



ScienceWatch – Woodpecker Warriors

“We’ve seen birds with eyes gouged out, wings broken, bloody feathers and birds that fell to the ground fighting each other. It’s the real stuff.”- S. Barve

Anyone who has seen acorn woodpeckers (*Melanerpes formicivorus*) in the wild usually has two reactions: fascination with their granaries—a tree trunk riddled with holes they drill to hold acorns they store to use when food is scarce—and amusement at their clown-like appearance. But writing in the September 7, 2020 issue of *Current Biology* a team led by Sahas Barve, an avian evolutionary ecologist at the Smithsonian National Museum of Natural History, Washington, D.C., describes behavior that is anything but clown-like. These birds are ferocious fighters, ‘warriors’ that engage in savage ‘power struggles’ that are sometimes fatal.

Acorn woodpeckers are cooperative breeders living in oak forests along the west coast of North America where they form a complex society. Family breeding groups consist of multiple male and female breeders who mate with each other and include their non-breeding offspring called ‘helpers.’ Each family defends a territory averaging 15 acres that can contain thousands of stored acorns defended by up to seven related males (fathers, sons, brothers) and up to three females also related to each other (mothers, daughters, sisters) but not the males. Helpers act as baby sitters for five or six years until they can gain their own territory. Barve, *et al.* discovered how this happens.



In 2018 and 2019 they fitted acorn woodpeckers living in California’s Hasting Natural History Reservation with radio telemetry tags to track the movements of up to 70 tagged birds, which enabled them to observe three power struggles.

Power struggles occur when a family group loses either all its breeding males or females to old age or predators. The news travels quickly to neighboring breeding groups and their same sex helpers now become warriors, forming a coalition that rushes to the depleted territory and battles it out with rivals to fill the vacancy. The three power struggles observed by the researchers all stemmed from groups that had lost their breeding females. In all, 36 tagged birds were involved, 13 of which were young females (warriors) who fought for up to 10 hours each day and returned for up to four consecutive days, while 23 others acted as ‘spectators’. Each battle attracted up to 50 female warriors from a dozen or more coalitions. "These birds often wait for years, and when there's the right time and they have the right coalition size, they'll go and give it their all to win a really good territory," says Barve.



During these often violent battles birds were seen performing wing-spreading posturing, chasing each other and locking claws in flight, pecking each other and dive bombing hapless individuals on the ground. Warriors sometimes lose an eye or sustain a fatal injury. “These birds are very vicious, they are really serious about it; it’s not just posturing. When you get closer, you can see that there are a dozen or more coalitions of three or four birds fighting and posturing on branches. One group has to beat all the others to win a spot in the territory, which is really, really rare in animals—even in fantasy novels it usually boils down to one army against the other,” says Barve.

Reminiscent of the Roman Colosseum during ancient times, the spectators also arrive. These are usually breeding birds that sit on the sidelines and watch the ongoing power struggle for up to an hour each day. “We never really paid attention to them because we were always fixated on the birds that were actually fighting,” says Barve.

The team found that some of the largest battles for the biggest granaries can attract up to 30 spectator birds coming from as far away as three kilometers (1.9 mi.). According to Barve the power struggles are major events for the spectators. He thinks they are gathering intelligence for future power struggles, eyeing neighboring territories and sizing up potential competitors. “They’re definitely trying to get social information out of it. They must immediately see all the big sibling coalitions in the area, gauge their body conditions and the quality of the territories they’re defending,” he said.

The next time I see these comical looking birds I’ll be thinking of gladiators not clowns.

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