Booming voice helps sandhill cranes attract mates

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The raucous sandhill cranes streaming up the Rio Grande at dusk, University of New Mexico professor Chris Witt explained, are cheaters. In the competition for mates, they evolved a voice designed to fool.

When it comes to migrating long distances, small cranes have an advantage. But when picking a mate, cranes (males and females both) prefer a big partner, the better to defend the nest.

The result, fleshed out in new research by Witt and former UNM student Matt Jones, is buried in the breasts of the big birds Witt watched flying up the Rio Grande one recent fall afternoon. The birds’ trachea curls inside their breasts like the twists and turns of a tuba.

Like a tuba, the extra tubing helps the resulting voice boom. At a crane’s best, you can hear it a mile away. Which was obvious as dark settled over the bosque and wave after wave of the winter migrants flew up the Rio Grande one recent evening.
University of New Mexico biologist Chris Witt has helped explain the booming voices of the Rio Grande valley’s sandhill cranes. (Adolphe Pierre-Louis/Albuquerque Journal)

“They have that to sound bigger than they really are,” Witt explained.

Witt had set up the tripod of his spotting scope on a muddy riverbank in Bernalillo County’s South Valley, awaiting the cranes’ evening arrival. Off in the distance, in a sheltered stretch of shallow water, he counted the first of the big birds settling in for the evening – 19 in all, three of them juveniles.

The spot, adjacent to the new Valle de Oro National Wildlife refuge, has become one of the best crane-spotting sites in the Albuquerque metro area, and Witt’s evening of work did not disappoint. By the time daylight was gone, Witt tallied an estimated 800 cranes flying past or stopping for a nighttime roost in the relative safety of the river.

As they flew by, they announced their presence with the characteristic honking that has become the serenade of winter on New Mexico’s middle Rio Grande, and Witt offered a play-by-play of his rising count. That one was a lesser sandhill crane, smaller than the others with a peg-like beak. Those others the larger greaters, and listen to that high-pitched whistle heard amid the deep honking coming from the Y-shaped formation, the distinctive cry of a juvenile keeping up with mom and dad.

The lesser and greater sandhill cranes are technically members of the same species, but the difference is crucial. Here in central New Mexico, they tend to flock together, and it takes an experienced bird watcher like Witt to tell the difference.

“They mix together in flocks, but they do not mate together,” Witt said of the two distinct sub-species.

The greater sandhill cranes found here generally nest in the northern Rockies and winter here. The lesser, which is a smaller bird, tends to nest farther north, near the arctic circle, and often only passes through central New Mexico, wintering to the south.
Sandhill cranes roost in the Rio Grande on winter nights in Albuquerque. (Adolphe Pierre-Louis/Albuquerque Journal)

That is just what the evolutionary pressures on the species would predict, Witt explained. “When they migrate a long distance, the body gets smaller, which makes a lot of sense in terms of energetics,” Witt said as he stood watching a flock of cranes picking through mud for their dinner.

This doesn’t happen in one fell swoop. Tiny advantages for smaller birds on a long migration build up over time in the cranes’ evolutionary family tree. “They just have a little bit higher survival rate,” Witt said.

But when they are hunting for a mate, the lesser cranes are still looking for a big partner to help defend the spring nesting site. “You have to sound big to get a mate,” Witt said.

Biologist W.T. Fitch was the first to tie this phenomenon to the twisting, tuba-like trachea found in some migrating birds. The big voice, Fitch wrote in a 1999 paper, allowed “size exaggeration” – tricking a potential mate into thinking the bird was bigger than it really was.

To test the idea here, Witt and Jones – a former UNM student from Cedar Crest now in graduate school at the University of Montana – found 61 cooperative hunters to donate to science the carcasses of birds they shot. The hunters kept the delicious breast meat, and Jones and Witt meticulously measured the birds’ innards.

Their analysis confirmed Fitch’s hypothesis – the longer-migrating lesser sandhill cranes had an unusually long trachea, presumably to exaggerate the sound of their voices.

“It’s just about getting that tube longer,” Witt said.