THE CALIFORNIA BLACK RAIL REPORT

A NEWSLETTER FOR LANDOWNERS COOPERATING WITH THE CALIFORNIA BLACK RAIL STUDY PROJECT

http://nature.berkeley.edu/~beis/rail/

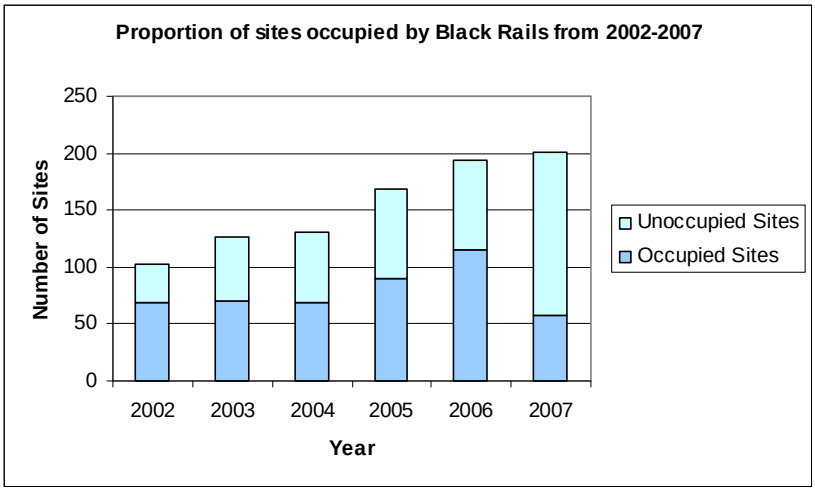
Vol. 6, No. 1

Our seventh year! Many of you living in Butte, Nevada, and Yuba Counties have been helping the unique research activities of **The Black Rail Project** since we started our field surveys the summer of 2002, assessing the presence or absence of the California Black Rail. Because of your cooperation we've been able to make repeated visits every year to the same wetland locations, and this has given us an understanding of population trends and dynamics of this species' unusual occurrence in our foothill environment. The California Black Rail wasn't supposed to be resident here, but in 1994 we first found that there were individuals and groups living in little wetland fragments throughout the foothills. They had gone unnoticed because of their tiny size—smaller than a robin, the tiniest rail in the world—and secretive life among the densest vegetation. So we began our annual surveys of wetlands on public and private lands, every year seeking your permission to come onto your property for the brief time it takes to play a few rail calls, listen for responses, and evaluate their persistence in the network of separated patches that makes up their distribution in the foothills. So many of these small wetland, some as tiny as a quarter acre, are on private land that none of our research would be possible without your cooperation. Once again we give you a hearty thank you and hope this newsletter answers some of your questions about our research and what we are finding out. Remember, you can always contact us directly (see last page for contact info) with any question you might have.

You can help us by returning the enclosed postcard as soon as possible. If we don't hear from you, we will try to reach you by phone to once again get your permission to come onto your property to check for presence or absence of the Black Rails this year. Your cooperation is advancing our understanding of how creatures live in the fragmented habitats that interact with our own living space in the real world. While most wildlife studies focus on wild places and wilderness locations, we are interested in what is going on in our very backyards.

Black Rail Update: The Big Crash of 2007

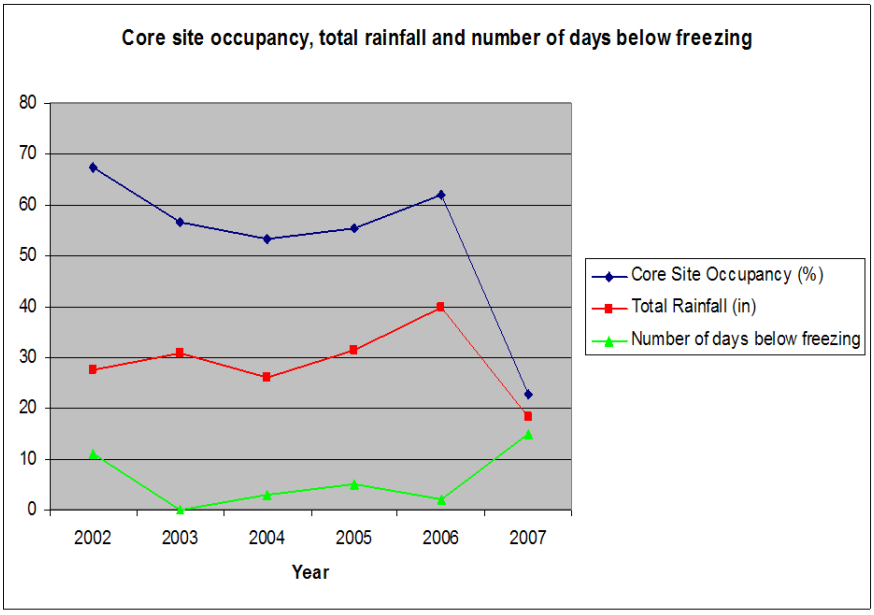
Last year something very unusual happened: We couldn't find any Black Rails on a very large number of sites. Many of these locations had always had rails in past years. What was going on? The graph at right shows how rail numbers have been fairly constant over the years, with some slight increases in both occupied and unoccupied sites. But last year we saw a sudden drop in occupied sites.



One of the important questions we are trying to answer with our research is: How stable is the fragmented distribution of Black Rails over time? From 2002–2006

we monitored wetland sites during the summer months (June-August) and found that the percentage of sites occupied was relatively steady, ranging from 53-67%. While some sites went locally extinct and some sites were colonized, overall the total proportion of occupied sites was relatively high. Then came 2007. We started to notice something strange was going on when some of our best sites with the longest history of occupancy had no rails. One of these newly vacant sites had even had Black Rails for 13 consecutive years. Even though the habitat looked to be in good shape, with plenty of flowing water and dense wetland plants, we heard only the silence of the rails there. By the end of the 2007 season, we discovered that only 28% of the sites that we surveyed were occupied, which meant that approximately half of our sites from 2006 had gone locally extinct!

Well, we don't have the final answer yet, but there are several possible causes of the crash. The first possible cause is temperature. The winter of 2006/07 had the highest number of days below freezing of any winter in our survey period. Cold winter temperatures caused hard frost in some wetlands, which might have put thermal stress on the small-bodied rails or inhibited their ability to feed. The second possible cause is low rainfall. The total rainfall for the 2006/07 winter was the lowest on record for our study period. Lower levels of winter rain resulted in less water coming from springs and lower irrigation water availability. We noticed that some of our more marginal sites in 2007 dried up much faster than in previous years. The graph at left summarizes these possible impacts. A third possible trigger of the crash is West Nile Virus, which has caused increased mortality in many bird species, particularly corvids (crows, ravens, magpies) in California. West Nile Virus is spread by infected mosquitoes, and our rails live in marshes where virus carrying mosquitoes are known to be especially prevalent. We tested the blood of several captured Black Rails and found antibodies to West Nile Virus, indicating that the birds had been exposed. While West Nile Virus causes severe symptoms in people in only about 1 in 150 cases, it has taken a devastating toll on numerous California wildlife species.



Now the interesting question is: Will the rails recover in 2008? We will be conducting our normal summer surveys from June-August, and all of us are curious to see if the rails bounce back.

Our Plans for the Summer 2008

In what areas within a wetland are rails most likely to spend their time? Do they move between wetlands? How far do young rails go when they disperse from the wetland in which they were born? Do Black Rails and Virginia Rails use the same area, or do Black Rails avoid the larger Virginia Rail?

This summer, we will be starting to examine the movement and microhabitat use of Black Rails and Virginia Rails. Although we have learned a lot about the patterns of rail occupancy from our repeated annual surveys, there are still many questions that can only be answered by observing these

secretive birds. This is difficult because we rarely see Black Rails and Virginia Rails. However, we can capture rails by luring them into walk-in traps, and then attach small radio-transmitters to gather information about their movements. This technique, called radio telemetry tracking, has been used for years to track many different kinds of animals, especially larger species like deer and mountain lions. Advances in miniaturizing electronic devices have allowed scientists to use radio telemetry on ever smaller species. Because Black Rails weigh just 30 grams, we will attach tiny 1.2 gram transmitters. Transmitters larger than this could affect their movement. The transmitters produce a signal for about 6 weeks, and during this time we will figure out the rails' precise locations. Virginia Rails are larger, so we can attach longer-lasting 2.5 gram transmitters. This summer, we will figure out how to best attach the transmitters so that they do not fall off and don't affect the rails' behavior. We hope to catch and track between six and eight Black Rails and six Virginia Rails.

Using this movement information, we can start to answer questions about how Black Rails and Virginia Rails are using wetlands. For example, we don't know whether rails fly to more suitable wetlands when conditions in their home territories deteriorate. Our analysis of Black Rail occupancy patterns shows that isolated wetlands are more likely to become extinct and less likely to be colonized than wetlands close to other wetlands. This indicates that the California Black Rail in the Sierra Foothills may not be successful moving between wetlands. Yet there is evidence that Black Rails are capable of long distance flights. We can use data from radio-telemetry to provide important insight into these issues in order to better understand the habitat needs and sensitivity of Black Rails and Virginia Rails.

The photo to the right shows Ben Risk, a UC Berkeley grad student who joined our project last year, modeling the antennae and receiver that will track the rails this summer. The photo below shows approximately what the transmitter and its antennae look like when temporarily glued to the back of a Marbled Murrelet (a slightly larger version of what we will use on our Black Rails).

WHO WE ARE. This research was begun in the late 1990's by **Jerry Tecklin**, a Research Associate at the University of California Field Station where he was stationed for sixteen years. For several years the California Department of Fish and Game contracted him to look for Black Rails in the foothills. Over the years, many of you have been contacted by Jerry for permission to enter your property. Seven years ago **Dr. Steve Beissinger** began to work with Jerry and founded the **Black Rail Study Project**, the current long-term study we are now doing. He is a distinguished professor in the Department of Environmental Science, Policy, and Management at the University of California Berkeley, and a nationally recognized leader in studying rare birds and their conservation. **Orien Richmond** is a Ph.D. student of Steve's in his fourth year in the field, completing his dissertation on Black Rails. We are pleased to have **Lyla Hunt**, a UC Davis grad and expert bird handler, who will assist **Ben Risk** (see p.3) with telemetry, and help **Elizabeth Hunter**, who will be doing most of our surveys. Elizabeth is a U. of Wisconsin grad who has field experience in Costa Rica, Louisiana, and the Great Basin. Look for these fine folks in the field.

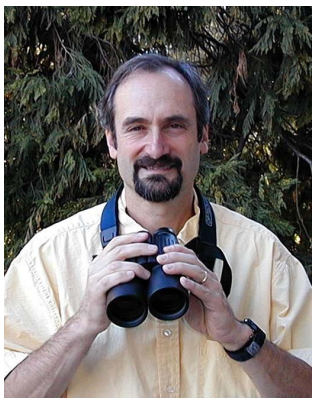
You can always contact us by calling the Field Station, 530-639-8804; or emailing us at jetecklin@ucdavis.edu, orien@nature.berkeley.edu, or Dr. Beissinger at beis@nature.berkeley.edu. Consider visiting our website: http://nature.berkeley.edu/~beis/rail/. There you will find pictures as well as sound recordings of these birds (look under "Links"), and lots of other information.

So, here's the June-September 2008 Team

Lyla

Orien

Elizabeth



Steve

Jerry