## THE CALIFORNIA BLACK RAIL REPORT

A NEWSLETTER FOR LANDOWNERS COOPERATING WITH THE CALIFORNIA BLACK RAIL STUDY PROJECT http://nature.berkeley.edu/~beis/rail/

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Another field season for the California Black Rail Project is about to start (June 1- Aug. 31) and



you may be wondering what we've been finding out and where the project is heading, especially if this is your first year cooperating with our research activities. Since 2002 we have been working from our base at the Sierra Foothill Research and Extension Center (the "Field Station", as it's known locally) near Browns Valley. We've been tracking the occurrence of the California Black Rail, the world's smallest rail -- smaller than a robin-- and one of the most elusive birds in the U.S.A. It's seldom seen by even experienced bird watchers, but since its discovery at the Field Station in 1994 we've found it on public and private land in Butte, Placer, Nevada, and Yuba

Counties in the lower foothills of the Sierra Nevada mountains. Many of the wetlands, small seeps, springs, leaking ditches and ponds where we find this creature are on private land; for example, sometimes associated with irrigated pasture run-off. **Without year-to-year, continuous, data we are not able to understand the comings and goings of this beautiful little bird.** We have been so fortunate that many of you have been cooperating for the past four years. Yes, this is the fifth year we've been seeking your permission to come onto your land for our very brief surveys using tape recorded bird calls to determine if they are present or absent at a known site. Last year, so many landowners asked us what the bird looked like that we decided to start this year's newsletter with an exceptionally good photo of it. Please let us know if you've seen it or heard its very peculiar, loud singing, which sounds a bit like it's repeating "Kee-Kee-Doo", over and over again, usually at dusk and dawn. **Thank you for cooperating with us these past years**, and **please return the enclosed postcard** to update our database to contact you and hopefully once again to visit your property during the 2006 field season.

Here's a summary of what we've accomplished this past year and where it is taking us. Assisted by grants from Sierra Foothill Audubon Society, Sacramento Audubon Society, and California Department of Fish and Game through the University of California Davis Wildlife Health Center, we acquired satellite imagery that gives us a "Big Picture" view of our study area and its physical and ecological features. We've learned how to recognize Black Rail habitat clues by studying these satellite pictures to locate and prospect for the birds, and last year we found 35 new rail sites. We are now visiting 168 wetland sites to survey for Black Rails; last year 54% of them were occupied by the rails, similar to previous years. As in previous years, few (9%) of our sites were re-colonized if they'd lacked rails the year before, and few (7%) failed to be occupied if they'd had rails last year. So, our losses and gains seem to be fairly in balance. Many of our new sites are on the Spenceville Wildlife Area, the Daugherty Hill Wildlife Area, and on the Field Station. A few of the larger privately owned ranches in our area also have large numbers of Black Rails (See story, p.4). Below you can see a map generated from our satellite images showing our survey sites. We've imported the

satellite picture into a GIS (Geographic Information System) program so we can overlay all kinds of other information, like the boundaries of three counties shown here. The yellow specks are our wetland rail sites.



# Using Satellite Images to Detect Black Rails

Satellites are increasingly being used to assist biologists in mapping suitable habitat for species of interest, such as the Black Rail. Satellites carry powerful sensors, kind of like giant cameras, that record reflected solar radiation bouncing off the earth back to the satellite. Some of this radiation is visible to the human eye (red, blue and green wavelengths), while other radiation is not visible to the human eye (near infrared wavelengths). The fact that a satellite can pick up radiation in so many bands (some invisible to the human eye) makes it a very useful tool for discriminating between different kinds of land cover. This is because plants, rocks, buildings, water and roads all reflect light in different wavelengths and the extra information provided by the invisible wavelengths makes it easier for a computer to tell the difference between, say, a forest and a lake. We are using satellite imagery from the Ikonos satellite (a newer satellite sending high resolution images that can be analyzed automatically, so that we can automatically obtain certain vegetation types indicating a wetland) to try to map wetland habitats and their surroundings in our study area. It has taken biologists a long time to realize that the conditions surrounding a patch of suitable

habitat may be nearly as important as the quality of the habitat itself. For example, a wetland surrounded by tall trees may be hard for dispersing birds to locate. A wetland near a road may experience more disturbance than a wetland surrounded by an annual grassland. By analyzing surrounding habitat conditions where rails are present or absent we can create a conceptual model of how these conditions explain why some wetlands are occupied and others are empty, and even



predict where we might find Black Rails. It seems strange to use such hi-tech methods to study a bird so small and elusive that it wasn't even detected in the foothills until a few years ago. Combined with lowtech methods of crawling around in a wetland to see if the rails are there, we are pioneering new methods of conducting ecological studies over large areas.

The photo to the left shows one of our sites, outlined in yellow, at the Spenceville

Wildlife Area. The infrared part of the electromagnetic spectrum is displayed here in red—this causes vegetation to really stand out because chlorophyll (a component of green leaves) reflects strongly in the infrared part of the spectrum. You can see the oak woodlands (red) and the annual grasslands (light bluish-grey) that surround the site. The grassland does not appear red because at the time this imagery was collected (late July) the annual grasses have died and there is no longer any active chlorophyll. The emergent wetland vegetation that is the best rail habitat appears dark purple, while blackberry bushes appear light pink. Water appears black because it absorbs strongly in the infrared part of the spectrum. While our eyes are very good at distinguishing these land cover types, we are working on training a computer program to classify the imagery for us—this saves a lot of time and we can then apply the program to classify other imagery in the area.

# **Black Rail Project Expands Field Activities**

This year we are going to expand our bird survey and try to detect Virginia Rails as well



as Black Rails. Virginia Rails are very common and well known to exist in our area, and are frequently found in the same wetland as Black Rails, often responding to our Black Rail tape recording. We have no idea if they compete with Black Rails for food, nest sites, or whatever. So we will try to find out if there is any significance to the close relationship. Virginia Rails are larger than Black Rails (8-11 inches tall *vs.* 5-6 in. for Black Rails) and make grunting, pig-like sounds when disturbed. This photo may help you identify this species in your wetland. **Please** fill out the enclosed postcard and mail it as soon as you can. This can save us a lot of time in trying to reach you to get permission to survey for Black Rails. We appreciate your cooperation, and as always pledge to respect your privacy, close all gates, and be speedy and quiet as we go about our business. A hearty **Thank You!** 

## A New Method for Detecting Black Rails

One of our best Black Rail locations is the Saddleback Ranch on Loma Rica Road. There are ten different sites occupied by rails on this beautiful 5,000 acre property that is part cattle ranch, part managed duck and waterfowl breeding area, part rice growing area, with extensive and diverse wetland habitats. Most of the ranch is protected by conservation easement from the kind of rampant development sprawling over the foothills. You couldn't hope for a better managed operation.

Ranch manager, John Drew inadvertently discovered a new way to find Black Rails. It

happened on a 105 degree evening in July last year when John was setting up a tower for hurling clay pigeons for target practice on the ranch, test firing the projectiles and watching them explode on impact with the ground. One of them shot in a high arc into a tiny wetland on a nearby spring, splintering with a bang, which was followed by a most unusual reply from the dense vegetation. John thought it sounded familiar, since he'd been



out with us that morning surveying for Black Rails, so he shot another clay pigeon into the wetland. Sure enough, back came an excited reply of "Kee-Kee-Doo". The next morning we confirmed this discovery of a new Black Rail location we'd previously overlooked right next to ranch headquarters. (John is pictured above with his Black Rail detector indicating the wetland he surveyed successfully.) Black Rails are aggressively interested in intruders into their territory, and John's clay pigeon survey method was all it took to get a robust response! 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 has been stationed for the last sixteen years. For several years the California Department of Fish and Game contracted him to look for Black Rails in the foothills. He knows Yuba, Nevada, and Butte Counties as if they were his own backyard, which in a way they are!. Over the years, many of you have been contacted by Jerry for permission to enter your property.

Four years ago Dr. Steve Beissinger began to work with Jerry to found the Black Rail Study Project, the current long-term study we are now doing. He is 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, a Ph.D. student of Steve's, worked with us last year. He is now doing his dissertation on Black Rails and will be taking major responsibility for the conduct of the research over the next few years. We are pleased to have Jora Rehm-Lorber with us again this year doing the greatest part of our field surveys. If there are rails in a wetland, Jora will find them.

You can always contact us by calling Jerry, Orien, or Jora at the Field Station, 530-639-8804; or emailing us at jetecklin@ucdavis.edu, orien@nature.berkeley.edu, or Dr. Beissinger at <u>beis@nature.berkeley.edu</u>. 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-Sepember 2006 Team









Orien



Steve

Jerry