



Abnormal colouration of birds

Feather colouration in birds is produced by a number of means. From time to time, the mechanism that produces normal colouration breaks down, resulting either in lack of colour or too much of it.

Abnormal feather colouring

Feather colouration in birds is produced by either pigments in the feathers or by the structure of the feather. Pigments are manufactured in the pigments cells in the body of the bird, or they are obtained by the food the bird has eaten. The main colouring agent is melanin, which can be black, brown, chestnut-red or yellow in colour. The amount of each of the melanin's present determines the colour and intensity of the final colour. Melanin will hide carotenoid pigments where the two are present on the same feather.

Iridescence blues and greens are not pigments, but are seen as light reflects on the complex structure of the feather. These are structural colours. The final colour is often a combination of an underlying pigment and the structural colour. For example, many green parrots have yellow pigmentation interacting with a blue structural colour. The true colour of many iridescent feathers is black or brown, so if a bird like a kingfisher is seen in very low light, it appears dark in colour.

Birds use colour in species identification, sex recognition and signalling of body condition, breeding condition and social status. Colour in birds is genetically controlled, although the intensity of colour has an added hormonal component. Occasionally, the mechanism that produces normal colouration breaks down, resulting in either lack of colour or too much of it. In some instances this has no consequences, but if the abnormal colour affects the colour patterns that determine individual recognition, it may result in the bird being unable to secure a mate or territory.

Albinism

Albinism is caused by a genetic mutation where a total lack of melanin is unable to be produced. Albinos have red or pink eyes, pale coloured skin, legs and feet and a pale coloured beak. The red or pink eye is caused by the lack of pigment in the eye, allowing the blood to be visible.

Albino birds are rare in the wild and tend to be weaker and have poor eyesight, and don't tend to survive to adulthood. They are also prone to predation, due to their colour. As a lack of melanin is the cause of albinism, some birds can still have carotenoid pigments visible, so an albino goldfinch would still have a red face and yellow wing bars visible.

Leucism

Leucism is a genetic condition resulting in partial loss of pigmentation. There are various types of leucism from white feathers, including pale or washed-out colouration (diluted), which can have various hues of brown or cream giving the bird a diluted colouring. There is also progressive greying in older birds, which is natural and comes with age. It's difficult to be certain which type of leucism a bird has, unless you know the history of the bird.

The eyes of birds with leucism stay dark, and are not red/pink as would be a bird with albinism. Leucism can skip a generation if the genes that cause leucism are recessive. Birds affected by leucism tend to have weaker feathers, and tend not to be so robust and can wear out faster than normal-coloured feathers. This can result in flight issues, which can hamper a bird from escaping a predator. Most birds are accepted by their own species, but in extreme cases a potential mate can be overlooked.

Melanism

Melanistic birds have an abnormal amount of dark melanin pigmentation, and the bird usually appears dark brown or black, or a mixture of the two. It is genetically controlled, and many species are known to have a normal dark variant. For example, buzzards, woodcock, snipe, Montagu's harrier, red grouse and partridge are good examples of these naturally dark coloured bird variations. Melanistic birds tend to be more robust than normal coloured birds.

Since melanism is a dominant characteristic, it can become more prominent in a population if there is an advantage to be a darker colour. This is known as industrial melanism, and was detected in House Sparrows in Liverpool in the 1930's, but the most famous example is that of the peppered moth, whose dark phase became dominant as it became better camouflaged against the walls and tree trunks that were darkened by pollution.

Melanism can be caused by dietary factors. For example, a bird on a diet rich in hempseed with a high oil content can turn black in colour.

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