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Who inherits the castle? Dispersal in Birds

Who inherits the castle? In medieval times, or in the Game of Thrones, it was always the eldest son. Daughters were often sent great distances to wed the sons of other dynasties. Younger sons had a tough decision to make – stay and serve their older brothers or venture forth trying to make their own fortune. It was a rigid system driven by a cold hard reality; there were far more children than there were castles. Most of the offspring had to leave their home.

Among birds, dispersal is also a necessity. Most birds are not known for extended parenting.... Often within days or weeks of fledging, young birds are on their own. However, among a group of birds known as cooperative breeders, like Highlands County's own Florida Scrub-Jay, birds live in family groups and young often stay with their parents for one to several years. Their parents live and defend the same territory for their entire lives, sort of like a medieval castle, and one of their offspring may inherit that space. Researchers in Archbold Biological Station's Avian Ecology Program are interested in understanding the "rules" of dispersal in scrub-jays. Who stays and who goes.... and when. Why do some birds disperse close to home and others very far? Dr. Reed Bowman, Director of the Avian Ecology Program said "Dispersing birds connect populations. They can rescue a declining population or bring in fresh genes preventing inbreeding. With increasing habitat fragmentation and global climate change, understanding how, where and why organisms move among populations is critical to conservation."

Young Ha Suh is a Ph.D. candidate at Cornell University working with Dr. Bowman on scrub-jay dispersal. Ms. Suh is using data on 636 Florida scrub-jays from Archbold's long-term study, where the

age of each is known, as well as its birth site and where it finally settled to breed. Most birds settled close to home, but some traveled more than 10 miles. There are advantages to staying close to home, familiar territory with lots of relatives as neighbors, and costs to traveling far, and these costs and benefits have an effect. Birds that disperse short distances produce more offspring over their lives than those that go far. Males and females disperse at similar ages, but females tend to disperse farther than males. For both sexes, younger birds disperse farther than those that delay dispersal. At least in females, this pattern seems to be driven by competition and a bird's position in the social hierarchy. Dominant females are more likely to delay dispersal and settle close to home, and this effect is stronger when more females are vying for breeding space. The same holds true for males, but the effect is weaker. Why are females more sensitive to competition? Ms. Suh said "Females have fewer options. They cannot inherit the territory, nor will Dad help them bud off a portion of their home territory for their own... both options that sons have. Thus, if competition for space near home is high, females near the bottom of the social queue may opt to leave early and go farther, even crossing gaps and moving to other populations, making the best of a bad situation".

Before dispersing, young birds make occasional explorations away from home, but usually returning to the safety of their family at night. On these forays they interact with potential competitors, sizing them up, and assessing potential breeding opportunities, and use this information to decide when and where to disperse. Archbold scientists have been tracking birds during these forays and are developing sophisticated networks of their social interactions – sort of the Facebook of birds. Dispersal is such an important stage in a scrub-jays life that they need as much information as possible to make the right decision. Not too unlike the princes and princesses of Westeros!

Photo caption 1: Florida-Scrub-Jays disperse from their home territory when about two-years old. Most settle close to home, but some can fly as far as 20-30 miles to find a suitable home. Photo Credit, Jessie Dickson.

Photo caption 2: Ph.D. candidate Young Ha Suh and intern Meredith Heather band a nestling Florida Scrub-Jay, as part of the long-term research at Archbold Biological Station. Photo Credit, Archbold Biological Station.