If Blombos Cave is an aberration, the task is to try to explain why modern behavior did not appear simultaneously across Africa. Henshilwood suggests that the cave’s location overlooking the Indian Ocean—where seafood might have provided a rich diet—provides a clue. “Did those anatomically modern people who ended up in a coastal environment do better?” he asks. “This does seem to be the pattern.” The search for such patterns, some experts say, might be more important than pinpointing the precise origin of modern behavior. “These authors don’t need to make big, bold claims to convince us that what they have is important,” says Conkey. “The interesting question is not so much, ‘Is this the earliest?’ but ‘Why did it happen here?’”

MICHAEL BALTER

**EVOLUTIONARY BIOLOGY**

**Finches Adapt Rapidly To New Homes**

Birds of a feather don’t necessarily stick together. A study of house finches has demonstrated that in just 30 years, finches newly settled in Montana and Alabama begin to look and act quite different from each other, despite being close kin. Alexander Badyaev, an evolutionary ecologist at Auburn University in Alabama, and his colleagues have also shown that these flourishing avian pioneers improve their chances of success in part by controlling the sex of their eggs as they lay them. In this way, mothers influence the size of their offspring, an important survival trait.

The new work, reported on page 316 of this issue of *Science*, shows that...
“the time scale of decades [not centuries] is really enough for animals to evolve,” notes David Reznick, an evolutionary biologist at the University of California, Riverside. “The idea that the [divergence] could be that rapid is really remarkable,” adds Ben Sheldon, an evolutionary biologist at Oxford University, United Kingdom.

By adjusting rapidly to their new habitats, the finches “reduced mortality substantially in their young,” enabling them to out-compete native species, adds Craig Benkman, an evolutionary ecologist at New Mexico State University in Las Cruces. The enhanced survival that resulted “could easily have been sufficient to make a difference between [this species] spreading or not,” explains William Sutherland, an evolutionary biologist at the University of East Anglia, United Kingdom—and spread they did.

The house finch, Carpodacus mexicanus, calls California and deserts in the U.S. South-west home, but in the early 20th century these birds were also marketed as pets along the East Coast. When sales were outlawed in 1939, pet store owners in New York released their house finch stocks, not realizing how successful these birds would be in that environment. Now, just 60 years later, “it’s one of the most numerous urban bird” in much of the eastern United States, says Badyaev, who wanted to know how the birds could adapt so quickly to diverse environments.

From New York, the finches headed south, reaching Alabama about 25 years ago; California birds moved into Montana at about the same time. Immediately, differences in climate began to affect the two populations. Badyaev and Auburn colleague Geoffrey Hill tagged thousands of birds at each site and followed their offspring from hatching through adulthood. Over several years, they also looked at how many birds survived winters and how many offspring the tagged nesting pairs produced.

“Males and females grow differently both within and between populations,” Badyaev found. In Alabama, males grow faster than females and have wider bills and longer tails, whereas in Montana, females grow faster and are bigger overall.

These diverse features result from differential growth patterns in the young, says Badyaev. And those growth patterns indicate that selection for particular adult traits has influenced development, he adds. In addition to climate influences, he suspects that lifestyle differences between the sexes in either state contributed to the differences between males and females and, subsequently, the two populations.

Badyaev then looked into what mechanism might be responsible for altering the growth patterns at each locale. Researchers have long known that female birds can control the sex of their offspring. And others have shown that in some bird species, the order in which eggs are laid and subsequently hatch influences the size of the resulting adults, with the first hatchlings tending to grow to be the biggest of the bunch. Badyaev found both factors at work in the finches. Alabaman females lay males first; the final egg laid is female. The opposite is true in Montana. Thus in Alabama, males get a jump on their nest mates and grow bigger, whereas in Montana, females have the growth advantage.

“Quite a lovely result,” says Sheldon, who, like Reznick, is impressed that Badyaev carried out experiments to confirm his field observations. By switching eggs in one nest with eggs in others, Badyaev and his colleagues reaffirmed, for example, that the order in which the eggs were laid was most important in determining the relative size of the chicks—more so than, say, competition among nest mates. Overall, by biasing the sex of the eggs and laying them in a particular order, the mother increased chick survival by 10% to 20% over chicks from eggs laid in no particular order, they report. Thus adaptation along different trajectories helped make these finches successful in both states.

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—ELIZABETH PENNISI

ENDANGERED SPECIES

Fur Flies Over Charges Of Misconduct

Amid cries of “malfeasance of the highest order,” two federal agencies have launched investigations into the actions of seven federal and state biologists 2 years ago. The Washington state legislature and the U.S. Congress are also poised to hold hearings. The concern? That the biologists deliberately tried to skew the results of a federal survey of the threatened Canada lynx in national forests. The biologists, most of whom have not been identified, have denied the accusations, according to The Washington Times, which broke the story on 17 December.

The survey of 16 states and 57 national forests, which started in 1999, is designed to guide land management plans by determining where lynx reside. To search for the elusive animal, scientists collect hair left on rubbering posts and then send the samples to a lab for DNA analysis. The survey, coordinated by the Forest Service with help from the U.S. Fish and Wildlife Service and state agencies, has controversial implications: Efforts to protect the lynx could limit timber salvage operations—lynx make their dens in fallen trees—or conceivably prevent expansion of snowmobile areas.

In fall 2000, a Forest Service employee reportedly told superiors about irregularities in the survey protocol. The following February, the service hired an independent investigator. Four months later, according to The Seattle Times, the investigator concluded that although the biologists had deviated from the protocol, they were not trying to skew the results. “The integrity of the overall lynx sampling effort is being maintained,” wrote the Forest Service in a 13 December memo requested by Congress.

But some in Congress are not convinced. Not only have Representatives James Hansen (R–UT), chair of the House Resources Committee and an advocate of land rights, and Scott McInnis (R–CO) scheduled a hearing for next month, but they have asked the General Accounting Office, the investigative arm of Congress, to probe the incident.

The Forest Service isn’t commenting on the incident or its earlier investigation, citing the inspector general’s probe, other than to say that the three Forest Service employees are no longer participating in the survey.

But according to Tim Waters, a spokesperson for the Washington Department of Fish and Wildlife (WDFW), part of the flap involves two WDFW biologists who participated in the survey. They sent in fur from a captive lynx and a stuffed bobcat as control samples. Jeff Bernatowicz, one of the WDFW biologists, told Science he wanted to check whether the lab could correctly identify lynx hair. There was reason for concern, he says, because another lab’s analysis from an earlier survey had erroneously indicated that lynx were present in Oregon. But, Waters points out, controls weren’t called for in the protocol, nor did the biologists notify other survey researchers about their actions.

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**News of the Week**

**Endangered Species**

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