It don't mean a thing if it ain't got that (modern) swing

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When it's time to mate, female white-crowned sparrows are looking for a male who sings the latest version of the love song, not some 1979 relic.

And territorial males simply find the golden oldie much less threatening.

Duke University graduate student Elizabeth Derryberry played two versions of the white-crowned sparrow song to the birds as part of her thesis research and found that a 1979 recording didn't inspire them nearly as well as a 2003 recording of the very same song.

"It's not that they don't respond at all," Derryberry said. "It just isn't as interesting to them."

There were only subtle differences between the two versions of the song. The 1979 recording starts out with a higher pitched whistle and ends with trills that are more rapid. The newer song has headed toward Barry White territory, with a lower whistle and a more prolonged, broader-bandwidth trill at the end.

The California girls clearly preferred the newer one, arching their backs, raising their tails and beaks and doing a come-hither flutter of the wings in a controlled laboratory test that Derryberry calls the "copulation solicitation assay." If they really liked it, in fact, they'd start the dance even before the 2-1/2-second song was over. "It's -- boom -- on," she said.

Once the experiment was over, the females were returned unharmed to their capture sites.

The males had to be assessed in the field to see how vigorously they would approach an apparent interloper on their home territory. Derryberry trudged through knee-deep snow in Tioga Pass, Calif., during the 2005 spring mating season to place a speaker in the center of 20 males' territories and then gauged how close each one approached the recorded trespasser. The 1979 intruder didn't inspire the level of machismo in these males that the 2003 intruder did.

Derryberry's work, which was supported by the National Science Foundation and Duke's department of biology, has been published online in the journal Evolution.
http://tinyurl.com/2spvwk

Evolutionary biologists have been puzzling over why bird songs of a single species can vary significantly from one population to the next, but Derryberry's work shows the songs changing with time as well. Her thesis advisor, Duke biology professor Stephen Nowicki, has done experiments showing that female song sparrows
prefer the most accurate performance of their song -- the inference being that the male who learned it best has perhaps the sharpest intellect.

What all this careful listening and selectiveness might add up to is a part of the subtle process by which one bird species can become two, Derryberry argues. Bird song is something "cultural" that distinguishes bird populations; it is learned, it takes on regional variations and it changes with time.

For the remainder of her doctorate thesis, Derryberry is studying song styles in 15 populations of white-crowned sparrows from Washington to California. Interestingly, many of the regional songs are changing in the

same direction, with the trill portion of the song growing slower and broader, just as it did over those 24 years in Tioga Pass.

Derryberry suspects there is an environmental component to the change, because slower trills travel better through thicker foliage, and the foliage has indeed been growing thicker in many of her study areas.

But there is also some sexual selection at work, of course.

Source: Duke University