

Hopping through the grass, the little sparrow aimlessly searched for seeds.

Every so often he would suddenly fly to the top of the highest shrub, grass or flower stalk and burst into song. Only recently he had arrived on his Pawnee National Grasslands breeding grounds from his winter home on the Cabeza Prieta National Wildlife Refuge in southern Arizona. He was distracted because it was the beginning of the breeding season. His call warned other males that he owned this piece of grassland real estate and he intended to make it his breeding territory. Trespassers beware.



Lark bunting male

He was, however, quite different from other grassland sparrows. Instead of the characteristic shades of drab brown, he was nattily dressed in sharply contrasting black and white, the only North American sparrow so brightly colored. That isn't the only way he differed from other sparrows. His common name, lark bunting, misrepresents his true family relationships. He is neither lark nor bunting.

How the lark bunting got its scientific and common names is convoluted. In 1834 John Kirkwood Townsend and Thomas Nuttall traveled across the continent to collect specimens and describe wildlife for the Academy of Natural Sciences of Drexel University in Philadelphia. When they reached the panhandle of Nebraska, Townsend collected several specimens of a bird he called the "prairie finch." He gave it the scientific name

of *Fringilla bicolor*. Later it was discovered that Carl Linnaeus had already used *Fringilla bicolor* to describe the black-faced grassquit, a close relative of Darwin's finches.

So, in 1885, Norwegian born ornithologist Leonhard Stejneger changed the scientific name to *Calamospiza melancorys* to clear things up. But the name muddied the waters even more. The generic name *Calamospiza* derives from two Greek words:

COLORADO'S STATE BIRD

THE
Bequiling
BUNTING

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Kalamos meaning reed and spiza meaning finch which would lead you to believe that the lark bunting was a finch that inhabited marsh lands. His species name *melanocorys* also derives from two words: Melas which is Greek for black and corys, which is Latin for lark, leading you to believe he is a black lark; again untrue. His common name is lark bunting, which only confuses the situation further. His rich, melodious song reminds one of a lark, while bunting is the common name given to several species of Old World sparrows. Here in North America, most buntings belong to the cardinal family. So what is this bird: finch, lark, bunting, cardinal or sparrow?

About a decade ago, scientists from San Francisco State University set out to answer that question by comparing the mitochondrial DNA of members of the North American sparrows. They confirmed the lark bunting was a sparrow. It lay close to the trunk of the family tree indicating it was one of the earlier sparrow species to evolve. Its closest relatives were the lark sparrow, another grassland sparrow, and the black-throated sparrow, a native of the southwestern desert-shrub communities.

In late February and early March, as lengthening days begin to warm the southern landscapes where lark buntings spend their winter, they initiate a leisurely migration northward, arriving in Colorado in mid-May. Flocks of a few to more than 100 males precede females. Almost immediately males begin to disperse and establish breeding territories, sparking the renewal of their annual rites of spring.

First one male, then another and another launches into the air flying up to 30 feet before spreading his wings and parachuting back to earth. All the while the male is gliding, he calls melodiously. This spectacular display in its entirety is called the primary song flight. Its foremost purpose is to display the male's vigor and splendor so he can attract a mate. Song also plays an important role in the male lark bunting's courtship, although the specifics are still unknown. It may be that females are able to tell which males will make the best mates by the quality of their songs.

Later, after the females have chosen mates, the displays change. The primary flight song is directed predominately at females, the lark bunting equivalent of "strutting your stuff." Once a pair is mated, but before females start laying eggs, males direct their flight displays toward other males. If an outsider trespasses onto a

male's territory, he will fly rapidly toward the other male to intercept him. He performs and sings similar to the primary song display, but more aggressively. This second display, directed only at males, is called the aggressive flight song, the lark bunting equivalent of "dropping the gauntlet." After females initiate egg laying, males substantially decrease the frequency of both flight displays. Assuming lark buntings are like other brightly colored songbirds, the pattern, intensity and hue of the male coupled with the vigor of his flight and song provide the female with cues to his fitness and the quality of his territory.

Not all males are successful in attracting a mate. In areas where breeding behavior has been studied, breeding males outnumber breeding females to the extent that nearly half of breeding males wind up without mates. The situation is complicated further because some paired males breed with females other than their mates. Nearly half of all nests contain at least one hatchling that was sired by an outsider who is frequently from a neighboring territory.

Variation in the quality of territories is yet another complicating factor. Suitable breeding habitat tends to be patchily distributed and varies with climatic conditions during the breeding season. Wetter years result in more breeding habitat and vice versa. During dry years, paucity of suitable breeding territories might limit the success of males in attracting mates.

High-quality breeding areas are those that provide choice nesting sites because selecting a nest site is deadly serious business. An ideal nest site includes a room with a view so predators can be detected and evasive tactics taken before the nest is discovered. It should accommodate the excavation of a cup-shaped depression roughly 4 inches in diameter and 3 inches deep. It should face downwind from prevailing storms and toward the rising sun. It should be well drained. Most importantly, it should be well-shaded by vegetation that will not deteriorate through the nesting season.

Like newlyweds shopping for a house, a pair of buntings explores several possibilities before settling on a place for their nest. The female pokes around the bases of likely shrubs, forbs and tall grasses, occasionally scratching the surface. When she leaves a site, the male inspects it and then follows after her. Eventually the choices narrow down to three or four and another, more thorough, inspection takes place

until the final decision is made. Shortly after the lot has been selected, the pair commences to build the house.

While the female scratches out the depression, the male pokes around gathering leaves, twigs, hairs and other materials for construction of the actual nest. The female does most of the weaving, and when she is finished she will have constructed a tightly woven bowl about 4 inches in diameter and one and one half inches deep. It will take her nearly three days to complete and



Lark bunting female

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two days later she will lay her first egg. At a rate of one egg per day, it will take her five days to lay her clutch of sky-blue eggs. Incubation won't start until the last egg is laid. The eggs will hatch 12 days later, with the male and female bunting taking turns on the eggs. One in four of the nestlings will be the offspring of a neighboring male bunting. Half of the nests will be destroyed by predators before they hatch and half of the nestlings will survive until they are able to fly. The most serious nest predators

Brown-headed cowbirds parasitize the nests of other birds by laying their eggs in them for the foster parents to hatch and rear.



are the thirteen-lined ground squirrels because they are so numerous and because they forage extensively throughout lark bunting nesting habitat.

But male buntings often aren't the only ones to leave a bit of themselves in their neighbor's nest. About one nest in five will contain eggs of a brown-headed cowbird. While the female bunting was building the nest, a female cowbird carefully watched the process, waiting patiently until the mother bunting began to lay her eggs. Eggs are usually laid in the morning, after which the female bunting leaves the nest unguarded while she goes off to feed. This is the opportunity for which the cowbird has been waiting. She flies directly to the nest and within 60 seconds deposits one or more of her eggs in the nest. The female bunting will not recognize the strange eggs and will attend to the young cowbirds as if they were her own chicks.

It's an age old game. Cowbirds were parasitizing nests of grassland birds when mammoths, camels and giant bison roamed North America. A close ecological relationship evolved between grazing animals, especially bison and cowbirds. Cowbirds probably achieved peak numbers and pervasiveness when bison were most widespread and numerous, before European settlement. Here in Colorado, the historic ranges of the brown-headed cowbirds and bison overlapped almost perfectly. Cowbirds also evolved with native grassland bird species including lark buntings, so nest parasitism is not a new phenomenon. When bison were nearly exterminated, the ecological relationship changed to an association between cowbirds and cattle, hence the name "cowbird." In one study, cowbird nest parasitism declined directly in proportion to the distance nests were from grazing or feedlot livestock.

Cowbird parasitism can be devastating for the victimized nestlings of individual nests. Fledgling success of victims of parasitism is only one-third that of nests that are not parasitized. These figures might be an underestimate because further losses may occur once the fledglings leave the nest. Several studies have reported instances of host species feeding only cowbird fledglings from broods that fledged from mixed broods. In addition, cowbirds regularly destroy nests where hosts are incubating to stimulate them to re-nest, presenting new opportunities for parasitism.

As stark as this seems, the effect on populations can be minor depending on the percentage of nests that cowbirds parasit-

ize. Lark bunting nests seem to suffer only moderate rates of parasitism. Studies here in Colorado suggest that under normal circumstances only 15-20 percent of the nests are parasitized, most with a single cowbird egg. And, although the Colorado breeding bird surveys suggest a slight decline in lark bunting populations over the past four decades, the decline is attributed to habitat loss or degradation and adverse weather rather than cowbird parasitism.

Red veiny dock, white evening primrose and blue locoweed paint a patriotic mosaic over a green grass backdrop. Occasionally the hauntingly beautiful trill of a western meadowlark's love song interrupts the melodious, lyrical chorus of dapper black and white male lark buntings as they each compete for the attentions of cryptic brown females. Such sights and sounds greeted homesteaders near Keota, Colorado, in the late 1800s. After a long dreary winter of wind, snow, and lackluster colors, they were a godsend.

No wonder the lark bunting was a prime candidate when, in 1931, the state legislature considered the designation of a state bird. Four species were under consideration: the lark bunting, the western meadowlark, the black-billed magpie and the mountain bluebird. According to scant historical records, they were judged more or less on four criteria: popularity, symbolism, uniqueness and iconography. Each had a small army of supporters that lobbied hard for its favorite.

Although the western meadowlark and the mountain bluebird were the most popular, they were not unique. Several other states had already chosen them as their state bird. Since colored photographs were not yet available, the state bird was required to present well on state documents. Outstanding black and white contrast favored the black-billed magpie and the lark bunting. In the end the choice came down to symbolism. The lark bunting epitomized the cheerful, positive, optimistic spirit of the state and its citizens. On April 29, 1931, the state legislature designated the lark bunting as the state bird of Colorado. ☺

Bruce Gill retired from the Division of Wildlife in 2001 after working 35 years in its research section. As the mammals research leader, he was involved in studies of mule deer, elk, mountain goat, bighorn sheep, pronghorn, black bear, moose, lynx, swift fox, kit fox, mountain lion and other wildlife. This article is copyrighted by the author.