attempting iSCNT without success. "This could be a huge breakthrough, but it's going to be scrutinized heavily," he says.

One reason for the doubts is that many scientists expect that a chimera created through iSCNT would receive most of its mitochondria from the oocyte, which would be incompatible with the nuclear DNA of the cloned cell. Mitochondria, the cell's power factories, carry their own DNA and are inherited from the mother through the oocyte cytoplasm. But Lee reported that in his experiments the problem seemed to solve itself. The freshly derived ES cells contained mitochondria from both the cow oocyte and the mouse somatic cell. But as the cells grew in culture, the mouse mitochondria became more prevalent, and the bovine mitochondrial DNA seemed to disappear.

Lee says some species combinations may work better than others in iSCNT. His team had no luck trying to use mouse somatic cells and pig oocytes, he says, and bovine-human iSCNT is unlikely to work the same way as his bovine-mouse experiments. Until more studies are done, Cibelli says, Lee and other scientists with iSCNT claims "would have to do more than peer review" to convince their colleagues, perhaps allowing a separate lab to confirm the results.

–GRETCHEN VOGEL

EVOLUTION

Competition Drives Big Beaks Out of Business

When the new kid on the bus is bigger than you are, it might be time to give up your seat. That's what's happened to a small seed-eating bird in the Galápagos Islands. The medium ground finch used to have one island pretty much to itself—and free rein to eat whatever size seeds suited it most.

Then a competitor, the large ground finch, moved in. And when the going got tough—a drought decimated seed supplies—this intruder's presence led to a change in the diet of the medium ground finches, as almost only those eating small seeds survived, Peter and B. Rosemary Grant, a husband-and-wife team from Princeton University, report on page 224. In about a year, the resident finch population retooled: Their beaks shrank, becoming better equipped for this new diet.

This competitor-driven shift in beak size is an example of what evolutionary biologists call character displacement. Researchers have found apparent examples of displacement in natural settings and studied the process in laboratory experiments. But this is the first time they have seen it happen in real time in the wild, says Jonathan Losos, an animal ecologist at Harvard University: "This study will be an instant textbook classic."

Galápagos finches have fascinated biologists ever since Charles Darwin cataloged the great diversity of these birds' beaks. For the Grants, the finches have been their life's work. They have spent the past 33 years on one of the Galápagos' small volcanic islands, Daphne Major, recording the resident birds' births, deaths, eating habits, and so on, as well as weather and food-supply information.

At the beginning of the study, the medium ground finch (*Geospiza fortis*) shared the island only with the cactus finch, which uses its pointed beak to eat cactus fruit and pollen. Lacking competition from other finches, the blunt-beaked medium ground finch depended on smallish seeds, which were easier to eat. That is, until a severe drought in 1977 devastated the plants that produced small seeds. For the most part, only those birds with beaks big enough to break open large, hard-to-crack seeds survived; in just a few generations, there was a 4% increase in average beak size (*Science*, 26 April 2002, p. 707).

Beak push. For big seeds, the bill of the medium ground finch (*bottom*) was no match for that of the large ground finch (*top*).

In 1982, the large ground finch (*G. magnirostris*) settled on Daphne Major. At 30 grams, it was almost twice the size of the medium ground finch and easily cornered the market on a key food, *Tribulus cistoides* seeds.

At first, the newcomers didn't pose much of a problem because food was plentiful. But by 2003, their numbers had swelled to about 350, and a drought that year set the stage for stiff food competition. In 2004, there were about 150 large ground finches and about 235 medium ground finches, and the birds soon exhausted the supply of large seeds. The death toll was severe: About 152 medium ground finches died, as did 137 large ground finches. Among the medium ground finches, the ones that had the largest bills were the worst off; only about 13% of them survived.

Although the beaks of the island's large ground finch have not obviously changed since the drought, the medium ground finch seems to be returning to its smaller-beak days because of the selective pressure. Before the 2003 drought, medium ground finch males tended to have 11.2-millimeter-long bills, but by 2005, the bills averaged 10.6 millimeters, a 5% drop. The depth of the bill dropped from 9.4 millimeters to 8.6 millimeters on average, the Grants report.

The change occurred with surprising rapidity, says David Pfennig, an evolutionary biologist at the University of North Carolina (UNC), Chapel Hill: "I expected [character displacement] to take much longer." The Grants ruled out other possible causes of the change in beak size, such as the drought alone. After the 1977 drought, competition with another species was not a factor, and the beaks of the medium ground finches got bigger, not smaller. In this case, "you have the same drought, but selection is basically in the opposite direction," points out Joel Kingsolver, an evolutionary ecologist also at UNC Chapel Hill. "For a nonexperimental study, [the setup] doesn't get any better."

Evolutionary biologists consider the paper important because it demonstrates the interplay between population numbers and environmental factors: The shift in beak size occurred only when there were enough large ground finches and large seeds were scarce enough to cause a problem, says Pfennig. "This study," he adds, "will motivate researchers to go into the field and see if they can document other examples of character displacement in action."

–ELIZABETH PENNISI

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