

land outside these circles can be managed for other uses such as timber production (U.S. Forest Service 1988a).

A second part of the Forest Service's effort to conserve Spotted Owl habitat was to begin a Spotted Owl Inventory and Monitoring program. This program began in California in 1988 and in Oregon and Washington in 1987 (U.S. Forest Service 1988b). Known as "RD & A Protocol" this monitoring program is scheduled to continue for 5 to 7 years throughout the owl's range in California. Two members of CCRS assisted in development of Spotted Owl protocol in 1989: Lynne Neibaur as a biological technician in Sequoia National Forest, and myself as a district biologist at the Big Bar Ranger District in the Shasta-Trinity National Forest.

The RD & A protocol is divided into two sections. First, a number of the SOHA's from each are monitored according to protocol, while the remainder are inventoried using the methods developed by Forsman (1983). Second, a random selection of sites throughout the forests are inventoried by according to Forest Service protocol, regardless of baseline historical information (or lack of information). Half of these Random Sample Areas (RSA's) are in lands available for timber production and half are in lands where timber harvesting is not allowed (mainly wilderness areas). The RSA's consisted of 1,000 acre circles while the monitored SOHA's contained 1,000 acres of suitable Spotted Owl habitat.

The first step in the monitoring protocol was to establish "call points" along a "call route". Establishing these points along a route was easy - getting to them to census was another matter. In wilderness areas or in areas such as Big Bar many call routes were located in very steep country with few or no roads. Just moving along the call route to the various call points was a major battle. The call routes were censused at night if a road or safe trail was available. We would call at each point for 10 minutes, mimicking as best we could, Spotted Owl calls. If we received a response, we would continue calling until we could fix the position of the owl, stopping after we were reasonably certain of the owl's location. The next day (or within 48 hours according to protocol) we would make a follow-up survey during the day. This follow-up survey consisted of going to the known location and searching for the owl for up to four hours. If we found a pair of owls after May 15 we would institute a series of reproductive visits. A reproductive visit involved feeding mice to the owls and attempting to follow them to the nest site or fledged young. The protocols for these survey procedures are very well defined, with times and methods clearly delineated. No deviations from established protocols are allowed. The overall objective of this program is to obtain statistically valid samples of Spotted Owl life history requirements throughout the species' known range.

The protocol for the inventory sites is much more vague and merely suggests that good sampling procedures be implemented. The objective of this method is to locate owls and verify that the matrix SOHA's do, in fact, contain breeding Spotted Owls.

In the middle of the 1989 field season, the Forest Service (under threat of Federal Court action) began the task of determining whether the northern subspecies, *Strix occidentalis caurina* should be listed as threatened. This resulted in mass confusion in the middle of the season, with timber sales being added to the protocol work load. The Forest Service has now extended the period for consideration of the listing proposal, and a decision is expected by July 23, 1990. No one is certain what will happen, but the Forest Service is committed to continuing the RD & A protocol for five years. The Big Bar Ranger District is conducting five protocol SOHA's, nine inventory SOHA's and nine RSA's (seven in the Trinity Alps Wilderness Area).

The results from the 1989 field season have not been analyzed yet, but we do have results from 1988. What we do know about the 1989 season is that the Forest Service completed 98% of its objectives, compared to about 70.5% of 1988's objectives.

RESULTS

The four southern forests in California are not being surveyed according to Forest Service protocol since they are not within the range of the northern subspecies. These forests are home to the Mexican subspecies *S. o. lucida*. Figure 1 illustrates the ranges of the three subspecies. Many ornithologists are concerned about the southern subspecies (Ganey and Balda 1989), but little is known about its ecology or precise distribution. Table 1 presents the results of a 1988 inventory of 199 areas in southern California National Forests.

TABLE 1. Number of areas and results of inventory for Spotted owls in National Forests in southern California, 1988.

Forests	Number sites	Sites w/ owls	Sites w/ pairs	Sites w/ reprod.
Angeles	35	19	4	1
Cleveland	18	18	--	--
Los Padres	21	21	12	2
San Bernardino	125	102	44	32
TOTAL	199	160	60	35

The Sierra Province of National Forests is within the range of *S. o. occidentalis*. Forest Service personnel in the Sierra Province monitored and inventoried sites according to protocol in 1988 and 1989. The results of the monitoring program for 1988 are not available for each forest. Table 2 presents the results of the SOHA inventory for 1982-1988 where site status is based upon best known occupancy in any one year.

Continued on Page 7.

CCRS BIRD BANDING SUMMARY - 1989

By L. Richard Mewaldt

The total numbers of birds banded (7,619), numbers of recaptures (6,508), and total species processed (94) at our Coyote Creek station (Figure 1, Table 1) represented new highs in 1989. This was in spite of continued drought and substantial disruption of our research area by resumed activity in construction of new flood control structures beginning in late summer. Increases must in part be due to a record 318 days of operation in 1989 with coordinate increases in net and trap hours.

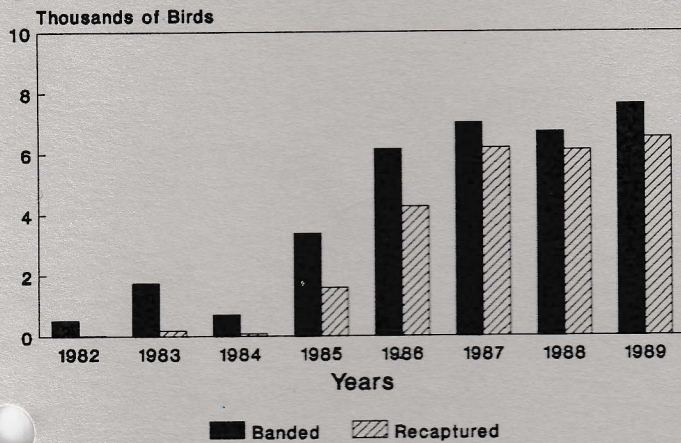


FIGURE 1. Numbers of birds banded and numbers of banded birds recaptured at CCRS from 1982 to 1989.

In 1989 we added five to our Station list of species banded: Acorn Woodpecker (2), Ovenbird (adult 10 & 11 Jun), Blue Grosbeak (adult male 22 Jul), Indigo Bunting (adult female 23 & 26 May), and Green-tailed Towhee (2).

The two Acorn Woodpeckers (18 Sep and 16 Nov) were likely in dispersal. This gives us hope than when the many young oaks planted in our monitoring area in 1986, and since, come of age, there will still be Acorn Woodpeckers breeding close enough to recolonize lower Coyote Creek.

Of two Green-tailed Towehees, the one mist-netted on 24 May, was a beautifully plumaged adult male in full breeding condition (#3 cloacal protuberance). Being a mountain species, it did not remain in the vicinity of CCRS. The second GTTO, mist netted on 1 Oct, was an adult in fall migration.

When we include banding operations at locations away from Coyote Creek, our 1989 total bandings swell to 7,755 of 104 species. These 136 additional bandings (Table 2) were done by CCRS volunteers at (1) Lundy Creek in the eastern Sierra Nevada (see story in *RipariaNews* Vol. 4 (4):3-4), (2) Natural Bridges State Park at Santa Cruz, (3)

San Francisco Bay National Wildlife Refuge at Newark, (4) Long Barn in the Sierra Nevada, (5) at the Youth Science Institute in Alum Rock Park, (6) the IBM Almaden Research Center in San Jose (see story in *RipariaNews* Vol. 4 (3):6-7), (7) San Antonio Reservoir in Alameda County, and (8) selected birds rehabilitated by Wildlife Rescue of Palo Alto. It is likely numbers of birds banded on projects at locations away from our CCRS research area will increase in 1990.

TABLE 2. Birds banded under CCRS permit at stations other than our Coyote Creek research area.

Species	Number
Sharp-shinned Hawk	1
Burrowing Owl	7
Belted Kingfisher	1
Anna Hummingbird	2
Red-breasted Sapsucker	3
Ash-throated Flycatcher	8
Dusky Flycatcher	1
Hammond's Flycatcher	1
Violet-green Swallow	6
Steller's Jay	1
Clark's Nutcracker	3
Chestnut-backed Chickadee	1
Mountain Chickadee	1
Common Bushtit	1
American Dipper	2
Northern Mockingbird	1
House Wren	4
Warbling Vireo	1
Solitary Vireo	1
Western Bluebird	14
Orange-crowned Warbler	16
Nashville Warbler	8
Audubon's Warbler	1
Yellow Warbler	2
MacGillivray's Warbler	8
Wilson's Warbler	5
Western Tanager	1
Brown Towhee	1
Green-tailed Towhee	2
Fox Sparrow	4
Song Sparrow	2
Golden-crowned Sparrow	8
Mountain White-crowned Sparrow	1
Oregon Junco	10
House Finch	6
Cassin's Finch	1
Total banded	136

More than 100 Members of CCRS volunteered services to one or more projects in 1989. Of the more than 70 who worked as banders or bander's helpers, 11 worked the net lanes and at the banding stations on from 24 to nearly 100 days each. Many others gave significant service especially during periods of migration. Many also gave service

TABLE 1. Coyote Creek Riparian Station bird banding summary for 1989.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Alpha
Cooper's Hawk											1		1	COHA
Red-tailed Hawk	1						1					1	3	RTHA
American Kestrel									2		1		3	AMKE
California Quail			2				1	1				1	5	CAQU
American Coot										1			1	AMCO
Killdeer							1						1	KILL
Black-necked Stilt							3						3	BNST
Western Sandpiper				32			56	13	1				102	WESA
Least Sandpiper				4			12	5	4				25	LESA
Mourning Dove	10	12	26	7	18	9	10	18	13	3	4	7	137	MODO
Burrowing Owl						1							1	BUOW
Black-ch. Hummingbird				6	9	2	6	26	13	1			63	BCHU
Anna's Hummingbird	10	4	9	15	24	42	54	54	15	7	12	5	251	ANHU
Calliope Hummingbird				3		1		1					5	CAHU
Rufous Hummingbird			9	94	5	4	14	23	10				159	RUHU
Allen Hummingbird		4	12	10	14	10	2	10	3				65	ALHU
Belted Kingfisher					1								1	BEKI
Acorn Woodpecker									1		1		2	ACWO
Downy Woodpecker		1	1			3	2						7	DOWO
Red-shafted Flicker										3	6		9	RSFL
Olive-sided Flycatcher					2								2	OSFL
Western Wood Pewee					1			3	3				7	WEWP
Willow Flycatcher				1		6	1	11	14				33	WIFL
Least Flycatcher									3				3	LEFL
Hammond's Flycatcher					1			1					2	HAFL
Dusky Flycatcher								1					1	DUFL
Western Flycatcher			3	11	19	14	11	197	445	39			739	WEFL
Ash-th. Flycatcher				1	3	3		2	1				10	ATFL
Black Phoebe	1		2	11	13	37	22	16	7	8	2	1	120	BLPH
Western Kingbird					3			1					4	WEKI
Tree Swallow			3		5	7							15	TRSW
Cliff Swallow					47	3	1	1					52	CLSW
Barn Swallow				2	7	5	2	1					17	BASW
Scrub Jay												1	1	SCJA
Chestnut-bk. Chickadee					3	6				2			11	CBCH
Common Bushtit		5	4	4	17	22	7	7	4	5	2	9	86	COBU
Brown Creeper							1						1	BRCR
Bewick's Wren						1	4	2	1			1	9	BEWR
House Wren	3			2				4	2			2	13	HOWR
Winter Wren	1	1	1	1				1	6	7	1		19	WIWR
Golden-crowned Kinglet	1	2								3	1	1	8	GCKI
Ruby-crowned Kinglet	6	8	3						1	37	34	7	96	RCKI
Swainson's Thrush				7	154	14	2	2	107	9			295	SWTH
Hermit Thrush	8	12	10	28	3				39	286	79	16	481	HETH
American Robin		4	13	3	1					1	1	1	24	AMRO
Varied Thrush	1									6	7	4	18	VATH
Northern Mockingbird		1		1	6		9	14	14	3			48	NOMO
Loggerhead Shrike				1	5	13		1	1	1		4	26	LOSH
Starling		2	3	1	8		3						17	EUST
Solitary Vireo				2									2	SOVI
Warbling Vireo				1	4	1		9	27	3			45	WAVI
Orange-crowned Warbler		1	6	39	17	3		3	15	14	10	2	110	OCWA
Nashville Warbler				1	1				1		1		4	NAWA
Yellow Warbler					54	12		44	107	14			231	YEWA
Myrtle Warbler	13	8	21	11					1	24	9	2	89	MYWA

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Alpha
Audubon's Warbler	6	6	30	50					6	208	45	15	366	AUWA
Black-th. Gray Warbler				4				1	1	5			11	BTYW
Townsend's Warbler					1				1				2	TOWA
Hermit Warbler								1					1	HEWA
Ovenbird						1							1	OVEN
Northern Waterthrush									1	1			2	NOWA
MacGillivray's Warbler				3	3	2							8	MGWA
Salt Marsh Yellowthroat	3	2	11	30	10	6	6	16	16	3			103	COYE
Wilson's Warbler	1		2	41	72	3	2	9	18	3			151	WIWA
Western Tanager					2		1	2	10				15	WETA
Black-headed Grosbeak				2	5	9	14	11	10	1			52	BHGR
Blue Grosbeak							1						1	BLGR
Indigo Bunting					1								1	INBU
Lazuli Bunting					2			1	1				4	LZBU
Green-tailed Towhee					1					1			2	GTTO
Spotted Towhee			1	1					1	4	9	3	19	SPTO
Brown Towhee				1		5	8	12	3	3	3		35	BRTO
Savannah Sparrow		1		13				1	9	1	4	25	54	SASP
Chipping Sparrow									1	1			1	CHSP
Fox Sparrow	4	6	3	3					22	28	9	1	76	FOSP
Song Sparrow	4	7	2	53	86	72	25	16	8	8	5	4	290	SOSP
Lincoln Sparrow	14	4	8	40	1			1	27	37	17	5	154	LISP
White-throated Sparrow											2		2	WTSP
Golden-crowned Sparrow	8	4	5	3					6	81	99	20	226	GCSP
Puget Sound White-cr. Sp.	5	20	4	4		1			29	115	58	31	267	PSWS
Gambel's White-cr. Sp	22	7	13	20	1				10	68	87	32	260	GWCS
Slate-colored Junco												1	1	SCJU
Oregon Junco			2			1				41	12	3	59	ORJU
Red-winged Blackbird	11	3	29	13	19	2			3		10	6	96	RWBL
Western Meadowlark	3	9	1								7	3	23	WEME
Brewer's Blackbird	1											3	4	BRBL
Brown-headed Cowbird				3	2	5	5						15	BHCO
Hooded Oriole						2		1					3	HOOR
Bullock's Oriole				3	3	16	9	2	1				34	BUOR
House Finch	79	88	112	14	46	203	191	284	203	75	70	127	1492	HOFI
Pine Siskin											1		1	PISI
Lesser Goldfinch					3	8	8	50	23	2	7	13	114	LEGO
American Goldfinch			6	60	4	3	6	71	19	5	13		187	AMGO
House Sparrow			1					1			1		3	HOSP
Total new captures	216	222	358	660	707	558	501	952	1289	1168	631	357	7619	Total
Cumulative captures	216	438	796	1456	2163	2721	3222	4174	5463	6631	7262	7619	7619	Cum T
Species banded	23	26	33	47	46	39	35	46	52	43	36	94	94	Species
Recaptures	881	876	747	501	402	345	201	253	391	545	802	564	6508	Recaps
Days of operation	20	18	21	30	31	30	23	31	30	30	29	25	318	Days

to CCRS in ways covered in the next paragraph. Our records show that Members who participated in the bird banding program two or more times in 1989 include:

Alberta Anaclerio	Shirley Higuera	Kathryn Oliver-Garnett
Walter Avery	Grant Hoyt	Chris Otahol
Ahn Bui	Karen Hoyt	Elsie Richey
Dave Burnham	Chris Illes	Jerry Richey
Laura Castellano	David Johnson	Betinna Richman
Rita Colwell	Stephanie Jones	Mark Richman
Maryann Danielson	Andy Joyce	Mike Rigney
Penny Delevoryas	Bruce Katano	Theresa Rigney
Mary Drum	Toni Koenen	Edith Rondeau
Heidi Ernst	Alan Kluska	Hawkeye Rondeau
Bridgett Ferguson	Craig Kuziel	Edward Rooks
Peter Folan	Max Lincoln	Allen Royer
Marilyn Fowler	Kay Loughman	Jane Starbird
Marion Fricano	Sean Lydon	Jason Starbird
Howard Freidman (1)	Claudette Maccan	Dieter Thiel
Tom Goodier	Mike Mammoser	Lloyda Thompson
Cindy Goral	Patricia Mann	Mike Westphal
Jennifer Green	Lisa McCain	Mark Wilcox
Liz Hayes	Dick Mewaldt	Blair Wolf
Cindy Heazlit	James Miguelgorry	Dorothy Yale
Gloria Heller	Tom Myers	Bob Yutzzy
Nate Higley (1)	Lynne Neibaur	Carol Yutzzy

Volunteers of record have done many tasks including: plant culture and nurturing in enrichment of our riparian habitat; censusing of birds and other critters; entry of data into our computer data bank; preparing copy for, editing, producing, and mailing our **RipariaNews**; bird house building, installing, and monitoring; bird rehabilitation; mist net lane and trap line repair (including baiting) and maintenance; trail maintenance; museum specimen preparations and cataloging; photography; repair and maintenance of our field laboratory at Coyote Creek and our office-computer center in Alviso; and technical or administrative advice and assistance. Members of record volunteering in these essential tasks included:

Thomas Balgooyen	Pat Gordon	Michael Morangio
William Bousman	Phil Gordon	Vi Nisonger
Jeffrey Caldwell	Edward Gustafson	Paul Noble
Roy Cameron	H. Thomas Harvey	Michelle Ohlsen
Howard Cogswell	David Hildebrand	Joan Priest
Derek Currall	George Honore	David Regnery
John Delevoryas	Rich Hopkins	Frank Smith
Emmett Dingel	Robert Johnson	Elinor Spellman
Elwyn Dorman	Rob Klingler	Jean-Marie Spoelman
Steven Dorman	Guy Klitgaard	John Stanley
Ronald Duke	Kathy Kuziel	Don Starks
Allyn Erickson	Will Lapaz	Liela Sutherland
Kevin Foerster	Helen Hoa Le	Mark Sutherland
Bernard Goldner	Fran Mewaldt	Jean Young

We wish to thank all of our members and volunteers for your continuing support in accomplishing CCRS's long-term goal of monitoring wildlife use of riparian corridors in Santa Clara County. Without your help, none of what we report in this newsletter would have taken place. Again, **Thank You!!!**

RECOVERIES OF BANDED BIRDS

by L. Richard Mewaldt

We recently received, from the U. S. Bird Banding Laboratory, Laurel, Maryland, the following reports of encounters with birds processed by CCRS members or affiliates.

Forster's Tern (1083-91815)

Banded 19 Jun 1973 as nestling on a low island in a Leslie salt pond just bayward (San Francisco Bay) of Moffett Naval Air Station by Bob Gill and Albert Mansfield.

Found dead (oiled) 5 Apr 1989 at Newport Beach (south of Los Angeles) by Wildlife Biologist Greg Gerstenberg. Nearly 16 years old, it may have been returning to the San Francisco Bay area from its winter range in Mexico.

Snowy Egret (816-72645)

(This record just recently came to our attention)

A rehabilitated adult was banded and released near Benicia, California by the Alexander Lindsay Junior Museum staff on 3 Feb 1979.

Found dead in the lagoon area of the San Jose Water Pollution Control Plant near CCRS on 9 Jan 1984 by Douglas Files. It thus lived nearly five years after its rehabilitation.

Mourning Dove (1253-52806)

Banded at CCRS as an adult male on 8 Sep 1988 by Bruce Katano.

Shot by hunter near Milpitas, CA (less than 5 miles distant from CCRS) six days later, 14 Sep 1988.

Swainson's Thrush (1421-11833)

Banded at CCRS when about 11 months old (buffy tips on greater secondary coverts) by Bridgett Ferguson on 27 May 1989.

Found dead 10 Aug 1989 at Haynes Inlet, Oregon by Jay Dow of North Bend, Oregon

SFBBO MONTHLY MEETINGS

We bring to your attention the fine programs arranged by San Francisco Bay Bird Observatory for its monthly meetings. They are usually held the first Thursday of each month at the San Francisco Bay National Wildlife Refuge Environmental Education Center in Alviso. The Observatory allots time at each meeting for CCRS newsbriefs and announcements.

Feb 1 Howard Wilshire, Geologist, USGS

Topic: Impact of Off-Road Vehicles on the Desert Environment

Mar 1 Jan Dierks, Biologist

Topic: Her work with California Gull chicks at the Knapp Property Colony.

Apr 5 Bob Drews, Herpetologist, Calif. Acad. Sciences

Topic: Frogs of Tropical Africa.

Spotted Owl (continuation of article from Page 2)

TABLE 2. Number of SOHA's and results of Spotted Owl inventory in the Sierra Province National Forests, 1982-1988.

FORESTS	Number sites*	Sites w/ owls	Sites w/ pairs	Sites w/ reprod.
Eldorado	32	7	9	16
Lassen	43	13	8	14
Plumas	54	16	22	13
Sequoia	40	9	24	2
Sierra	27	3	9	9
Stanislaus	36	2	23	11
Tahoe	34	7	15	10
Total	266	57	110	75

* Network sites only

The forests in the Klamath Province involved in the most controversial Spotted Owl work. The northern subspecies (*S. o. caurina*) occurs in these forests and is the subspecies which is proposed for listing as threatened. Due to the proposal to list, the number of SOHA's in the Forest Service matrix in critical areas has been increased and the acreage has also been provisionally increased to 2,000 acres for each SOHA. The results of inventory work between 1982 and 1988 are presented in Table 3. The site results, as in the Sierra Province, are based upon the best known occupancy status in any one year during that period.

TABLE 3. Number of SOHA's and results of Spotted Owl inventories in the Klamath Province National Forests, 1982-1988.

FORESTS	Number sites*	Sites w/ owls	Sites w/ pairs	Sites w/ reprod.
Klamath	93	9	19	57
Mendocino	52	7	33	9
Shasta-Trinity	72	12	29	23
Six Rivers	50	2	19	29
Total	267	30	100	118

* Network sites only

The forest fires in 1987 which occurred throughout California made the monitoring for 1988 difficult to com-

plete. About 70.5% of the project was completed. The 1987 fire season was one of the worst in California's history. These fires affected 54 habitat areas managed for Spotted Owls, mainly in the Klamath Province. The results of the protocol monitoring for 1988 are reported, by Province, in Table 4.

TABLE 4. Number of sites and numbers of Spotted Owls observed during monitoring efforts in 1988, by Province.

	KLAMATH	SIERRA	TOTAL
Sites monitored	63	64	127
Owls detected	28	37	65
Number of pairs	16	18	34
Pairs reproducing	28	19	47
Number of young	46	29	75
Total owls	118	103	221

DISCUSSION

The Northern Spotted Owl is an obligate inhabitant of old-growth forest. More than two-thirds of the remaining old-growth forests have been destroyed. Almost all remaining suitable habitat is federally owned; three-fourths is contained within National Forests. The owl's home range extends over 2,000 to 7,000 acres and encompasses, on average, 2,000 to 4,200 acres of old-growth forest. On today's market, old-growth timber is worth about \$4,000 per acre (Simberloff 1989). The conflict between the owl's needs and those of the lumber industry has generated a storm of controversy. The journal *Ecology* produced its first "special issue" on the Spotted Owl (*Ecology* 1987). And the prominent northwest bumper sticker which sport slogans such as "Save a Logger's Job - Eat an Owl" and "Spotted Owl Hunting Association" can be found even at meetings of Forest Service biologists. This tame and secretive owl has come to symbolize the struggle in the United States between the desire to maintain a small amount of pristine habitat in the face of increasing population and a struggling American economy (Simberloff 1989).

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TICK COLLECTION AT CCRS

by Stan Wright

On November 6, 1988, during one of the standard mist net collections at Coyote Creek Riparian Station, Santa Clara County, California, a Hermit thrush (*Catharus guttatus*) was captured. This particular bird did not seem unusual until one of the volunteers noticed two closely attached pebble-sized protrusions at the nape of the neck just lateral to the auriculars. These protrusions proved to be soft ticks belonging to the family *Argasidae* and the sub-order *Ixodida*. For more specific identification, the ticks were preserved and sent to Dr. Leidahl, Professor of Parasitology at California State University, Sacramento.

DESCRIPTION AND DIAGNOSIS

The *Argasidae* ticks are dark rusty-red in color. Their lateral margins, which are slightly uplifted and somewhat irregularly striated, have an opaquely-yellowish hue. The body shape is oval to suboval, distinctly narrower in front and is flattened dorsal-ventrally. The dorsal and ventral surfaces are clearly separated by a sutural line. The two ticks were roughly the same size, the smallest measuring 2.88 mm in length and 1.90 mm wide. The dorsal and ventral surface of the ticks is soft and leathery, minutely wrinkled, with folds and small rounded mounds and depressions. Some of these depressions contain a single hair. No eyes are present. The small mouth parts and legs are not visible from the dorsal aspect. Only three pair of opaquely-yellow legs are present which designates these specimens as larval, the first of three stages in their development. With these

characteristics and other more specific morphological aspects of the mouth parts, Dr. Leidahl identified the ticks as *Argas reflexus*.

DISTRIBUTION AND HOSTS

Argas reflexus is a rarely encountered tick, but has a scattered world wide distribution. There is some distinctive differences between European specimens and American specimens, hence there is some speculation that each may be a different species. In South America, the tick is often associated with domestic pigeons and has been given the common name of pigeon tick. Other hosts have been recorded; one on a domestic chicken, one on a horse and one on a human. In North America only four previous recorded finds have been made; three in California and one in Montana. In California, the tick has been collected at Santa Paula Canyon, Ventura County, Mt. Diablo, Contra Costa County and in Inyo County. The California collections were made near a California Condor nest, a cave, and a screech owl nesting hole respectively. The CCRS collection is the first in North America to be collected from a host rather than its nest, and the first reported larval stage from a host. The specimens have been placed in the entomological collection at CSU, Sacramento.

OFF THE WALL - THE 1989 FALL SEASON

by Bill Bousman

Cumulative New Capture Data

The new capture data obtained from the Summary Board can be viewed as a sampling of bird populations. The actual distribution that is seen will depend upon whether a species is primarily a migrant along the Coyote Creek corridor or whether it is resident. In the case of migrant species we would expect to see large numbers for the duration of the passage flight and then no more birds until the next migratory period. For resident birds it is not so clear what we should see. As an example, if we are taking our sample from a finite, local population and our sampling method is very effective we should see the new capture numbers increase rapidly at first and then taper off as we approach the population size. To make our interpretation of new capture data more difficult, the examination of these samples over any significant length of time will also show the effects of breeding and mortality. Finally, because birds rarely fit in the nice pigeon holes I have described here, we will probably see more than one effect in the sampled data.

I show the cumulative new capture data taken from the Summary Board for Rufous Hummingbird (RUHU) in Figure 1. Two migratory periods are clearly indicated by the data, a relatively quick spring movement from the last

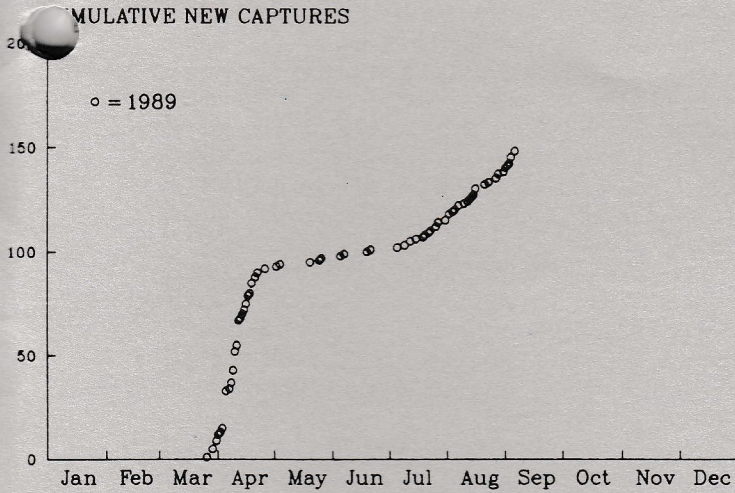


FIGURE 1. Rufous Hummingbird capture data.

week of March into middle or late April and a protracted fall movement from early July to early September. A few birds were captured during the summer months, but these do not obscure the basic behavior.

Figure 2 shows the cumulative new capture data for the resident Anna's Hummingbird. In this figure we see that Anna's is caught in the nets at Coyote Creek throughout the year. The capture rate increases starting in May and continues through the end of August. I will specu-

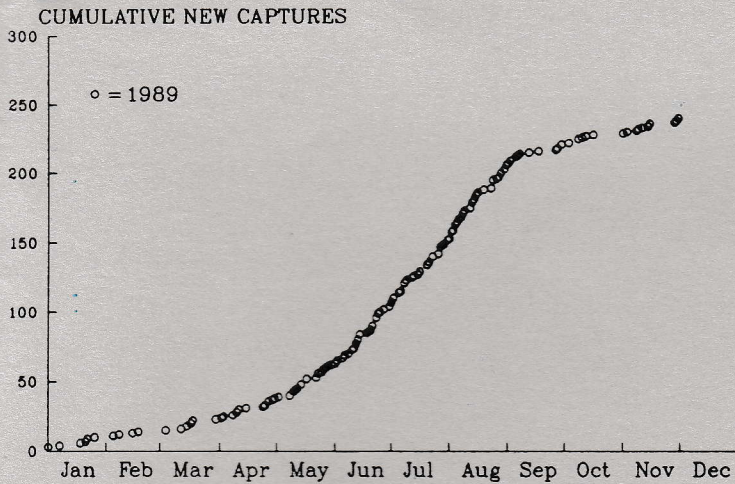


FIGURE 2. Anna's Hummingbird capture data.

late that the increase in the capture rate is related primarily to the presence of new young in the area, although other effects such as the reduced banding effort in the winter months may have an influence.

Finally, I show the cumulative new capture data for Allen's Hummingbird (Figure 3), a summer resident species. The 1988 data suggest a small fall movement of birds which is perhaps related to the reduction in mist net

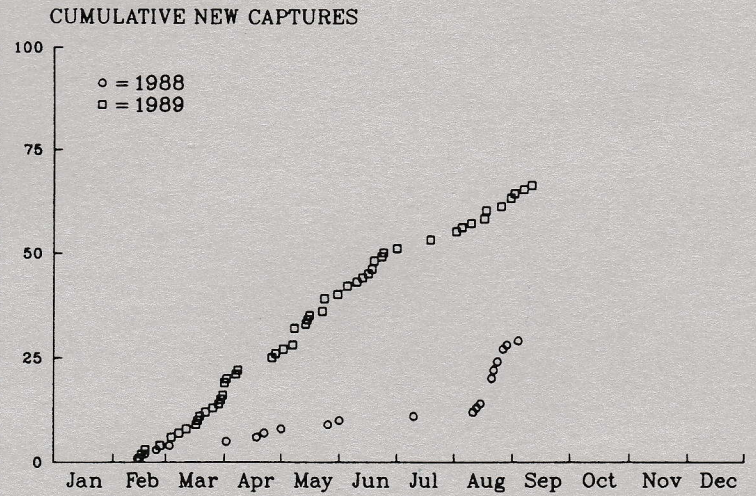


FIGURE 3. Capture data for Allen's Hummingbird

mesh size we made at the time, but the 1989 data do not show any significant migratory period. The capture rate is essentially constant from first arrival in February to the last departure in September. Is this constant capture rate a result of more than one effect? Perhaps the initial surge is caused by resident and migrant birds, while the later captures are due to birds of the year. This is certainly suggested by Blair Wolf's article in last month's *RipariaNews*.

Fall Migration

I have plotted the 1989 new capture data as in the figures above for all of the species that migrate through the Coyote Creek corridor in significant numbers. Those that show behavior similar to the Rufous Hummingbird I have tabulated below. Table 1 shows the number banded over the migration period, the first date, the 10th, 50th, and 90th percentile dates, and the last date. For those migrants that only occur in low numbers I have not included the percentile dates. The coverage for the season was relatively complete - the only missed days were 23 Oct and 13 Nov.



TABLE 1. New capture data for Fall migrants - 1989.

Species	No.	First	10th	50th	90th	Lst
BCHU	42	21 Jul	26 Jul	27 Aug	12 Sep	12 Oct
RUHU	47	5 Jul	12 Jul	12 Aug	4 Sep	6 Sep
WEWP	6	3 Aug	--	--	--	20 Sep
WIFL	25	13 Aug	20 Aug	4 Sep	12 Sep	20 Sep
LEFL	3	23 Sep	--	--	--	26 Sep
WEFL	665	27 Jul	13 Aug	6 Sep	26 Sep	11 Oct
ATFL	3	25 Aug	--	--	--	4 Sep
HOWR	6	9 Aug	--	--	--	14 Sep
SWTH	116	3 Sep	16 Sep	25 Sep	30 Sep	30 Oct
WAVI	39	14 Aug	28 Aug	6 Sep	21 Sep	7 Oct
OCWA	42	16 Aug	1 Sep	4 Oct	4 Nov	29 Nov
NAWA	2	6 Sep	--	--	--	15 Nov
YWAR	164	16 Aug	26 Aug	9 Sep	27 Sep	9 Oct
BYWA	7	26 Aug	--	--	--	8 Oct
NOWA	2	6 Sep	--	--	--	8 Oct
WTWA	28	21 Aug	24 Aug	10 Sep	27 Sep	2 Oct
WETA	11	28 Aug	28 Aug	3 Sep	23 Sep	23 Sep
LAZB	2	27 Aug	--	--	--	9 Sep

The most abundant migrant at the station was the (renamed) Pacific-slope Flycatcher (WEFL), just as was the case last year. Yellow Warbler (YWAR) and Swainson's Thrush (SWTH) took second and third place, again the same ranking they held last year. The fourth most abundant migrant this year was Rufous Hummingbird, up considerably in numbers from last year. Fifth place is shared by Blackchinned Hummingbird (BCHU) and Orange-crown Warbler (OCWA).

I guessed that there would be a reduction in the number of new captures this fall because of the extensive habitat changes that were made lower down on the creek and near the station. This is not the case, however, as can be seen by comparing numbers for the most common birds. Of last year's top five fall migrants, the Pacific-slope Flycatcher was up 66% and Swainson's Thrush was up 38%; Yellow and Orange-crowned warbler numbers were unchanged; and only Wilson's Warbler was down (63%). It may be misleading to compare total passage numbers from year to year without incorporating the effects of habitat changes as well as other factors such as net time and weather. Over a long period of time, however, I think these data will give us a good idea of population trends.

The confounding effects of local habitat modification probably do not influence the timing of species' migration. Compared to last year some species moved through much sooner. Both Warbling Vireo (WAVI) and Yellow Warbler peaked nine days earlier than last year while the median date for Willow Flycatcher was eight days earlier. Pacific-slope Flycatcher and Wilson's Warbler came through about five days earlier as evidenced by the median date. Only Orange-crowned Warbler showed a significant delay (11 days), but this species has a significant wintering component which makes interpretation of the data more difficult.

This fall had a goodly mix of rare migrants. A Cal-

lope Hummingbird was banded on 10 Aug - we had one record last fall as well. Least Flycatchers (LEFL) were banded on 23, 25, and 26 Sep. These are the first at the station since 1968 (which were the first county records). A Hammond's Flycatcher was banded on 17 Aug and to round out these rare empids a Dusky Flycatcher was netted on 10 Aug and recaptured on 12 and 17 Aug. Is it possible that in those 665 Pacific-slope Flycatchers there was, perhaps, one Cordilleran Flycatcher? Can anyone tell the difference?

The table shows that Nashville Warblers (NAWA) were banded on 6 Sep and 15 Nov, but I think that the latter bird is probably wintering locally. A Hermit Warbler was caught on 20 Aug for one of the few records at the station. Two Northern Waterthrush (NOWA) were captured: one on 6 Sep (and recaptured on 7 Sep) and a second on 8 Oct. A Green-tailed Towhee was banded on 1 Oct to add to the bird we caught in the spring. A Chipping Sparrow caught 28 Oct is late and quite rare for the station.

Summer Departures and Winter Arrivals

Table 2 below shows the first arrival date for birds wintering locally and the last departure dates for our summer resident species. Fourteen Winter Wrens were captured by the end of October, but none thereafter. A first arrival date is shown for Golden-crowned Kinglet (two birds), but perhaps this species should be considered a migrant as additional birds were captured on 29 Oct and 4 Nov, but none thereafter. This does not appear to be an irruptive winter for this species. Rarities among our wintering sparrows include the three White-throated Sparrows that were netted at the station on 14 Oct, 2 Nov, and 3 Nov.

TABLE 2. Departure and arrival dates from new capture data for Fall, 1989.

Species	First	Last
Allen's Hummingbird	--	11 Sep
Winter Wren	14 Aug	--
Golden-crowned Kinglet	28 Aug	--
Ruby-crowned Kinglet	23 Sep	--
Hermit Thrush	7 Sep	--
Varied Thrush	25 Oct	--
Yellow-rumped Warbler (Myrtle)	24 Sep	--
(Audubon's)	20 Sep	--
Townsend's Warbler	3 Sep	--
Black-headed Grosbeak	--	1 Oct
Fox Sparrow	6 Sep	--
Lincoln's Sparrow	7 Sep	--
Golden-crowned Sparrow	19 Sep	--
White-crowned Sparrow (Puget Sound)	13 Sep	--
(Gambel's)	19 Sep	--
Hooded Oriole	--	30 Aug
Northern Oriole	--	3 Sep

SFBBO CLASSES AND TOURS

The San Francisco Bay Bird Observatory is offering a series of classes and tours during 1990. Many of the classes and tours are being taught or led by CCRS members Don Starks and Paul Noble. The classes and tours are open to SFBBO members and non-members. If you would like specific information on dates, times and locations please contact the observatory at (408) 946-6548 or write them at P.O. Box 247, Alviso, CA 95002.

CLASS TITLE	INSTRUCTOR	DATE	COST
Gull Identification	Don Starks	Jan '90	\$30 * \$45 **
Owl Biology	Paul Noble	Mar '90	\$30 \$45
Sparrow Identification	Don Starks Paul Noble	May '90	\$35 \$50
Taxidermy Techniques	Dave Martin	Jul '90	\$45 \$60
Shorebird Ident.	Don Starks Paul Noble	Aug '90	\$45 \$60
Duck Identification	Paul Noble	Nov '90	\$25 \$40

TOUR	LEADERS	DATE	COST
Joshua Tree N.M., the Thrasher Crasher Tour	Paul Nobel Don Starks	Feb 17-19	\$45 \$60
Spring in Arizona	Paul Noble Don Starks	May 12-20	\$165 \$180
Southeast Arizona	Paul Noble Don Starks	Aug 4-12	\$165 \$180

* SFBBO Member
** Non-members

LIFE MEMBERS GORAJ VISIT FROM AUSTRALIA

by Dick Mewaldt

Our globally most distant members, Francis and Jane Goraj, recently visited us from their home in Glenunga, South Australia. They took the occasion to again demonstrate their support for CCRS with another check for \$500. Both are now Life Members. When in 1986 the Gorajs moved from Palo Alto to Glenunga, they donated many valuable and useful natural history books to our CCRS Library.

MEMBERSHIPS IN CCRS

Member	\$15 annually
Senior or Student	10 annually
Family	20 annually
Supporting	30 annually
Sustaining	75 annually
Corporate	100+ annually
Life	500 single payment *
Patron	5000 single payment *

Life Membership payments and 10% of all other membership payments and general contributions go into the CCRS Endowment Fund now earning about \$175 per month. CCRS is a non-profit corporation with U. S. and California tax exempt status. Five dollars from the dues of each joint CCRS-SCCBB Atlas Member goes to the Atlas program. We acknowledge Memorial contributions in **RipariaNews**. We welcome bequests, including those of real property.

* Or in 4 or 5 installments

NEW MEMBERS

We welcome 9 new members who joined us in the last three months:

Buneman, Ruth	Member
Castellano, Laura	Active Member
Feighner, Michael	Member
Hill, Geoffrey	Member
McCain, Lisa	Active Member
Nordstrom, Mary E.	Member
Rogers, Michael	Member
Spoelman, Jean-Marie	Member
Starbird, Jane K.	Active Member

Membership renewals are coming in very well. Some have upgraded their membership category or made an additional contribution.

We are pleased to welcome **Mark E. Sutherland** of the Santa Clara County Sheriff's Department as our newest Life Member. **Mark** and his wife **Liela** are concentrating their **Active** service to CCRS in our riparian revegetation program.

Life Membership payments in their entirety and 10% of all other membership payments and general contributions are placed in the CCRS Endowment Fund thereby assuring the future of Coyote Creek Riparian Station.



Biologist Blair Wolf models the official CCRS T-shirt. Stylish yet functional, this shirt boldly displays your interest in the study and preservation of urban riparian areas. Photo by David Johnson.

CCRS T-SHIRTS

by Blair O. Wolf

The time has finally come! CCRS has gained new stature with the introduction of a CCRS T-shirt. The status symbol of a new decade. These shirts incorporate the original logo designed by David Johnson with a beautiful drawing of a female Belted Kingfisher by noted local wildlife artist and member Edward Rooks (*Thanks Edward!*). The Kingfisher's colors are realistic and "field-guide accurate". For a minimum donation of \$12.00 for short sleeve shirts and \$17.00 for long sleeve, one of these hot little items can be yours. These shirts are 100% cotton (not pre-shrunk) "Beefy T's" and come in unisex sizes: S,M,L & XL. Colors available are: white, light blue and silver-gray. We placed an initial order for 75 and they're going fast. You can place your order by phone by contacting the CCRS office at (408) 262-9204. Arrangements can be made to mail them out-of-town to distant relatives for an additional \$1.50 per order.

COYOTE CREEK RIPARIAN STATION

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 to the restoration and management of, riparian and wetland habitats including the wildlife and other animals that live there. CCRS is located on City of San Jose, Department of Water Pollution Control limited-access land along the last two kilometers of the west bank of Coyote Creek where it meets San Francisco Bay.

Coyote Creek Riparian Station operates in cooperation with the Santa Clara Valley Water District, San Jose/Santa Clara Water Pollution Control Plant, H. T. Harvey & Associates, John Stanley & Associates, San Jose State University, U. S. Bird Banding Laboratory, Laurel, MD., San Francisco Bay National Wildlife Refuge, and the California Department of Fish and Game.

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. Please let us know of persons or organizations who might benefit from or enjoy our **RipariaNews**.

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