
# 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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# BLACK RAIL PROJECT TENTH YEAR UPDATE

This summer the Black Rail Project will conduct its tenth consecutive year tracking the strange occurrence of the California Black Rail in the Sierra Foothills. Almost never seen, and thought to be the most elusive bird in North America, it was only recently discovered here in the foothills. After nine years of studying this secretive little bird it now seems we may need to change our logo photo at the top left of this page to a less elusive looking portrait like the one to the right ( Its eyes really are that red !) . Thanks to your cooperation, these last nine years of study have cleared up many unknowns, and we are on the path to removing this bird's veil of secrecy. In this issue we'd like to tell you some of our latest findings, and the new studies we are launching for the next several years to come. Once again we will be requesting your permission to come on your land to conduct our brief annual surveys to detect the bird's presence or absence. When you fill out the enclosed postcard, **please note that this year we'd like to send you a complete history of the Black Rail's occupancy in the wetland on your property. Just indicate on the enclosed postcard you'd like this info, and provide an email or snail mail address.** At the end of our current field season we will send you a ten year summary of occupancy for your wetland.

Our big news is that the **National Science Foundation** ( NSF ) has awarded us a grant to continue our studies for the next four years! The NSF is an independent government agency responsible for funding approximately 20% of all federally supported basic research conducted by America's colleges and universities in many fields such as mathematics, computer science and the social sciences. Competition for funds is very intense, and only about 10% of the grant submissions get funded. In awarding this grant the NSF commented on our study:

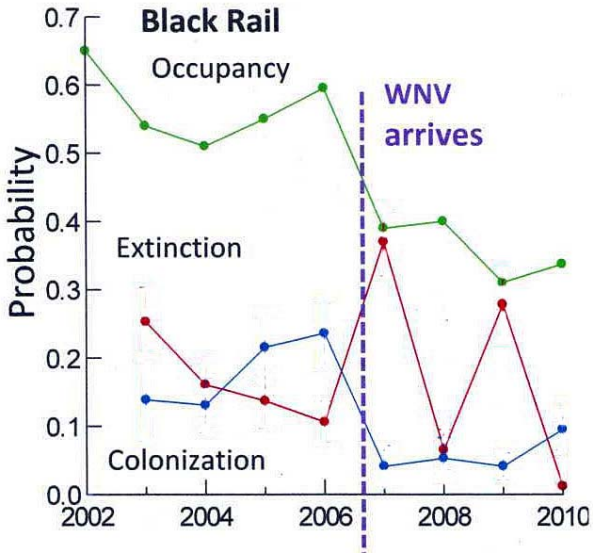
> *"This work will yield important contributions to metapopulation theory in several areas, including dispersal estimation, model selection and parameterization, and in the study of rescue effects, transient dynamics, and the effect of patch dynamics at larger scales."*

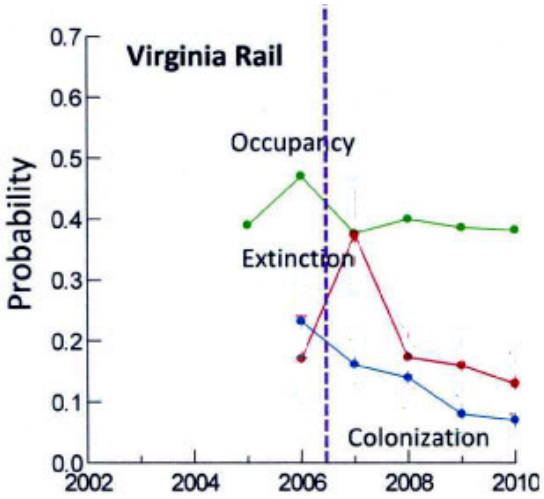
We won't try to translate this complicated compliment in detail, but mainly it says that NSF thinks our past and future work is going to explain a lot about how the little wetland patches occupied by the rails on public and private lands in our area function in the larger landscape, and contribute to how we study the way birds move around in a fragmented universe. **Your wetland patch is part of this universe, and so we continue to offer you our sincere thanks for granting us access to your property!**

The Black Rail Project may have to consider a name change since we have expanded our study to include comparing Black Rails to the larger Virginia Rails which often occupy the same wetlands. **Laurie Hall**, a Ph.D. candidate at U.C. Berkeley who supervises the summer field work, is pictured here holding both species. So far, we find they seem to successfully inhabit the same wetlands, even overlapping territories, and following similar patterns of occupancy, both having apparently been negatively affected by the West Nile virus which continues to afflict wildlife in our region. This field season we will be surveying for presence and absence of both species. At some sites, we plan to track birds with radio-tags to study their occupancy patterns and movements. More about this on the following pages.

# Trends in the Sierra Foothill Rail Population

We've conducted annual surveys in the foothills to detect the presence or absence of the California Black Rail since 2002, surveying about 200 wetland sites each summer. By broadcasting recorded calls to elicit responses from the rails, we've determined we can tell with a high degree of confidence if they are indeed present in the wetland. Since 2005 we've included Virginia Rails in our detection efforts, since they are commonly found in the same wetlands, probably are subject to many of the same environmental factors like the often fatal West Nile Virus, and offer an opportunity to make some comparisons about diets and dispersal. 2011 will be an interesting year to see if the increase in colonization of Black Rails (**blue** line) and decreasing local extinctions (**red** line) will be a lasting trend, and if overall occupancy (**green** line) ceases its downward tendency. Virginia Rails also may be showing an encouraging trend with extinctions and colonizations somewhat balanced, and occupancy constant. The affect of our unusually heavy rainfall this year may offer surprises.



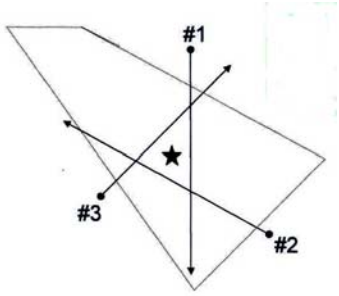




# Radio Tracking Black and Virginia Rails

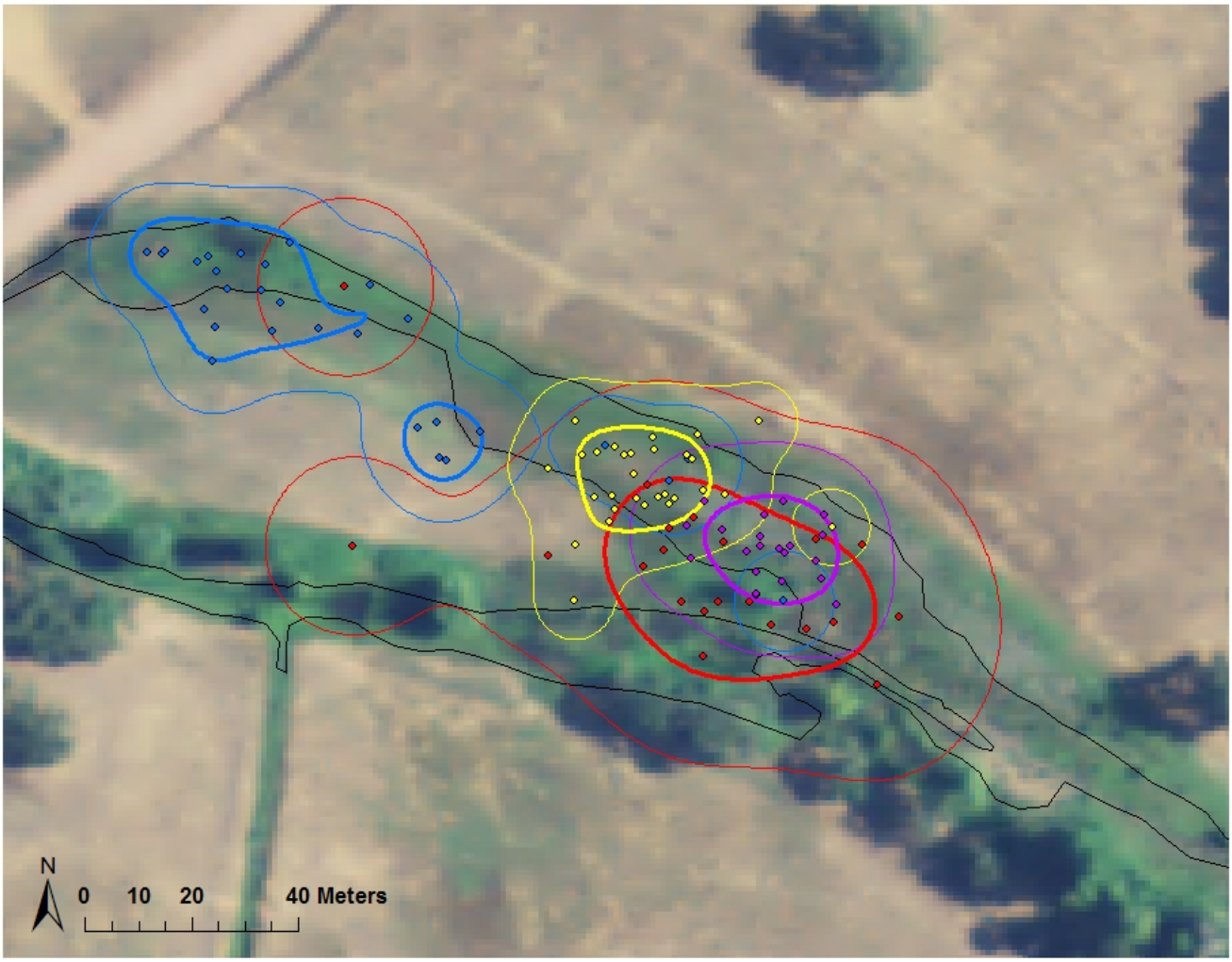
A main component of our work for the next few years will be tracking the actual movements of the rails within their wetlands and wherever they go when they must inevitably leave for less congested habitats or more favorable sites should their home sites dry up. It's possible to do this because we've learned to safely trap the birds in order to harness a tiny radio-tag to their backs. Black Rails commonly weigh about 1 ounce, and Virginia Rails about 3 times this weight. They carry a radio backpack strung beneath their feathers that weighs less than 4% of their body weight and will not inhibit their movements. As in this picture, a radio antennae trails behind them, broadcasting at a unique frequency for each individual. As long as we are within reasonable range (usually 1 mile) of the tiny transmitters, we can locate any particular bird simply by tuning our receiver to its frequency and directing ourselves toward its "blip". The new radios we will be using have batteries that will broadcast for about 8 months. We may have to take to the air, in an airplane of course, in order to locate individuals who disperse over long distances or away from roads.

Last year Laurie Hall and May Gamboa tracked several rails to determine their home ranges within their wetlands. They made daily visits to the wetlands to tune-in each radioed bird, being careful not to intrude and disturb them in order to get an accurate fix on their positions.

This is what a fully outfitted radio tracker looks like, with receiver and antennae at the ready, listening for the direction of good strong “blips.” Each bird was located from three GPS recorded spots so that its position within the wetland could be determined by triangulation, like in the diagram to the left.




The exact bird location would be at the intersection of the directional lines leading to the strongest “blip,” or at least within a triangle formed by these lines. It takes practice to get a fix on a bird accurately and quickly, since it’s a moving target. Once May and Laurie had all their fixes, they used computer software to draft images of all the locations and analyze the data statistically to determine the size and shape of the area where their target birds were spending their time. A final analysis of a single wetland, where 4 rails (2 Blacks and 2 Virginias) were radio-tagged, looks like the picture below. The two Black Rails are in **yellow** and **purple**; the two Virginia Rails are **red** and **blue**. Thin lines indicate a larger use area, and the thicker lines indicate the core use area, where birds spent most of their time. A black line outlines the approximate boundary of the wetland. Here the Black Rails maintain separate territories, with only a small overlap, and the Virginias follow the same expected pattern, but with much larger areas of use for this larger bird. In the case of the red Virginia Rail there’s lots of territory sharing with both Black Rail neighbors. The Black Rails at this and other sites occupied core areas of about a quarter acre, with larger use areas of about 1 acre. So far, we think the Foothill Black Rails occupy much smaller home ranges than other Black Rail populations in the Bay Area, or along the Lower Colorado River, and in the Eastern U.S.A. Despite their size differences, Black and Virginia Rails appear to be tolerant co-inhabitants of their small wetland patches.



**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 near Browns Valley where he was stationed. For several years the California Department of Fish and Game contracted him to look for Black Rails in the foothills. During this time many of you have been contacted by Jerry for permission to enter your property. Ten 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. Many of his students make significant contributions to the project. **Laurie Hall** (pictured on p.1 and 3) is doing her Ph.D. work in Steve's lab and heads the summer's field work, simultaneously doing her own research on genetics and dispersal of the rails. New to the project is **Nathan Schmidt**, who is starting his Ph.D. with Steve, and soon will take the lead on the summer field work. **May Gamboa** volunteered on the project last year, collecting lots of radio telemetry data, and will be a full-time assistant this season. In addition, **Nadje Najar** is a new field assistant working on the project this summer.

You can always contact us by calling the Field Station, 530-639-8809; or emailing Laurie at lahall@berkeley.edu, Jerry at jetecklin@ucdavis.edu, or Dr. Beissinger at beis@berkeley.edu. Consider visiting our website: http://nature.berkeley.edu/~beis/rail/. There you will find pictures as well as sound recordings of rails (look under "Links"), and lots of other information.

**May**

**Steve**

Jerry

**Nathan**

**Nadje**