



RipariaNews

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THE IMPORTANCE OF MIGRATORY STOPOVER SITES: A ROLE FOR CCRS

By Scott B. Terrill, PhD.

CCRS's study area is ideally suited for a wide array of research opportunities. One of these opportunities involves the study of different aspects of bird migration. In terms of basic science, migration is a remarkable natural phenomenon and research in the area is breaking ground on a wide front in diverse fields including genetics, behavior, physiology and ecology. In terms of conservation of migratory birds, basic research is an absolute necessity.

Of particular note is the recent observation, both in Europe and North America, that some, if not most, migrant populations appear to

Editor's Note: Dr. Terrill is a recent appointee to CCRS's Board of Directors. Scott is currently a Senior Project Manager in the Wildlife Division at H.T. Harvey and Associates. Prior to this, Scott taught at State University of New York and did postgraduate work under noted European migration expert, Dr. Peter Berthold.

be decreasing, some dramatically. Obviously, to counter these trends it is necessary to obtain basic information about migrants to better understand the factors underlying these decreases. Unfortunately, at this time, we are simply lacking even the most basic data for many of these populations. In general, we do not know: (1) the true magnitude of the decreases; (2) the degree to which various migrant populations fluctuate naturally; (3) basic ecological requirements, especially during migration and on the wintering grounds; or (4) where the forces responsible for population changes are primarily occurring (i.e., on the breeding, wintering grounds or along the migratory route). Thus, expanded research on migrants is imperative. Other countries have realized the urgency of the situation, for example, the German government has recently committed millions of dollars to operate a series of banding stations in central Europe to monitor migrant populations and to obtain basic data on migrants.

Several factors result in CCRS

being particularly well suited for research on migrants. Perhaps the most important factor is that large numbers of migrants occur at the station during both annual migration periods and thus, Coyote Creek appears to be a major stopover site for many species of birds. Riparian areas, in general, are well-known for their high value to migrating birds.

Further enhancing the value of CCRS to migrants is the fact that the riparian habitat along the creek represents an isolated "island" or "oasis" of habitat in the region (the area surrounding the creek comprises primarily South San Francisco Bay waters, marsh, agriculture, open grassland, and urban and commercial development). Thus, migrants finding themselves over the greater region at the end of a night's migratory flight are likely to head directly for the creek for daytime resting and feeding. The fact that CCRS bands the second largest number of migrants along the west coast (after Point Reyes Bird Observatory) attests its importance in this respect.

Another aspect of CCRS that

makes it ideal for research on migrants involves the structure of the habitat at the station. Because the riparian habitat is isolated and attractive to migrants, it concentrates them in the narrow bands of vegetation along the creek. Such a concentrating effect results in two benefits for migration study. First, it leads to a high proportion of migrants in the area being caught, which, in turn, leads to a large representative sample of birds (adequate sample sizes are critical for testing hypotheses). Second, the concentrating effect of the creek habitat increases the probability of recaptures of the same individual migrants. Recaptures are necessary for testing many theories regarding the importance of migratory habitats to birds (e.g., length of stay, habitat selection, rate of weight gain or loss, rate of migration, etc.).

The ecological importance of stopover sites (stopover sites are areas that are utilized by migrants en

route during migration but not for breeding or wintering) to birds remains largely unstudied. Indeed, research on the ecology of migration in general has not received much attention. For many years, bird migration research has focused on migratory orientation and physiology. This research has produced some remarkable results. For exam-

"Perhaps the most urgent challenge for basic research in avian migration involves illuminating the factors responsible for widespread declines in [migrant] populations."

ple, we now know that many migrants inherit the information required to complete a journey of up to thousands of kilometers, across unfamiliar territory, without aid from related individuals or conspecifics. The ability of birds to perform this remarkable feat is based on the fact that migratory timing, distance and

direction are all genetically encoded (although, as with any behavior, extensive interactions between genetic programs and environmental stimuli result in the overt behavior we see in nature).

More to the subject at hand, one of the outcomes of this research was the observation that migrant birds (especially long-distance migrants) often deposit vast amounts of fat to fuel their energetically expensive migrations before they actually begin to migrate. In some migrants this deposition can be extreme. For example, the Old World warbler, the Garden Warbler, can double its weight for migration.

Until very recently, it was widely considered to be the case that migratory fat deposition prior to the initiation of migration supplied enough fuel to take the migrant across its entire journey, or for substantial portions of it. Most passerines migrate at night and, if suitable habitat is available, they spend the daylight hours at stopover sites along the migratory route. Many ornithologists have traditionally considered these sites as utilized primarily for resting and drinking and that, although feeding was occurring, food availability was not of major importance due to migrants' fat stores. In fact, stopover sites were considered of minor importance relative to the breeding and wintering grounds.

In approximately the past ten years, however, research at stopover sites in both the New World and the Old World have increasingly demonstrated the potentially critical importance of these areas for migrant survival and reproductive success. Many migrants apparently rely heavily on stopover sites not only for rest



Morning fog rises from the creek corridor. Attracted by the dense vegetation, birds seek out the shelter and food afforded by the tall trees and shrubs. Photo by David Johnson

and water, but to feed and replenish fat stores as well.

Research problems associated with stopover sites are only just beginning to be explored in earnest. These research problems are important not only with respect to answering biological questions about migration, they are fundamentally important to formulating sound conservation plans for migrant populations as well. As Dr. Peter Berthold, of Germany, and I have stated in a forthcoming scientific review on recent advances in bird migration research (Annual Review of Ecology and Systematics, 1991): "Perhaps the most urgent challenge for basic research in avian migration involves illuminating the factors responsible for widespread declines in [migrant] populations. The spatially and ecologically complex life histories of migrants make elucidation of the underlying causes of these declines elusive. The apparently rapid pace at which some migrant populations are declining, coupled with a lack of basic knowledge of population dynamics and ecology, especially during migration and on the wintering grounds, makes large-scale research efforts imperative. It would appear that the most urgent information necessary for conservation of the world's migrants is data on habitat use and the full spectrum of ecological requirements on the breeding grounds, during migration and on the wintering areas.....The behavior, ecology and physiology of migrants at stopover sites and on the wintering grounds remain largely unexplored for the vast majority of species."

As we have pointed out, migrant populations may be declining due to negative impacts on the

breeding grounds, along the migratory route, on the wintering grounds or any combination of all these areas. We simply do not know, at this time, what the major limiting factors are for the vast majority of migrants. Although evidence is strong that a number of Northern Hemisphere migrant populations are declining, in many cases we are not even sure whether populations are fluctuating, rising or falling.

Basic information on migrants at stopover sites is imperative to our understanding of the system as a whole for each population of each species involved. We need information on, for example, numbers of individuals, habitat selection, length of stay, rate of weight change, physiological condition, competition for resources, predation and a number of other components of stopover biology and ecology.

An example of the importance of these kinds of data involves the European migrant, the Sedge Warbler. Sedge Warbler populations have been on the decline in Europe for some time now and various hypotheses have been put forth to account for these decreases. Light was shed on the problem with the recent discovery that Sedge Warblers at stopover sites in Italy were not depositing sufficient fat to fuel their flight across the Mediterranean and the Sahara enroute to their African winter-

ing grounds. The inability of these birds to accumulate sufficient fat levels appears to be the result of stopover habitat destruction and degradation. Sedge Warblers that do not make it to the wintering ground have a very low probability of survival.

To obtain information of this nature (and many other critical pieces of information) it is necessary to capture and examine birds in the hand; hence the importance of banding stations.

A more general example involves work done by Dr. Frank Moore and his colleagues at stopover sites along the outer banks of the Gulf Coast of North America. They have demonstrated that these stopover sites are important to the survival of many trans-gulf migrants. Only by netting and handling these birds were they able to obtain information about the condition of migrants at these sites that led them to



Systematic banding programs such as the one begun at CCRS by Dr. Richard Mewaldt in the early 1980's provide the evidence which scientists need to document population changes in migrant birds. Photo by John Delevoryas.

this conclusion. Dr. Moore's work has demonstrated that there are a number of pressures acting on migrants at stopover sites. Many of these birds arrive at the stopover sites with depleted fat reserves and must find enough food to survive and refuel for continued migration. They face unfamiliar territory and habitats and must find food, water and shelter quickly. Migrants also experience intense competition for food and other resources with residents and other migrants, especially in highly localized patches of habitat. Finally, migrants are exceptionally prone to predation during migration and therefore require the cover provided by stopover site vegetation. The fact that many individual migrants are having a difficult time in existing stopover habitats indicates an especially high potential for mortality in the absence of these areas.

The bottom line is that pressures on migrants during migration, in at least some situations, can be intense and continued reduction of stopover site habitat will only increase these pressures. Just how widespread this kind of a "crunch situation" is remains currently unknown (similar results have been found at stopover sites in northern Africa by Dr. Herbert Beibach, of Germany, and his colleagues), but analogies with riparian corridors in the southwest are obvious.

The above examples are borrowed from Europe, African and the Gulf Coast of North America. In the southwest, we know that riparian areas are extremely important to migrants because of the high numbers (relative to other habitats) and high diversities of migrants that are recorded in these habitats. However,

we need a great deal more basic information concerning the ecological importance of these stopover sites to migrant populations.

A further important role for CCRS, as a major migratory stopover site, involves migrant population monitoring (*see last issue*). A major effort is underway in North, Middle and South America to systematically monitor migrant populations using banding stations. Basic data on population fluctuations and trends are of obvious fundamental

importance to sound conservation policies.

CCRS currently has a number of years of systematic data collection on migrant populations, stopover habitat selection, physiological condition of migrants, length of stopover and other important information. Continued and expanded research on migrants at CCRS is of major importance to understanding the basic ecology, population biology and conservation of western migrants.

OFF THE WALL

THE 1991 SPRING SEASON

By Bill Bousman

I have examined the spring migration using new capture data from the Summary Board posted in the banding trailer. The Station was in operation for 26 out of 31 days in March, all of April, and only one day was missed in May.

As one might expect, spring migration (its onset and duration) is different for different species. For instance, the first Rufous Hummingbird (RUHU) was banded on 14 February will the Swainson's Thrush (SWTH) and Yellow Warbler (YWAR) migration extended into early June.

I have plotted the new capture data as cumulative captures, as in past years, and those species that show a clear migratory passage are tabulated below. For those species that come through in good numbers, the 10th and 90th percentile dates provide a good characterization of the timing of migra-

tion. For the less frequently banded species the tabulated dates are less meaningful.

In some cases, a species shows

TABLE 1. Spring 1991 Migrants - New Capture Data.

Species	No.	First	10th %	50th %	90th %	Last
RUHU	20	14 Feb	13 Mar	16 Apr	24 Apr	29 Jun
OSFL	4	24 Apr	--	14 May	--	22 May
WWPE	4	3 May	--	7 May	--	28 May
HAFL	8	20 Apr	--	22 Apr	--	15 May
WEFL	79	31 Mar	8 Apr	4 May	20 May	15 Jun
ATFL	11	21 Apr	21 Apr	15 May	25 May	6 Jun
SWTH	300	16 Apr	9 May	15 May	28 May	24 Jun
WAVI	17	20 Apr	20 Apr	14 May	19 May	24 May
OCWA	163	6 Jan	10 Apr	24 Apr	3 May	2 Jun
NAWA	5	23 Apr	--	25 Apr	--	1 May
YWAR	38	12 May	13 May	22 May	29 May	18 Jun
MGWA	8	20 Apr	--	3 May	--	1 Jun
WIWA	256	30 Mar	20 Apr	6 May	18 May	6 Jun
LAZB	6	15 May	--	19 May	--	12 Jun

an evident migratory movement, but this is combined with a wintering or residential component so the percentile dates do not necessarily reflect the actual migration. This spring there appeared to be a weak migra-

tory movement of Ruby-crowned Kinglets (RCKI) from 15 April to 1 May (7) and Hermit Thrushes (HETH) from 7 April through 15 May (57). More clearly seen were movements of the two Yellow-rumped Warblers. Myrtle's Warblers (MYWA) passed through from 22 March to 22 April (19) while Audubon's Warblers (AUWA) were somewhat later, 27 March to 26 April (76). Primarily migratory Common Yellowthroats (COYE) were captured from 31 March to 2 May (68).

The top five migrants this spring were Swainson's Thrush with 300 new captures, Wilson's Warbler (WIWA) with 256, Orange-crowned Warbler (OCWA) with 163, Pacific-slope Flycatcher (WEFL) with 79 and Yellow Warbler with 38. The top five ranking is the same as last year except that Pacific-slope Flycatcher replaced Rufous Hummingbird in the fourth spot. In most years, Pacific-slope Flycatcher does not show an evident migration, but this year it did. Compared to the previous three years, the top five migrants all showed an increase in numbers banded with the 49% increase in Swainson's Thrush, the 147% increase in Wilson's Warbler, and the 204% increase in Orange-crowned Warbler particularly striking.

Several local observers felt that the spring of 1991 was delayed with many late arrivals. It is interesting that the 10th percentile dates for Orange-crowned and Wilson's Warblers, which are normally early migrants, were delayed by 17 and 5 days respectively compared to previous years. However, the 50th and 90th percentile dates were the same as in previous years, which suggests

that the migration was delayed during the early part of the season, but once things warmed up (or whatever happened) the birds came through in a rush. This hypothesis is further supported by the later migrants, the Swainson's Thrush and Yellow Warbler, whose 10th, 50th, and 90th percentile dates were within one day of the average date of previous years.

We had a mixture of the rarer migrants this year. Two Calliope Hummingbirds (CAHU) were caught on 5 May. Two Willow Flycatchers (WIFL) were captured, both on the exceptionally early date of 5 May. A Gray Flycatcher (GRFL) on 1 May was our only record in recent years. Three Solitary Vireos (SOVI) were banded with the dates ranging from 25 April to 12 May. A single Hermit Warbler (HEWA) on 21 April was unusual for the Station and a male Yellow-headed Blackbird (YHBL) banded on 30 April was a first.

Most exceptional, however, was the passage of Hammond's Flycatchers (HAFL) at the Station. Since 1986, we have encountered only one bird in the spring, while a total of 10 have been banded in the fall. The eight we banded this year suggests that their migration was significantly thrown off course. One of these migrants was recaptured on 12 June leading to speculation that

this bird was overwintering locally, rather than contributing to the species' gene pool on the breeding grounds in the Sierra. We don't know what environmental or behavioral factors triggered this peculiar movement of Hammond's Flycatchers. Did they migrate to their breeding grounds and find the season so delayed that food resources were low? Was there a major weather pattern which shifted them off course (and lasted from 20 April to 15 May)?

First records of note locally for returning residents were Black-chinned Hummingbird (BCHU) on 7 April (the earliest arrival in the last five years), Allen's Hummingbird (ALHU) on 8 March (late), Black-headed Grosbeak (BHGR) on 1 May (late), and Northern (Bullock's) Oriole (BUOR) on 7 May (late).

Late departures of wintering species include Ruby-crowned Kinglet on 1 May, Yellow-rumped (Myrtle) Warbler on 12 May, Yellow-rumped (Audubon's) Warbler on 14 May, Savannah Sparrow (SAVS) on 2 May, Fox Sparrow (FOSP) on 18 April, Lincoln's Sparrow (LISP) on 2 May, Golden-crowned Sparrow on 14 April, White-crowned (Puget Sound) Sparrow on 21 April, and White-crowned (Gambel's) Sparrow on 5 May.

BANDING STATIONS COMPUTERIZED

By Michael Rigney

At long last all three banding stations are now computerized thanks to a grant from IBM Corporation and the Bleitz Wildlife Founda-

tion. Dr. Alex Aiken, an IBM employee, one of our active banders at the Creek and a volunteer on the IBM - Almaden Research Facility's Bluebird Trail, sponsored our Community Service Grant application for

2 PS2 Model 30 computers. These new computers compliment our other banding station computer and our main data storage computer paid for by an earlier grant from the Bleitz Wildlife Foundation.

We now have the capability of entering banding data at the time of banding rather than waiting to enter data afterward. "This will now give us more time to do error-checking, schedule submission, and analysis", commented Rita Colwell, CCRS Data Manager. We wish to thank Alex and his co-workers at IBM for helping us realize our goal of direct data entry.

Our next step is to connect the separate computers in a "Local Area Network" (LAN) to allow each station access to our complete database. We have now entered new capture and recapture data back to 1987 on our main computer, again, thanks to funding from

the Bleitz Wildlife Foundation.

We're busily working on 1986 data.

We currently have the vital statistics of nearly 50,000 birds readily accessible. At the touch of a few buttons, we can view the capture history of a returning White-crowned Sparrow or determine whether the old band with the unfamiliar prefix on a Black-headed Grosbeak is one we banded or have encountered in the past. With a few additional keystrokes we can determine the variation in wing length of the thousands of Swainson's Thrushes banded within the last several years and whether wing lengths seem to be correlated to age or sex classes.

In short, CCRS volunteers and staff have convenient access to the kinds information necessary to examine many topics related to migration, longevity and habitat selection of birds within our study area.

ANOTHER EAGLE SCOUT PROJECT AT CCRS

By Michael Rigney

Some of you may recall the article in the *RipariaNews* Volume 6, Number 1 which described the efforts of David Glover and his Boy Scout troop to establish a native plant garden at CCRS. David's brother Matt, together with the same hearty band of Scouts, completed yet another project at CCRS. This time the boys built and erected metal placards at each one of our netlanes. Each placard, painted a bright fluorescent pink for high visibility, has the net number neatly printed on the front. No longer

need we guess or try to find the faded paper tags with the all-important net location. As a matter of fact, these signs are hard to miss!

In addition, David made enough signs (this time painted a milder yellow) to mark our 100-meter census plots. All you census volunteers now have no excuse for not being at the right spot to do your morning counts.

After completing the census trail and net markers, the troops still had some time (and energy) left to tackle some badly needed trail maintenance at the northern end of the riparian corridor.

All of us at CCRS would like to thank Matt and his troop for their excellent work at the Station. We hope that other scouts would see the opportunity to conduct Eagle projects at CCRS. I have a list several pages long of potential projects which would qualify for either Eagle or Merit Badges. If you know of a Scout in search of a project, let me know.

JOURNAL DONATIONS

By Michael Rigney

In the last issue of *RipariaNews* we appealed to members for donations of journal subscriptions. I am pleased to report that this appeal has been generally successful. We now have regular subscriptions to *The Auk*, *The Condor*, *Journal of Field Ornithology*, the *North American Bird Bander*, and *Western Birds*. For their generous donations I would like to thank, Fran Mewaldt, Grant and Karen Hoyt, and Ruth Troetschler.

We are still in need of someone to support subscriptions to *Wilson's Bulletin* and *American Birds*. If you already subscribe to these journals and would not mind having them delivered and used by volunteers and staff at CCRS please submit a change of address to the appropriate membership secretaries. If you do not subscribe to the needed journals but would like to contribute a subscription please call the Station office and we'll take care of it from there.

THE IMPORTANCE OF RECAPTURE DATA

By Rita Colwell, Data Manager

At CCRS after we band a bird, we often catch the same bird a second time, or even several times. We call this a recapture. Recapture data at CCRS is a valuable source of a variety of information.

It is used in reports to Santa Clara Valley Water District, in David DeSante's Monitoring Avian Productivity and Survivorship (MAPS) program, and in Max Lincoln's work at CCRS analyzing the wintering White-Crown sparrows populations. These data also help substantiate trends and changes in bird populations. They provide information on how birds utilize the habitat, even if they are just migrating through (*see Scott Terrill's article on the importance of migratory stopover areas.*).

Information gathered recaptures provide us with additional clues to the bird's age, the type of vegetation it prefer, its health, and (if it stays around long enough) the location of their territory.

In 1986 CCRS caught 4,199 birds which had been previously banded; in 1987 there were 6,179 recaptures; in 1988, 6,099 recaps; in 1989, 6,508; and in 1990 there were 4,352 recaps. The decrease in 1990 was largely due to a decrease in trapping effort during the winter.

Although the majority of our recaptures involve local wintering or resident species, occasionally some interesting recaptures of migrants provides us with tantalizing glimpses into a bird's life history. This past spring an adult male Black-headed Grosbeak with an old band was caught on May 19. This bird was

originally banded at CCRS in June 1986 as an adult. It was recaptured in 1987, and not again until 1990. Black-headed Grosbeaks breed throughout the western states. Nests, built by the female, are found in deciduous bushes or trees, usually in riparian woodlands. Both male and female birds brood. Male birds begin their southward migration in mid-July; the females and young remain until about the middle of August. They winter in southern Baja California and western Mexico. This particular Black-headed Grosbeak, (band number 0912-81335) was at least a six year old bird that survived several seasons of breeding and migration.

Another interesting bird we recaptured in 1991 was a female Black-chinned Hummingbird, X51160. It was banded May 31, 1987 as an adult. The bird was not captured in 1988 or 1989, but was recaptured in 1990. This tiny hummingbird managed to survive the many hazards that can end a small bird's life; accident, disease, migration. Hummingbirds have a very high metabolism and must feed frequently. Loss of food supply by extreme cold or habitat reduction can cause high mortality. The migratory route of Black-chinned Hummingbirds can take them as far north during the breeding season as southwestern British Columbia. Their winter range extends from Baja California to central Mexico. This hummer may have been migrating through or may have been the female that built her nest at CCRS to establish the first confirmed breeding record of a Black-chinned Humming-

bird in Santa Clara County.

In 1986 CCRS banded 481 Song Sparrows. One of those sparrows, band number 2040-94133, was a hatching year bird. It was recaptured twice in May of 1987 in breeding condition and because of a well developed cloacal protuberance, it was classified as a male. In 1988 the bird was caught twice, then once in 1989, three times in 1990, and twelve times in 1991 between February and June. Until 1990, it's territory centered around net lane 8900, having been caught there four times. Since 1990, however, it has been netted ten of fifteen times at net lane 9330. Why a territory change of 430 meters? One obvious reason could be the disruption of habitat caused by the flood control project which started in 1989. Have there been other species or individuals displaced?

A Puget Sound White-crowned sparrow was banded as an after hatching year (AHY) bird in November 1984. This bird has been recaptured at CCRS every year since, making this individual at least eight years old. In a published study of over 200,000 white-crowned sparrows banded between 1920 and 1963, and of almost 200 recoveries, the average age proved to be just over one year. Our CCRS sparrow has proven itself extremely successful in survival. Hopefully banders this winter will again process PSWS 1341-54422.

This past year CCRS has recorded capture of several "foreign" birds, i.e., birds banded at some other location. While we probably have had foreign recaptures in the

past, this year's concentration on computerizing past recapture data, combined with banders' growing awareness of "unusual" band sequences has had its rewards. The most noteworthy has been the recapture of a Bullock's Oriole in June which was banded on the Farallon Islands by Point Reyes Bird Observatory in 1987. Also of interest are several birds banded at San Francisco Bay Bird Observatory and recaptured at CCRS: a House Finch captured on July 10, 1991 banded in September 22, 1984; a Red-winged Blackbird banded March 24, 1983 caught in March of this year; and a Lincoln's Sparrow caught December 28, 1990 which was banded September 25, 1985.

As you can see our recapture data provides interesting information about the bird population at Coyote Creek Riparian Station.

BAND RECOVERIES

The Bird Banding Laboratory in Laurel, Maryland has notified us of the following recoveries of birds banded at CCRS.

Mourning Dove 1353-14145

banded June 6, 1988 by Dick Mewaldt. It was recovered in San Jose on September 1, 1990.

Mourning Dove 1253-52789

banded May 30, 1990 by Rita Colwell. It was recovered in San Jose on July 5, 1990.

Mourning Dove 1303-34272

banded July 23, 1990 by Bruce Katano. It was recovered in Alviso on December 9, 1990.

Bullock's Oriole 8001-98271

banded June 26, 1990 by Jane Starbird. It was found dead in Newport Beach on April 15, 1991.

Swainson's Thrush 1421-11920

banded May 23, 1989 by Dick

Mewaldt. It was found dead in Beaverton, Oregon on May 24, 1991.

This is a second recovery of a CCRS Swainson's Thrush in Oregon, the first was found at Haynes Inlet in August, 1989.



Female Bullock's Oriole banded on the Farallon Islands in 1986 and recaptured at CCRS in 1991. Photo by Tom Goodier.

BIRDING CLASSES

Two classes for persons interested in learning more about birds and sharpening their identification skills, will be offered by Sequoia Adult School. The classes will be taught by Maryann Danielson, biologist, tour leader, photographer and CCRS bander. For further information, call (415) 369-6809.

BIRDING BASICS - for beginning and intermediate birders.

The fall quarter of this lecture/field trip series will concentrate on basic avian biology and identification, and natural history of our fall waterbirds. Ten slide lectures, starting Wednesday, September 11, will be held at the San Carlos Senior Center at 601 Chestnut Ave., San Carlos. Register at the first class. Fee: \$25 (lecture only). Field trips

will be arranged with an additional fee.

FOLLOWING BIRDS THROUGH THE FALL SEASON - for intermediate and more advanced birders.

Major bird groups to be found in Northern California during the autumn months will highlight this fall lecture/field trip series. The identification and natural history of lingering summer birds and returning shorebirds, warblers, seabirds and waterfowl will be covered. Ten slide lectures, starting on September 9, will be held at Little House, 800 Middle Ave. Menlo Park. Register at the first class. Fee: \$25 (lectures only). Field trips will be arranged with an additional fee.

SFBBO OPTICS SHOW

The San Francisco Bay Bird Observatory and the Golden Gate Raptor Observatory wish to announce the **THIRD ANNUAL SCOPE AND BINOCULAR SHOW** to be held on **Sunday October 27, 1991 at Ft. Mason** in San Francisco. It will open from **10:00 AM to 4:00 PM** and will feature all the major manufacturers as well as ongoing lectures and workshops on gull, shorebird, and hawk identification and the care, feeding and selection of optical equipment. The show is open to the general public with an entrance fee of \$3.00. There will also be a drawing with door prizes for which you need not be present to win. So if you're still trying to decide on your first pair of binos, thinking of moving up a notch in quality, or want to buy that scope for the birder who has everything, come to the show. For more details please call SFBBO at (408) 946-6548 or GGRO at (415) 331-0730.

CCRS ANNUAL MEETING

By Michael Rigney

CCRS will hold its fourth Annual Meeting on September 28, 1991 at the San Francisco Bay National Wildlife Refuge's Environmental Education Center in Alviso. A preliminary meeting of Active Members will take place at 8:30 to elect three members to the Board of Directors. The General Meeting will commence at 9:00 with a report on the year's activities by the President of the Board. Brief presentations by various committee members will follow the President's "State of the Station" address. To round out activities

at the Education Center, a slide show of important events at the Station will be given by the Station Manager.

We will then adjourn to Coyote Creek Riparian Station for a catered lunch (generously provided again this year by Elsie Richey) and tours of the various ongoing projects.

A focal point of the afternoon's festivities will be the dedication of a plaque placed in honor of Dr. L. Richard Mewaldt under the big coast live oak which dominates the new riparian revegetation site. We hope that all of you who have not visited CCRS in a while will plan to come so that you can see our new facilities and share in our excitement for the future. The meeting will conclude at approximately 3:00 PM. See you there!



AREA ENLARGED BELOW



CENSUS COORDINATOR WANTED

By Grant Hoyt

For CCRS volunteers who would like to be involved in a bird-related project other than bird-banding, the riparian and wetland bird census provides an opportunity for gathering valuable data while enjoying outstanding birding. Many species that are seldom, if ever, captured in our nets and traps including Peregrine Falcon, Golden Eagle, Green-backed Heron, Spotted Sandpiper, etc. are tallied by bird censusers. Large and varied numbers of sparrows, warblers, flycatchers, raptors, shorebirds, ducks, and herons may be seen in one morning's work along Coyote Creek and the adjoining wetlands and ponds.

After three years of semi-regular censusing by several volunteers, the data are beginning to accumulate at an alarming rate. A census coordinator is needed to help with data entry and analysis as well as scheduling and general organization of the project. If you are interested in helping with bird censusing in any capacity, please call Mike Rigney at the Station or call Grant Hoyt at (415) 969-7892.

NEW MEMBERS

We welcome the following new members who joined CCRS in last few months:

Emily Buffon	Active Member
Michael & Lynn Cropper	Supporting Member
Bonnie Doran	Member
Shawneen Finnegan	Member

Carolyn Gates	Member
Robin Kadel	Member
Jennifer Laursen	Member
Lance Lollini	Active Member
Marcia Kelmer	Active Member
Jeff Keimer	Active Member
John Mackensie	Active Member
Br. John O'Neill	Active Member
Janet Pasternak	Active member
Chris Persinger	Active Member
Marilyn Scott	Active Member
Kristin Shields	Active Member
Martin Sidor	Active Member

We would like to thank **Tom Goodier** and **Grant and Karen Hoyt** for becoming our newest Life Members. Tom has been the faithful "Chief of the Day" on Sundays for several years now. The Hoyts have been loyal CCRS supporters since our inception and Grant serves on our Board of Directors.

MEMBERSHIPS IN CCRS

Member	\$20 annually
Senior or Student	15 annually
Family	25 annually
Supporting	35 annually
Sustaining	90 annually
Corporate	100 + annually
Life	500 single pay.*
Patron	5000 single pay.*

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

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.

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, 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.

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