

**Bird Banding Station, Zuma Canyon  
Santa Monica Mountains National Recreation Area**

Annual Report of 2008 Activities  
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**INTRODUCTION**

A permanent, year round, constant effort bird banding station was established in Zuma Canyon in the Santa Monica Mountains National Recreation Area (NRA) in the spring of 1995 under the leadership of Norm Hogg. Birds were mist netted and banded near the mouth of Zuma Canyon to monitor resident and migrant species as well as train students and other volunteers in bird banding techniques. 2008 was the fourteenth year and the thirteenth full year of this station. Summaries of these prior years are available from Walter H. Sakai. Here we present the banding results for 2008 at Zuma Canyon.

**METHODS**

The banding station is located in the parking lot of Zuma Canyon trailhead in the Santa Monica Mountains NRA at the end of Bonsall Avenue. The site (34°02'55" N, 118°48'44" W) is located about 1.5 km north of the mouth of Zuma Canyon, which is located at Zuma Beach.

The station was in operation for 14 cycles in 2008. Initially, banding was conducted on a monthly basis, but beginning mid-year we tried to maintain a consistent three week schedule. A typical cycle consisted of 13 mist nets. During each cycle, nets were operated for six hours on Saturday morning beginning at sunrise. During each full cycle, the 13 mist nets were operated for six hours for 78 mist net hours. At times we operated with fewer nets or for fewer hours, as when we were short staffed, had set up problems [missing equipment, fallen vegetation], or had weather problems [windy, rain], When sufficient personnel were present, we ran an additional four mist nets, as part of an ongoing re-vegetation/succession study. These additional four nets were set up in an area that had been re-vegetated with native plants by the National Park Service

Volunteers and students have been the primary source of banders. These individuals are generally from the student population at Santa Monica College. A few members from the general public (Audubon Society members and/or bird watchers), docents from some of the local state parks and the National Park Service (NPS), and several National Park Service personnel (primarily NPS interns) have volunteered. Several people from other banding stations have started to come out to hone their bird banding skills. However, the majority of long term assistants are former students. Jim Serikawa, a subpermittee, Marty Reedy, Peggy Mueller, and Janet Kempf have been mainstays.

In this report, the birds are noted by their common names as well as their alpha codes and AOU numbers in Table 2, but thereafter only the common names are used. The alpha code is a four-letter code uniquely assigned to each species by the Bird Banding Laboratory to conserve space and make it easier to computerize data. The AOU number is a unique four digit number (555.0) with the last number generally "0" and assigned by the American Ornithological Union for each species. New species splits and subspecies have a non "0".

### **Conditions of and Changes in Zuma Canyon in 2008**

The 2007-2008 rainfall was approximately 13.5", close to the 14.77" average (Downtown Los Angeles). The Santa Monica Mountains are still in a drought mode as seven out of the last 10 years has experienced below average rainfall, including two of the driest years on record.

2008 marked the continuation of extensive re-vegetation of the old field to the west of the parking lot and immediately adjacent to our banding station. By the end of 2008 more than half of the ruderal field has been planted with various native plants.

### **Evaluation of the revegetation work from an avian perspective**

In order to evaluate the effects of revegetation on the bird community, four nets were placed in the revegetated field. Two nets (#16 and #17) were placed in the revegetated area that was now in its third year. Two more nets (#18 and #19) were placed in an area that was not yet revegetated in early 2008. This latter area was ruderal with the vegetation composed of introduced, non-native annuals. Two previously established net lanes (#9 and #10) in mature chaparral were then used as a comparison. Banding was done on eight different mornings during the spring following our basic protocol.

## **RESULTS**

There were 705 encounters in 2008, which are summarized in Table 1. A total of 1174 net hours of operation yielded an average of 60.1 birds per 100 net hours.

Table 1. Summary of Banding Results for Zuma Canyon for 2008.

Total Encounters	Total number of birds banded	Repeats	Escaped Birds	Released Unbanded
705	514	135	19	37

Repeats are defined as a bird banded at a station and recaptured at a later time at the same station. The 135 repeats represented 19.1% of our total encounters.

Escaped birds are birds handled by a bander but escaped before the bird was banded. This represents 2.7% of the encounters. Birds “Released Unbanded” are typically hummingbirds and game birds. We have California Quails as game birds at this station, although we did not capture any in 2008. We do not have a permit to band hummingbirds, and game birds are not banded as per the protocol. We occasionally release “stressed” birds without banding them to minimize further trauma. Birds Released Unbanded represents 5.2% of our encounters.

Recoveries are birds banded at one station and recaptured later at another station or found by the general public. For organizational purposes, the Bird Banding Laboratory has divided the country into 10 minute quadrangles. Banded birds found inside the 10 minute quad that they were originally banded in are considered repeats, while birds found outside the 10 minute quad are considered recoveries. These latter birds are often called foreign recoveries. We had no foreign recoveries in 2008 but several fairly old birds captured as repeats. A hatching year Black-headed Grosbeak banded in 2001 was captured in 2008 as a seven year old bird. Another seven year old bird was a Song Sparrow captured as an after hatching year bird in 2002.

Figure 1 compares the annual number of encounters at the Zuma Canyon Bird Banding Station from 1995-2008. The lowest number of encounters was in 2000 with 510 birds, while 2006 had the highest number of encounters with 1130 birds. The mean was 845 birds per year and the s.d. = 187.4. The figure is misleading as the effort (number of open net hours) varied from year to year and, to some degree, will be discussed below.

Table 2 lists the 40 species of birds encountered during 2008 ranked in abundance from most to least. We had a record number of Wrentits this year. The 259 Wrentits accounted for 36.7% of our bird encounters in 2008.

The overall record of birds encountered from 1995-2008 has gotten too cumbersome to present here. Rather it is available on the principal investigator’s homepage, [www.homepage.smc.edu/sakai\\_walter](http://www.homepage.smc.edu/sakai_walter). We have now encountered 88 species and encountered 11,834 birds since 1995 at this station. While 2006 was notable for record number of captures at Zuma Canyon, 2008 is notable for low numbers with one exception, as we encountered a record number of Wrentits.. We had about half the number of flycatchers that we typically encounter, catching no *Empidonax* flycatchers except for Pacific-sloped Flycatchers. The number of hummingbirds and fringillids (finches) was about normal, while the number of Emberizids (sparrows and towhees) was about 45% of the average.

### **Revegetation banding analysis**

Table 3. Number of birds captured in three habitats: mature chaparral (#9 and #10), recently

revegetated area (#16 and #17), and recently revegetation area (#18 and #19).

Date										
Net #	9	10	Total	16	17	Total	18	19	Total	SUM
30 Aug	13	12	25	1	0	1	0	0	0	26
20 Sep	3	10	13	1	0	1	0	0	0	14
1 Nov	9	10	19	9	0	9	0	0	0	28
22 Nov	6	9	15	0	2	1	0	0	0	16
13 Dec	2	6	8	0	1	1	0	0	0	9
20 Dec	2	6	8	2	2		0	0	0	12
Sum	35	53	88	13	5	18	0	0	0	106
Total			88			18			0	

Table 3 presents the banding data from three vegetation areas. Mature chaparral (nets #9 and #10) captured 88 bird in six cycles. The three to four year old revegetated area (nets #16 and #17) captured 18 birds in eight cycles. The recently (2008) revegetated area (nets #18 and #19) captured no birds in eight cycles.

### Mortality

Mortality at 1.44% was about twice our average. We lost 10 birds, a California Towhee, a Song Sparrow, a Common Yellowthroat, four Wrentits, and two Bushtits. It is unclear why mortality was higher this year. One possibility is the larger than usual number of new and inexperienced banders in our crews. We have tried to adjust our protocol accordingly, by pairing up banders and trying to have experienced banders accompany less experienced banders. Specimens were prepared as study skins and deposited at the Western Foundation of Vertebrate Zoology in Camarillo, CA.

### DISCUSSION

In 2008, we had a below average year in terms of total number of bird encounters. Most of this is probably due to a change in protocol from Friday afternoon plus Saturday morning bandings to just a Saturday morning banding. We have been having an increasingly difficult time getting enough banders on Friday to operate a full complement o nets (n=13). So we

changed to a Saturday only format while increasing the time we left nets open from five to six hours. With more banders coming out on Saturday, we have also been able to operate the four additional nets in the revegetation area.

Our total mist net hours for 2008 was 1174 hours. Based on the standard of 100 mist net hours, we were encountering 60.2 birds per 100 mist net hours. In the past, we operated about 1800 mist net hours per year and encountered about 50 birds per 100 mist net hours. Thus, our encounter rates are actually above average. We may attempt to band a little more often than every three weeks. This will be discussed among the regularly attending banders.

In most years, Wrentits are the numerically dominant bird that we encounter. This year was no exception and more. We encountered 259 Wrentits accounting for 36.65% of our encounters in 2008. These were both record highs. The 259 Wrentits outpaced the 66 Audubon's Warblers and the 45 Spotted Towhees we encountered. Normally, the "second place" bird is about half as many as the Wrentits. One possible explanation for this is that with a near normal rainfall after several years of below average rainfall led to a higher reproductive effort in the spring of 2008. Yet this phenomenon was not seen in other resident birds.

The number of flycatchers captured was about half of normal. The near normal rainfall comment made about Wrentits does not apply to emberizids, as both towhees and Song Sparrow numbers were about half of our average. But there were also low numbers of migrant sparrows (Lincoln's, Fox, and White-crowned). We encountered a lower number of Audubon's Warblers. There were no other migrant warblers except for a few Wilson's Warblers and the single Orange-crowned Warbler (which may have been a resident breeder).

We are pleased to have maintained this station for 14 years. With over 14 years of data (14 years as of May 2008) and over 11,000 bird encounters, we have begun to analyze some of our data. The first author's paper comparing the relative success of banding in afternoon (Friday) vs morning (Saturday) will be published in the next issue of the North American Bird Bander (33:3). A short note looking at the proper band size for Spotted Towhee will also be published in the same issue.

### **Banding in Revegetated Area**

One of the unknowns about revegetation is when the effort is considered "successful." Often in the eyes of the restoration ecologist, it is the density of plants. Does the restored area look like the adjacent mature habitat? However, the real answer may be whether the resident animals will find the restored habitat sufficiently similar to the mature habitat and begin using it. The recently revegetated area does have a sparse scattering of robustly growing plants, but the vegetation is not nearly as tall or as dense as the mature chaparral. The birds seem to agree as we can see from the lower number of birds captured in the two "newer" habitats (Table 2). On November 1st, we encountered nine birds at net #16. Six of these birds were Bushtits, who often

form flocks after the breeding season. The flock was seen moving in and out of the area while foraging. This is only the second year of this type of banding effort which compares birds captured in different ages of vegetation. It will be interesting to see if there are any changes in the coming years.

### **Banders and Visitors**

We often have an eclectic group of volunteers and visitors at the site. A field zoology class taught by Professor Jeanne Bellemin from El Camino College participated during one cycle. For the second year, Pasadena Audubon Society trekked out to Zuma Canyon to visit our banding station. We also participated in the extremely successful BioBlitz in the Santa Monica Mountains, sponsored by the National Geographic Society and the National Park Service. Several dozen visitors came out during the 24 hour effort. A few individuals found out about our banding program through the advertisement of BioBlitz and have become some of our regular banders at Zuma Canyon.

Our year-round station has gained enough attention that we have had a number of inquiries by graduate students and professional field biologists to come and work with us to gain enough experience to band on their own. One of the rangers on the Channel Islands National Monument comes out to band with us when she is on the mainland and has considered starting a banding operation on Santa Cruz Island. A bander whose experience with banding comes from the Eastern U.S. honed his skills with us until he moved to Colorado to become director at an Audubon Nature Center just outside of Denver in Littleton, CO. Other banders are students who have had modest bird banding experience and hope to develop sufficient skills to land banding opportunities elsewhere. Mary and Nick Freeman have banded with us to hone their skills in preparation to trap and band the Northern Saw-whet Owls they have been studying in the San Gabriel Mountains.

Dr. Linnea Hall and Rene Corado of the Western Foundation of Vertebrate Zoology (WFVZ) in Camarillo, California have been joining us to hone their bird banding skills. This has been a successful project, as they completed their second season of banding in Guatemala. They have also taught an ornithology class at the WFVZ and several of their students have expressed an interest in coming out to Zuma.

### **Peripheral Ornithological Studies**

We continue to collect feathers (the rectrices or tail feathers) of each new bird we band and deposit the feathers at UCLA's Center for Tropical Research to add to their avian genetic bank. The quill of the feathers contains enough tissue or cells for genetic studies. We learned that we were the only banding station in California to take feathers from the Western Scrub-Jay and thus provided valuable data to a dissertation project by a graduate student at U.C. Davis.

Final Draft 01/20/09

In cooperation with the Center for Tropical Research as well as Redwood Sciences Laboratory, we have been taking cloacal swabs of the birds we encounter, so tests can be conducted to see if the birds have been infected with Avian Influenza. Thus far, there have been no reports of Avian Influenza from the swabs collected by participating banding stations.

## **FUTURE PLANS IN ZUMA CANYON**

We would like to write a few other manuscripts based on the banding work at Zuma Canyon on a variety of subject matters. One possibility is to begin to look at the overwintering migrants. We have noticed a fair number of migrants return to Zuma Canyon year after year. We also have sufficient data to begin to look at arrival and departure dates.

## **ACKNOWLEDGMENTS**

We would like to thank Gary Busteed, Ray Sauvajot, and Bonnie Clarfield of the Santa Monica Mountains National Recreation Area for their continued support of our program. Avinet, Inc. and Sam Sumida continue supporting our efforts in numerous ways. Special thanks to Peggy Mueller for proofreading this report.

Respectfully submitted,

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