



**Riding the Nest Box Highway 2008  
Journal Accounts from Bobby Walsh, Project Coordinator  
Putah Creek, California**



The Putah Creek Nest Box Highway effort is undertaken as a project of the Museum of Wildlife and Fish Biology and the Department of Wildlife, Fish, and Conservation Biology. Funding for this project has been generously provided by the Selma Herr Fund for Ornithology, Tiechert Foundation, Solano County Water Agency, Central Valley Bird Club, and the Museum of Wildlife and Fish Biology.

The following are journal excerpts from UC Davis PhD student Bobby Walsh that summarize the activity of the Putah Creek Nest Box Highway. We thank all the landowners and public land owners for their continued generosity in allowing us to maintain this project. In addition we thank all the staff and volunteers who help annually. If interested in learning more about our highway and or wish to inquire about contributions to the project, please contact Melanie Truan at ([mltruan@ucdavis.edu](mailto:mltruan@ucdavis.edu)) or Bobby Walsh at ([rwalsh84@gmail.com](mailto:rwalsh84@gmail.com)).

**20 April 2008**

Hi All,

Here is the first of what will be weekly email nestbox updates. I thought this would be a useful way to keep everyone current on the status of activity across the sites.

**First chicks of the season:**

Four Western Bluebirds hatched somewhere around April 15 2008 at McNamara Triangle and six White-breasted Nuthatches hatched around April 18-19 at Russel Ranch.

The first Western Bluebird chick of the season, incidentally, was named Mr. Wiggles (to be changed to Ms. Wiggles later, if appropriate).

### **Winters Park**

Only 2 of the 16 nestboxes we have up at Winters are being used. There just isn't much of a Tree Swallow flock in the area, and Western Bluebirds are sticking more to nearby orchards. Do we expect any Ash-throated Flycatchers to take up residence here, perhaps? There were three or four calling there today...

### **House Wrens using spiders to control mites?**

Spider egg cases have been noted in several House Wren nests, and they're mentioned in the literature as something that House Wren/Bewick's Wren nests often include. If you, like me, suspected that the hatchling spiders might eat bird parasites in the nest, the paper below describes a negative correlation between the number of jumping spiders and the number of mites in a nest:

*Pacejka, A. J., E. Santana, R. G. Harper and C. F. Thompson. 1996. House Wrens (Troglodytes aedon) and nest-dwelling ectoparasites: mite population growth and feeding patterns. J. Avian Biol. 27: 273–278.*

### **Ant Problems**

A Tree Swallow nest—eggless, luckily—was swarming with ants at the Center for Land Based Learning. I tried to use some tacky caulking to keep them from crawling down the wire, but to no avail. Ultimately, I moved the box to a tree 3 meters away since the ants were really swarming through the whole tree. The Tree Swallow followed and were going back into the nest after 15 minutes or so. Does anyone have any suggestions for ant control when dealing with less resilient species that might abandon a nest if it's moved that far away?

### **28 April 2008**

Hi Y'all,

Attached is the weekly update on nests with some notes below. Predicted hatching dates are given with details so that those of you experienced with nest phenology can see if my estimates look alright. As always, thanks a lot for the help.

### **107 Eggs(!) & Mercury**

Our little passerines have surpassed the 100-mark in terms of eggs. Sites at the Solano Diversion Dam, UCD Russell Ranch, and UCD Picnic Grounds are pulling much of the weight.

I've been talking with Josh Ackerman, USGS, who runs a mercury lab where he has conducted contaminant assays of stilt and other waterbird eggs in the past. Melanie and I spoke with him on Friday, and he will be analyzing a few Tree Swallow and potentially House Wren eggs from nests to look at how mercury levels vary based on how far downstream of the dam birds are nesting. Insects emerging from the creek would be responsible for making this mercury available to insectivorous birds. Apparently, the creek has pretty high methyl mercury levels, and these can lead to problems with egg

hatching and/or incubating behavior in females. In the meantime, please don't remove any abandoned or unhatched eggs as he is interested in analyzing these.

### **Western Bluebirds getting BIG!**

The nestlings at McNamara have officially moved into the "aww, they're cute" category. Eyes are open, feathers are coming in, and one even yawned. I don't foresee any need to band until the very end of this week or early next week by which time Western Bluebirds and White-breasted Nuthatches will be getting ready to depart.

### **Swarming fly-gnat-insects at McNamara**

At 2 or 3 nests in McNamara, there were clouds of a few hundred tiny, gnat-like insects swarming under the box and mating/swarming inside the boxes. I'm diatomaceous earthing them, but does anybody have any idea of what they are (very small termites? parasites?) and why they might be attracted to the boxes?

--Bobby

**12 May 2008**

Hi Y'all,

This week's update has two themes: violence and parasites. BB guns, the mafia, and cowbirds await.

### **Banding and Feather Collection Well Under Way**

Several Western Bluebird, many House Wren, and both White-breasted Nuthatch nests have been banded. Of these, we were able to get enough feathers for isotope analysis from all but 1 House Wren nest and 1 Western Bluebird nest where the young'uns decided to fledge mid-monitoring. Regardless, there will still be a lot to do with well-over 300 eggs and 60 chicks out there.

### **Ash-throated Flycatchers Get Down to Business**

Despite having few boxes to choose from at some sites, Ash-throated Flycatchers have largely finished their nests or even laid eggs/begun incubation. And oh what a difference two weeks make at Winters Park—3 Ash-throated Flycatcher nests (and 4 Tree Swallow nests) after I thought it was all over there. Way to go, team Tyrannidae!



### **Insect Mystery Solved: Phorid Flies**

The fly-gnats that have plagued boxes at Center for Land-based Learning have been identified as members of the family Phoridae thanks to our friends at the Bohart Museum of Entomology. Phorid flies—common name "scuttle flies" or "corpse flies"—live on moist decaying matter, usually compost or carcasses. McNamara has a hillside covered in rotting walnut husks (i.e., food) and they're just using the boxes as a sheltered spot in which to mate, assuming

the nest material is too dry for them to eat. In any case, I was assured they don't have biting mouth parts, so they shan't be eating our baby birds.

### **Cowbirds and the Mafia**

At Center for Land-based Learning have, a nest of Western Bluebirds has a Brown-headed Cowbird egg (see photo). Shawn Lockwood (UCD undergraduate assistant) found a second cowbird egg inside a nest of House Wrens. I know Melanie documented bluebird parasitism (Truan reference below) on this nestbox trail, but does anyone recall a parasitized wren nest?



*Truan, M. A. 2003. The Western Bluebird as a host for the Brown-headed Cowbird: A new record from California. Western Birds 34:111-113.*

One potential problem with removing eggs is the menacing potential for "retaliatory mafia behavior" of Brown-headed Cowbird mothers. Hoover & Robinson (PNAS 2007, reference below) discovered that female cowbirds come by to check on how well the host mother is taking care of the cowbird egg. If they find the host mother has rejected the cowbird egg, the cowbird destroys the host's own eggs. Well, at least that's what happened in 56% of warbler nests where researchers experimentally removed a cowbird egg. The cowbirds even continued their retaliation through re-nest attempts by the host! And because of this retaliation by wronged mother cowbirds, "ejector nests produced 60% fewer host offspring than acceptor nests."

*Hoover, J.P. and S. K. Robinson. 2007. Retaliatory mafia behavior by a parasitic cowbird favors host acceptance of parasitic eggs. Proceedings of the National Academy of Sciences (USA) 104:4479-4483.*

### **75% of Tree Swallow Nests Parasitized by other Swallows**

The unwritten rule of passerine egg production is one egg per day laid in the early morning. That's all birds are supposed to be physiologically capable of, so finding more than two eggs in a nest after just 1 day is usually interpreted as resulting from intraspecific brood parasitism.

Among many swallows, like Purple Martins, parasitism is common (~30% of nests parasitized). But it's supposed to be rare for Tree Swallows. Only 1-6% of nests were parasitized by other Tree Swallow based on four studies cited in Wittingham & Dunn (Ibis 2002). At Dry Creek Confluence (Winters), though, 3 out of 4 clutches-in-progress were parasitized in a 24-hour period! None of the clutches already being incubated, though, were parasitized. We were able to get these numbers because Jonathan Widdicombe [UCD professor and faithful nestbox highway volunteer] ran Dry Creek on Wednesday and we revisited it on Thursday to collect eggs for mercury analysis.

--Bobby

**20 May 2008**

Hey Y'all,

**Banding Update**

Thus far, we've banded 97 birds in 20 nests (10 House Wren, 4 Western Bluebird, 4 Tree Swallow, 2 nuthatch, plus I missed 1 additional Western Bluebird nest). There's still a lot to do, though: dozens of nests are being finished, 300 eggs are being incubated, and 100 nestlings are being tended to as you read this.



I think banding is going to be most intensive in late May and early June. Right now, I believe May 29-June 3 will be pretty heavy from swallows, with another spike around June 10-14 from flycatchers. Good news: Tree Swallow nests at many sites are tracking each other closely, with chicks only a day or two apart.

**First Ash-throated Flycatcher Hatching, First Tree Swallow Banding, First Western Bluebird Re-nesting**

At Winters Park, I came across a nest of Ash-throated Flycatchers mid-hatch--pictures below. The nest is about two weeks ahead of most of the other Ash-throated Flycatchers from what I can tell.



This week also marked the first re-nesting of two un-banded Western Bluebirds. The Russell Ranch pair has a fully built nest just a week after I cleaned out the old one. I'm not sure if their three recently fledged young'uns succumbed or are simply being ignored in favor of nest building, but I didn't see them hanging around...

**Davis Road UCD Restoria Violence Continues**

Apparently, somebody has something against nest DRE2 as Shawn L. reports it being shot with BBs for the second time in as many weeks. The box has been taken down.

Bobby ---

27 May 2008

Hi Y'all,



### A Plague of Songbirds Cometh

(I do mean plague in the nicest way possible.) I estimated band and fledge dates for all nests with chicks. There's no single big day coming up, but there's an average of 3 nests/day through early June. By June 9, as many as 180 nestlings may be banded in addition to the ~130 already banded. And I haven't even mentioned the 244 eggs that have yet to hatch and the  $n$  eggs yet-to-be laid by re-nesting Western Bluebirds and late nesting Ash-throated Flycatchers.

The dates given in the "Expected Fledglings" tab are ideals (i.e., when nestlings reach 14 d.o. for Tree Swallow, 16 d.o. for Western Bluebird, 12 d.o. for Ash-throated Flycatcher, 10 d.o. for House Wren), and I'll likely move things up or down a day to save on trips.



### Casualties of the Wind

The violent winds of last week (esp. Thursday, when wind was blowing at up to 25 mph with faster gusts) have claimed some boxes and, unfortunately, eggs and birds. The worst is a box of recently hatched Tree Swallow chicks (6 of them) that fell at Mace Blvd. Otherwise, fallen nests mostly had no eggs or just-started clutches of eggs. Altogether, the wind dropped 5 nests that were being used by swallows, and a couple nests that were unused.

### Mercury Update

About 40 Tree Swallow eggs were collected and 10 Ash-throated Flycatcher eggs for analysis. With about 5 eggs/site, it should be sufficient to detect trends in mercury levels and also give some insight into maternal diet as reflected in egg content. The eggs should be analyzed in the upcoming weeks.

By chance, I ran into Darrell Slotton, director of the UC Davis mercury lab (as opposed to the USGS lab also on campus where eggs from the nestbox project will be run) while at UCD Picnic Grounds on Saturday. He had come to look at all the warblers reported by Irene Engilis and asked about the egg carton and nestbox lifter I had, etc... In any case, he was very excited about this mercury inquiry because some recent research is documenting really high levels in songbirds (he mentioned higher Hg levels in Red-winged Blackbirds than Belted Kingfishers, for example). We shall see.

### **Leucistic Bewick's Wren**

So this has nothing to do with nestboxes, but it's still kind of cool. There was a Bewick's Wren singing at Old Davis Road/Restoria on a point count, and he leaped out and was immaculately white—well almost immaculate (oxymoron?); he had a gray patch on his mantle and some dark feathers above/below his supercillium, giving him the trademark eyebrow.



**9 June 2008**

Hey Y'all,

Here's an update from the past two weeks. There has been a lot of banding—Jonathan W. put in an epic ELEVEN nest effort for Tree Swallows on ONE day!—and begging swallow juveniles can be seen at nearly every site. We're coasting down the peak of the major breeding effort for the year, but a number of re-nests or second clutches mean there are more youngsters yet to come.

### **The Nest that Didn't Burn**

I felt sick to my stomach when I noticed that part of Winters Park had burned. The burn wasn't terribly extensive—just a strip of grass on the side of the road—but I knew there were nestboxes in the vicinity. Box WNE3 in particular was quite close. It had been claimed a few weeks ago by a young female Tree Swallow and her mate. I was cringing as I approached the site, crunching through ashen debris, the smell of charred grass and wood still heavy in the air (am I being dramatic enough?). Anyhow, I was relieved to see the box still hanging on its snag, and I was thrilled when the female popped her head out of the nestbox to say "What are you doing here?" with the usual Tree Swallow scowl. All five of her eggs are fine, but it was a very close call: the fire had burned just seven feet away from the box.

### **Super Site-Fidelity**

While banding Western Bluebirds at box UCD Russell Ranch 5 this morning, I looked up the leg band combination of the male (RG/S) and discovered he was born in 2006 in the very same box! This has happened with House Wrens at Solano Diversion Dam, too.

### **Ellen Engilis On Board**

And speaking on Western Bluebird pictures (see below), the high school graduate, Ellen Engilis, is now helping me band. She was awarded a youth scholarship from the Central Valley Bird Club (<http://www.cvbirds.org/>) to assist with banding efforts on the nest box project. Today we visited 5 nests belonging to 4 species and banded 21 nestlings, so all-in-all quite a good start!

### **Mite Watch**

Several nests of Tree Swallows have been swarming with bird mites upon opening them. There's no real trend in which sites are being affected. Birds at Mace Blvd. and UCD Picnic Grounds alike (the most and least densely occupied sites, respectively) have been affected.

For your reading pleasure, here's a link to a recent headline news story where a NY woman was quarantined for bird mites crawling out of...places on her body she'd rather not have them crawl out of..."Bug-Bitten Woman's Worse Mitemare"

<http://abcnews.go.com/Health/story?id=5017197&page=1>



Female (left) and male (right) Western Bluebirds. Sometimes I get thrown by the intensity/extent of blue in the primaries, but only males have significantly blue primary and greater coverts. Special thanks to Ellen Engilis for getting a manicure in preparation for photo shoot. (UCD Russell Ranch, RRE5).

### **First Ash-throated Flycatchers Banded**

I've been looking forward to the first nest of Ash-throated Flycatchers, which happened to be a group of 14 day-olds at Winters Park. Ash-throated Flycatcher nests don't smell that great to begin with, but this one was particularly ripe. One of the five chicks had succumbed and since been rotting underneath its brothers and sisters. The nestling-that-was-no-more was removed. I banded the rest of the chicks, finding them generally cooperative (photo right). Only the heaviest chick bothered with bill-clacking. There are lots more of these guys still to be banded.



### **Deformed Feet**

A tree swallow with severely deformed feet found by Jonathan W. at the Dry Creek Confluence. Down at Mace Blvd., I banded a Tree Swallow that had one deformed tarsus (it was "kinked", or bent) and one good one. I hope this doesn't signal a trend.

--Bobby

**24 June 2008**

Hey Y'all,

Unfortunately, Shawn L. has had to leave the project. Its been nice monitoring the sites he had covered, though, and I think activity has slowed sufficiently (in terms of what the birds are up to and the classes I'm no longer taking) to make monitoring them feasible. With that, here's an update.

**400 Down, ~200 to Go?**

To date, we've banded just over 415 nestlings. There are another 63 hatchlings still waiting to be banded and another 110 eggs that have yet to hatch. Finally, I expect more eggs from Ash-throated Flycatchers, Tree Swallows, and Western Bluebirds in the next week or so.



In sum: the season is definitely winding down, but there will still be a smattering of birds tending young through July or August.

**Elderberries in the Diet**

During nest monitoring, there is often a "white-wash" of droppings on the walls when parents stop cleaning the nest. In some boxes, this white-wash has turned purple. It appears that ripe Mexican Elderberries and ripening Himalayan Blackberries along the creek are being incorporated into the diet of bluebirds and swallows. Ash-throated Flycatchers, too, are taking advantage of the flush of fruit. I watched some month-old juveniles being fed elderberries by their parent. The adult made short, quick flights to snatch a berry while hovering in mid-air, then dropped it into the mouth of one of its young. Despite thousands of berries available on the elderberry shrub, the juveniles couldn't be bothered to pick their own fruit.

**Egg Variability in House Wrens**

Attached is a photo of the contents from a House Wren nest at Old Davis Road/Restoria. All of the eggs appeared rather large for House Wren eggs, one of them especially so. The first three eggs look on the large size of normal; the fourth is apparently a less-pigmented House Wren egg; and the fifth one looks intermediate between a Brown-headed Cowbird egg and a House Wren egg both in terms of color and size.



The measurements are a little off, but it's too close to call (other cases of cowbird/ House Wren have been far more pronounced). In short, I have no idea.

### **Late-nesting Birds**

Several birds have just finished building nests. There are three newly completed Ash-throated Flycatcher nests along a 100m stretch of river at the UCD Picnic Grounds. Several Tree Swallows are nesting adjacent to one another along Old Davis Road and at Winters Park. Western Bluebirds initiated their second clutches at a number of sites. The clumped arrangement of late-nesting Ash-throated Flycatchers and Tree Swallow could be coincidence, the result of hotspots of resources, or indicate that some kind of social interaction mediates the nesting process.

### **Anemic Tree Swallows?**

When pulling retrices (tail feathers for diet studies), sometimes there is no blood at all and other times there can be up to 2 drops (usually stopped within seconds using the starch/styptic powder). Many nestlings that are heavily parasitized by mites tend to bleed a bit more than their non-parasitized counterparts. Ellen E. noted this trend and suggested it might be the result of anemia, which is indeed a primary consequence of heavy parasite loads.

This led me to check on fledging rates from parasitized boxes. Though there haven't been enough to determine a significant difference, there have been two instances where the smallest chick died in mite-infested boxes, even after treatment with diatomaceous earth. So as not to add insult to injury (or blood loss to anemia), we can hold off on pulling the retrix of the smallest chick in very heavily infested nests.

--Bobby

### **28 June 2008**

Hey Y'all,

And now, the end is near... For the first time since March, there are sites without an active nest to speak of. Some birds are still nesting—primarily Western Bluebirds and Ash-throated Flycatchers—but they do not have very much company. By the final week of July, in fact, I should be able to count the number of active nests on the trail with just one hand.

### **Birds Handling the Heat So Far**

The general rule is that clutches/broods are smaller and chicks are small for their age, but most are still making it. This weekend, for example, I banded 2 nests with 5 Ash-throated Flycatchers each, 2 nests with 5 Western Bluebirds each, and 2 nests with 4 Tree Swallows each. Only the swallows seemed distinctly underweight. I've encountered one nest where all of the chicks died—three Tree Swallows from Diversion Dam that were extremely close to fledging. For now, though, this sort of catastrophe is the exception to the rule.

### **Dragonfly Emergence**

I've been doing visual surveys of Odonates (dragonflies & damselflies) and there has been a dramatic spike that started on Monday, July 7. Unfortunately, I haven't been very

rigorous with my surveys, but suffice it to say that values at Center for Land-based Learning have gone from 0-11 Odonates seen in 1 minute to 270. I'm not sure if this emergence comes from one or many species, but I'm going to try and nab one to have it identified. Thus far, I've been unsuccessful since most of them fly quite high.

I think dragonfly/bird relationships might be interesting to keep an eye on. They are a food source for some birds like Ash-throated Flycatchers (I've retrieved one that was 7.4 cm long from a flycatcher nest--I don't think the young could swallow it). For other birds (swallows?), they may be competitors for prey like flies, bees, and smaller emergent aquatic insects like midges, mayflies, stoneflies, caddisflies, etc... It's just one more aspect of the constant flux of materials and organisms from stream to land and land to stream.

### **Of Isotopes and Sample Sizes**

Good News: Tree Swallow, Western Bluebird, and Ash-throated Flycatcher feathers are sufficiently big to get both carbon and nitrogen stable isotope ratios. Flycatcher tail feathers are actually big enough to get a 2-4 part diet chronology.

Bad News: I'm still waiting to see how HOWR samples turn out. As Jonathan warned me at the very first nest we banded this year, wrens are a pain in the rear to handle once they're about 11 days old. Thus, we've been trying to balance getting "big" feathers with not getting to a nest so late as to have everyone escape. Anyhow, the feathers are so small that 5 or so must be pooled, so we'll see how that goes.

I expect results from preliminary samples by the end of July. The goal is to have a constellation of Carbon/Nitrogen values from the most abundant primary producers (e.g., cottonwoods, grasses, algae) and insects that birds are eating (e.g., dragonflies, lacewings, flies). Feathers are taken from Tree Swallows at Barbour Ranch to see if there's a relationship between carbon values and distance from creek, and others are taken from Mace Blvd. to see if birds on different sides of the creek--1 restored, 1 mowed grass/field crops--have different ratios of aquatic/terrestrial carbon.

--- Bobby

### **21 August 2008**

**The birds are done...**in all, about 600 Ash-throated Flycatchers, House Wrens, Tree Swallows, White-breasted Nuthatches, and Western Bluebirds fledged from the Putah Creek Nestbox Trail this year. Nearly all nestlings were banded with USGS and color bands to facilitate studies of site fidelity, dispersal, etc. Despite rainfall being rather low for the year, the collection of eggs to analyze mercury levels, several box falls from high winds, and high predation rates at a couple of sites, the birds seemed to fare pretty well. Fledging rates remain high (above 90%, except in TRES), so nestlings that hatch stand an excellent chance of getting a chance at life out of the box (see Table 1 and Figures 1 and 2).

Overall, Barbour Ranch gets the "bird factory of the year" award with 90 fledglings produced from its 19 boxes, mostly swallows and bluebirds. Russell Ranch came in at a

close second with 88 fledglings produced in its 23 boxes. With a few exceptions (e.g., Interdam, Winters), the rule seems to be that if a box is present, birds will use it at some point in the breeding season.

Species	No. Attempts	No. Eggs	No. Hatchlings	No. Fledglings	Hatch Rate	Fledge Rate
HOSP	3	5	0	0	0	0
BHCO	3	3	0	0	0	0
WBNU	2	12	12	10	1	0.83
ATFL	30	123	84	79	0.68	0.94
HOWR	26	158	136	129	0.86	0.95
WEBL	32	155	118	111	0.76	0.94
TRES	89	430	318	276	0.74	0.87
<b>Summary</b>	<b>185</b>	<b>886</b>	<b>668</b>	<b>605</b>	<b>0.75</b>	<b>0.91</b>

**Table 1: Summary of nesting success, not corrected for removal of 40 Tree Swallow eggs and 12 Ash-throated Flycatcher eggs and 1 House Wren egg** (these corrections would increase the “hatch rate” statistic but have a smaller impact on the “fledge rate” statistic, assuming it’s harder to fledge larger clutches).

### **Late-nesting WEBL Failure, and Two WEBL Brothers Ensure Nest Success**

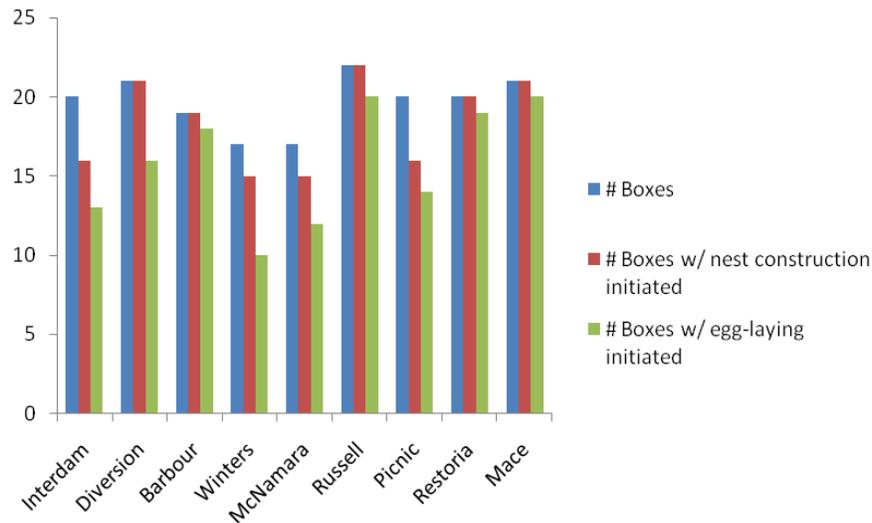
Three late-season nesting attempts by Western Bluebirds have all failed. Eggs were abandoned at McNamara. Then we had the third nesting attempt by two pairs each at Russell Ranch. Eggs of the first pair never hatched, and eggs of the second pair hatched only to be immediately devoured by ants. I opened the box to find eggs half broken open swarming with the insects—it was already too late for the chicks.

The latest successful nest (fledging July 28) may have succeeded because three adults were helping provision the chicks. All three birds at the Mace Blvd. site were banded, local recruits, including two brothers and one unrelated female. All three were carrying food for the chicks (spiders and moths) while we banded them, and when one of the chicks gave a distress call, all three adults started dive-bombing us. Just which of the two brothers is the baby-daddy in this arrangement is unknown, but both stand to gain some indirect, if not direct, fitness from the nest helper situation. This was only the third nest with helpers I observed this year, but all three have been successful.

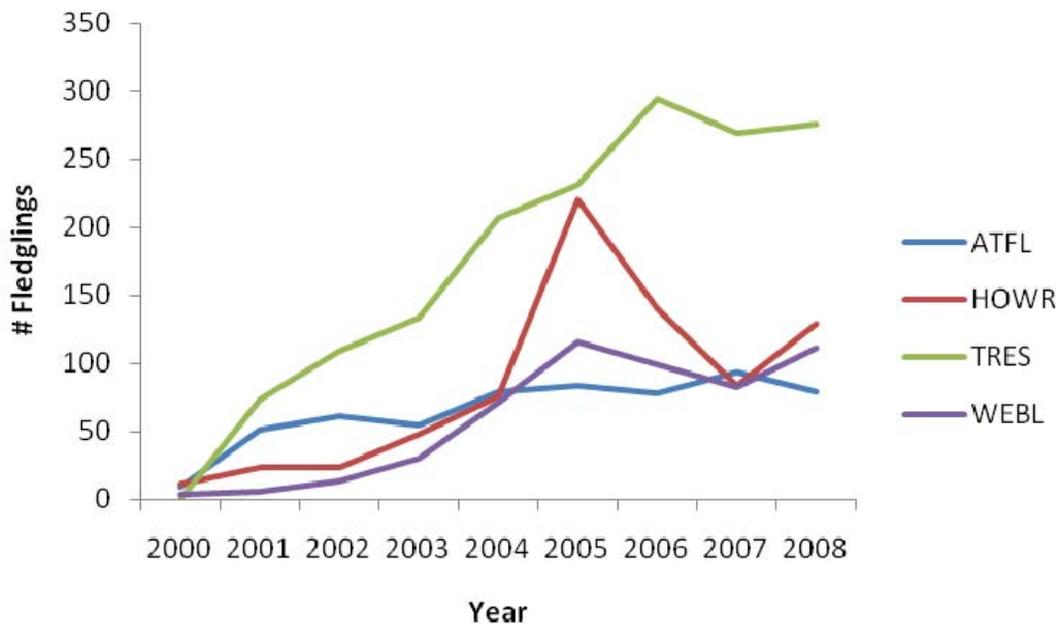
### **How the Other Half Lives**

Our nestboxes are useful to a number of species apart from swallows, bluebirds, wrens, and flycatchers. I was starting to forget this during the nesting season, but during my finals sweeps of boxes, I’ve been surprised at how quickly the now empty boxes have been re-colonized. Three rat nests sprouted up at McNamara Ranch (likely due to the walnuts approaching maturity) and wasps are raising their families everywhere. On a more encouraging note, though, a check of boxes at Mace Blvd. around 7:00pm revealed a female Nuttall’s Woodpecker roosting. Unfortunately, she flushed, likely to be devoured by owls, coyotes, ravenous students, or all of these during the night. (Still, she

had a good hour of daylight left to—ideally—find her way back to the box.) It was nice to know that a bird so intimately acquainted with wood approved of the human handiwork. She and other resident birds remind us that while the nesting season is over, the nestbox trail is still in use. Wow, I sound like Pollyanna.



**Fig. 1: Occupancy patterns across sites.** Nest uptake was well over 90% at Barbour Ranch, Russell Ranch, Old Davis Road/Restoria, and Mace Boulevard. Winters, formerly the most productive site, had relatively low nestbox usage.



**Fig. 2: Production of fledglings, 2000-2008.** After dramatic population increases in the years following nestbox installation, production seems to be maxing out. There were modest increases in the number of HOWR and WEBL this year, and a slight decrease in the number of ATFL young that fledged.

