

FEATURED

## College studies sparrows at Chino Farms

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Jennie Carr, assistant professor of biology, left, and Madeline Poethke, 2016, use scopes to spot field sparrows in the restored grasslands at Washington College's Chester River Field Research Station.

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CHESTERTOWN — In general, Andrea Freeman's view of the natural world is through a microscope. A senior biology major with an emphasis in cellular, molecular, and infectious diseases, and a minor in chemistry, Freeman admits she doesn't get outside much, which made her summer internship with Jennie Carr, assistant professor of Biology, that much more of an eye-opener.

As a Toll Fellow in the College's Summer Research Program, Freeman worked for 10 weeks with Carr in the restored native grasslands at the Chester River Field Research Station at Chino Farms, helping Carr with her ongoing study of field sparrows — considered a "common" bird but one which has seen steep population declines in the last 40 years.

"It definitely was a different focus for me because I usually take classes with microscopes and stuff like that, and this was out in the field, outside," said Freeman. "It took a lot to get used to just from my experiences in the classroom. I loved it."

Carr has been studying field sparrows and hummingbirds at the CRFRS since 2014. She has focused the work at the field station at Chino Farms in part because of the unique habitat—the restored native grasslands—that draws the sparrows. The station is also home to Foreman's Branch Bird Observatory, whose long-term data collection and identification of birds supports her study.

"Because the staff at Foreman's Branch has been banding birds for so long out there, we have a really well-characterized population of field sparrows where we know exactly how old they are. Very few other studies can do that; they know if they're two years old, and that's it," Carr said. "But we know we have some birds that are seven, eight, nine, and so on. We put color bands on them so we can identify unique individuals with scopes and binoculars ... when you're interested in age, and you need this longitudinal study, you need to know how they did when they were four versus five, five versus six."

Considered common, field sparrows nevertheless have seen a population decline of 65 percent from 1966 to 2010, according to the North American Breeding Bird Survey. Over the past four summers, Carr has been studying whether the age of the bird has a bearing on nesting success — in short, do older birds do a better job of feeding their young. Carr has been working with Maren Gimpel and Dan Small, field ecologist and Natural Lands Project coordinator, respectively, with the College's Center for Environment & Society, and a small cadre of summer research students each year.

In 2014, researchers located 90 nests in the restored grasslands and successfully filmed 32 of them resulting in 132 hours of video footage to review. In 2015, that number jumped to 115 nests with 65 being filmed. In 2016, Carr and the team located 119 nests, and this past summer 103 nests.

“We would go out every morning and observe the field sparrows and watch their behavior, and that would indicate whether they had a nest,” Freeman said. “And our main goal was to be able to find the nest in order to be able to see if they became better parents as they aged.”

Carr, Gimpel, and Small plan to publish the research results this winter. Preliminarily, Carr said, it appears as though males do not feed chicks more as they age, although females do.

“This is a little surprising, since they live for so long, and they definitely learn and modify their behavior. It’s surprising that males don’t seem to improve since success of the nest really depends on bi-parental care,” Carr said. “Age doesn’t seem to be a big contributing factor, but the sex of individuals seems to be. Females are little more attentive. And feeding rate is an important driver of nest success.”

Carr and the team also began a new, related study this summer, using the same habitat and the same birds, but studying where the birds choose to nest as a determining factor in nesting success.

“We’re doing vegetation plots around the nests, characterizing where they are in relation to a treeline, for instance, and whether they’re being eaten by a predator or dying from exposure or a mechanical failure of a nest just falling over,” Carr said. “We’re asking more questions about field sparrow success and age — because we want to take advantage of that variable while we can — but also how is their nest building skill or placement varying over time, if it is.”

For Freeman, the work was a first on many levels — her first internship in the field, her first working with a species like the sparrows, her first living on her own in an apartment-type setting off campus, in the field house where interns spend their summer.

“I was able to do the things I learned at Washington College. I was able to put hands on,” she said. “And it also taught me a lot about patience and how things aren’t going to be the way you want all the time. There would be days when I wouldn’t find a field sparrow nest, and it was just interesting to see how stuff doesn’t always go as you planned, and how you have to adapt and learn and kind of be thinking on your feet.”