

## When is Blue Actually Brown? -Bird Beat #74

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"Brown" Bunting. Photo by Marcia Balestri

Jim went on to explain that pretty much all color in birds is from pigment. In birds where pigment determines color, a ground up feather will be the same color as the bird, for instance red for cardinals and yellow for goldfinches. However, if you grind a blue jay feather up, it will be brown. The same is true if you shield a feather from direct light; the blue jay feather will appear brown, but the other feathers will retain their full-light color. At a young age, it was easy to soak up the information, but I can't say that I really understood it, but now I *think* that I do.

I remember the first day I learned that blue birds aren't blue... well, they are blue, but not in the same way that cardinals are red, and goldfinches are yellow. That day was about 40 years ago at the bird-banding station in Tolchester, MD. I was not yet 10 and was just beginning my long stint as a volunteer at the station. The master bander, Jim, held up a blue jay and told me that it wasn't blue. As a partially colorblind individual, it is pretty easy to pull a color caper on me, but I am red-green not yellow-blue color blind, so I was a bit confused. It sure "looked" blue. Why wasn't it?



Eastern "Brownbird". Photo by Bill Hubick via MD Biodiversity Project

In birds, blue is a structural color which means that the arrangement of the molecules of the protein keratin (the same molecule that makes up our hair and nails) affects the way that light interacts with the feather structure. Instead of absorbing and reflecting light as with pigments, in structural color, the light is scattered and, in this case, appears to our eye as the color blue. This is very similar to how iridescence works in birds such as hummingbirds where feathers can appear shiny green, blue, purple, and red.

So, when is blue actually brown? In birds of course.

In honor of this nugget of bird trivia, for today only, I am unilaterally changing the names of a few local birds to eastern brownbird, brown bunting, and brown grosbeak.



"Brown" Grosbeak. Photo by Marcia Balestri