.49"N 77°31'10.33"E), Rajasthan, 25 November 1967 (in BNHS collection, Mumbai, Maharashtra)	Harrison & Harrison 1971

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13	Indian Spot-billed Duck <i>Anas poecilorhyncha</i>	photograph	leucistic	brown	Chotta Bodigamavillage (23°49'39.42"N 74°6'39.59"E), Dungepur district, Rajasthan, 4 February 2009	Mehra et al 2009, Sharma et al 2009
14	Northern Shoveler <i>Anas clypeata</i>	completely white head and salmon pink bill, mottled brown on dorsal ridge or culmen; eyes dark unlike yellow of male, iris not distinct; not yet fully plumaged	albino	leucism	Delhi Zoological Park (28°35'56.60"N 77°14'52.58"E), New Delhi, 19 November 1974	Darmakumarsinhji 1975
15	Garganey <i>Anas querquedula</i>	photograph	leucistic	dilution	Mangalajodi (19°55'53.52"N 85°25'26.48"E), near Chilka Lake, Odisha, 23 December 2012	Karuthedathu et al 2014
16	Family: Accipitridae Crested Hawk-eagle <i>Nisaetus cirrhatus</i>	photograph	albino	ino	Sitamata Wildlife Sanctuary (24°04'00.0"N 74°25'00.0"E), Rajasthan, 23 August 2008	Parashar 2008, http://tinyurl.com/hdu8x4b
17	Shikra <i>Accipiter badius</i>	photograph	albino?	progressive greying	Pench NP (21°27'28.46"N 79°11'51.22"E), Maharashtra, 31 November 2014	Thomare 2014, http://tinyurl.com/j6wgo2g
18	Family: Phasianidae Black Francolin <i>Francolinus francolinus</i>	pure white; no other details provided	pure albino	leucism	Kutch (23°44'10.97"N 69°51'40.58"E), Gujarat, 1950 (shot by H H Maharao of Kutch)	Molesworth 1951, editor's footnote
19	Grey Francolin <i>Francolinus pondicerianus</i>	two birds with overall dark plumage due to excessive melanin	dark morph (two)	melanism	Surendranagar city (22°43'37.48"N 71°36'21.51"E), Gujarat, 16 August 2010	Roy 2010
20	idem	whole body white, legs and bill pale coloured; eyes looking normal (all from photograph provided)	albino	leucism	in BNHS collection, Mumbai, Maharashtra	Pande et al 2003
21	idem	photograph	leucistic	dilution	Mihan (21°3'32.29"N 79°1'50.35"E), Nagpur, Maharashtra, 10 December 2014	Nafdey 2014, http://tinyurl.com/j6wgo2g
22	Jungle Bush Quail <i>Perdica asiatica</i>	soft fawn colour rather than white	albinoism	brown	tank near Bhuj (23°17'1.01"N 69°38'52.03"E), Kutch, Gujarat, 1885	Newnham & Aitken 1886
23	idem	no details given	albino	not albino	Kutch (23°55'29.79"N 69°33'27.71"E), Gujarat, July 1886 (in BNHS collection Mumbai, Maharashtra)	Newnham & Aitken 1886
24	Rock Bush Quail <i>Perdica argoondah</i>	no details given	albino	not albino	no details given	Ali 1960
25	Family: Rallidae Common Coot <i>Fulica atra</i>	plumage is mixture of black feathers giving speckled appearance, bill and feet fleshy white, iris pale blue	incomplete albinism	progressive greying	donated by Maharaja of Dhar, (21°23'52.09"N 71°25'23.40"E), Gujarat, in 1926 (in BNHS collection, Mumbai, Maharashtra)	Vijayarajji 1926, editor's footnote
26	idem	white bird; no other details provided	white bird	progressive greying	Pariej (22°23'N 72°38'E), Kheda district, Gujarat, 13 January 1988	Parasharya et al 1996

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27	idem	white bird with black splashes on upper neck, wing-coverts and tail region; bill pale yellow, black line extending behind eyes (in flock of 9100 normal black-coloured coots)	white bird	progressive greying	Kanewal Reservoir (22°30'N 72°32'E), Kheda district, Gujarat, 29 December 1994	Parasharya et al 1996
28	idem	no details provided	albino	not albino	Keoladeo National Park (27°11'2.49"N 77°30'10.33"E), Bharatpur, Rajasthan, January-April 1992	Soni 1992b
29	idem	pure white coot with few black breast feathers, bill pinkish-white; in flock of 6000 normal coots (eye colour not mentioned)	albino	progressive greying	Ummedganj (25°9'42.50"N 75°53'23.74"E), Kota, Rajasthan, December 1995 & February 1996	Nair & Vyas 1996
30	idem	photograph	albino	progressive greying	Okha (22°27'50.32"N 69°3'59.17"E), Gujarat, 7 January 2012	Misra 2012, http://tinyurl.com/j6wgo2g
31	idem	photograph	albino	progressive greying	Menar (24°36'6.26"N 74°6'17.86"E), Udaipur, Rajasthan, 25 October 2014	Pegu 2014, http://tinyurl.com/j6wgo2g
32	Family: Otididae Great Indian Bustard <i>Ardeotis nigricaps</i>	pure white bird as an egret, in flock of nine normal coloured bustards (eye colour not mentioned)	albino	leucism	18 miles NW of Kutch, Mandvi (22°50'55.77"N 69°19'44.76"E), Gujarat, 30 January 1926	Vijayrajji 1926
33	Family: Jacanidae Pheasant-tailed Jacana <i>Hydrophasianus chirurgus</i>	totally white-bodied jacana (no other details provided)	albino	not albino	Keoladeo National Park, (27°12'2.49"N 77°32'10.33"E), Bharatpur, Rajasthan, January-April 1992	Soni 1992b
34	Family: Charadriidae Little Ringed Plover <i>Charadrius dubius</i>	photograph; still some vague colour present in wings; bill and feet are normally coloured	albino	fully sun-bleached brown	Bhigwan (18°17'10.22"N 74°46'19.72"E), Pune district, Maharashtra, 9 February 2013	Desai 2013, http://tinyurl.com/j6wgo2g
35	Lesser Sand Plover <i>Charadrius mongolus</i> (<i>Anarhynchus mongolus</i>)	pure milky white bird, bill greyish with black tip; legs black, no chestnut-red breast band; nape without chestnut colour; along with other migratory waders (eye colour not mentioned)	albino	dilution	near Prawn bund, Chilika Lake (19°40'N 85°25'E), Odisha, 25 September 2002	Sathiyaselvam 2003
36	Red-wattled Lapwing <i>Vanellus indicus</i>	upperparts white instead of bronze-brown, throat and breast black; eyes brownish-red, legs yellow as usual (incubating pair with normal progeny)	partial albino	brown	Bundi-Kota road (25°13'44.38"N 75°48'0.59"E), Kota, Rajasthan, 1992	Soni 1992a
37	idem	photograph	partial albino	brown	near Navratan complex (24°36'50.52"N 73°41'36.83"E), in flooded field, Udaipur, Rajasthan, 27 July 2007	Mehra et al 2008, 2009
38	idem	photograph	leucistic	brown (bleached)	Pithora, Chhattisgarh, 28 February 2014	Ajmani 2014, http://tinyurl.com/j6wgo2g

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39	Family: Scolopacidae Common Snipe <i>Gallinago gallinago</i>	commonly known from Indian region, but no details	albino & semi-albino (received number of specimens from different parts of India)	probably brown, dilution and leucism (not uncommon in snipes) but not albino	in BNHS collection, Mumbai, Maharashtra	Evans 1914, editor's footnote
40	idem	completely white snipe (no other details provided)	albino	not albino	20 km from Bangalore (13°2'48.52"N 77°35'9.58"E), Karnataka, 20 January 1935	Dunn 1935
41	Pin-tailed Snipe <i>Gallinago stenura</i>	commonly known from Indian region, but no details	albino & semi-albino (received number of specimens from different parts of India)	probably brown, dilution and leucism (not uncommon in snipes) but not albino	in BNHS collection, Mumbai, Maharashtra	Evans 1914, editor's footnote
42	snipe <i>Gallinago</i>	pure white snipe (no other details provided)	albino	not albino	Krishnapur, Salt Lake (22°35'28.60"N 88°26'16.25"E), Kolkata, West Bengal, 1951	Molesworth 1951
43	Jack Snipe <i>Lymnocyptes minimus</i>	no details	melanistic (received number of specimens from different parts of India)	unknown but melanism may be correct as not uncommon in snipes	in BNHS collection, Mumbai, Maharashtra	Evans 1914, editor's footnote
44	Black-tailed Godwit <i>Limosa limosa</i>	photograph	leucistic	brown	Mangalajodi wetlands (19°53'40.52"N 85°26'53.03"E), Odisha, 18 November 2012	Ukil 2012, http://tinyurl.com/j6wgo2g
45	Common Redshank <i>Tringa totanus</i>	complete white bird in flock of 500 birds, orange bill with black tip, typical orange legs (eye colour not mentioned)	albino	progressive greying or sun-bleached brown	Guda Bishnonian Bada Talab (26°11'47.07"N 73°3'20.74"E), 20 km SE of Jodhpur, Rajasthan, 19 & 21 January 2002	Dookia 2002
46	Wood Sandpiper <i>Tringa glareola</i>	pure white bird, bill and iris black, legs greenish instead of pink with many other species of sandpipers	albino	progressive greying or sun-bleached brown	Agi River (22°19'12.96"N 70°48'12.79"E), behind Central Jail, Rajkot, Gujarat, December 1968	Lavkumar 1969
47	idem	photograph	leucistic	dilution	Hennaghara Lake (12°46'38.65"N 77°39'38.89"E), Jigani, Bengaluru, Karnataka, 16 February 2014	Shankar 2014, http://tinyurl.com/j6wgo2g
48	Ruff <i>Philomachus pugnax</i> (<i>Calidris pugnax</i>)	albino bird with strikingly white feathers with only two grey coloured primaries in each wing; pink bill and legs in flock of 200 birds (eye colour not mentioned)	albino	progressive greying	Lakhawavillage, tank (25°4'57.84"N 75°50'28.02"E), Kota, Rajasthan, November 1994	Nair & Vyas 1996
49	idem	photograph	leucistic	progressive greying	Sultanpur (28°27'41.83"N 76°53'25.25"E), Gurgaon, Haryana, 15 August 2014	Khaitan 2014, http://tinyurl.com/j6wgo2g

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50	Family: Columbidae Laughing Dove <i>Streptopelia senegalensis</i>	overall white plumage with greyish primaries, chess board not prominent but with few light spots, iris and skin normal coloured	incomplete albinism	dilution	Aligarh (27°54'0.00"N 78°4'48.00"E), Uttar Pradesh, 7 March 1988	Javed 1992 b
51	idem	wild albino dove sighted in a farm (no details provided)	albino	not albino	Panchiyavadar village, (22°1'25.37"N 70°49'33.01"E), Gondal Taluka, Rajkot district, Gujarat, 6 May 1994	Pandya 1994
52	Family: Psittacidae Rose-ringed Parakeet <i>Psittacula krameri</i>	colour of head greenish, while rest of body light yellow; in flock of normal coloured parakeets	partial albino (probable)	dilution	Nizamuddin Bridge, (28°36'3.58"N 77°15'48.73"E), New Delhi, 22 April 1996	Bhargava & Hanfee 1996
53	idem	completely white body, retained greyish-greenish tinge on primaries and secondaries; greenish tinge on throat and abdomen; pale green patches on tail; eyes, bill and feet normal coloured		probably escaped bird, combination of two different mutations	Surat (21°11'N 72°51'E), Gujarat, 5 March 2014	Sayyed et al (communicated to BirdingAsia)
54	idem	photograph	leucistic	ino	Nagpur (21°9'13.40"N 79°4'14.17"E), Maharashtra, 12 August 2014	Pathak 2014, http://tinyurl.com/j6wgo2g
55	Family: Cuculidae Common Hawk-Cuckoo <i>Hierococcyx varius</i>	photograph	leucistic	ino	Chandrapur (19°57'10.04"N 79°17'58.26"E), Maharashtra, 21 November 2014	Sakhare 2014, http://tinyurl.com/j6wgo2g
56	Asian Koel <i>Eudynamys scolopacea</i>	conspicuous white patches on wings, inner web of secondaries of both wings and two tail-feathers totally white; eye colour not mentioned	partial albinism (male)	progressive greying	Indian Institute of Science (13°1'11.95"N 77°33'58.39"E), Bangalore, Karnataka, 30 August 1990	Shyamal 1990
57	Greater Coucal <i>Centropus sinensis</i>	prominent bilaterally symmetrical white patch (c 55 mm in length) on distal part of tibial region of both legs, rest of plumage colour normal	partial albinism (female)	leucism (partial)	Gola, Tarai region (28°4'40.24"N 80°28'34.01"E), Uttar Pradesh, 24 January 1985	Ghosal & Ghose 1990
58	Family: Strigidae Spotted Owlet <i>Athene brama</i>	feathers quite white, soft parts showing no signs of pigmentation; eyes uniform deep violet	albino (adult male)	dilution or ino	Benares (25°17'53.53"N 82°59'49.10"E), Uttar Pradesh, May 1910	Annandale 1910
59	idem	two melanistic chicks with overall plumage dark; one of parents partially dark and partially normal	melanistic (two chicks and one adult)	melanism, although artificial darkening is more likely	Saswad (18°20'N 74°1'E), Pune district, Maharashtra, May 2000	Pande et al 2005
60	Family: Alcedinidae Common Kingfisher <i>Alcedo atthis</i>	absolutely white bird (no details provided)	albino (adult male)	not albino	Bharatpur Bird Sanctuary (27°10'23.99"N 77°30'39.70"E), Near Python Point, Rajasthan, 5 November 1991	Aggarwal 1991
61	idem	totally white bodied with faint blue-green hue on rump; eyes and legs red; bill black with red at base	albino	brown (bleached)	Keoladeo NP (27°8'55.36"N 77°30'33.12"E), Bharatpur, Rajasthan, May 1992	Soni 1992b

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62	White-throated Kingfisher <i>Halcyon smyrnensis</i>	totally white albino bird	albinism	not albino	stream in Kawal Wildlife Sanctuary (19°05'N 78°32'E), Jaminivillage, Adilabad district, Arunachal Pradesh, 7 August 1999	Srinivasulu 2004
63	idem	white bird	albinism	not albino	Keoladeo NP (27°9'38.29"N 77°32'23.01"E), Bharatpur, Rajasthan, sighted by Asad Rahmani, BNHS, Mumbai, Maharashtra	Srinivasulu 2004
64	Family: Meropidae Green Bee-eater <i>Merops orientalis</i>	photograph	albino	progressive greying	Bhubaneswar (20°17'52.80"N 85°49'35.29"E), Odisha, 22 August 2013	Sahu Manoj and Deepak 2013, http://tinyurl.com/j6wgo2g
65	Family: Coraciidae Indian Roller <i>Coracias benghalensis</i>	photograph	albino effect	progressive greying	Jaipur (26°53'59.04"N 75°48'13.35"E), Rajasthan, 8 September 2012	Garg Sudhir 2012, http://tinyurl.com/j6wgo2g
66	Family: Upupidae Eurasian Hoopoe <i>Upupa epops</i>	completely white young bird with pink eyes; bill, tarsus and feet devoid of any colour; in company of three normal individuals	albinism	possibly albino	near Ambala Race Course (30°20'28.60"N 76°51'7.29"E), Haryana, July 1910 (in BNHS collection, Mumbai, Maharashtra)	Brooke 1911
67	idem	total white bird including crest; in company of normal individuals (no details provided)	albinism	not albino	in garden, Bikaner (28°1'15.52"N 73°18'11.62"E), Rajasthan, 1925	Rudkin 1925
68	idem	no details provided	partial albino	not albino	no details given	Donahue 1963
69	idem	photograph	leucistic	dilution	Versova (19°8'12.71"N 72°49'4.42"E), Mumbai, Maharashtra, February 2013	Nair 2013, http://tinyurl.com/j6wgo2g
70	Family: Picidae Black-rumped Flameback <i>Dinopium benghalense</i>	entire body white with light creamy tint, crimson coloured crest and light golden back as in normal bird (eye colour not mentioned)	colour phase but not an albino (male)	dilution	garden of Centre for Environmental Education (22°41'20.58"N 70°35'51.64"E), Kutch, Gujarat, 29 September 1986	Khacher 1989
71	Family: Alaudidae Ashy-crowned Sparrow-Lark <i>Eremopterix griseus</i>	upperparts pale cream; underparts bilateral whitish with central broad dark stripe; crown, cheek patch and nape whitish; wings, undertail-coverts, tail and legs pale brown; eye-stripe and chin pale black	isabelline cum partial albino	dilution	Saswad (18°20'N 74°1'E), Pune district, Maharashtra, 2 July 2006	Pawashe et al 2006

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72	Family: Hirundinidae Barn Swallow <i>Hirundo rustica</i>	pure white bird except for reddish forehead and throat; in flock of normal swallows (colour of eyes, bill and feet not mentioned)	albino	brown (bleached)	Giribettada Kere Tank (12°15'N 76°46'E), Mysore district, Karnataka, 24 November 2002	Shivaprakash et al 2006
73	Pacific Swallow <i>Hirundo tahitica</i>	head and throat pure white; crown with few blue-black feathers, rufous breast-band, primaries, secondaries and wing-coverts white; shoulder white with few black feathers; upper back, rump and three central tail-feathers white; tail-coverts with few black feathers; lower parts smokey-grey mingled with white (colour of eyes, bill and feet not mentioned)	piebald variety	progressive greying	Port Blair (11°37'15.19"N 92°43'31.33"E), Andaman Islands, January 1898	Butler 1898
74	Red-rumped Swallow <i>Hirundo daurica</i>	pure white bird with inner webs of secondaries and tail-feathers tinged with buff; iris pink	albino	ino	Darjeeling (27°2'1.83"N 88°15'41.69"E), West Bengal, 2 July 1919	Mathews 1919
75	Family: Motacillidae Nilgiri Pipit <i>Anthus nilghiriensis</i>	white bird in party of other normal pipits, getting mobbed by them (colour of eyes, bill and feet not mentioned)	albinism	not albino	Montford (11°25'13.40"N 76°51'55.82"E), Kotagiri, South India, Tamil Nadu, during 1935-36	Beadnell 1936
76	Family: Pycnonotidae Red-vented Bulbul <i>Pycnonotus cafer</i>	only wings white, rest of body normally coloured (colour of eyes, bill and feet not mentioned)	albinoism	progressive greying	Kutch (23°26'16.29"N 70°26'12.98"E), Gujarat, July 1886	Newnham & Aitken 1886
77	Red-vented Bulbul (Madras) <i>Pycnonotus cafer</i>	young bird with overall dark brown to glossy black plumage; undertail-coverts also glossy black instead of red or crimson	melanistic	melanism	garden in (Madras) Chennai (13°0'13.10"N 80°13'58.75"E), Tamil Nadu, March 1894	Berry 1894
78	Red-vented Bulbul (Burmese) <i>Pycnonotus cafer</i>	young bird, totally white, with white bill, feet and claws; bright-red eyes; bird remained of same colour till maturity	true albino	albino	kept in Indian Museum, (22°33'33.56"N&88°21'3.01"E), Kolkata, West Bengal, 1915	Baker 1915
79	Red-vented Bulbul (Bengal) <i>Pycnonotus cafer</i>	young captive bird having head, foreneck and nape white; some anterior feathers edged with black and pale brown; feathers on forehead edged with orange-pink; bill and feet black (eye colour not mentioned)	partial, temporary, accidental albinoism or semi-albino	not albino	kept in Indian Museum (specimen no 25456), 22°33'44.66"N 88°20'52.63"E), Kolkata, West Bengal, 1919	Baker 1919
80	Red-vented Bulbul (Bengal) <i>Pycnonotus cafer</i>	bird overall from crown/nape to tail chocolate brown; chin, throat and breast deep black; wings brown; bill black	melanism	melanism	Kolkata (22°37'43.99"N 88°24'30.64"E), West Bengal, 1921	Law 1921a
81	Red-vented Bulbul <i>Pycnonotus cafer</i>	no details given	partial albino	not albino	Shillong (25°34'43.58"N 91°53'35.71"E), Meghalaya	Mandal 1965

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82	idem	fully white, only slight greyish hue on head; red vent, eyes reddish and greyish legs	albino	brown (bleached)	Palace premises, Kota (25°11'13.66"N 75°51'7.86"E), Rajasthan, 1992	Soni 1992a
83	idem	white bulbul, head pale brown, rest of body white, with red vent; bathing with other normal bulbuls and spotted doves; sighted twice	albino	brown (bleached)	waterhole near rest house, Darrah Wildlife Sanctuary (24°50'3.31"N 75°57'43.78"E), Kota, Rajasthan, May 1994	Joshua 1996
84	idem	photograph	partial albino	progressive greying	Western Ghats (18°27'18.33"N 73°25'33.38"E), Maharashtra, 2001	Pande et al 2003
85	idem	shiny white plumage, head pale brownish, scarlet-red vent; it was less agile, somewhat shy and confined to thick foliage in single tree (eye colour not mentioned)	albino	brown (bleached)	Keibul Lamjao NP, Loktak Lake (24°30'7.51"N 93°46'33.15"E), Moirang district, Manipur, November 2000	Ghose & Khan 2005
86	idem	photograph	incomplete albino	progressive greying	14 km from Mahad on Latvan road (17°55'53.12"N& 73°20'46.30"E), Raigad district, Maharashtra, April-May 2007 and 31 May 2008	Mestri et al 2011
87	idem	photograph	leucistic	progressive greying	Jabalpur (23°10'10.99"N 79°56'28.05"E), Madhya Pradesh, 10 March 2014	Matthai 2014, http://tinyurl.com/j6wgo2g
88	Red-Whiskered Bulbul <i>Pycnonotus jocosus</i>	forehead, lore, cheek, neck and crown brownish; moustachial streak pale brown, hind parts of cheek and eye-lids white as normal; wings white, washed with pale orange; upper- and underparts white with tinge of blue; tail white; bill and claws blackish-brown; legs pinkish-brown; iris light brown	albino	brown	Calcutta (22°33'2.04"N 88°20'15.98"E), West Bengal, 1921	Law 1921b
89	idem	photograph	partial leucism	progressive greying	Nawabganj Bird Sanctuary (26°36'55.47"N 80°39'7.61"E), Uttar Pradesh, 30 October 2012	Nandy 2012, http://tinyurl.com/j6wgo2g
90	idem	photograph	albino	progressive greying	Dhenkanal (20°40'13.41"N 85°36'3.48"E), Odisha, May 2014	Jena 2014, http://tinyurl.com/j6wgo2g
91	idem	photograph (nesting bird)	leucistic	brown	garden at Palakkad (10°47'10.47"N 76°39'15.59"E), Kerala, 23 March 2014	Unni 2014, http://tinyurl.com/j6wgo2g
92	idem	photograph	leucistic	progressive greying	Bhandup (19°8'51.95"N 72°56'36.83"E), Mumbai, Maharashtra, September 2013	Nandy 2013, http://tinyurl.com/j6wgo2g

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93	White-eared Bulbul <i>Pycnonotus leucotis</i>	overall plumage uniform pale sandy or isabelline; tail darker; forehead, throat, crown and ear-coverts off white; ventral side sandy-brown; all feathers tipped with whitish; tail-coverts with carotenoid colouring	isabelline or 'pallelogical' colour aberration (2 females)	brown	Kaur Bet in Great Run of Kutch (24°6'42.36"N 70°57'5.08"E), Gujarat, March 1960	Ali 1960
94	Family: Laniidae Grey-backed Shrike <i>Lanius tephronotus</i>	pure white except faint grey on primaries and outer tail-feathers; secondaries and tertials tipped with rufous; iris dark brown; bill and legs flesh coloured	albinism	not albino	tea plantation in Kangra Valley (32°5'58.55"N 76°16'12.66"E), Palampur, Himachal Pradesh (erstwhile Punjab) (in BNHS collection Mumbai, Maharashtra)	Dudgeon 1904
95	Red-tailed/Daurian/Chinese Shrike <i>Lanius phoenicuroides/isabellinus/arenarius</i>	photograph	leucistic	progressive greying	Mumbai (19°8'58.44"N, 72°55'45.57"E), Maharashtra, 8 January 2012	Ketkar 2012, http://tinyurl.com/j6wgo2g
96	Family: Muscicapidae Indian Robin <i>Copsychus fulicatus</i>	head, neck, primaries, upperparts and wings whitish; throat, breast, abdomen and tail pale brown to brown; eyes, bill and feet normally coloured (all from photograph provided)	albino	brown	Western Ghats (18°20'50.47"N 74°21'43.21"E), Maharashtra	Pande et al 2003
97	Brown Rock Chat <i>Oenanthe fusca</i>	overall juvenile plumage light yellow; after moult it grew mainly normally coloured feathers except flight-feathers and tail which remained white; head and body plumage, however, persisted with small white patches	partial albino (young one rejected by parent)	unknown but not albino	Bikaner (28°0'53.10"N 73°19'13.19"E), Rajasthan, 2008	Singh 2010
98	Pied Bush Chat <i>Saxicola caprata</i>	photograph	leucistic	progressive greying	AMV, Yawatmal (20°23'14.02"N 78°7'11.94"E), Maharashtra, 20 December 2014	Joshi 2014, http://tinyurl.com/j6wgo2g
99	Family: Turdidae Orange-headed Thrush <i>Geokichla citrina</i>	photograph	leucistic	progressive greying	Namdapha (27°27'15.82"N 96°32'26.46"E), Arunachal Pradesh, 17 November 2013	Rajagopal 2013, http://tinyurl.com/j6wgo2g
100	Family: Timaliidae Indian Scimitar Babbler <i>Pomatorhinus horsfieldii</i>	head and upper plumage [upperparts] white, streaked with pale brown; wings and tail white, edged with pale brown; lower plumage [underparts] pure silky-white, bill orange-yellow, legs and feet pale blue; iris red-brown	partial albino (one of the partners)	brown	fruit garden, Kalhutti, Sigur Ghat (11°36'1.80"N 76°42'43.90"E), Nilgiris (alt 830 m), Tamil Nadu, 19 June 1922	Baker 1922
101	Large Grey Babbler <i>Turdoides malcolmi</i>	completely white plumage, legs and bill paler than normal; in flock of eight babblers (eye colour not mentioned)	total albinism	not albino	Kumbhalgarh Wildlife Sanctuary (25°9'10.58"N 73°35'14.10"E), Nandeshmavillage, Rajasthan, 29 July 2000	Sharma 2003
102	idem	entire body whitish, edges of wing- and tail-feathers blackish, rump and uppertail-coverts black; small black patch between eye and bill, bill whitish (eye colour not mentioned)	partial albinism	leucism	Padmatipalli (17°4'18.78"N 79°18'17.33"E), Nalgonda district, Arunachal Pradesh, 18 May 2011	Doki et al 2012

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103	idem	photograph	leucistic	progressive greying	Tal Chapper (27°47'33.76"N 74°26'29.94"E), Rajasthan, 3 January 2014	Shukla 2014 http://tinyurl.com/j6wgo2g
104	Jungle Babbler <i>Turdoides striata</i>	details not provided	albinoism	not albino	Kutch (23°55'12.27"N 69°48'57.73"E), Gujarat (in BNHS collection, Mumbai, Maharashtra), 24 May 1886	Newnham & Aitken 1886
105	idem	white babbler in flock; whole body covered with white feathers (in company of normally coloured babblers)	albino (looked-like)	progressive greying	Chembur area (19°3'56.82"N 72°54'6.12"E), Mumbai, Maharashtra, 1 October 1961	Janakiraman & Prasad 1961
106	idem	one bird in flock with head, neck and abdomen completely white, few lower wing-feathers and two tail-feathers with normal dark colour	partial albino	progressive greying	2 miles south of Indore, Bombay-Agra Highway, opposite Coca Cola factory (22°42'16.51"N & 75°49'16.16"E), Indore, Madhya Pradesh	Gupte 1969
107	idem	photograph	dark morph	melanism	Western Ghats (17°32'47.68"N 73°38'59.92"E), Maharashtra, 2001	Pande et al 2003
108	idem	photograph	albino	not albino, probably sun-bleached brown	Nagpur (21°9'13.40"N 79°4'14.17"E), Maharashtra, 23 June 2012	Londhe 2012, http://tinyurl.com/j6wgo2g
109	idem	photograph	leucistic	leucism	not mentioned	Sani & Kasambe 2007
110	Yellow-billed Babbler <i>Turdoides affinis</i>	photograph	albino	brown	no details	Parmer 2009
111	Silver-eared Mesia <i>Leiothrix argenteauris</i>	kept in aviary for three years; after that began to change colour to melanistic	melanistic	probably non-heritable melanism due to food deficiency	Calcutta (22°37'43.38"N 88°24'30.97"E), West Bengal, 1920	Law 1921 a
112	Family: Estrildidae <i>munia Lonchura</i>	details not provided	albino	possibly albino	in aviary of HH Maharawat of Pratapgarh (24°2'12.81"N 74°46'43.71"E), Rajasthan, 1942	Ram Singh 1942
113	Family: Passeridae House Sparrow <i>Passer domesticus</i>	absolutely pure snowy-white bird, mixed freely with normal sparrows, successively met with normal male and brought several broods for 2-3 years with normal progeny (colour of eyes, bill and feet not mentioned)	albino (female)	ino or progressive greying	hostel garden at Banares Hindu University (25°15'58.41"N 82°59'33.60"E), Uttar Pradesh, continuous observations from 1927-29	Tiwary 1930
114	idem	white forehead, large white spot at base of tail, white patches on wing, more prominent than in normal bird (colour of eyes, bill and feet not mentioned)	unusual plumage (male)	leucism	house garden, Madurai (9°55'29.40"N 78°6'26.98"E), Tamil Nadu, 23-26 July 1991	Sathasivam 1991
115	idem	photograph	leucistic	brown	Leh (34°9'42.03"N 77°34'47.22"E), Ladakh, Jammu and Kashmir, August 2012	Das, A 2012, http://tinyurl.com/j6wgo2g
116	idem	photograph	leucistic	progressive greying	Howrah (22°35'5.65"N 88°17'49.14"E), West Bengal, 15 August 2014	Mondal 2014, http://tinyurl.com/j6wgo2g

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117	Yellow-throated Sparrow <i>Gymnoris xanthocollis</i>	photograph	albino	brown (old plumage)	Tal Chappar Wildlife Sanctuary (27°47'33.76"N 74°26'29.94"E), Churu district, Rajasthan, 28 October 2011	Kataria 2011, http://tinyurl.com/j6wgo2g
118	idem	photograph	leucistic	progressive greying	Nagpur (21°9'13.40"N 79°4'14.17"E), Maharashtra, 29 October 2013	Dapke Niraj 2013
119	Family: Ploceidae Baya Weaver <i>Ploceus philippinus</i>	photograph	leucistic (female)	brown (bleached plumage)	agricultural farm near Chinchkheda (20°55'21.07"N 76°3'56.08"E), Jambhalkheda, Maharashtra	Sonar & Shrivastava 2014
120	Family: Sturnidae Brahminy Starling <i>Sturnia pagodarum</i>	photograph	partial melanism	Dark feathers due to staining	Western Ghat, (18°24'23.77"N 73°45'6.67"E), Maharashtra, 2001	Pande et al 2003
121	Asian Pied Starling (Pied Myna) <i>Gracupica contra</i>	completely brown bird with orange patch on eyes, grey wings, black crown with few white spots; in company of normal Starlings and Indian Mynas)	albinism	brown	Telco Colony (22°47'38.42"N 86°11'37.49"E), Jamshedpur, E Singhbhum district, Jharkhand, 11 August 2000	Sharma 2001
122	idem	photograph	partial leucistic	progressive greying	Jamalpur (23°3'39.92"N 87°59'33.30"E), Bhurdwan, West Bengal, 23 October 2014	Samanta 2014, http://tinyurl.com/j6wgo2g
123	idem	photograph	leucistic	progressive greying	Jalpaiguri (26°31'14.13"N 88°43'50.08"E), West Bengal, 21 October 2014	Basu 2014, http://tinyurl.com/j6wgo2g
124	Common Myna <i>Acridotheres tristis</i>	head, neck and upper breast white with yellowish tinge; underparts vinous-brown as usual but rectrices white with black tips; abdomen and tail-coverts white tinged vinous; upper plumage mixed with brown and white; bill, orbital skin, eyelids, legs, feet and claws yellow	variety (female)	brown (bleached)	Jainagar Factory (26°27'57.33"N 86°10'31.36"E), Madhubani, Bihar, 28 September 1890	Inglis 1900
125	idem	overall plumage pure white including fresh, moulting wing feathers; feathers around lore and eye black as in normal birds; underparts suffused with rufous-buff; head, uppertail-coverts and rump dull fulvous-brown; ear-coverts, chin and throat dark as normal; bill and legs lemon-yellow as normal (eye colour not mentioned)	constitutional albinoism. Bird loosing pigments	progressive greying	Tocklai (26°45'18.36"N 94°13'17.66"E), Jorhat, Assam, 1919 (kept in Indian Museum, Calcutta, West Bengal)	Baker 1919
126	idem	details not provided	albino	not albino	in aviary of H H Maharawat of Pratapgarh (24°2'12.81"N 74°46'43.71"E), Rajasthan, 1942	Ram Singh 1942

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127	idem	crown, neck and breast dull white; central crown bald; upperparts and underparts pale brown; a few primaries and secondaries and tail-feathers dull white, rest normal; bill and naked skin behind eye yellow along with legs as normal (in company with other myanas)	partial albino (male)	progressive greying	Sarabha Nagar (30°53'32.41"N 75°49'24.24"E), Ludhiana, Punjab, 19 June-11 July 1981	Sandhu and Dhindsa 1982
128	idem	dusty-white bird, head chocolate-brown; two brown stripes on each wing and tail; legs and cheeks pinkish instead of yellow; seen in company of other normal myanas	albinism	not albino	Durgapur village, (23°34'20.81"N 87°14'24.93"E), Tahar to Raiganj road, Uttar Dirajpur district, West Bengal, 18 September 1992	Jha 1994
129	idem	young bird from two normally coloured parent; pure white with yellow bill and legs; second chick in brood was normally coloured (eye colour not mentioned)	albinism / mutant albino	possibly albino	near Vita, Sulkai hills (17°17'20.39"N 74°34'3.66"E), Sangli district, Maharashtra, 1994	Salunkhe 1999 & 2003
130	idem	photograph	semi-leucistic	brown	Tenga Valley (27°11'46.33"N 92°27'45.46"E), Arunachal Pradesh, August 2013	Singh Rachit 2013
131	Family: Dicruridae Black Drongo <i>Dicrurus macrocercus</i>	body colour jet-black as usual except white round patch on top of head, looking like crown; two white spots on sides of bill	not a case of albinism but a freak in nature	leucism (partial)	rice field, Kerala Agricultural University Campus (10°32'35.76"N 76°17'14.64"E), Trichur, Kerala, October 1999	Prasad 2000
132	idem	completely shiny white coloured, flight-feathers glistening white, one black spot on rump; bill and legs black as in normal two individuals in flock	albinism	Progressive greying	Amravati University Campus (20°56'43.35"N 77°48'0.35"E), Amravati district, Maharashtra, 4 August 2007	Wadatkar & Wagh 2013
133	Family: Corvidae House Crow <i>Corvus splendens</i>	light brown throughout except light ashy neck and wings; wings shining bronze in sun; chased by other crows	brown	brown	compound near Russell's Street, (22°32'45.93"N 88°21'20.74"E), Calcutta, West Bengal, 24 March 1906	Logan 1906
134	idem	crown, sides of head, chin, throat, ear-coverts, breast, abdomen, under wings, vent and rump pale greyish-brown; all tail-coverts brown with white tips; hind head, neck and lower back dirty white; breast brownish-white; bill and legs brown; eyes normal, no shade of pink	brown & white	brown	Varsova 19°8'6.31"N 72°48'52.60"E), Bombay, Maharashtra, 20 March 1906	Blatter 1906
135	idem	head, throat, wing-coverts dark cinnamon; abdomen and other plumage pale cinnamon	colour variety	brown	Jullandhar (31°19'8.26"N 75°34'48.45"E), Punjab (in BNHS collection, Mumbai, Maharashtra)	Glascock 1909
136	idem	one more specimen with cinnamon colour as earlier but paler on neck	colour variety	brown	(in BNHS collection, Mumbai, Maharashtra)	Glascock 1909, editor's note
137	idem	beautiful white bird (no other details provided)	albino	possibly albino	obtained in Bombay (18°58'41.32"N 72°50'11.97"E), 1909 (in BNHS collection, Mumbai, Maharashtra)	Glascock 1909, editor's note
138	idem	large white patch in centre of wings on both sides, all other plumage normal	abnormal variety	food deficiency	Ludhiana (30°54'3.47"N 75°51'26.19"E), Punjab, June 1917	Whistler 1918

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139	idem	no details	albino	possibly albino	Utkal University Campus (20°18'9.06"N 85°50'31.65"E), Bhubaneshwar, Odisha	Acharjyo& Mishra 1973
140	idem	completely white bird with pinkish bill (eye colour not mentioned)	albino	ino	Jasdan, Kutch (22°2'7.22"N 71°12'3.30"E), Gujarat, October 1983	Khachar 1983
141	idem	three complete white birds kept in zoo; no other details provided	albino	possibly albino	Mysore Zoo (12°18'3.52"N 76°40'4.35"E), Karnataka, 1983	Khachar 1983
142	idem	number of crows with white patches either on wings, back or on tail-feathers; observed near roosting sites	partial albino (about 10)	food deficiency	different roosting places in Pune (18°30'5.96"N 73°51'5.57"E), Maharashtra, during 1974-80 and 2000-06	Mahabal 1991
143	idem	photograph	partial albino	brown	Western Ghats (18°30'21.23"N 73°46'57.45"E), Maharashtra, 2000	Pande et al 2003
144	idem	fallen down from tree and died	albino (two juveniles)	possibly albino	Barpetta town (26°19'37.26"N 90°58'34.99"E), Assam, 22 June 2004	Das & Bayan 2005
145	idem	fallen down from tree and died	albino (one juvenile)	possibly albino	Barpetta town (26°18'47.43"N 91°0'44.95"E), Assam, 24 June 2004.	Das & Bayan 2005
146	idem	crow with backside of head bald, white feathers on right flank with deformed bill; bird looking ill		progressive greying?	Gandhi Sagar Tank (21°8'49.95"N&79°6'6.51"E), Nagpur, Maharashtra, 17 June, 2009	Kasambe et al 2009
147	idem	three crows with dull, brownish body feathers; wing-feathers normal, shining and jet-black	brown	not brown; juvenile plumage?	Gandhi Sagar Tank (21°8'49.95"N 79°6'6.51"E), Nagpur, Maharashtra, 21 June 2009	Kasambe et al 2009
148	idem	white chest patch and whitish rump with abnormally elongated down-curved bill; bird appearing ill		progressive greying	Khamla Mutton market (21°8'44.07"N 79°5'31.20"E), Nagpur, Maharashtra, 22 June and 10 July 2009	Kasambe et al 2009
149	idem	photograph (with two normal crows)	partial albino	leucism	Thengumarahada (11°34'5.64"N 76°55'35.38"E), Nilgiris district, Tamil Nadu, 3 February 2010	Vasanthan 2010
150	idem	photograph	albino (fledgling)	albino	Ibrahmpur village (15°42"N 73°55"E), Pednem, Goa, 8 April 2011	Mahabal et al communicated to BirdingASIA
151	idem	primaries, secondaries and tail pale brown; wing-coverts faintly brown; nape, neck, upper and lower back creamy; crown, ear-coverts, throat, chest and belly brown; feet and bill brown; eyes normal	brown	brown	Krishnanagar (28°39"N 77°17"E), New Delhi, 2 March 2014	Mahabal et al (communicated to BirdingASIA)
152	idem	photograph	unusual looking	dilution	Bhandara (21°10'12.00"N 79°39'0.00"E), Maharashtra, 20 April, 2012	Nirwan Bhavesh 2012
153	idem	photograph	albino	brown	Bhubaneshwar (20°17'52.80"N 85°49'35.29"E), Odisha, 20 August 2013	Patnaik Manindra 2013
154	idem	photograph	albino	brown	Bhubaneshwar (20°17'52.80"N 85°49'35.29"E), Odisha, 23 March 2014	Sahoo Manoj 2014
155	idem	photograph	leucistic	dilution	Melghat (21°30'1.74"N 77°19'34.56"E), Maharashtra, June 2013	Thawali Shashi 2013
156	idem	photograph	leucistic	brown	Kayamkylam (9°11'3.72"N 76°30'54.56"E), Kerala, 14 December 2013	Mash Asokan 2013

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157	idem	photograph	partial albinism	progressive greying	Baswapur village (18°16'70.92"N 78°42'53.05"E), Nizamabad, Telangana, 27 October 2014	Surender et al 2015
158	Jungle Crow (Large-billed Crow) <i>Corvus macrorhynchos</i> (sensu lato)	all six (one, three and two seen in different years) albino crows have complete creamy-white plumage with greyish-black feather tips; one bird with black tail; in company of 5-26 jungle crows in same locality	albinism (six)	not albino	Roost at district hospital, Bilaspur town (31°20'38.18"N 76°45'48.19"E), Shiwalik hill range, Himachal Pradesh, August-September 1984, in 1985 and February 1986	Sar 1987
159	idem	creamy-white crow, with pale bill, pinkish legs and reddish eyes; in company of 10-12 normal crows	albinism	ino	Bias River on Mandi-Rewalsar road, Mandi town (31°42'42.64"N 76°56'4.63"E), Himachal Pradesh, March 1990 and again on 23 April 1991	Mahabal 1991
160	idem	number of crows (c 12) with white shoulder patch on wings (secondaries).	does not appear to be a case of albinism	food deficiency	village 100 km away from Solan town (30°52'4.85"N 77°8'46.28"E), Himachal Pradesh, 1990	Narang 1991
161	idem	single crow with white shoulder patch on wings	does not appear to be a case of albinism	food deficiency	Solan town, (30°54'20.02"N 77°6'1.27"E), Himachal Pradesh, 1990	Narang 1991
162	idem	uniformly golden-brown; head, nape and breast of duller shade; back, rump, upperwings and tail-coverts pale brownish gold; underparts dirty coffee colour; eyes darkish-grey, bill paler and narrower than normal	golden-brown variety (tertiary albinism)	brown	grove NE of Hazaribagh town, near Canary Hills (24°0'2.79"N 85°21'8.35"E), Bihar, 8 November 1987	Bulu-Imam 1988
163	idem	brown crow sighted again in the same locality	brown variety (tertiary albinism)	brown	grove NE of Hazaribagh town, near Canary Hills, 23°59'40.31"N 85°20'36.82"E), Bihar, May 1993	Bulu-Imam 1998
164	idem	plumage entirely white without single black spot; bill and legs pinkish; in flock of 10 normal crows (eye colour not mentioned)	white crow	ino	school Perambra, (11°34'25.21"N 75°48'4.22"E), Kozikode district , Kerala, August 1997	Abdulla 1997
165	idem	overall plumage pale to dark brown; nape, rump and uppertail-coverts brown; crown, mantle and belly dark brown; primaries and secondaries pale to dark brown; tail brown with dark patches; bill, feet and claws dark brown	isabelline	brown	Urali- Kanchan (18°29'18.77"N 74°8'40.46"E), Pune-Solapur road, Pune district , Maharashtra, 7 March 1979 (in collection of ZSI, WRC, Pune)	Mahabal 1991, Mahabal & Pande 2006
166	idem	young bird with pure white plumage, pink bill and pinkish-red eyes; accepted by parents	white crow, variety	possibly albino	bank of Ujani dam, Dalaj (18°13'57.39"N 74°47'38.89"E), Indapur Taluka, Pune district, Maharashtra, sighted twice in September 2006	Kale 2006
167	idem	totally white plumage with pale-coloured bill and pinkish-red eyes	white crow, variety	Possibly albino	Deolali Camp, Parijat Nagar (19°53'40.03"N 73°49'28.09"E), Nasik, Maharashtra, 26 May 2008	Anonymus 2008
168	idem	photograph	albino	ino	Kuttampura (9°35'27.50"N 76°31'19.08"E), Kottayam, Kerala, 28 October 2012	Jinesh P.S. 2012

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169	idem	photograph	leucistic	dilution	Overa-Aru Wildlife Sanctuary (34°2'27.43"N 75°19'4.42"E), Kashmir, 25 May 2014	Suhail Intesar 2014
170	idem	photograph	brown	brown	Aripa (8°51'5.18"N 77°2'27.20"E), Kollam, Kerala, 29 December 2013	Srinivasan 2013
171	crow <i>Corvus</i>	no details provided	albino	possibly albino	aviary of H H Maharawat of Pratapgarh, (24°4'12.81"N 74°44'43.71"E), Rajasthan, 1942	Ram Singh 1942
172	idem	no details provided	albino (fledgling)	possibly albino	Kolkata (22°39'42.68"N 88°26'33.99"E), West Bengal, 10 April 2003	Anonymus 2003
173	idem	white crow	albino	ino	Saudi, Thoppumpady (9°56'10.91"N 76°15'20.46"E), Kerala, January 2004	Martin 2004
174	idem	photograph	albino	dilution	Srirangapatna (12°25'14.34"N 76°41'30.97"E), 24 August 2008, and Mysore Royals, (12°15'36.23"N 76°38'11.16"E), 28 August 2008, Karnataka	Maramkal 2008a, 2008b
175	idem	photograph	albino	ino	Madhavgarh town (24°30'7.98"N 80°55'25.89"E), Satna district, Madhya Pradesh, July 2010	Shukla 2010
176	idem	photograph	albino (fledgling)	albino	Ibrampur village (15°29'36.80"N 73°49'26.44"E), Goa, April 2010	Kerkar 2010
177	idem	photograph	albino	ino	RS Pura (32°36'36.39"N 74°43'57.77"E), near Jammu, Jammu and Kashmir, 14 October 2012	Das, R 2012 http://tinyurl.com/zjk7j4s
178	idem	photograph	albino (fledgling)	ino	Adyar (13°0'5.82"N 80°15'23.34"E), Chennai, Tamil Nadu, 25 May 2012	Shenoy 2012, Madhavan 2012
179	idem	photograph	albino (fledgling)	ino	Thiruvankata Nagar, Telungapalayam (11°10'53.79"N 77°4'47.85"E), Tamil Nadu, 17 October 2013	Anonymus 2013
180	idem	photograph	albino (fledgling)	albino	Uttaramerur, Chennai (13°3'2.11"N 80°15'1.80"E), Tamil Nadu, 19 September 2014	Anonymus 2014

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