

The Outside Story



Molting Season

By: Joe Rankin

"Boy, he's really red! I don't think I've ever seen them that red before," my wife said admiringly of a male purple finch crunching sunflower seeds at the feeder. He was a nice burgundy. The male goldfinches were getting yellower, but still looked scruffy. The birds made me optimistic that spring would finally get here. The next morning it was ten degrees.

Birds molt for a basic reason: feathers wear out. All that flying, preening, dust bathing, weaving through limbs of bushes and trees. For a bird, ratty feathers can be a death sentence. Feathers, which are made of keratin, like your hair and nails,

have to be replaced. There is another reason to molt: it allows birds, mainly male birds, to don more colorful plumage for mating season.

Why males?

According to Herb Wilson, an ornithologist and professor of biology at Colby College, one reason is the relatively high energy cost of producing an egg, as compared to producing sperm. "The female is making a much bigger contribution to every nestling, so she gets to choose," he said. "And the females are choosing males that are gaudy because you can only be gaudy if you can find enough nutrition to afford to make those fancy clothes."

Bird species vary in how, and how often, they molt. Some, like chickadees, do one complete molt cycle a year. A few do two complete molts a year, in the spring and the fall. Others do a full molt in the fall and a partial molt in the spring. For songbirds, the full body molt can take as long as six weeks, said Wilson, versus three to four weeks for a partial molt. Eagles and pelicans can take up to two years to go through a complete molt cycle. Many ducks do it in a couple of weeks, and are briefly grounded during the process.

You can often tell when a bird is molting. It looks kind of scruffy. But you're not going to see a bird with bare spots. Feathers don't fall out in patches, said Wilson. "They're pretty much replacing feathers all over the body at a slow rate. They don't do one body part, then go to another."

Some kinds of birds that look like they're molting aren't, in the strict sense of the word. The purple finches my wife was admiring are one of the species that in the spring engage in "molting by wear," where a duller overlay on their fall plumage simply wears off, leaving them looking new by spring. Starlings are another. The goldfinches, however, do a full molt in fall and a partial molt in spring, which is why they were looking rattier.

But what sets off the spring molt?

Scientists say that, in temperate regions, the governing factor is day length, with longer days translated by the bird's brain into changes in hormones and sex organs in preparation for the rites of spring. If you think about it, the weather alone is too variable from year to year to be a dependable cue. However, as the Cornell Lab of Ornithology's All About Birds website notes: "Molting occurs in response to a mixture of hormonal changes brought about by seasonal changes. The entire process is complex and many questions remain regarding how the process is controlled."

All this feather refurbishment comes at a cost. The energy required depends on the type of molt the bird is undergoing and perhaps the particular color of its new attire.

Molting into yellow, orange, or red plumage is more expensive than staying with basic black, said Wilson. Birds can't make those brighter pigments using melanin produced by their bodies. They have to get it from carotenoids in their food.

Some birds have figured out workarounds. The scarlet tanager doesn't have all scarlet body feathers. Only the tips are red, said Wilson. But they overlap like shingles, so red is what you see.

Birds that are blue, like the common blue jay, aren't really blue, said Wilson. At least they're not pigmented blue. Instead, their feathers are constructed to reflect blue light and absorb all other colors of the spectrum. Hold a blue jay feather up to the sky and it will look gray because it's not reflecting the light.

While the mechanics of molt are interesting, sometimes it's good to revel in the show. "To me it's sort of the wonder of it all," said Wilson. "Watching the goldfinches change just fascinates me. At some point I just like to respond to it on an emotional level rather than a scientific level and say, 'oh, this is really cool.'"

Joe Rankin watches the annual show from his perch in central Maine. The illustration for this column was drawn by Adelaide Tyrol. The Outside Story is assigned and edited by Northern Woodlands magazine: northernwoodlands.org and sponsored by the Wellborn Ecology Fund of New Hampshire Charitable Foundation: wellborn@nhcf.org

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