

## DATELINE UC DAVIS

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### **Fowled away? Too many birds in arboretum**

*By Sylvia Wright*

It is springtime in the campus's prized Shields Oak Grove. That means thousands of nesting egrets and herons again threaten the trees' health, and wild-bird experts again are testing unusual but humane means to discourage the birds.

The Shields Oak Grove has been in existence since 1963 but big, colonial wading birds did not begin nesting there until 2000. Making up for lost time, the rookery quickly grew to one of the largest nesting colonies in Yolo County. Last year, more than 2,400 egrets and herons nested or roosted in Shields Oak Grove, producing more than 850 chicks.

As the number of birds grows, so does the number of trees being affected, said Ellen Zagory, director of horticulture for the arboretum and a member of the arboretum oak and wildlife management team.

Those effects are evident to anyone who has gone near the grove in nesting season, as noted in the 2006 UC Davis Arboretum newsletter: "[I]n mid-spring ... the canopies are filled with fluttering white and gray forms and cacophonous sounds and acrid smells permeate the air."

Those smells come from the excrement, or guano, of four bird species: cattle egrets, black-crowned night herons, great egrets and snowy egrets. The guano of thousands of those birds coats the oak trees' branches, twigs and leaves like white paint. The ammonia in the guano is enough to kill some leaves outright. Others die because they are deprived of the sunlight needed to make energy.

Even leaves that avoid the guano shower are at risk: Rainfall and irrigation leach guano salts into the soil, where they are taken up by the roots and shipped up through the tree's circulatory system to all the leaves.

"Ammonia is toxic and causes defoliation. Guano is opaque, so it blocks photosynthesis and causes defoliation. Salts stunt the growth of roots and shoots, and cause margin burn on the leaves and defoliation," Zagory summed up. "Complete defoliation of a branch over several years means that branch dies."

Dead branches can lead to weak and dying trees — not an option for arboretum managers.

This year, in hopes of a sustainable balance for both trees and birds in Shields Oak Grove, the management team will scientifically test two nesting deterrents. The efforts began in early March, when arboretum staff removed all remnants of last year's nests from a select group of 15 oak trees. Mana Hattori, a researcher at the UC Davis Museum of Wildlife and Fish Biology, will compare subsequent nesting activity in those 15 trees with activity in 15 similar "control" trees that were left alone.

Beginning next week, in a different part of the grove, Hattori will test another method that has been successful with nuisance colonies elsewhere in the United States: She will shine a laser light at cattle egrets when they land in the trees.

Andy Engilis, museum curator and a wild-bird expert on the team, said the light is not harmful to the egrets: "It basically spooks them and they fly off." The laser will be aimed at only cattle egrets that have not begun nesting, in an effort to send them someplace else to set up housekeeping. It will not be used on the other species of birds, which already have eggs and chicks.

"If this works, it gives us a method we can use in the future," Engilis said. "We are trying to protect a bird resource that has state value and a grove of trees that are very important, and we're trying to find an equilibrium that will work with both groups."

The UC Davis Shields Oak Grove is a resource for scholars and conservationists, as well as recreational visitors. It contains the largest collection of mature oaks in the southwestern United States — 304 trees representing 87 types of oak species, varieties and hybrids, some of which are rare and endangered. It is a partner in the national oak collection of the prestigious North American Plant Collections Consortium.

Hérons and egrets are similarly valued resources, and so when the management team began trying to discourage the birds, they took a gentle approach. In 2006 and 2007, the nesting disincentives included the structural pruning of trees; removing some redundant and crowding trees; removing the remnants of the previous years' nests; and tying shiny Mylar streamers and balloons to the treetops. Those strategies may have been somewhat successful, because the number of nests built by three of the four species — the black-crowned night herons, great egrets and snowy egrets — leveled out at about 320.

But the fourth species, the cattle egret, was undaunted. Its nests increased from 21 in 2005 to 495 in 2007.

Cattle egrets are known for their expansionist nature, Engilis said. They are not native Californians; they originated in Africa, traveled to South America and became established in the 1930s, then rapidly spread north, reaching Northern California by the mid-1990s.

These birds are very successful colonizers, and one of the reasons why is that they are very prolific, Engilis said in a phone interview from south Texas where he was studying the spring migration of birds across the Gulf of Mexico from Mexico and Central America. "In other parts of California, such as the Salton Sea, cattle egrets have swamped out other nesting species.

"They nest in very dense colonies. When they find a good area, they will come in in big numbers, even to the detriment of other species."

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