

# Albinism in Birds

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With the exception of gulls (most of which are various shades of gray above), we see very few species of predominantly white birds in Ohio. White birds tend to cause immediate excitement—after all, they may turn out to be goodies like Ross's goose, snowy owl, or white ibis. Only about 13 species of Ohio birds—out of 410—are mostly white at least in some plumage, and many are rare to uncommon visitors.

Every now and then, however, a white bird shows up that later proves to be an albinistic individual of a common species. These can be real puzzlers. Without the familiar colorations on which we are used to basing our identifications, the identity of even common birds can generate lots of debate. Witness the recent discussion of photos (16-20 December 2001) posted to the ID-Frontiers internet list of a sparrow-like bird in Texas. At a glance, it looked very redpoll-like, but ultimately the consensus among experts was that it was an albinistic chipping sparrow.

## What is Albinism?

Essentially, albinism is a genetic disorder that inhibits the formation of tyrosinase, an enzyme that causes the synthesis of melanin, a dark pigment. There are four degrees of albinism, as defined by geneticists Hutt and Mueller in 1941: 1) *total albinism*, the rarest form, in which the individual is all white with pink eyes; 2) *incomplete albinism*, in which melanin (in birds) is completely absent from eyes, skin, or feathers, but not all three; 3) *imperfect albinism*, where melanin is only partially inhibited, creating a pale organism (a well-known example are the "white" tigers used by the entertainers Sigfried and Roy); 4) *partial albinism*, the most common form, where localized body parts are white or whitish. The majority of unnaturally white birds are in this fourth category.

Albinism is a recessive genetic characteristic, and generally quite rare in any animal population. In humans, it manifests itself in about one person out of every 20,000. Perhaps the best-known people with this condition are the rock musicians Johnny and Edgar Winter. According to the Hardy-Weinberg Equilibrium (a formula for determining population genetics), about one human sperm or egg in 141 carries the recessive gene for albinism. This translates to a likelihood of 1.4% that an individual will become a carrier for albinism. Albinism is probably about equally rare in birds. It's been estimated that only 0.5% to 1.0% of all birds display any sign of albinism—partial or complete.

## Albinism vs. Leucism

The difference between albinism and leucism is quite technical and, practically speaking, probably not that important to bird observers. Either condition causes a whitening of the plumage. But, for technophiles, here's the basic difference:

*Albinism*: mutant alleles of loci (position of a gene on a chromosome) involved in melanin production contribute to this condition. Manifested by loss of melanin not only from feathers, but also from soft tissues such as eyes, skin, and beak.

*Leucism*: mutant alleles of loci that control melanocytic life functions—particularly the migration of melanoblasts (melanocyte precursors) from the neural crest in the embryo—contribute to this condition. It results in a reduction or absence—either localized, or rarely throughout the plumage—of melanin. Partial leucism is fairly common, resulting in the "pied" birds; e.g., a bird with a white head but otherwise normal plumage.

## Disadvantages of Albinism/Leucism

I consider 13 species of birds that regularly visit Ohio as primarily white in their natural state. There a few others, such as wood stork, ivory gull, and white ibis, but these are accidental in occurrence and not included here. They are American white pelican, great egret, snowy egret, cattle egret, snow goose, Ross's goose, mute swan, tundra swan, trumpeter swan (introduced), glaucous gull, Iceland gull, snowy owl, and snow bunting.

When looking at this group of only about 3% of our avifauna, two trends become apparent. First, most of these species are relatively predator-free, large enough or close enough to the top of the food chain that predation is generally not a problem. The others tend to flock, finding safety in numbers rather than protective coloration. Thus, the disadvantages of being white and sticking out like a sore thumb are offset by behavioral or morphological characteristics.

Generally speaking, there are probably no benefits for a bird in being albinistic or leucistic, and it's likely this genetic anomaly isn't selected for perpetuation. Most strongly albinistic birds have a short shelf life as compared to other normally plumaged individuals of the same species. They stand out to predators, and many albinistic passerines, for example, are likely picked off by accipiters in short order. As with humans, albinistic birds tend to have weak eyesight, and while people with this condition often have brittle bones, birds have weaker feather quills. In addition, there are numerous accounts of albinistic individuals being shunned by others of their kind, which is nature's indifferent way of reducing the likelihood that they will breed and perpetuate this trait.

## Examples of Albinism in Birds

The incidence of albinism is just an odds game—the bigger the population, the more likely this condition will be observed. Unsurprisingly then, the number one species displaying albinism in North American birds is the American robin, followed by the house sparrow. In theory, however, any species may display albinism or leucism, and this can lead to some real puzzlers in identification. Oftentimes one does not have long to observe these birds, because of the aforementioned predation factor, but when a larger, relatively predator-free albinistic bird appears, it may be seen for years. This is the case with the turkey vulture that has frequented the area of Egypt Valley in Belmont County, Ohio for at least four years. While not a complete



albino, the bird displays extensive white in the body and wings, and is a very striking sight.

Sometimes, though, it is very difficult to determine the species of an unnaturally white bird. Imagine the surprise—then frustration—experienced by the owners of a South Carolina feeder when an essentially all-white hummingbird made an appearance. This bird, seen in 1999, was established as a ruby-throated hummingbird only when captured and closely studied. As would be expected, it was initially reported as an albino, but actually proved to be leucistic, as its feet, bill, and legs were normally pigmented.

In September 2001, a finch-like bird appeared in rural Licking County, Ohio, that was strikingly patterned in white and dark brown. Understandably, it was at first called a snow bunting. It was quickly realized that it was something else, though, as its behavior, size and shape, and coloration were not right for that species. Figuring out its true identity was very difficult, as is often the case with aberrant birds, and ultimately it could only be guessed at. While I have seen only pictures—and not great ones—I believe a good hypothesis can be made as to its identity.

### Identifying Albinos

When working with an albinistic/leucistic bird, whose natural markings are mostly obliterated by white, there is a suite of factors to consider in drawing conclusions about its identity. One, closely examine the plumage. Oftentimes in a leucistic bird, the typical markings will bleed through the whitish overlay, although they may not be evident until the bird can be seen well. White feathering may not mask some markings. Two, examine its habits: is it feeding on the ground or in trees, hopping or walking, have an undulating or straight flight, etc.? Three, pay attention to structure, such as overall size, shape, length of tail, legs, and wings, type of bill, etc. Albinism/leucism will not affect these characteristics. Four, what are its associates? Sometimes, in flocking birds, the company “whitey” keeps will be a dead giveaway. And last, listen for vocalizations. They could clinch the identification.



This albinistic sparrow appeared in Licking County in September 2001. Its identity is still unknown, but field sparrow seems to be the best guess. Photo by Mike Flynn.

With careful study, many albinistic birds are not too tough to figure out. The Licking County sparrow was, however. As can be seen from the photos, this bird is mostly white, with what appear to be blackish primaries and markings on the back. Any normally pigmented feathering will appear darker when set off against

white. In this case, the plumage is so altered from the typical that coloration is no real help in making the identification. I was given some details of its habits from observers that assisted in the process of elimination. The bird hopped—rather than walked—and spent most of its time foraging on the ground. When startled, it would fly into bushes or trees. Unfortunately, no vocalizations were heard.

Because the bird was reported to hop rather than walk, snow bunting can be ruled out. It also displayed a skulking behavior, sticking close to cover and seeming to flatten to the ground periodically. This is very characteristic of sparrows in the genus *Spizella*, which tend to be shy and retiring. While somewhat more subjective, the relatively slender body, longish tail, and largish bill are also indicative of *Spizella*. Although hard to definitively ascertain from the photos, the bill also appears to be pinkish.

All in all, the overall shape, bill, and habits are consistent with one of our native sparrows, in particular the field sparrow *Spizella pusilla*, and that is my guess. If that is correct, this bird definitely falls into the realm of oddities, as I can find only one reference for an albinistic field sparrow; a bird documented in South Dakota in the early 1980s.

Albinistic or leucistic birds, in addition to providing an unusual spectacle, offer an excellent chance to hone one's observational skills and powers of deduction. They also serve as a good reminder that first impressions aren't always correct, and aberrant individuals must always be considered as a possibility—not just rarities. 🐦



Here is another look at the albinistic Licking County sparrow from September 2001. Photo by Mike Flynn.