



# RipariaNews

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## CCRS BIRD BANDING SUMMARY - 1987

By L. Richard Mewaldt

Beginning with a mist-net caught Merlin in January, and ending with a Dho-gaza caught Great Horned Owl in December, but with another 93 species in between, 1987 was a very good year (Figure 1). High-lights include 520 migratory (almost all ??) Western Flycatchers, 451 migratory (almost all ??) Swainson's Thrushes, 378 migratory and/or wintering Hermit Thrushes, 382 resident Song Sparrows, a Kentucky Warbler (recaptured 3 times in 10 days), a Connecticut Warbler, 2 Northern Waterthrushes, 2 Brewer's Sparrows, 24 Black-chinned Hummingbirds, 121 resident Black Phoebes, and 11 Belted Kingfishers. We must not fail to mention banding 1911 House Finches, which we limited to no more than 10 per banding-day, and the release unprocessed of another 2608.

### Birds Processed 1982 to 1987 Coyote Creek Riparian Station

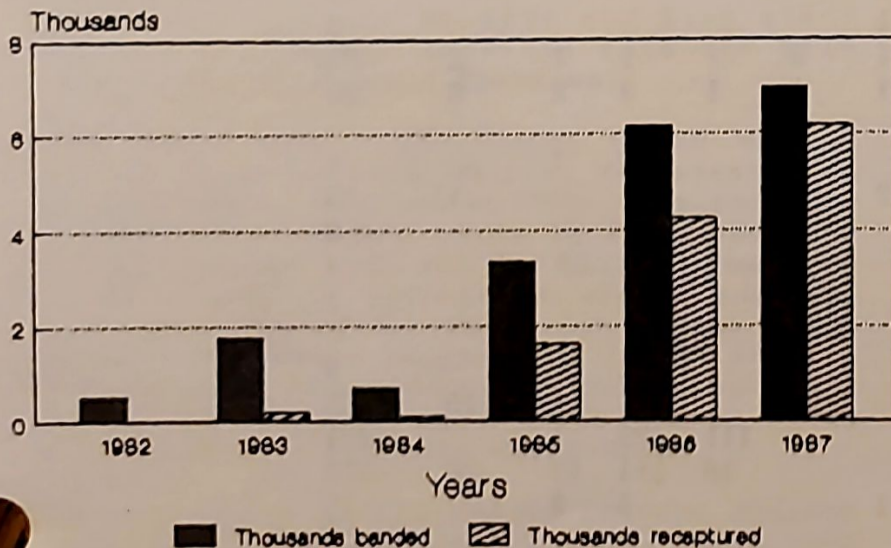


Figure 1. Numbers of birds captured, banded and recaptured at the Coyote Creek Station 1982 to 1987.

We operated nets and/or traps, weather and available volunteers permitting, 293 days in 1987. During the year we logged 67 banders and helpers. Of these, about 12 regulars did about 90 percent of processing of more than 13,000 captures and recaptures (see 1987 Banding Summary beginning on Page 2) .

This may have been our last less-than-100-species year. We are due some dramatic changes in our study area. The flood-control structures (levees and high-flow channel) and scheduled mitigation measures (restoration of old and creation of new wet-bird habitats) by the Santa Clara Valley Water District may begin taking shape in 1988. We are anxious to get back to studies of sandpipers and other water related birds. In the 1982-84 period we banded several hundreds of such water related birds on the fallow sludge lagoons adjacent to our stream side habitat. In 1985 those lagoons were put back into sludge production by the Water Pollution Control Plant.



One of two Brewer's Sparrows captured this year at CCRS. PHOTO BY DAVID JOHNSON.

## SUMMARY OF BIRDS BANDED AT CCRS IN 1987

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Black-shouldered Kite					1								1
Northern Harrier											1		1
Sharp-shinned Hawk				1									1
Cooper's Hawk											1		1
Red-tailed Hawk		1											1
American Kestrel					1	1	8	4				1	15
Merlin	1												1
Ring-necked Pheasant							1	1					2
California Quail				3	3	3		3	3	1	1		17
Killdeer					1								1
Mourning Dove	1	3	6	20	12	7	32	25	19	8	4	3	140
Great Horned Owl												1	1
Burrowing Owl				1	1								2
Saw-whet Owl		1						1		1	3	3	9
Vaux's Swift								1					1
Black-ch Hummingbird				1	1	1	8	12	1				24
Anna Hummingbird	4	1	4	5	3	8	9	14	9	8	2	7	74
Calliope Hummingbird				1		1	1						3
Rufous Hummingbird				1				1					2
Allen Hummingbird			3	2	7	2	2	1	1				18
Belted Kingfisher							2	8		1			11
Red-breasted Sapsucker									1	2			3
Downy Woodpecker					3	1	3	1	1	1		1	11
Yellow-shafted Flicker									1	1			2
Red-shafted Flicker								1	3	5		1	10
Hybrid Flicker		1	1						1	1			4
Western Wood Pewee							1	5	2				8
Willow Flycatcher					5	5		16	14				40
Dusky Flycatcher				2					2				4
Western Flycatcher			1	18	34	4	31	195	227	10			520
Ash-throated Flycatcher				1	1		1	1	2				6
Black Phoebe		2	6	2	36	18	31	13	10	3			121
Tree Swallow				4	3	11	5						23
Violet-green Swallow							5	6					11
Rough-winged Swallow				1	2	1							4
Cliff Swallow					10	3	1						14
Barn Swallow				3	5		5						13
Scrub Jay					5	3	1						9
Chestnut-bk Chick	4			2	4	3	1	3	1	1	1	2	22
Common Bushtit	2	1	2	4	1	3	1	4	1	3	2	6	30
Brown Creeper								1		2	1		4
Bewick's Wren						9	2	2		1		1	15
House Wren						1		1					2
Winter Wren								1	2	1			4
Marsh Wren	1												1
Golden-cr Kinglet			1							2			3
Ruby-crowned Kinglet	3	2	6	4						4	4	10	33
Swainson's Thrush				10	278	18		4	111	29	1		451
Hermit Thrush	15	15	22	40	8				19	174	57	28	378
American Robin				5	1	1	1			2	3		13
Varied Thrush	3			1							10	8	22
Wrentit									1				1
Mockingbird		1			1	2	2	26	11	4			47
Brown Thrasher										1			1
Loggerhead Shrike				1		4	5	3	1		1		15

SUMMARY CONT'D.

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Starling					3			1					4
Solitary Vireo				1	1				1				3
Warbling Vireo				6	6		1	6	8	1			28
Orange-cr Warbler	2		4	7	2	3		5	7	3		2	35
Nashville Warbler											1		1
Yellow Warbler					4			4	32	2			42
Myrtle Warbler	1	10	12	4						1	2		30
Audubon's Warbler		9	13	7					1	8	26	5	69
Black-throated Gray Warb									1				1
Northern Waterthrush					1				1				2
Kentucky Warbler									1				1
Connecticut Warbler									1				1
MacGillivray's Warbler				1	2			1	2				6
Yellowthroat	1	1	3	8	6	5	5	8	9	2	1		49
Wilson's Warbler				19	44	2		13	20				98
Western Tanager								7	4				11
Black-headed Grosbeak				3	17	1	4	4	1				30
Lazuli Bunting				1				2	1				4
Rufous-sided Towhee		1	1			1		1	5	5	1	1	16
Brown Towhee	3	1	2	2	2	3	6	6	6		1	1	33
Brewer's Sparrow								1				1	2
Savannah Sparrow					1			8	12	5	1		27
Fox Sparrow	12	3	14	15	1				51	21	24	14	155
Song Sparrow	27	13	10	27	129	52	31	43	14	9	10	17	382
Lincoln Sparrow	7	7	22	12					56	56	18	17	195
White-throated Sparrow										1			1
Golden-crowned Sparrow	35	15	61	63	2				23	64	102	56	421
Puget Sound Wh-cr Sp	17	9	25	22					102	141	36	20	372
Gambel's Wh-cr Sp	34	55	43	88	1				24	88	74	11	418
Oregon Junco		4	1						1	18	8		32
Red-winged Blackbird	3	15	43	63	28	2			3				158
Tri-colored Blackbird			1										1
Brewer's Blackbird									1				1
Brown-headed Cowbird			2	3	3	2	2						12
Bullock's Oriole				1	6	5		1					13
House Finch	117	165	106	49	159	213	270	259	205	209	54	105	1911
(Released unbanded)*	92	145	90	65	162	161	828	661	248	109	0	47	(2608)
Lesser Goldfinch				2	1		8	49	61	32			153
American Goldfinch			4	17	8			8	25	41		2	105
Evening Grosbeak				1									1
House Sparrow		1		2	3				1	2			9
Total new captures	293	337	419	556	857	399	486	781	1124	975	451	325	7003
Cum new captures	293	630	1049	1605	2462	2861	3347	4128	5252	6227	6678	7003	
Species banded	21	25	28	48	48	34	32	47	55	44	30	26	95
Recaptures	471	515	735	635	442	201	237	285	379	666	942	671	6179
Cum recaptures	471	986	1721	2356	2798	2999	3236	3521	3900	4566	5508	6179	
Days of operation	19	16	22	23	31	28	31	31	30	31	16	15	293
Cum days of operation	19	35	57	80	111	139	170	201	231	262	278	293	

\* House Finches captured and released unbanded are not included in totals.

Banders and assistants of record in 1987: Michele Abare, Jerry Balisteri, Chris Boles, Jennifer Boles, Chisholm, Andrew Cohen, Chris Cutler, Bruce Davis, Penny Delevoryas, Ronald Duke, Marilyn Fowler, Russell Fowler, Richard Goette, Lawrence Gonzales, Cindy Goral, John Harris, Harriet Hill, Grant Hoyt, Cathy Jennings, David Jensen,

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David Johnson, Elizabeth Johnson, Stephanie Jones, Mike Kapis, Bruce Katano, Dan Kelly, Thomas Kirwan, Rob Klinger, Eric Kuwada, David Lavorando, Lefevre, Clarice Lincoln, Max Lincoln, Kay Loughman, Robert Lynch, Maria Mahar, Joe Marshall, Dick Mewaldt, Syndie Meyer, James Miguelgorry, John Moll, David Moyles, Lynne Neibaur, Chris Otahal, Frank O'Sullivan, LedaBeth Pickthorn, Joan Priest, Wilbur Quay, Elsie Richey, Jerry Richey, Michael Rigney, Theresa Rigney, Alan Robinson, Margaret Roper, Vera Roper, Allen Royer, Peggy Ryan, Alfred Schmitz, Robbi Sera, Allan Sillett, Sousoures, Steele, Sally Walters, Maurice Wild, Blair Wolf, Bernard Wone, Jan Zubkoff.

## HOUSE FINCH PROJECT: MALE FERTILITY & TIMING

by W. B. Quay

Dr. Max Lincoln and I have been evaluating sperm release in male House Finches at CCRS, and at a few other locations in the San Francisco Bay area. This study depends upon obtaining cloacal lavages (CLs) (Quay 1984 and Lincoln 1987) from House Finches that we capture, measure, band and release. One of the long term goals of this research is to determine whether the numbers and quality of sperm released into the cloaca of males of different populations can be correlated with local environmental conditions. There is abundant scientific literature about the effects of occupational and environmental (mostly chemical) hazards on certain characteristics of human sperm. But there is very little published about environmental conditions in relation to wild populations of birds. House Finches appear to us to be one of the most promising model species available for testing such a research approach in California.

We believe also that data obtained from our CLs of House Finches will reveal aspects of their reproductive biology which have not been easily accessible previously. Our first step in this direction has been to determine the presence or absence of sperm in CLs from a large number of individuals lavaged at intervals throughout the year. Starting December 6, 1986, and extending through July 31, 1987, CLs were taken from 191 male House Finches at CCRS.

The first male House Finch with cloacal sperm was found on March 10. Within about three weeks nearly all of the male House Finches at CCRS were releasing sperm (see Figure 1). This high incidence of sperm release continued through April, May and June. There were, however, two "dips" from 100% incidence of sperm release during this period (Figure 1). We do not know whether these dips represent interruptions in sperm release following or between broods, or whether there were some infertile male "transients" in the area at these times. Clarification of this question will depend upon gathering data from males recaptured and lavaged more frequently throughout the reproductive season.

Nevertheless, two conclusions can be drawn from our first evaluation. First, there is an average adult male fertility of about 90% through the three month plateau-like peak of

## SEQUENCE OF HOUSE FINCH SPERM RELEASE CCRS - 1987

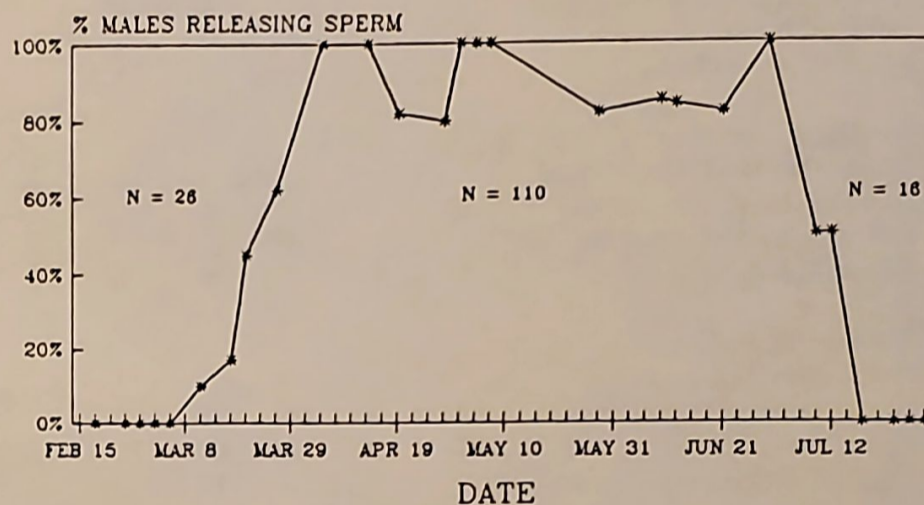


Figure 1. Graph of percent of adult male House Finches releasing cloacal sperm at CCRS through the 1987 reproductive season. Values were derived from pooling of data from adjacent dates when sample sizes were low.

the reproductive season at CCRS. This is based upon pooling of results from this period, and can be visually approximated from Figure 1. However, we can not yet be sure whether some males have only temporary pauses in sperm release, or whether male CLs lacking sperm in April-June represent continuously infertile males. Again, this reinforces the need for data from frequently recaptured and relavaged individuals, as noted above.

Second, and more striking, is that the start and conclusion of sperm release in the CCRS population were quite abrupt. The steep decline from 100% releasing sperm at the end of June to none by mid-July is especially remarkable. Previous investigations of the seasonal reproductive periods of male passerines have depended chiefly upon less direct indicators, such as changes in testis size or weight, endocrine and secondary sexual character changes, and those manifested by mating and reproductive behaviors (Murton and Westwood 1977). These kinds of criteria each have their importance, but cloacal sperm appears to be the criterion closest to the "smoking gun" of courtroom forensics.

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Regrowth of the testes in resident passerines in the spring is a gradual process, and certainly starts well in advance of sperm release. Even more protracted is the gradual reduction in testis size around and following the end of the breeding season. Data demonstrating this in the most heavily studied passerines have been published for over 50 years (Keck 1934).

Our present, and first, graphing of seasonal sperm release in a passerine (House Finch) population shows a much more sensitively and sharply timed cessation of fertility than has been demonstrated previously.

Other kinds of information about reproductive biology are available from our CLs. A survey of the male House Finch CLs shows that through late March and early April most of the males releasing sperm are in the first phase of sperm release (SRP I), and that those in very late June and early July are in the final or fifth phase of sperm release (SRP V). This is based upon data from other passerines in which multiple recaptures throughout the reproductive season show in adult males an orderly progression of qualitative and quantitative characteristics of the sperm (Quay 1986). It is likely that fertility is minimal during these first and final phases of seasonal sperm release when numbers of cloacal sperm are small.

Total numbers of sperm, and numbers of normal as well as various kinds of abnormal (and probably functionally handicapped) sperm can also be determined from these same CL slides. These more detailed kinds of analyses will provide the basis for a comprehensive and functionally important evaluation of the male House Finch population in the vicinity of the Coyote Creek Riparian Station.

#### ACKNOWLEDGEMENTS

I am pleased to thank Dr. Max Lincoln for collaboration in this project, and for his teaching and supervision of the CL technique to many of our associates and co-workers at CCRS, all of whom are gratefully acknowledged for their careful and patient work. I am thankful to Dr. Richard Mewaldt for enabling and encouraging this project, and for helpful and supportive discussions.

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The several elements in development of our CCRS Computer Center are coming together -- but not quite evenly:

1. With the help of BC Software we have in place the programs necessary for our bird banding record storage, access, and analysis.
2. We have developed the software essential to conduct our contract with the Santa Clara Valley Water District.
3. Harvey & Stanley Associates has provided us with space for our Computer Center in their Alviso offices.
4. Efforts to obtain essential funding from several local corporations have failed.
5. Our President donated the Computer desk and H&S has assigned us limited shelf space for records.
6. As time ran out we purchased, for \$2204.24, the essential minimum hardware and software from our fiscal reserve (Hunt) -- not from our Endowment Fund.
7. To maintain our fiscal health it is essential that we restore our fiscal reserve as quickly as possible. To that end we have thus far received \$650.00 (Case, Cogswell, Lincoln, Mewaldt, Rigney, Swisher) and have another \$450.00 (same people) pledged.

Thus, we need another \$1104.24 to bring our fiscal reserve, essential to maintain cash flow, back to a minimum work-a-day level. We will really appreciate your dollar assistance made payable to CCRS with note that it is for the "Computer Fund".

## BIRD BANDING TECHNIQUES CLASS

A workshop on the techniques of bird capture, identification, banding, aging, sexing, etc. is offered by Coyote Creek Riparian Station. It will include three Monday evening sessions beginning 25 January and seven (minimum) individualized morning workshops in February, March, and April. Morning sessions (dawn to noon) will be offered week-ends and week-days. Instructors will be Richard Mewaldt, Michael Rigney, Allen Royer, and other experienced CCRS volunteers. We ask a \$35 donation to CCRS (\$20 to persons already Members of CCRS). Write to CCRS at P. O. Box 2019, Alviso, CA 95002, or 'phone (408) 262-9204. Leave your name, address, and 'phone number. We will then provide registration details and meeting locations. Workshop is limited to twenty registrants. Each should already have a basic knowledge of local bird identification. Certificates of Completion will be issued to those who successfully complete the workshop.

# THE '86-87 ZONOTRICHIA SEASON

by Max W. Lincoln, M.D.

In a previous issue of RipariaNews I reported on the total number of White-crowned Sparrows banded at CCRS during the 1986-1987 season (Lincoln 1987). This article will add additional information, not only on the two local races of White-crowned Sparrows (*Zonotrichia leucophrys* and *Z. l. pugetensis*) but also on the Golden-crowned Sparrow (*Z. atricapilla*). Data from returns of previously banded birds will also be included, thus providing a more thorough treatment of the total population processed during the 1986-1987 season. Data presented in this report include the total number of *Zonotrichia* processed, their ages (when possible), the estimated sex ratios and the number of returning birds from previous seasons.

It is important to remember that the "crowned sparrow season" extends over parts of two calendar years. The "season" starts when these birds arrive at CCRS from their northern breeding grounds in mid-September and extends into the following year until April or early May. It is also important to note that some birds banded early and late in the season may not be members of our local wintering population, but are birds in passage. In the fall these birds are caught while migrating southward from their northern breeding grounds to wintering areas south of the Bay Area. In the spring we encounter many of these same birds moving north again to breed.

During the 86-87 season we processed (banded or recaptured) 1,864 individual *Zonotrichia* at CCRS. This wintering population consisted of 45% (850) Golden-crowned Sparrows (GCSP), 35% (645) Gambel's White-crowned Sparrows (GWSP) and 20% (369) Puget-sound White-crowned Sparrows.

Table 1. 'crowned sparrows banded or first returned - 1986-1987 season. Dates in parentheses are first and last encounters.

Month	GWSP	PWSP	GCSP
Sep	13 (9/22)	40 (9/10)	32 ((/20)
Oct	217	140	366
Nov	107	56	152
Dec	35	29	58
Jan	49	30	54
Feb	60	11	18
Mar	62	37	83
Apr	101	26 (4/28)	85
May	1 (5/3)		2 (5/6)
<b>TOTAL</b>	<b>645</b>	<b>369</b>	<b>850</b>

Since White-crowned Sparrows do not acquire a black and white crown until after their first prenuptial (pre-alternate) molt, ageing by plumage was possible until as late as March 1st of each year. Birds banded after March 1st with black and white crowns were classed as "age unknown". All recaptured birds which had been banded in previous years were considered to be "after hatching year" (AHY) birds.

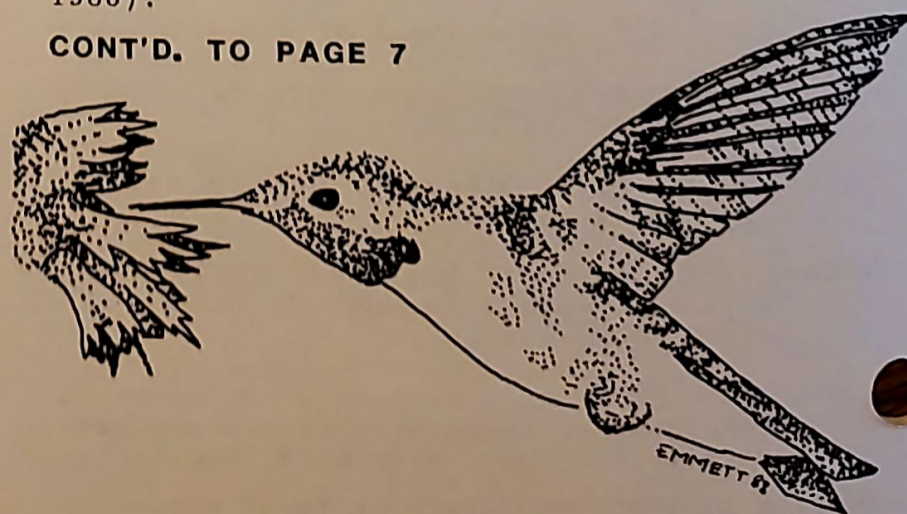
Ageing of Golden-crowned Sparrows was more difficult. It is known that some individuals complete their skull ossification as early as November 15th of their hatching year (Pyle et al. 1987), thus ageing by degree of skull ossification is unreliable after that date. The extent and degree of crown color patterns can be useful only in distinguishing older birds (Cogswell 1958). Therefore, the following criteria for ageing Golden-crowned Sparrows were used for this study. Birds with incomplete skull ossification (CCRS skull code 0-2) were considered "hatching year" (HY) birds in the fall and "second year" (SY) birds after January 1. Birds with complete ossification and blackish stripes extending above the lores (CCRS skull code 3 and Cogswell crown code 3) were considered "after hatching year" (AHY) in the fall and "after second year" (ASY) after January 1. Those individuals with black crown stripes extending to the eyes or to the forehead were also considered AHY/ASY birds.

Table 2. Ages of 'crowned sparrows captured at CCRS during the 198-87 winter season.

Taxon	Age determined		Age not determined (see text)	Total
	HY/SY (%)	AHY/ASY (%)		
GWSP	438 (80)	108 (20)	99	645
PWSP	228 (71)	94 (29)	47	369
GWSP	480	202	168	850

The males and females of the genus *Zonotrichia* cannot be distinguished by plumage differences during the non-breeding season. However, a computer program has been developed which enables us to approximate sex ratios on the basis of wing length (wing chord) differences (Mewaldt and King 1986). Since HY/SY birds have a slightly smaller wing length than AHY/ASY birds (Mewaldt 1973), for greater accuracy, the sex ratios of each age group were determined separately. It is important to note that these sex ratios are an approximation of the actual sex ratios, also accuracy is increased with samples larger than 100 (Mewaldt and King 1986).

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Male Broad-tailed Hummingbird. Illustration by EMMETT DINGEL.

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Table 3. Estimated sex ratio and wing lengths by sex, of 'crowned sparrows by age group caught at CCRS during the 1986-87 winter season.

	HY/SY		AHY/ASY	
	Males	Females	Males	Females
<b>Gambel's White-crowned Sparrow</b>				
Number	231	207	60	48
(%)	(53)	(47)	(56)	(44)
<u>Wing length</u>				
Mean (mm)	75.1	71.7	76.6	73.0
+ SD	1.7	1.9	2.0	2.2
Low	70	67	72	69
High	80	77	81	78
<b>Puget Sound White-crowned Sparrow</b>				
Number	113	114	56	38
(%)	(50)	(50)	(60)	(40)
<u>Wing length</u>				
Mean (mm)	68.9	65.9	70.2	66.8
+ SD	1.7	1.6	1.7	1.9
Low	64	62	66	63
High	73	71	74	71
<b>Golden-crowned Sparrow</b>				
Number	204	276	100	102
(%)	(43)	(57)	(50)	(50)
<u>Wing length</u>				
Mean (mm)	77.3	73.7	79.2	74.6
+ SD	2.0	1.9	1.9	1.9
Low	72	69	74	70
High	82	79	84	80

The higher percentage of male Gambel's White-crowned Sparrows encountered at CCRS was consistent with previously published studies (Mewaldt and King 1986) indicating a larger male wintering population exists in the south San Francisco Bay area. However, the percentages for each age group were lower for this study than those figures reported in the Mewaldt and King study; 53% (HY/SY) compared to 60.2 and 56% (AHY/ASY) compared to 63.8%. The increase in the male to female sex ratio (M:F) between the HY/SY and the AHY/ASY population (53%:47% to 56%:44%) was consistent with the Mewaldt and King study indicating a higher survival rate for male Gambel's White-crowned Sparrows.

Male and female HY/SY Puget Sound White-crowned Sparrows were equally represented in the population sampled at CCRS. The increase in the male to female ratio (M:F) between the two age groups (50%:50% to 60%:40%) may, as in the Gambel's, indicate a higher survival rate for males of the Puget Sound race also. However, the small sample size (n=94) and the lack of published studies on this race limit the extent to which conclusions can be drawn concerning survival rate differences.

The sex ratios in the Golden-crowned Sparrow observed in the CCRS population differed from those found in the other two *Zonotrichia* representatives. Females out-numbered males in the HY/SY birds (57% to 43%) while in the AHY/ASY population males and females were

captured in equal numbers (50% to 50%). The addition of previous years' data may enable us to determine if this situation is consistent from year to year in this species.

During the 1986-87 winter season, a total of 273 *Zonotrichia* were processed as returns from previous seasons.

Table 4. 'Crowned sparrow returning during the 1986-87 winter season from the winters of 1981-82 to 1985-86.

	Number banded	Returned 1986-87	
		Number	Percent
<b>1981-82</b>			
GWSP	87	3	3
PWSP	36	1	3
GCSP	56	0	0
<b>1982-83</b>			
GWSP	174	0	0
PWSP	46	2	4
GCSP	94	4	4
<b>1983-84</b>			
GWSP	206	1	0.5
PWSP	56	7	12
GCSP	127	8	6
<b>1984-85</b>			
GWSP	323	37	11
PWSP	73	13	18
GCSP	246	57	23
<b>1985-86</b>			
GWSP	237	25	13
PWSP	282	37	11
GCSP	350	78	22

The Golden-crowned and Gambel's White-crowned Sparrows breed in northern Canada and Alaska. The Puget Sound White-crowned Sparrow breeds in the immediate vicinity of the Puget Sound in northwestern Washington (Cortopassi and Mewaldt 1965 and Kelly 1968). Thus, a Gambel's White-crowned Sparrow banded at CCRS in the 1981-82 season has made 11 separate trips to and from its northern breeding ground. Additionally, our recapture records indicate that returning birds are first recaptured usually within the same hectare in which they were originally caught.

It may well be that the 1986-87 'crowned sparrow season at CCRS was not typical. Further analysis of previous years' banding data will provide valuable information on long-term populations trends in these important species.

## ACKNOWLEDGEMENTS

I wish to thank the CCRS banders for accurately recording all those numbers. Without this commitment to detail it would have been impossible to prepare this article. Also I am especially grateful to Dick Mewaldt for support, suggestions, computer and editorial assistance and most of all his patience.

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**NEW MEMBERS**

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

Bowen, Penelope K.	Member
Buell, Robert R.	Member
Juri, Elgin	Member
Lefkowitz, Rosalie C.	Member
Loughman, Katharine H.	Active Member
Norton, Dolores W.	Member
Royer, Jim & Celeste	Members
Wilson, Erika M.	Member
Wong, Judy	Active Member

Membership renewals are coming in very well. A few have upgraded their membership categories or have sent along an additional contribution. We are especially pleased to report that Jack L. Wallace has become a Life Member. Another of our members has made a one half down payment on his Life Membership.

**ERRATA**

Volume 2, Number 4, page 4: in A HALF DOZEN RARE ONES correct record 3 and insert new record 4:

3. Connecticut Warbler, 2 Sep., juvenile female, wing 71 mm, wt. 13.5 gr.
4. Northern Waterthrush, 3 Sep., adult, wing 78 mm, wt 16.5 g.

Renumber records 4 & 5 to be records 5 & 6.

Credit for Figure 1, page 3 should be David Johnson.

**CCRS MEMBERSHIP CATEGORIES**

Regular Member	\$15 annually
Senior Member	10 annually
Student Member	10 annually
Sustaining	75 annually
Corporate	500 annually
Life Member	500 single payment or installment plan

Life Memberships, 10% of other Memberships (including renewals), and 10% of contributions (not otherwise specified) go into the CCRS Endowment Fund now earning about \$125 per month. CCRS is a non-profit corporation with U. S. and California tax exempt status. We welcome Memorial contributions which will be acknowledged in RipariaNews. We will consider other special purpose contributions. We welcome bequests, including those of real property.

**COYOTE CREEK RIPARIAN STATION**

Coyote Creek Riparian Station is a non-profit California membership corporation with federal and state tax exempt status. CCRS is dedicated to study, restoration and management of riparian and wetland habitats. CCRS is located on limited-access land of the San Jose/Santa Clara Water Pollution Control plant along the last two miles of Coyote Creek. The Coyote Creek Riparian Station operates in cooperation with the Santa Clara Valley Water District, San Jose/Santa Clara Water Pollution Control Plant, Harvey and 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.

Board of Directors:

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- Blair O. Wolf, Biologist
- Michael D. Rigney, Editor (Volunteer)



One of 9 Saw-whet Owls captured in 1987 at CCRS. PHOTO BY DAVID JOHNSON.