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RUFIOUS HUMMINGBIRDS AT CCRS: A SUMMARY OF FOUR YEARS OF BANDING DATA

by Rita Colwell

Life History Elements

Three species of *Selasphorus* hummingbirds breed in North America. Two of these species are routinely banded at Coyote Creek Riparian Station -- the Rufous Hummingbird (*Selasphorus rufus*) and the Allen's Hummingbird (*Selasphorus sasin*). The following article comprises a summary of four years of banding data (1989-1992) for the Rufous hummingbird.

Rufous Hummingbirds breed the farthest north of any hummingbird species and migrate in the spring chiefly through lowlands and foothills.

The Rufous hummingbird (RUHU) is a migrant through the San Francisco Bay Area in spring and fall. It breeds

north to southeastern Alaska, east to southwestern Alberta and western Montana, and south to Oregon and northern California. It winters from northern to central Mexico (Johnsgaard, 1983). Rufous hummingbirds breed the farthest north of any hummingbird species and migrates in the spring chiefly through lowlands and foothills (Grinnell & Miller, 1944).

CCRS bands the greatest number most years during March, April and May. During the fall migration, (June through September) fewer are banded. The migration route for the Rufous hummingbird during these months is primarily inland along the foothills of the Sierra Nevada mountains. An overwhelming percentage of the fall birds captured at CCRS prove

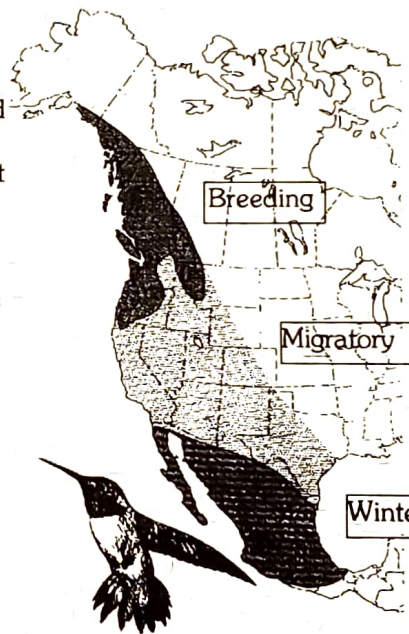


Figure 1. Range of the Rufous Hummingbird. From Johnsgaard, 1983

to be hatching year (HY) birds.

The Tree Tobacco Connection

The primary nectar-producing plant utilized by hummingbirds at CCRS is tree tobacco (*Nicotiana glauca*). In general, individual tree tobacco plants are random scattering throughout our 300-acre study site. A unusually large stand was located about 9700 meters

from the Bay and 100 meters west of Coyote Creek. In 1989 four supplemental 12meter mist nets (30mm mesh), were placed amid these year-round flowering plants. In mid-September of that year these nets were removed for overflow channel construction. They were not replaced in

1990 or 1991 because of the lack of vegetation in the area. During these years, hummingbirds were captured using only our established nets. In 1992 four supplemental 12m nets and one 6m net were again set up among reestablished tree tobacco plants in approximately the same area as in 1989.

Ageing Criteria

All of the spring Rufous Hummingbirds we have captured have been as classified adults or after-hatching year (AHY) birds. In the fall, adult females and immatures of both sexes can be difficult to distinguish. At CCRS, banders use the method outlined by Ortiz-Crespo (1972), which describes the absence or presence of fine bill corrugations as a useful method to distinguish between AHY and HY birds. Also useful are the plumage descriptions and measurements described by Stiles (1972), particularly the color patterns of the rectrices and throat.

Measurements that are helpful in determining age and sex are wing length, widths of the first and fifth rectrices, and shape of the tip of the second rectrix. Unflattened wing chords are measured with a ruler scaled in millimeters with a perpendicular stop at zero. We also routinely weigh all banded birds with an electronic balance calibrated to 0.1g.

Banding Results

Total capture rates for spring migration (March through June) for each of the four years are illustrated in **Figure 2** and expressed as Rufous hummingbirds per 100 net hours. Banding effort for these years is summarized in **Table 1**.

Note that the number of Rufous Hummingbirds recorded in 1989 was

Table 1. Spring Banding Effort

Year	Total Net Hours	RUHU Captures
1989	10,897	95
1990	10,823	38
1991	5,872	18
1992	10,095	38

greater than twice the number of any other year, which probably represent "normal" numbers. The reason for the high number of RUHU captured in

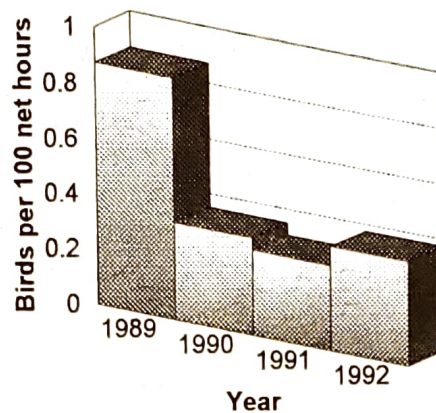


Figure 2. Capture rate of Rufous Hummingbirds during spring migration

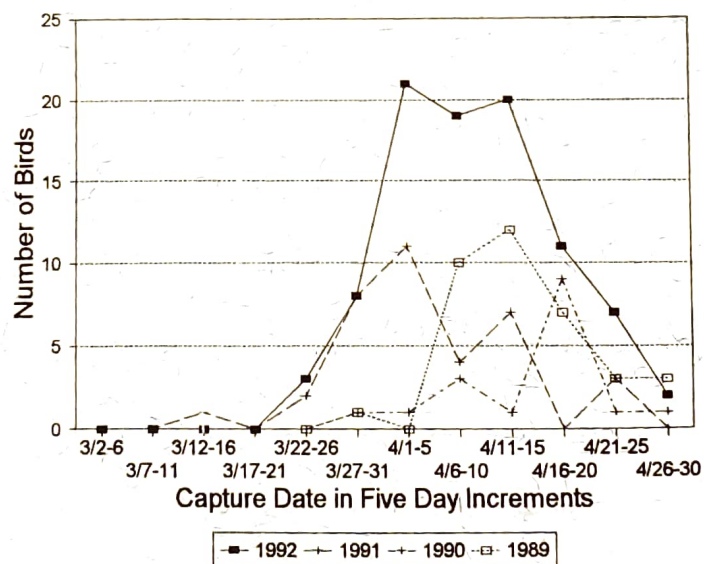


Figure 3. Timing of Rufous Hummingbird spring migration in five day increments.

1989 is open to speculation. Was the breeding season of 1988 an incredibly productive year? Was the food supply in our area that spring so abundant that it attracted more birds?

Spring arrival dates for the earliest Rufous hummingbird at CCRS varied slightly during the four years: in 1989 a male and a female were captured on March 22; in 1990 a male was caught on March 16; in 1991 a male was captured on March 13; and in 1992 a male was caught on March 31. **Figure 3** shows the timing of spring migration in five day increments for the four years. It is interesting to note that though 1991 had the earliest capture date, the peak of migration was the latest of the four years. Also, the 1989 migration, with a fairly late first arrival, peaked at an earlier time.

The males tend to move through our area slightly earlier and more rapidly in the spring than females (**Figure 4**). The span of days that males are captured is condensed compared to the overall number of days that females are netted. The last captures of the

spring season (the end of May) have always been female birds. This abbreviated passage of the male Rufous is probably related to the establishment of optimal feeding and breeding territories (see Johnsgard, 1983).

Analyzing sex ratios in the spring and fall seasons for all four years shows some

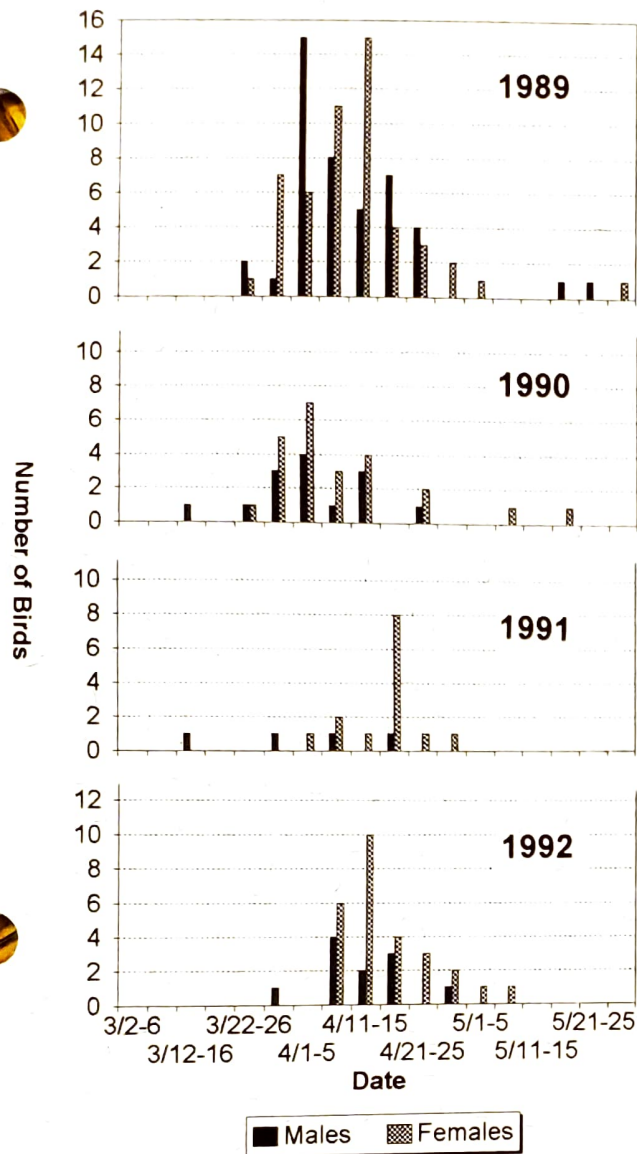


Figure 4. Capture rates of male and female Rufous Hummingbirds during four spring migrations.

interesting trends. **Figure 5** represents a breakdown of the number of males to females and illustrate a definite female-biased sex ratio for seven of the eight seasons. Every season with the exception of fall 1992 CCRS banded more female than male RUHU's. **Table 2** illustrates the total numbers and percentages of each sex for each season. In addition, the ratio of females to males shows a consistency from fall to the next spring. A summary of 28 years of hummingbird

Wood.1992),

Mulvihill et al. (1992) proposed several hypotheses to explain a female-biased sex ration. One hypothesis relates to capture bias due to size differences between the sexes. CCRS data for spring birds shows adult males (n=68) have an average wing length of 42.1mm and weigh 3.30g. Adult females (n=111) have an average wing length of 44.7mm and weigh 3.29g. Our fall data show that there is

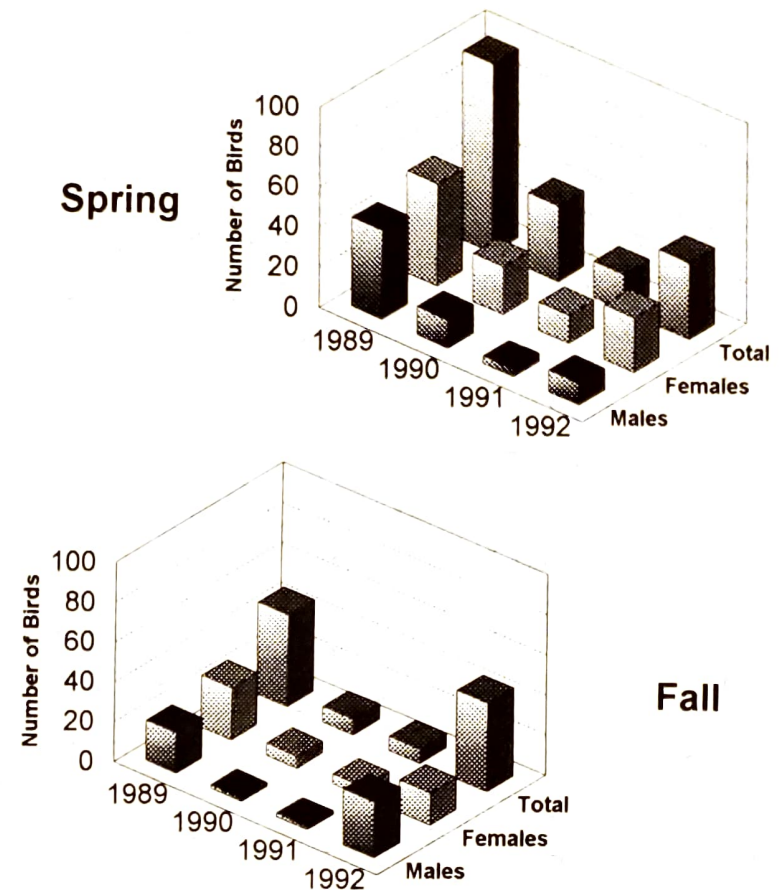


Figure 5. Seasonal capture ratios of males and females for all years.

less of a size dimorphism between the immatures: males (n=51) have an average wing length of 43mm and weigh 3.46g and females (n=46) have an average of 44.8mm and weigh 3.43g. It appears that though the male Rufous has a shorter wing length than the females, the mean weight for both adult and immature males on migration is more than or very close to the mean weight of the females. Since an immature male typically is a larger bird both in wing length and mass than the adult male, and the capture ratio is still female dominated in the young birds, size difference does not appear to be a significant factor in our capture rate

Another factor to consider in capture bias is male territoriality. Pitelka (1942) and Armitage (1955) discuss

Table 2. Male-Females Capture Percentage And Ratios For All Years.

Total		Spring		Fall	
1989	141	Males	44 (46%)	Males	20 (43%)
		Females	51 (54%)	Females	26 (57%)
			95		46 (94% HY)
1990	46	Males	14 (37%)	Males	2 (25%)
		Females	24 (63%)	Females	6 (75%)
			38		8* (89% HY)
1991	25	Males	4 (22%)	Males	2 (29%)
		Females	14 (78%)	Females	5 (71%)
			18		7 (86% HY)
1992	82	Males	11 (29%)	Males	28 (61%)
		Females	27 (71%)	Females	16 (39%)
			18		44 (91% HY)

(* - 1 Unknown Sex)

RATIO OF FEMALES TO MALES				
	Spring		Fall	
1989	1.15:1		1989	1.30:1
1990	1.50:1		1990	3.50:1
1991	3.70:1		1991	2.50:1
1992	2.50:1		1992	0.60:1

Table 3. Weights Of Male And Female Rufous Hummingbirds.

	Year	Season	n	Mean	Std. Dev.	Range
Males	1989	Spring	44	3.26	0.25	2.8 - 4.0
		Fall	20	3.37	0.29	2.7 - 3.9
	1990	Spring	14	3.26	0.21	3.0 - 3.7
		Fall	2	3.8	0.6	3.2 - 4.4
	1991	Spring	4	3.48	0.18	3.3 - 3.7
		Fall	2	3.4	0.1	3.3 - 3.5
1992	Spring	11	3.37	0.22	3.0 - 3.8	
	Fall	28	3.66	0.46	3.0 - 4.8	
Females	1989	Spring	51	3.24	0.25	2.9 - 3.9
		Fall	26	3.35	0.4	2.7 - 4.3
	1990	Spring	23	3.3	0.22	3.0 - 3.9
		Fall	6	3.39	0.59	2.9 - 4.5
	1991	Spring	14	3.28	0.25	2.9 - 3.7
		Fall	4	3.34	0.22	3.0 - 3.7
	1992	Spring	27	3.31	0.27	2.9 - 4.4
		Fall	16	3.64	0.55	3.0 - 5.0

observations made during migration of various species of hummingbirds (including Rufous) where both sexes

were seen defending small feeding territories against other hummingbirds. Pitelka also states that females of

several species maintain and defend nesting territories. On migration, therefore, both sexes actively defend feeding areas. In addition, Johnsgard (1983) states that hummingbirds that are territorial often have greater flight acceleration and maneuverability than hummingbirds that are not territorial. Both sexes of the Rufous hummingbird therefore should be able to avoid mist nets equally well.

Are there different migration paths of the sexes? With the lack of banding data from other sites along the spring migration route, it would be difficult to state that the sexes do, or do not, use different routes in spring. CCRS, however, at its strategic location along the Pacific flyway at the base of San Francisco Bay, is probably sampling a random cross-section of that migratory population. Since our site is not along the usual route for southbound RUHU's, the young birds that are netted in the fall should be random as to their sex. It is well-known that some first-time fall passerine migrants travel closer to the coast than adults (Ralph 1973). The inexperienced hummingbirds must be, like the passerines, moving southward closer to the coastline and in a random manner with respect to their sex.

Mulvihill et al. (1992), in fact, support the idea that male Ruby-throated hummingbirds have a significantly higher mortality rate than the females due to their smaller size. Breeding season stresses, a higher metabolic requirement, more rapid heat loss, and lower fasting endurance than females, they state, all seem to effect the male hummingbird survivorship. Perhaps with continued monitoring the same correlation will prove to be true for the Rufous hummingbird.

Birds utilize fat as the major fuel during migration (Odum and Perkinson 1951), and as it is depleted, the birds must stop to replenish their

stores. Ruby-throated hummingbirds are known to store approximately 2 grams of fat prior to flying the 800 km across the Gulf of Mexico (Lasiewski 1962). Rufous hummingbirds do not have a geographical barrier like the Gulf to cope with, but they do have an extremely long migration route and must stop several times en route to refuel. At one fall stopover site in the California Sierra Nevada Mountains, Carpenter, Paton, and Hixon (1983) showed that Rufous hummingbirds not only established feeding territories, but adjusted the territory size daily to sustain optimal weight gain. They recorded weight gains of 1.5 - 2.0g over a period of one to two weeks before the hummingbirds resumed their southward migration. At our site, the primary weight information taken is on original capture of the hummingbirds. The range of weights recorded has been 2.7g - 5.0g (spring and fall combined). Weight change of individual RUHU's at CCRS has not been well documented due to a general lack of recaptures -- in four years of banding there have been only eight recaptures. **Table 3** shows 1989 - 1992 weight information for each sex (HY and AHY combined) for each season. The tables show that mean weights of males are usually greater than of females (except for spring 1990). Fall weights for each sex are greater than spring weights, except for 1991 when the sample was small.

In summary, four years of banding Rufous hummingbirds has shown that males migrates through our site slightly earlier and over a more abbreviated time period than females. The data have shown that there is a definite female-biased sex ratio seven of eight seasons suggesting the possibility of diminished male survivorship. We cannot, however, rule out the possibility of male-female differential migratory routes. Males tend to weigh more than females on migration, even though they have a shorter wing length, and

that both sexes weigh on the average more in the fall than in the spring.

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Three CCRS Net Lanes Go Hi-Tech

by Kristin Shields

The next time you take a walk along one of the CCRS net trails you might see three unusual looking two-tiered nets. The old poles at net locations 8735, 9280 and 9590 have been replaced with 20 foot high square steel tubing. These are very strong and won't bend over time as the old thin-walled conduit poles did. These new poles have a track system which is similar to sail tracking. Made of aluminum, it consists of a track that runs the length of the pole with small aluminum slides that hold the loops of the nets. Two nets are stacked on top of each other in such a way as to capture birds which mainly fly through the canopy, well above our current net system. At the top of the pole is a marine pulley which will not rust and should provide excellent service for many years.

The first net to be completed, 9590, was finished in April. This net served as a prototype for the rest of our two-tier net arrays. The system was found to be very easy to raise and lower (necessary in order to extract birds caught in the upper tiers). In October, the poles were completed for nets 8735 and 9280. These new poles allow the capture, processing and release of birds to be accomplished more quickly and efficiently - which makes the volunteer banders (and the birds) happier. Special thanks are due to several people who helped put the poles together and erect them: Mark Shields, Chris Otahal, Bruce Katano and Rita Colwell.

Adventures in Bird Atlassing 1992

by Grant Hoyt

Just east of San Jose, towering impressively over the teeming Silicon Valley megalopolis, stands Mt. Hamilton, kingpin of the rugged range of mountains known as the Diablos. An observer standing atop this lofty peak of 4,213 feet might look in all directions and marvel at the vast expanses of undeveloped, sparsely populated terrain, and wonder who or what inhabited this virtual wilderness situated so tantalizingly close to a giant metropolis but so seemingly inaccessible.

The knowledgeable, grizzled, Santa Clara County birder standing next to this hypothetical observer would, of course, chuckle, and perhaps respond, "Well, stranger, this road goes right down the other side of the mountain, through the San Antone Valley, and then on out Del Puerto Canyon to the Interstate. Or, you can come up through Livermore on Mines Road---that'll meet up with this same road at the Junction. South o' here is Henry Coe Park---lots of open land, but only one road in---the rest is hiking trails. Yep, this land belongs to cattle ranchers and local folk, and they don't cotton to trespassers."

The old coot would be right, too; except for some Christmas Bird Counters permitted by a few sympathetic landowners, most citizens seldom travel or hike, much less bird, the nether regions of the Diablo Range. And since much of this off-limits acreage falls within the Santa Clara County boundaries, anyone wishing to do a comprehensive study of bird activity in the county would encounter the troublesome problem of how to gain access to these large, and heretofore inaccessible, land tracts.

Not only did we cajole our way into most of the remote nooks and crannies of the county, but our intrepid cadre of hard-core atlassers enjoyed a highly successful season, making significant discoveries about the breeding behavior of numerous bird species in the Diablo Range.

With great resource, steadfast perseverance, and a compelling sense of urgency (some say desperation), the Santa Clara County Breeding Bird Atlas Committee tackled this dilemma head on, and the results have proved remarkable. Not only did we cajole our way into most of the remote nooks and crannies of the county, but our intrepid cadre of hard-core atlassers enjoyed a highly successful season, making significant discoveries about the breeding behavior of numerous bird species in the Diablo Range. I myself had some of the most exhilarating, and exhausting, birding experiences of my life last spring, some of which are reported here.

As Coordinator of Region 6, the northern part of the Diablo Range, I had accepted responsibility for assigning coverage for the 31 five-kilometer square blocks in the region, which naturally meant getting landowner access permission to the privately-controlled areas. As 1992, the fifth (and presumably final) year of the Atlas project approached, it became clear that I was not having much luck with the access problem. Fortunately I'd

managed to recruit a zealot by the name of Mike Rogers, who single-handedly turned Region 6 from "shaky" to "stellar" status with his relentless access campaign; we blazed forward on a blitzkrieg birding assault throughout the region from May through July, living to tell about it and with our respective marriages somehow intact.

Little did I realize in 1990, when I recruited Mike to cover a single block for the Atlas, how dramatically my approach to the whole project would change. When I read Mike's 15-page, cross-referenced, species-by-species account of his 1990 coverage in block 0540, I knew we had an academically inspired, field-ready birding dynamo on our hands. In 1991 he stepped up the pace and atlassed in several blocks, again spending hours both in the field and at home on the computer, and again writing up thorough, insightful, well-documented reports on his work. This year we decided to atlas together and try for complete Region 6 coverage, and Mike, by now the *de facto* region coordinator, achieved remarkable success in gaining access to the fabled outback areas of the northern Diablo Range. With permission letters in hand and visions of poorwills, roadrunners, and chats in our heads, we began our blockbusting in earnest during early May.

That first trip to Blocks 2535 and 2540 on May 9 set the tone for our atlassing season. Leaving at 4:30 AM (I would come to view this as a "late" start as the weeks progressed) we arrived at the private McGeehon Ranch around daybreak and made a few quick confirmations of breeding activity along the road. After checking in with the property owners, we headed north along the Arroyo Valle, a scenic, year-round running stream that flows towards Del Valle Reservoir near Livermore. It crossed our minds that

perhaps no birdwatchers had ever canvassed this beautiful, semi-open riparian habitat surrounded by oak and digger pine woods and rocky peaks; aside from a few cattle feeding bins and an old shack or two, there were few signs of humanity. We also noted, as we parked Mike's 4-wheel drive Ford and set off on foot, that the wind was starting to blow and bird activity was subdued---was our first big expedition destined to be a bust? Not!!

Approaching a magnificent, steep-walled, solid rock portion of the stream known as The Narrows (**Figure 1**), we were startled by a sudden commotion in the water---a female Common Merganser and eleven ducklings scuttling frantically upstream! This elusive species, known to breed in the remote, secluded waterways of the Diablos, is nevertheless a tough one to confirm and we congratulated ourselves on this bit of good fortune. I was brought back to reality a few moments later when a wind-carried stick smacked me in the face as I clambered precariously over The Narrows' west precipice; I reminded myself to heed the wind (strong), the footing (loose), and the rattlesnakes (lurking) as I plowed down the rocky slope, wondering if I might scare up a Rufous-crowned Sparrow or Rock Wren.

A couple of uneventful hours passed before I heard a quirky, inquisitive note that I didn't immediately recognize. I knew that migrants were about, as we'd already encountered Hammond's Flycatcher and Yellow Warbler, but I was pretty sure I had another uncommon county breeder, that behemoth of warblers, the Yellow-breasted Chat. Hearing fitful bits of the bubbly song from willow thickets but unable to actually see the bird, I hollered for Mike to give me a hand, but we never found the skulker. Was this a breeder or a migrant? Only a follow-up trip would give us the answer. While cursing the chat's

pendant for secrecy, we became intrigued by a Golden Eagle circling a rocky crag upslope. At this point, Mike offered what sounded like an innocent challenge: "I'll bet we can climb up there in fifteen minutes," and I foolishly took the bait. Forty-five grueling minutes later I was perched, covered in sweat, dust, and poison oak, on a slippery rock outcrop, unsure of which way to proceed and contemplating what it would be like to tumble 1000 feet down into Arroyo Valle. Fortunately, Mike was there to talk me up to the top ("It's easy---just put one hand in front of the other!") and I joined him atop the rock that had no Golden Eagle nest.

On later trips I would learn that Mike's ability to correctly predict and locate breeding bird activity based on topography was uncanny; we were to find not only Golden Eagle aeries but Prairie Falcon, White-throated Swift, Cliff Swallow, Canyon Wren, and Rock Wren nests whenever we took the time to thoroughly inspect rocky habitat. So this first try for the eagle proved fruitless---hey, I was hot, dirty, exhausted, and it was getting late---we were having Big Fun now. We barreled down the hillside through prime ankle-spraining loose rock and found ourselves following a little creek back towards Arroyo Valle. While stepping around a fairly decent-sized pool, Mike's tennis shoes failed to grab rock and he took a backwards plunge up to his shoulders, but



Figure 1. View of Arroyo Valle looking north through "The Narrows". Photo by Mike Rogers

deftly managed to keep camera and binoculars aloft. As I scrambled over to give assistance, I caught a glimpse of a muddy cup under a ledge by the pool, and cheerfully pointed out to my wet, fallen companion that his misfortune had a silver lining---the discovery of a used black phoebe nest, another data point!

Driving back home that evening I came right out and told Mike that he was a crazy man, but I knew I was getting hooked on this maniacal mode of birding. So a few weeks later I could hardly be surprised at myself for leaving the house at 12:45 AM, after a hearty 45 minutes of sleep, to join Mike again for an owling expedition to be followed, naturally, by twelve hours of diurnal atlassing. The access to this

set of blocks was via San Francisco Water Company land east of Calaveras Reservoir and then through private property; with various owners' permission we had access to several blocks, most of which had received no prior atlas coverage. Figuring that playing Western Screech Owl tapes every half-mile or so on remote dirt roads miles from anyone was a great way to spend the pre-dawn hours, we did just that and were amazed at the response.

This species is known to be common throughout its range but we had no idea how readily individuals would respond to recordings in May, June, and July. We discovered what we believed to be young birds making a "kitter-kitter-kitter" call while adults tooted nervously nearby; we viewed numerous individuals caught in our flashlight beams. This experience with screech owls was repeated with moderate success on several of our pre-dawn outings.

Later that day Mike demonstrated to me a method for finding mourning dove nests, which urban atlasers locate easily but us back-country trekkers have difficulty with. When we surprised a dove from a perch in a nearby tree, Mike immediately ran to the spot, keeping his eyes fixed on where he thought the bird flew from. Sure enough, he found one of those ridiculous little twig nests, just above eye level, with two bluish eggs in it. "You just have to be lucky," he said, but I think quick reflexes have a lot to do with it.

We rambled over some pretty rough roads that day, including one dreadful stretch that connects two of the more driveable thoroughfares. We made pertinent observations regarding the slope, grade, and surface of this

ancient avenue, now mostly an overgrown rut, and learned just how far we could tilt Mike's vehicle without having it roll over. This treacherous short-cut was successfully traversed on several trips until one day in July when we blew a tire, which made the 14-mile drive out with no spare a nervous one--another blowout would have resulted in an all-night stroll up and down three steep canyons to the nearest paved road.



Figure 2. Common Poorwill nest with two eggs - a first for the Santa Clara County Breeding Bird Atlas. Photo by Mike Rogers.

One sure-fire method of augmenting our list of possible, probable, or confirmed species in a given block was going where the water was. We dutifully checked every reservoir, spring, stock pond, creek and streambed visible on the topo map, and this tactic usually paid off. The larger reservoirs and ponds were pretty reliable for such species as American Coot, Pied-billed Grebe, Redwinged Blackbird (if the reeds were healthy) and even wood duck. Creeks, while easy enough to drive to, were not as easily birded as

ponds; on many occasions Mike and I would split up, each of us taking off in a different direction along a stream, hoping for something really exciting like a kingfisher or even a dipper. (Dippers were particularly tough to find, apparently occurring only along Smith Creek and Arroyo Hondo in Region 6.) Black Phoebe nests were surprisingly common, having been found in nearly every block in the region. Once we knew to check any rocky ledge near water or under the eaves of all shacks and structures, we discovered dozens of used phoebe nests.

As I mentioned earlier, one of our strategies for confirming breeding activity for a particular species consisted of specific habitat coverage, e.g. checking artemisia and chemise-covered hillsides for Rufous-crowned, Sage, and Black-chinned Sparrows; semi-dry, open riparian stretches for chats and Lazuli Buntings; cliffs for Prairie Falcon and White-throated Swifts; rocky hillsides for Rock Wrens, etc. So it was not at all by happenstance that Mike came upon a first for the atlas—a Common Poorwill nest. He was traversing a partially wooded, rocky hillside above Arroyo Valle, near my yellow-breasted chat spot, and I was birding along the stream when I heard an obviously excited, but controlled voice calling my name. It was Mike, trying not to scare the bird but still get my attention, saying, "Grant—poorwill on a nest!" When I finally understood him I started hurrying up the hillside until I saw the bird fly up, circle nervously and then duck out of sight. I joined Mike and he showed me the nest, with two eggs, tucked under a rock ledge on the ground. Knowing the type of nesting situation poorwills prefer, he had checked this likely

looking site and found himself staring at an incubating bird! Lucky? Yes, but looking in the right places, too.

This desire to look in all the right places occasionally led us into some sticky predicaments. On a warm June morning at the eastern end of the region, we made a serious error in interpreting our trusty topo map and set off hiking up a dry creekbed towards a private ranch inaccessible by car. The going got rough, the trail disappeared, and the poison oak and chapparal became denser, but we refused to turn back; we just had to get up over the ridge and we'd be in the clear, treading where no birder had ever set foot, pushing forward the frontiers of bird atlassing, racking up the confirmations --- We turned back.

Sweat-drenched, crawling on hands and knees through a poison oak forest, unable to see the ridgeline, and cursing profusely, we admitted temporary defeat and retraced our steps to the group. It was 9:30, we'd wasted the best part of the birding day, and though we desperately needed to cover this hard-to-reach block, we couldn't get there from here. Would we call it quits, and just bird from the road? Never! In a brazen and arguably bone-headed move, we decided to march through private property for which we had not obtained access and take our chances on the road. After concocting avoidance Plans A (dive into bushes before being seen by approaching vehicle); B (plead ignorance if confronted) and C (run like hell if threatened), we blazed through the Forbidden Zone and spent six hours on the job in the desired block. Around noon I took a brief nap after unsuccessfully chasing a solitary vireo as it sang monotonously while flitting through a woodland, taunting me to find its nest; while I slept, Mike saved a flightless Yellow-billed Magpie fledgling from being eaten by a crow and also confirmed Western Kingbird, Rock

Wren, and Hairy Woodpecker, among others.

I believe it was also on this afternoon that we pulled one of our more brilliant stunts, which was contrived out of a burning desire to look into a Blue-gray Gnatcatcher nest situated just a little out of reach in a young tree. Although I could have left the nest alone, its tempting proximity sufficiently piqued my companion to a point where I, ever the team player, foolishly volunteered to hoist his 6-foot, 180-pound frame upon my shoulders so he could glimpse the contents of the tiny domicile. So for a few glorious, staggering moments, we became the 10-foot, 400-pound Bird Atlasser; not surprisingly, I have no recollection of the result of our investigation. I do remember the return trip down the hill, past the gravesite of the patriarch of the land upon which we trespassed, and the guilty but triumphant sighs of relief (and exhaustion) as we made it back to the car.

In late July, when the fledglings from second broods were nearly grown, and breeding activity became harder to detect, we grudgingly called it a season. For an invigorating finale to the year's atlassing Mike joined Amy Lauterbach and Jim Yurchenco on July 19 for a 14-hour, 14-mile creek march starting at Smith Creek ranger station at dawn and ending up at the bridge over Arroyo Hondo east of Calaveras Reservoir at day's end. Somehow I managed to miss this little jaunt, but I'd already sweated off nearly 10 pounds over the past three months so I didn't really need the workout. It was time to organize my data, fill out forms, and reflect on my experiences during this Year of Birding Dangerously.

I got up at 1 or 2 AM and birded all day on two or three hours of sleep. I missed many days of work. I neglected my wife and household duties.

I fell in creeks, tripped over boulders, and shredded my fingers on barbed wire and splintered wooden gates. I dropped my binoculars. I trashed jeans, T-shirts, hats, and especially socks and tennis shoes; I'm still picking stickers out of my shoes months later. I caught poison oak and nearly stepped on a rattlesnake. I pushed my body beyond normal limits of endurance and I had sore muscles every day. I loved every minute of it.

I learned more than I could have imagined, not only about the breeding birds of Santa Clara County, but about how to approach field work and data collection. Mike Rogers pushed me to think and perform more efficiently (and, in some cases, to behave maniacally), and we shared a special camaraderie that comes from being focused, being on a mission, and doing something you love to do. I was privileged to bird in areas that may not be birded again for years, like the Arroyo Valle, where I did indeed confirm my Yellow-breasted Chat breeding, along with three more pairs downstream; Smith Creek with its deep shaded canyons protecting dip-pers, mergansers and Wood Ducks; Isabel Creek and the Circle Z Ranch where I found breeding phainopepla; the Mule Trail atop Mt. Hamilton that led Lotus Baker and me through a sage sparrow breeding hot spot; the huge tracts of oak and digger pine woodlands further east and the adjacent sage and grassland habitats where rarities like Black-chinned Sparrow and Greater Roadrunner tease the frustrated atlasser---these areas are privately owned and seldom birded. Thanks to cooperative landowners, the strong leadership of CCRS President and Atlas Coordinator Bill Bousman, and dedicated field work by our hard-core group of volunteers, we managed to attain an adequate level of coverage in most of the 5-kilometer square blocks in the remote areas of eastern Santa Clara County, thus finishing the project on schedule.



The 1992 Spring Season

by Bill Bousman

The station was in operation every day during the spring except for the fifth of March. I have tabulated the passage dates of our regular migrants in Table 1 below based on the Summary Board records of new captures.

Table 1. Spring 1992 – New Capture Data

Species	No.	First	10th %	50th %	90th %	Last
RUHU	40	23 Feb	7 Apr	15 Apr	26 Apr	6 May
PSFL	48	22 Mar	8 Apr	26 Apr	15 May	30 Jun
SWTH	176	24 Apr	5 May	13 May	20 May	25 May
OCWA	47	14 Jan	21 Mar	15 Apr	2 May	24 Jun
YWAR	22	3 May	10 May	13 May	25 May	27 Jun
MGWA	3	25 Apr	–	27 Apr	–	13 May
WIWA	64	15 Mar	9 Apr	29 Apr	11 May	26 May
WETA	4	23 Apr	–	14 May	–	25 Jun

The five migrants captured in largest numbers were, in rank order, Swainson's Thrush (SWTH), Wilson's Warbler (WIWA), Pacific-slope Flycatcher (PSFL), Orange-crowned Warbler (OCWA), and Rufous Hummingbird (RUHU). Swainson's Thrush and Orange-crowned and Wilson's warblers were down from the mean capture totals for 1986-92, but Rufous Hummingbird was up.

The season was surprisingly early, as evidenced by the 50th percentile dates of the various migrants, and its duration was noticeably short, as indicated by the number of days between the 10th and 90th percentile dates if we use the data obtained from 1986 to 1992 as a baseline. Of the common migrants shown in Table 2, only the Rufous Hummingbird showed a delay in its migration this spring compared to other years.

Table 2. Comparison Of Spring Migration With 1986-92.

Species	50th % (+late/-early) days	Duration (+long/-short) days
RUHU	+ 5	- 8
PSFL	- 11	- 17
SWTH	- 4	- 8
OCWA	- 8	+ 9
YWAR	- 10	- 5
WIWA	- 7	0

Why was the migration early this year? Did it warm more quickly this season than in past years and provide a signal to

the migrating birds that conditions were suitable on their breeding grounds for nesting? And do the species that use the creek side to refuel in the spring, are they less likely to remain in a year like this one?

Well...yes, maybe; that is, unless we decide as a group to extend the Atlas one more year to clean up loose ends and achieve total coverage, especially in those pesky blocks at the edge of the county. This decision will be made in January after a serious review of the data; I'm not sure how I want it to work out, though I know of a few spouses who feel strongly about the outcome. We could wrap it up and immediately start working toward publication, an inevitably lengthy process. The lure of another year in the field may, however, prove irresistible. So many intriguing questions remain. What about owls---we've made relatively few nocturnal observations. What about those uncommon species like Sharp-shinned Hawk, Lewis' Woodpecker, Say's Phoebe---surely a few breeding pairs have eluded our detection. Is one Turkey Vulture nest the best we can come up with for the entire county? If we just had another year I know we'd confirm roadrunner as a breeder; maybe even Costa's Hummingbird or Cassin's Kingbird or Blue Grosbeak . . . I know they're out there, awaiting recognition in the Santa Clara County Breeding Bird Atlas.

CORRECTIONS

Last issue's article entitled "Coyote Creek: A Legacy of Change" contained several errors which the editor wishes to correct.

The amount of riparian habitat impacted by the Coyote Creek Flood Control Project was mistakenly reported as 5.6 acres when, in fact, nearly 14 acres will be effected when the project is completed.

The mitigation requirements were based upon this projected acreage figure (i.e., 14).

The chosen flood control method should have been reported as "an alternating bank bypass channel" rather than "a one-bank widening". The one-bank widening method involves a great deal of disturbance to vegetation on one bank of a stream. The alternating bank bypass channel only requires disturbance of habitat where the bypass channel crosses from one side of the stream to the other.

Arrival dates for birds that summer along Coyote Creek and departure dates for those that winter here are shown in Table 3. In parentheses I show the number of days that this date is early by a minus sign or late by a plus sign when compared to 1986-92 data.

Table 3. Arrival And Departure Dates

Species	Arrival Date	Departure Date
BCHU	15 Apr (-11)	--
ALHU	3 Feb (-21)	--
RCKI	--	10 May (+19)
HETH	--	3 Jun (+18)
MYWA	--	23 Apr (+9)
AUWA	--	16 Apr (-10)
BHGR	26 Apr (-1)	--
SASP	--	24 Apr (+2)
FOSP	--	15 Apr (-4)
LISP	--	25 Apr (-6)
GCSP	--	22 Jun (+53)
PSWS	--	11 Apr (-21)
GCSP	--	27 Apr (-5)
NOOR	26 Apr (+3)	--

These arrival dates suggest an early movement of birds that summer locally, but the departure dates do not indicate a clear trend. The June records for lingering Hermit Thrush (HETH) and Golden-crowned Sparrow (GCSP) are unusual.

In the category of rare birds we banded both a Hammond's and a

Dusky Flycatcher on 11 Apr. We captured a Chipping Sparrow on 27 Apr which is unusual for the station, although it is fairly common in the Diablo Range. On 22 Apr we banded a Swamp Sparrow for one of our few station records. White-throated Sparrows were captured on 5 and 28 Apr and 1 and 2 May.

undertaken by volunteers and staff. The highlights included an art show by CCRS member and artist Edward Rooks, a slide show on the history of CCRS by Maryann Danielson and a raffle of donated wildlife-related items.

Ed Rooks' beautiful paintings of birds and other wildlife were much appreciated by all who attended. Maryann's slide show was entertaining as well as enlightening. Many newcomers to the organization were afforded a better understanding of the reasons for CCRS' various programs and projects.

Special thanks are due to the following people whose help was indispensable in making the party a success: Lynn Cropper, Arleen Feng, Dorothy Johnson, Vicki Silvas-Young, Marilyn Scott, Rosalie Lefkowitz, John Delevoryas, Helen Le, Rita Colwell, Bruce Katanano, Chris Otahal, and Mike Rigney.

Many thanks are due to the kind people at the Environmental Education Center who allowed us to use their facility and helped with logistics especially Lee Lovelady and Chris Garcia.

CCRS 10th anniversary party a big success

by Kristin Shields

The Coyote Creek Riparian Station celebrated its 10th anniversary on December 6 with a party at the San Francisco Bay National Wildlife Refuge Environmental Education Center. The gala event was attended by 70 hearty souls who braved driving rains to celebrate this milestone in CCRS history. The occasion also provided a wonderful opportunity to reminisce with old friends and to learn about new projects being



Maryann Danielson addresses the anniversary gathering on the history and development of CCRS. Photo by John Delevoryas.

We would also like to thank the following donors for their contributions to the raffle which raised enough money for a new digital scale for the banding lab: **Wild Birds Unlimited** in Cupertino donated a beautiful wooden bird feeder; **Recreational Equipment Inc.** donated three \$25 gift certificates; **Wild Bird Center** in San Carlos donated the three volume set of the Audubon Society Master Guide to Birding. Two anonymous donors provided a beautiful birch bird house and the book *Birds at Risk*.

NEW MEMBERS

We welcome the following new members:

Scheinberg, Joel E	Active Member
Davis, Janet	Active Member
Poskus, Robin T.	Active Member
Miller, Mark C.	Member
Ranlett, John F.	Member
Petrousi, Peter & Sue	Member
Mc Kean, John L.	Member
Johnson, James	Active Member
Hohbach, Douglas C.	Active Member
Hogan, Michael	Active Member
Forrest, Tom	Active Member
Amshoff, Deborah & Marcus	Members
Buffa, Joelle	Active Member
Morrison, Roger P.	Active Member
Corden, Denise A.	Member
Clark, Denise C.	Active Member
Williams, Ruth E.	Member

MEMBERSHIPS IN CCRS

Member \$20 annually
Senior or Student	.. 15 annually
Family 25 annually
Supporting 35 annually
Sustaining 90 annually
Corporate 100 + annually
Life 600 single payment*
Patron	. 5,000 single payment*

Life Membership payments and 10% of all other membership payments and general contributions go into the CCRS Endowment Fund. CCRS is a non-profit corporation with U.S. and California tax exempt status. Five dollars from the dues of each CCRS-SCCBB Atlas Membership goes to the Atlas program. We acknowledge Memorial contributions in **RipariaNews**. We welcome bequests, including those of real property.

*Or in 4 or installments

RECOVERIES OF BANDED BIRDS

Compiled by Rita Colwell

The Bird Banding Laboratory in Laurel, Maryland has notified us of the following recoveries of birds banded by CCRS volunteers:

ORANGE-CROWNED WARBLER 1870-73194 - is our longest distance recovery thus far. This small bird was recovered on Queen Charlotte Islands, British Columbia, June 13, 1992. The warbler was banded on September 28, 1991 by Kristen Shields.

COOPERS HAWK 745-11045 - was a hatching year bird banded by Bruce Katano on August 15, 1991. It was recovered in San Jose, December 2, 1991.

RED-TAILED HAWK 1387-24210 - a second year rehabilitated bird, was banded and released on July 13, 1990 by Wildlife Rescue personnel at Windy Hill Open Space Preserve, San Mateo County. The bird was found dead on July 25, 1991 in Kingsbury Gulch, Oregon.

SWAINSON'S THRUSH 1441-35971 - was banded by Rosalie Lefkowitz on May 20, 1991 and recovered in Lacey, Washington, June 4, 1992. This is the third recovery of a CCRS banded Swainson's Thrush. The previous birds were found in Oregon in August 1989 and May 1991. The recoveries of "our" birds in Oregon and Washington are valuable documentations of the migratory routes that these neotropical species use and are indicators of where some of the thrushes we band may actually breed.

This past March CCRS recaptured a **YELLOW-RUMPED WARBLER** (Myrtle's) 1650-69083 that was banded on January 22, 1984 by Marilyn Fowler. The recapture of this bird makes it at least eight years old and the longest lived Yellow-rumped Warbler at CCRS.

Coyote Creek Riparian Station is a non-profit California membership corporation with United States and California tax exempt status. CCRS is dedicated to research on, and the restoration and management of, riparian and wetland habitats.

Coyote Creek Riparian Station operates in cooperation with the Santa Clara Valley Water District, San Jose/Santa Clara Water Pollution Control Plant, U.S. Fish and Wildlife Service, California Department of Fish and Game, and the San Francisco Bay National Wildlife Refuge.

RipariaNews is published quarterly for the information of our CCRS membership, the personnel of the several cooperating federal, state, and local agencies, and for other organizations and individuals concerned with the flora and fauna of riparian and wetland habitats.

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