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Tiger Salamanders Studied at Stanford

by Michael Westphal and Richard Seymour

The California tiger salamander is a large (to eight inches) stocky salamander native to the valleys and foothills of central California. With its striking pattern of white spots on a black back-ground it is easily recognized, yet it is rarely seen. This is due in part to its habit of spending most of its life underground in rodent burrows, migrating to breeding sites in temporary pools and streams on nights of heavy rain.

Another reason for its elusiveness is more ominous. The past century has seen the salamander's habitat largely destroyed by agriculture and development. What little remains is threatened by California's growing need for housing and industrial development. Thus, the species is currently under consideration for endangered species listing by the U.S. Fish and Wildlife service. If the listing is approved, the CTS could be to California's oak

woodlands and grasslands what the Northern spotted owl has been to northwest old-growth forests.

The habitat requirements of the California tiger salamander make the species particularly vulnerable. First, their preferred habitat, grassland and open oak woodlands in valleys and foothills, is also preferred by humans for agriculture and urban development. Second, they have specific habitat needs which are easily disrupted.

They breed mostly in ephemeral wetlands that form during winter and spring rains, where their larvae feed on the insects and crustaceans in the absence of predatory fish. Filling or draining of these pools can eliminate an entire breeding population. They also need upland aestivation sites, where they find refuge in the burrows of ground squirrels and other mammals as much as a mile from the breeding site. Upland habitat is degraded by grading, paving and rodent poisoning.

For many years the California tiger salamander (or CTS for short) was considered a subspecies of the widespread North American species *Ambystoma tigrinum*. Dr. H. Bradley Shaffer at the University of California at Davis has analyzed genetic data indicating that this animal warrants full species status as *Ambystoma californiense*. Dr. Shaffer has been a strong advocate of the CTS gaining Federal protection under the Endangered Species Act. Upon completing his comprehensive survey of California tiger salamander localities, he submitted a petition to the United States Fish and Wildlife Service in 1992 to have the salamander listed as an endangered or threatened species.

California tiger salamanders were a news item in 1992 when several adults were sighted crossing Junipero Serra Boulevard at Lake Lagunita on the Stanford University campus (Dr. Shaffer had found larvae in the lake the previous year.) These salamanders represent a population which was believed to have gone extinct in the late 1970's

and which now may be the only population remaining on the San Francisco peninsula. Coyote Creek Riparian Station came onto the scene when Stanford University hired the station to evaluate the effects of a planned student housing development on the salamander's long term survival at Stanford.

Review of the literature showed a surprising lack of information on California tiger salamanders. This may be partly due to this species of salamander having been regarded as a subspecies of *Ambystoma tigrinum*. Because most of their above ground activity occurs at night during periods of heavy rainfall, these are difficult animals to study. Little is known about their migration behavior and upland habitat requirements.

As the winter rains (which would bring forth the migrating salamanders) approached, CCRS biologists worked out an ambitious research program to address the immediate issue of the housing project and provide data concerning the long term survival of the population and the conservation of the species. Methodologies were chosen which would minimize our impact on the salamanders: labor intensive searches were chosen over trapping and a dorsal pattern recognition system was employed to identify individual animals rather than the accepted method of 'toe clipping'. A ten person crew was organized and trained. Field workers mobilized on short notice from as far away as Santa Cruz when weather conditions were deemed optimal for salamander activity. In addition to collecting data, volunteers helped "herd" salamanders across busy Junipero Serra Boulevard, where, in spite of many hours of patrolling,

over a hundred salamanders were killed by cars this year.

For the next three months Coyote Creek personnel watched the weather. Forecasts were read every morning and evening and the sky

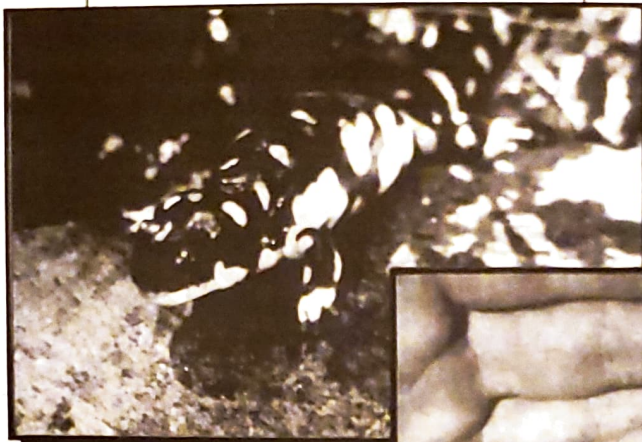


Figure 1. Adult California Tiger Salamander. Photo by Mike Westphal.

was scanned from the top of the levee at CCRS (luckily the view of the sky over the valley from the banding laboratory is spectacular).

Whenever a storm seemed imminent, personnel would be called, data sheets copied, and equipment (six-volt lanterns, raingear, grease pencils, ziploc bags and headlamps) gathered. The weather at Stanford was particularly frustrating in that a "rain shadow" seemed to hover over the lake: even when rain was coming down in every part of the Bay Area, Lagunita remained dry. When the rains did come, they presented another challenge: that of recording data and organizing field workers under conditions of darkness and downpour.

All during the fall, CCRS had been monitoring the outward migration of juvenile salamanders from the immediate environs of the lake beginning with a large

midsummer migration on June 29. A slow trickle of adult male salamanders entered the lake during the last weeks of December. Then, on January 6, a huge migration of males and gravid (egg-laden) females pulsed across Junipero Serra Blvd. CCRS volunteers and staff rushed to save salamanders from oncoming cars while simultaneously recording their dorsal spot patterns. Among these first captures were the only two adults that would be recaptured that winter. Over



Figure 2. Juvenile California Tiger Salamander captured during a transect count around Lake Lagunita, Stanford University. Photo by Mike Westphal.

forty adults salamanders were seen that night.

During the ensuing rainy months the survey developed a stride; eventually eight surveys were completed out of a hoped-for ten. The final results of the plot surveys showed low capture rates (from 2 to seven salamanders per 1 hectare plot in 3 hours of searching), low occurrence of adult salamanders on plots relative to numbers of juveniles, and persistent activity of juveniles throughout the winter. Transect surveys of the lake's perimeter revealed increased activity along the south east margin of the lake. The reason for this is not known; it may be that, because a warm shallow marsh develops at that end of the lake, increased

there. Although activity was higher at the marsh end of the lake, transects and incidental sightings suggested that juveniles essentially migrate outward in all directions from the lake, potentially colonizing any suitable habitat within a 500 meter radius of the breeding pond. Inward migrating adults were seen along Junipero Serra Blvd. but were also noted on the west and north-east margins of the lake, suggesting fragments of terrestrial habitat remain in those directions. Recaptured salamanders, which were identified by their dorsal spot pattern, were found to have moved as much as 47 meters in less than two hours and as little as 6 meters in 28 days. One juvenile salamander was seen five times over a period of two months on the site of the proposed housing development.

The results of CCRS' study helped convince Stanford officials not to build on the parcel adjacent to the lake. The data gathered has also been used to advise Stanford on other building projects, such as the installation of a reclaimed water tank on salamander habitat near the lake and construction of lights at a nearby driving range. The study provided positive publicity for CCRS and has established CCRS as an authority on California tiger salamanders. At the request of local citizens, CCRS is advising the Town of Los Gatos on a piece of property slated for development where California tiger salamanders may be present. CCRS biologists continue to seek out populations of California tiger salamanders and may help save important parts of Santa Clara Valley riparian and grassland habitat by documenting the presence of salamanders in areas threatened by urban expansion. California tiger salamanders, and what remains of their fragile vernal pool habitats, are threatened by continued growth in



Figure 3. California Tiger Salamander breeding habitat at Lake Lagunita on the Stanford University campus. Temporary lakes such as this are prime breeding habitat for these salamanders because of the lack of predatory fish. However, most such seasonal lakes in central California have been drained or converted in such a way as to preclude breeding. **Photo by Mike Westphal.**

many areas, including Coyote Valley, Livermore Valley and the Gilroy area.

In recent years, wildlife biologists and conservationists have become increasingly interested in amphibians. There is evidence of a worldwide decline of frog and salamander species. Amphibians often are viewed as 'indicator species' because their vulnerability to environmental factors and their complex habitat requirements make them good indicators of the overall health of an ecosystem. In central

California, the California tiger salamander and the California red-legged frog (recently proposed for Federal listing) are playing an increasing role in conservation issues. With the 1993 Stanford salamander project, CCRS showed its willingness to advance our knowledge of the role of amphibians in riparian environments and showed itself to be a pioneer in recognizing the significance of reptiles and amphibians in habitat conservation and restoration here in the Santa Clara Valley and throughout California.

Levee Plant Study

by Carol Hankermeyer

Since 1992 CCRS has been conducting an experimental revegetation project on the eastern-facing levee slope below the station trailers. The purpose of the project is in general keeping with CCRS goals to establish and nurture wildlife habitat. The levee slope is an area of 16,030 square feet, about 30 feet wide and 458 feet long. It was constructed in 1988-1989 as part of a flood control measure enacted by the Santa Clara Valley Water District (SCVWD). Considering that the disturbed levee bank attracted many non-native opportunists, including invasive annual grasses, the planting project has produced encouraging initial results. The

challenge now to CCRS is how to promote continued native plant establishment and eliminate exotics, eventually achieving an all-native plant community.

In the fall of 1992 the weeds were mowed and raked. The levee bank was sowed with a seed mix purchased from Pacific Coast Seed Company with some seed donated by the SCVWD. The seeds of 30 different grasses, forbs, and shrubs were broadcast manually by volunteers. Then the area was left to grow on its own with no further maintenance.

In April 1993 an analysis was begun on the plant composition of the levee bank to evaluate the success of the project and determine which species were the most successful. Later surveys on June 1 and June 24 produced data on slower-growing native perennial grasses and late-blooming forbs. The native grasses were very limited in number and appeared mostly on the end sections of the slope, where it was dry and the soil was very poor, and thus competition with European annuals was less. Relatively successful wildflowers were bird's eyes, goldfields, phlox, and especially common spikeweed, which had been brought in from Revegetation Site #2, the flat area to the east of the levee slope.

Ongoing maintenance will be required to ensure the continued flourishing of native plants on the levee slope. Control of annual grasses is tops on the list of essential activities since their early rapid and aggressive growth pattern inhibits perennials. A combination of techniques is recommended to achieve optimum results. Consistent mowing in early spring prior to seed set and before native grasses get

going has proven effective in other exotic control projects. The critical factor is to stay on schedule and time the mowing according to grass development which in turn is governed by the weather patterns of any given year. Another technique which can be used effectively in conjunction with mowing is spot application of glyphosphate herbicide (*Rodeo* or *Roundup*) when only annual grasses are emergent. It must be applied professionally to avoid contact with desired vegetation such as the early wildflowers. Since both these herbicides break down rapidly upon contact with the soil, they are no threat to aquatic life, according to Cindy Roessler of SCVWD.

Other invasive plants that must be contained and ideally eliminated are poison hemlock and thistles, especially yellow starthistle, which will dominate if not consistently controlled. Since the latter bolts later in the summer season and remains

green after other annuals have turned brown, it is easy to identify and pull by hand. A second mowing of the slope may help deter the spread of this pest. Herbicide application would need to be done with great care since perennial grasses also grow later in the season.

There is good reason to be optimistic about the results of the experimental levee slope revegetation project, recognizing it has been in progress only one season and has had to combat an already well established exotic plant community. Since most of the planted species are represented on the site, the original seed mix seems appropriate and promises to provide good wildlife habitat if given a chance to prosper. The ultimate success of the project will depend on the sustained efforts of CCRS personnel and volunteers.



Native Plant Profile



Western Goldenrod (*Solidago occidentalis*)
a, flower branchlet; b, leaf x 1/2; c, head x 2; d, flower ray x 4; e, achene and pappus x 4.

Western Goldenrod

(*Solidago occidentalis*)

Western Goldenrod is a tall, perennial herb common to marshes, stream beds and river banks throughout California on the western side of the Sierra Nevada. This is one of our most abundant native plants in the riparian corridor at CCRS. In 1992 ten setback areas planted by CCRS volunteers under contract with the Santa Clara County Water District included a large number of Western Goldenrod plants. However, the herb has also successfully inhabited the overflow channel on its own.

The stems are woody at the base, arising from creeping rhizomes. They are simple and erect, 3-5 feet high, branching above and terminating in many small flat clusters of bright yellow flower heads. Each head is composed of 16-20 ray flowers surrounding 8-14 disk flowers. The leaves are alternate and entire, 1-4 inches long and quite narrow. The plant blooms in late summer and early fall and attracts many butterflies.



The 1993 Spring Season

by Bill Bousman

The station was in operation every day during the spring months of March through May except for 17, 24, and 26 March and 17 Apr. I have tabulated the passage dates of our regular migrants in Table 1 below based on the Summary Board records of new captures.

Compared to the seven previous springs most of our migrants were early. Yellow Warbler

Table 1. Spring 1993 - New Capture Data

Species	No.	First	10th %	50th %	90th %	Last
RUHU	82	7 Feb	19 Mar	11 Apr	15 Apr	27 Jun
WEFL	46	19 Mar	4 Apr	12 May	9 Jun	26 Jun
ATFL	6	3 May	-	23 May	-	6 Jun
SWTH	186	16 Apr	4 May	14 May	24 May	11 Jun
WAVI	4	1 May	-	3 May	-	16 May
OCWA	49	1 Mar	19 Mar	21 Apr	12 May	29 May
YWAR	17	10 May	11 May	17 May	24 May	30 May
WIWA	75	22 Mar	15 Apr	5 May	19 May	9 Jun
WETA	4	23 Apr	-	14 May	-	25 Jun

(YWAR) arrived seven days early (as compared to the seven-year means) and Rufous Hummingbird (RUHU) and Swainson's Thrush (SWTH) four days early. Of our common migrants, only the Pacific-slope (Western) Flycatcher (WEFL) appeared to come through later than usual. The five migrants captured in largest numbers were, in rank order, Swainson's Thrush, Rufous Hummingbird, Wilson's Warbler (WIWA), Orange-crowned Warbler (OCWA), and Pacific-slope Flycatcher.

Table 2. Arrival And Departure Dates For 1993

Species	Arrival Date	Departure Date
BCHU	7 Apr (21e)	
ALHU	14 Feb (7e)	
RCKI		30 Mar (22e)
HETH		22 May (6l)
MYWA		13 Apr (1l)
AUWA		29 Apr (3l)
BHGR	22 Apr (5e)	
FOSP		5 May (16l)
LISP		1 May (0)
GCSP		28 Apr (2e)
PSWS		16 Apr (14e)
GWCS		25 Apr (7e)
BUOR	16 Apr (7e)	

Arrival dates for birds that summer along Coyote Creek and departure dates for those that winter here are shown in Table 2. In parentheses I show the number of days that this date is early (e) or late (l) compared to 1986-92 data.

Most of our summer resident species arrived early again this year. The last of our Ruby-crowned Kinglets (RCKI) was captured on 30 Mar - we band a few of this species at the station in early May in some years. A Fox Sparrow (FOSP) was untypically late, while our White-

crowned Sparrows, the Puget Sound race (PSWS) and Gambel's race (GWCS) departed earlier than usual.

We had a good mix of the less common birds this spring and one knock-down rarity as well. On 2 May we banded a Calliope Hummingbird. We capture this species right about the end of April or in early May about one year in two. Three Hammond's Flycatchers were banded this year, one each on 16, 21, and 24 Apr. A bird was also seen here on 17 Apr by Steve Rottenborn. This mountain forest *empid* was also banded in good numbers during the spring of 1991, but prior to that we had only one spring record. It was a good warbler spring at the station. We banded three Nashville Warblers, one on 18 May and two on 24 May. A Hermit Warbler banded 25 Apr is rare for the station where we have only one previous spring record. A Northern Waterthrush was captured 2 May and re-captured the next day as well. This bird was still along the creek on 5 May (Steve Rottenborn, Mike Mammoser). This species is rare anywhere in the county. Two MacGillivray's Warblers were banded on 15 May. We have banded this species in five of the previous seven springs. The big excitement of the season was a lovely male **Hooded Warbler** that was captured on 23 May and was also seen the next day about a mile upstream (Scott Terrill). There is a previous record for this eastern vagrant although I have not seen the documentation.

The warbler spring was rounded out with a Yellow-breasted Chat banded on 3 May and seen along the creek on the next two days (Mike Feighner, Steve Rottenborn).



The Birds of Santa Clara County



by Bill Bousman
(© August, 1993)

What Makes a Record Valid?

Bird observations, the dates seen, the location, and the observer make up the records that are used for a checklist, but what makes a record valid? An interesting local example is a Sacred Ibis that showed up at the Sunnyvale Water Pollution Control Plant in late 1991. It was first reported by Mike Mammoser who provided a detailed description including the information that the ibis had a band on its left leg. This bird was seen occasionally in the Alviso area during the next few months and when summer came, it started showing up in the Mountain View and Palo Alto area. I started receiving numerous reports of the bird at that time, some correctly identifying the bird as a Sacred Ibis, but most of my reports indicated that the bird was a Wood Stork.

It was clearly not a Wood Stork, a bird that is twice the size of the Sacred Ibis, but the Wood Stork is the only bird pictured in the North American field guides that has this distinctive black and white pattern. Some observers I talked to were unsure of their identification, but had hit upon Wood Stork because they couldn't find anything else in their field guides. Others, however, were positive as to what they had seen, even to describing the bird as the size of a Great Blue Heron.

The reports sent to me for this zoo escapee present the two problems that occur in trying to determine whether a record is valid. First, is the identification correct and, second, is the occurrence of the bird natural? Although there was disagreement as to the identification of this bird when it first showed up in the Mountain View area, these differences were resolved within a week or two. As to the second problem, the Sacred Ibis is a sedentary species ranging from Australia to Africa and it is hard to think of a way that this species could arrive in California without man's assistance. The clincher in this case, I think, is that the bird was banded.

But what does one do with the report of a rare bird in the local area? If I receive a detailed description or I am familiar with the observer and confident in their observation skills I may enter this record without further thought. For a truly rare species or one that has not been recorded in the county before I will try to obtain a written description, sketches, and photos. If the identification is questionable I will pass the description on to some local experienced birders who can advise me as to the validity of the record. Finally, for a special class of rarities, those birds on the state review list, I will either forward the information to the California Bird Records Committee (CBRC) or ask the observer to send their report to the committee. This committee includes some of the most experienced birders in California and they have established a formal review procedure for rarities in California.

The CBRC reviews species for which there are fewer than 100 records in California and of which fewer than four are found in any year. The committee members are all volunteers and put their time into this effort because of their desire to see adequate documentation for all rarities recorded in California. I use the determination of the CBRC for any species found locally that are on the California review list.

Not all birds can be identified. Sometimes the observation is too brief, or sometimes the identification problem is too difficult to be certain of the species. The basic rule of identification is that it must be correct beyond a reasonable doubt. There are no 50% identifications or even 99% identifications. Each of us have, for one reason or another, failed to obtain a positive identification of some rarity and have had to let it go. It is frustrating, but it is the only way to keep our local distributional records accurate.

If you do run into a rarity locally, a bird you've never seen before, take lots of detailed notes and do this before you check your field guide. It is important to take notes first and then look through the guides to avoid "seeing" things that aren't really there. Those first notes and sketches are always the most valuable. Before you submit your notes check them against all the bird guides you can get your hands on. Consider also the possibility that the bird is an escapee or is a deformed or injured bird. Rare birds are, by definition, rare and an

with strange pigmentation may be just as likely as the naturally occurring rarity. If it passes these tests then send your notes to me.

Tubenoses and Pelicans

We have one acceptable record from the tubenoses, the order *Procellariiformes*, in the county and seven records from the *Pelicaniformes*. This column will cover records from the booby and gannet family (one) and the pelican family (two) and save the records from the cormorant (three) and frigatebird (one) for a future column. Distributional data for these species is shown in **Figure 1** as it would appear in a checklist. The heavy line indicates the species is common, the medium line that it is fairly common, the thin line that it is uncom-

Northern Fulmars along the California coast and observers mentioned that they were feeding on fish scraps from the Santa Cruz municipal pier. On 28 Dec '61, on one of the first Palo Alto Christmas Bird Counts, David Smith and Earl Albertson identified a Northern Fulmar for our only county record of this species (AFN 16:286). The Christmas Bird Count summary (AFN 16:76) reported, "The big news on the California coast was the Fulmar flight. Eight reports included this northern species on their list. Some records came from virtually land-locked San Francisco Bay." The Oakland CBC recorded a single Northern Fulmar on 30 Dec and the Santa Cruz count recorded 100 birds.

These records are not unique

days later (San Jose Mercury News) and as far as we know this magnificent bird is still wending the ocean pathways of the Pacific.

We don't know how this bird, a true pelagic species, arrived in Santa Clara. In commenting on the acceptability of previous inland Laysan Albatross records the CBRC has concluded (West. Birds 19:159) that "... all records of this species near ports are suspect." Their conclusions are based, in part, on a fairly well documented case of four Laysan Albatrosses that rode a container ship into the Port of Oakland in March 1983. The sailors were able to evict three of these birds before arriving at customs and the birds were seen flying off into the bay. A short time later an albatross was found inland at Concord

and is presumably one of these birds. It appears that Laysans may be attracted to ships more frequently than the much more common Black-footed Albatross as all records of stranded albatrosses at the time of the **West-ern Birds** article were of Laysans.

The one member of the booby family (*Sulidae*) found in the county was a Brown Booby seen flying over Shoreline Lake on 29 Aug 92 by Mike Mammoser. This southern visitor is very rare in California, and is on the CRBC review list. Immature plumages of some of the other boobies can be confused with this species, but Mike's description appears to eliminate the other possibilities. The record has been accepted by the Regional Editors of **American Birds** (Am. Birds 47:144), but the review by the CBRC is not complete. Mike noted that an unusual lightning storm had preceded his observation and rain was just

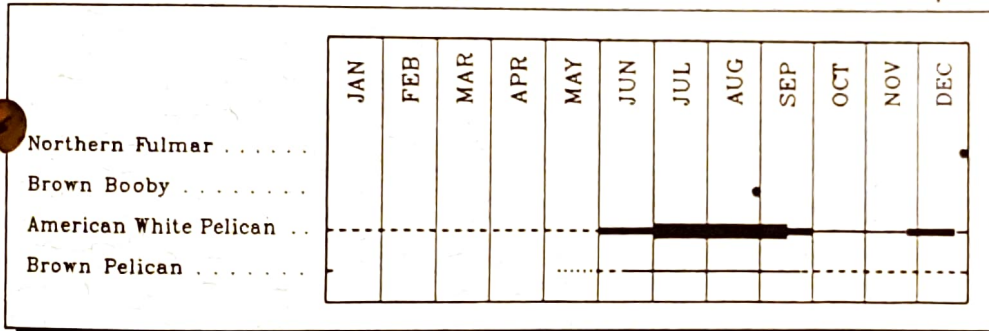


Figure 1. Graphic representation of yearly abundance of "tubenoses" and pelicans.

mon, and the dashed line that it is rare.

The tubenoses, or *procellariidae*, are birds of the pelagic ocean and don't belong in our nearly land-locked county. We know little about the lives of ocean birds, their strategies for survival, and the food webs they rely on. It seems likely that any time we find a pelagic species in San Francisco Bay it is related to food chain failures in their normal range. In the winter of 1961-62 there was an invasion of

for San Francisco Bay as Sibley, in his mimeographed notes (Sibley, 1952), records a specimen of this species that was taken near Redwood City on 4 Feb '06.

We have at least one other record of a tubenose in the county, but it is believed that the bird was man-assisted. On 29 Mar 89 an adult Laysan Albatross was found in a Santa Clara backyard (fide Nick Yatsko). The Humane Society recovered the bird and released it at the ocean cliffs near Santa Cruz two

starting to fall at the time.

The Shoreline Lake Brown Booby was not an isolated event but part of a pattern of numerous warm-water species moving north as a result of an El Nino event. Another bird was found throughout most of the fall on the Farallon Islands and an unidentified booby was seen in Monterey Bay about a week before the Mountain View sighting.

The first of our two pelicans, the American White Pelican, has an extensive breeding range in the interior of North America and, following the breeding season, birds move towards the continental coasts. This species is largely absent from Santa Clara County during its breeding season as indicated

in **Figure 2** where I show the weekly maximum counts averaged over the period 1980-92. In some years a few nonbreeding birds remain in the South Bay and may be seen on the salt ponds and at this time the species is locally rare. The first large flocks of returning birds are found between the first week of June and the first week of July and the species becomes common in the salt ponds and along the edge of the South Bay. Numbers appear to peak locally in August, where on average, we record between 100 and 200 birds. There is a clear decline in the number of birds observed in October and November and this is also seen in unpublished census data from Charleston Slough for the same period. However, this decline may reflect shifts in local foraging areas away from

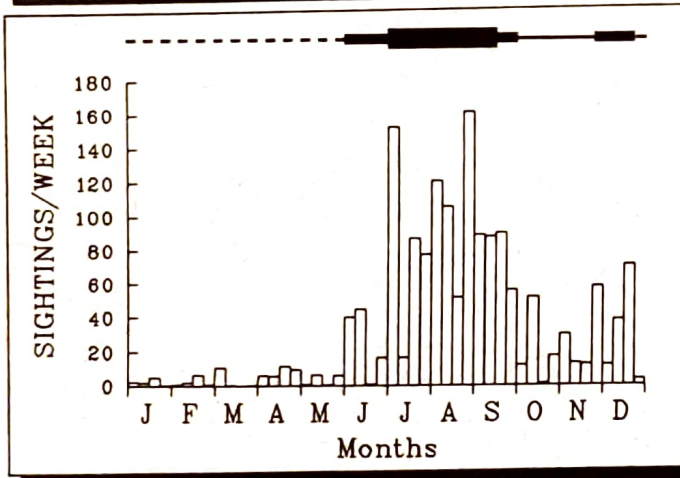
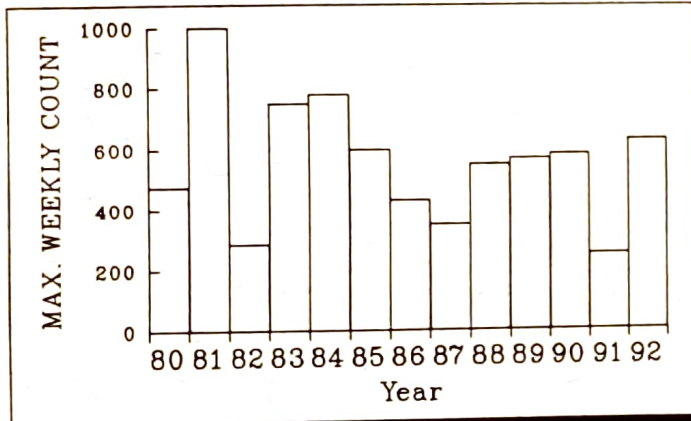
commonly birded areas rather than a decline or movement of the population to another area - this just isn't clear from the local records. In December there is a build-up in numbers again and then, towards the end of the month, our "wintering" birds depart for the return to their breeding colonies.

Flocks of White Pelicans are occasionally recorded at reservoirs in the south county but they do not

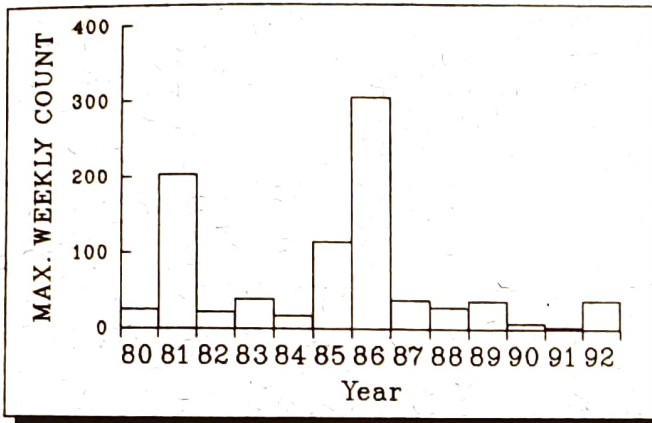
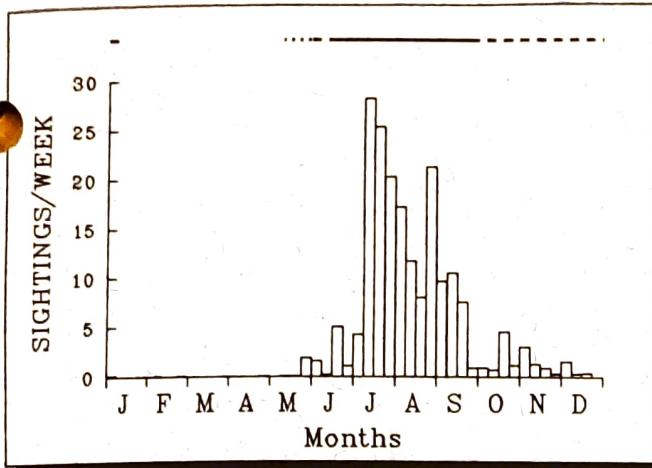
appear to remain at these reservoirs for long periods. These may be migrating birds rather than winter residents and, to some degree, the reduction in numbers noted in October and November may also be a reflection of migrating birds.

It is difficult to know the size of any population of birds, but the task may be easier for this species than for any other. White Pelicans are easily seen and easily counted and in normal circumstances there is no confusion in their identification. Over the last 12 years the maximum counts during any one year have varied between 200 to 800 as shown in **Figure 3**. Sibley (1952) reports single flocks of 500 near the Baumberg tract in 1930, 600 near Dumbarton Point in 1932, and 800 at the south end of San Francisco Bay in 1935. Post-war records in the South Bay include 750-1000 birds seen 30 Sep 54 (AFN 9:51), 1730 on 28 Aug 68 (AFN 23:100), and 2000 counted in an aerial survey on 17 Sep 81 (AB 36:212). These numbers appear comparable to what we see nowadays and suggests that the local population has not changed significantly in the last sixty years.

Our other pelican, the Brown Pelican, also turns up in the South Bay in the summer and fall (Figure 1). Unlike the Am. White Pelican, however, this species breeds to the south of us on coastal islands and migrates north following its breeding season. It is primarily a bird of the ocean coast and only a small proportion of the population strays down the bay. **Figure 4** shows this species' distribution in the county. We nearly always have a few birds locally July through September and after that the numbers decline as birds go elsewhere for food or start working their way back down the



Figures 2 and 3. American White Pelican.



Figures 4 and 5. Brown Pelican

species is scattered widely along the edge of the bay and even on inland reservoirs on rare occasions, it is most common on the salt ponds near Alviso and in this pattern is similar to the Eared Grebe and the Red-breasted Merganser. The salinity of the salt ponds near Alviso is approximately the same as the salinity at the ocean and this may result in prey species that the Brown Pelican favors.

References

- American Birds, various dates.
- Audubon Field Notes, various dates.
- Jon L. Dunn, Tenth Report of the California Bird Records Committee, *Western Birds* 19:129-163, 1988.
- Linda Goldston, San Jose Mercury News, April 1, 1989.
- Charles G. Sibley, "Birds of South San Francisco Bay," mimeo notes, 1952.

coast. We occasionally find a few birds later in the year, but they rarely remain to be recorded in late December on the Christmas counts.

This species does not occur locally in large flocks as does the White Pelican. Our maximum count in most years does not exceed 40 or 50 birds and many years we see quite a bit fewer. Yet in both 1981 and 1986 large groups of birds moved into the South Bay as shown in **Figure 5**. Although this

ALASKA BIRD OBSERVATORY CELEBRATES FIRST ANNIVERSARY

by Lloyd Thompson

Earlier this year, the Alaska Bird Observatory (ABO) completed its first year of operation as the only non-profit, private corporation in Alaska which is exclusively dedicated to conducting research and education on Alaskan birds. The ABO mission is to gather baseline information about Alaska's bird populations, share this information with the public and scientific community, and encourage and facilitate research and conservation of birds in Alaska.

It is interesting to note that the Alaska Bird Observatory's stated mission of research, education, and conservation, closely parallels our own mission here at Coyote Creek Riparian Station. However, similarities in mission are not the only features that ABO and CCRS share in common.

ABO Executive Director (and founder), Tom Pogson, dedicated ABO's first Annual Report to the memory of L. Richard "Dick" Mewaldt. Tom attributes Dick's inspiration, encouragement, and initial sponsorship of Tom's banding permits, plus additional guidance along the way, as major influences contributing to his initiative in establishing a bird banding station which emphasizes education and research on Alaska's birds. Thus, ABO joins the legacy of California stations established through Dick Mewaldt's influence and



inspiration (PRBO, SFBBO, CCRS).

It was in late 1991 that the Arctic Audubon Society agreed to help the Alaska Bird Observatory by establishing it as a project of Arctic Audubon, making available tax-exempt donations to operate the station. The Observatory continues to be operated as a project of Arctic Audubon while awaiting determination of its own tax-exempt status under IRS code. When ABO became affiliated with Arctic Audubon, the Alaska Department of Fish and Game offered their support. In March of 1992 an office for ABO was established near the migration banding station at Creamer's Field Migratory Waterfowl Refuge in Fairbanks.

Tom Pogson and his volunteers have enthusiastic plans for 1993. They will continue banding activities, monitoring migratory populations, training more volunteers, providing public education, along with fundraising and development. They plan to expand the education and research programs at Creamer's Field and to initiate a bird inventory and monitoring project on military lands in central Alaska.

Congratulations to Tom and all the volunteers and supporters of Alaska Bird Observatory on a very successful completion of their fledgling year of operation!

Postscript: ABO welcomes supporters from the "lower 48". For additional information, contact Tom Pogson at the Alaska Bird Observatory, P.O. Box 80505, Fairbanks, Alaska 99708. Telephone (907)451-7059.

News from the Santa Clara County Breeding Bird Atlas

by Michael M. Rogers

Results of 1993 Field Work

The 1993 breeding season is now over. As discussed in the last issue of *RipariaNews*, we continued with atlas field work this season in an effort to 1) obtain data from atlas blocks that had yet to receive any coverage, 2) document breeding for species for which there were no known breeding records in Santa Clara County, and 3) improve coverage in a large number of blocks that had yet to reach the completion goal of confirmed breeding for 50% of the expected breeding species. How did we do in achieving these goals? Some highlights of 1993 field work are given below.

Prior to this year's coverage we had no data from one interior block and eight "edge" blocks (blocks containing portions of nearby counties). This past summer we were able to make significant progress in the single interior block and five of the edge blocks, leaving only three edge blocks in the southeastern part of the county where we failed to obtain any access. Unlike last year, when we still had hopes of obtaining access to the remaining blocks, landowner permission to atlas in these last three blocks is unlikely to be forthcoming at any time in the near future and further field work would not change the status of these blocks.

We were successful in confirming breeding of both Clark's and Western Grebes, both first breeding records for Santa Clara County. Six pairs of Western Grebes and a single pair of Clark's Grebes were present throughout the summer at the southeast corner of Calaveras Reservoir. On May 20, there was no sign of any nesting, but several birds were involved in courtship behavior, including courtship between a mixed pair of Western and Clark's Grebes. Things were more exciting on June 10, when three pairs of Western Grebes were building nests and incubating. The two Clark's Grebes had managed to find each other and were building a nest of their own as well. Incubation normally requires 23 days, so downy young were hoped for on a return visit on June 29. Unfortunately, all the nests must have failed and no young were found. Additionally, one of the Clark's Grebes was once again involved in courtship with a Western Grebe.

Nest failure in Alameda County was attributed to egg predation by American Crows; perhaps the same thing happened here. On July 30, nesting was again being attempted. Patient observation of an incubating Western Grebe eventually led to a view of two eggs. Once again, however, this nest failed; the nest was abandoned and no young were present on August 21. However, the receding water level and increased emergent vegetation had made new locations along the southern shore of the reservoir more appetizing to the grebes. Four more Western Grebe nests were being built and incubated. Perhaps these

nests will fail as well, but these birds are persistent. Downy young have been reported as late as mid-November in northern California.

Breeding evidence for two other species that have yet to be confirmed breeding in Santa Clara County was obtained in the northern Diablo Range. Two male Costa's Hummingbirds were observed in courtship display along Del Puerto Canyon Road, just across the county line in Stanislaus County (but still in an atlas block) on May 29, and then another was found well inside the county along Colorado Creek on June 1. Even more surprising was a first-year male Indigo Bunting that was paired with a female Lazuli Bunting and defending a nest with two eggs at the same location along Colorado Creek on the same day!

Yet another new breeding species for the county was found in the Santa Cruz Mountains. On July 21, an adult female Hermit Warbler was found feeding a recently fledged young along Charcoal Road north of Saratoga Gap. Previous atlas breeding records are all from the Santa Cruz County portions of "edge blocks" in this same general area.

The bulk of the field work done in 1993 was spent doing "cleanup" work in blocks that needed additional breeding confirmations to reach the goal of confirming 50% of the block's expected breeding species. Most of this work was needed in region 5 (southern Santa Clara Valley) and regions 6 and 7 (the Diablo Range). Roughly thirty previously unfinished blocks were "completed" in 1993, including a few from other parts of the county as well. The work required to achieve this varied from locating Western Tanager nests in the Diablo Range to finding Rock Dove nests in Gilroy. About 600 new breeding confirmations were made in 1993, including many from these newly completed blocks and from the blocks with no prior coverage, as well as a few from blocks that were already "complete".

How long until all of the new records are entered into the atlas database and preliminary maps with results from 1993 field work are available? Undoubtedly this will take a while, as several thousand records must be entered before the new maps can be generated. Despite this, it is already clear that our atlas is now much more complete and gives a better indication of each species distribution in the county than it did last year. Thanks are due to all of you who continued atlasing this year to make this happen!



In Memoriam

David Johnson

by Elsie Richey

Death has taken one of our dearest friends and supporters. Dave Johnson's life slipped away on June 19, without most of us knowing that he was suffering from cancer of the stomach.

Dave's life was given to helping others and CCRS was one of his favorite recipients. Dave, in fact, was one of the original signatories to CCRS's Articles of Incorporation in 1986. I was privileged to work with him for most of my time at CCRS. He was always thinking of ways to make the routine go easier. He used his expertise to devise a net to catch high-flying birds. He arranged a system for operating nets in the marsh. He was always the "early bird" to open nets. CCRS will miss his many contributions of time and talents. Most of the photographs which have appeared in the pages of *RipariaNews* have been due to Dave's considerable photographic skills. In fact, Dave was so often behind the camera, we were all amazed that we could not locate a good picture of Dave amongst all the photographs and slides in our collection.

As a memorial to Dave, we are establishing a fund to purchase new mist nets. Contributions can be made to the **CCRS-Johnson Memorial Fund**.

NEW MEMBERS

We welcome the following new members:

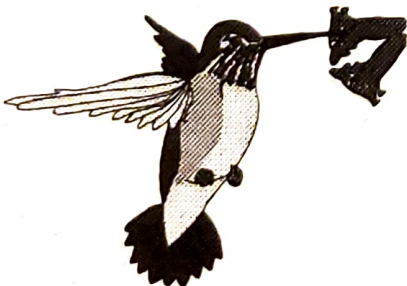
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|--------------------------------------|-------------------|
| Ronald Barclow & Viola Saima Barclow | Burt Manriquez |
| Bob Barnes | Scott McCarthy |
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| Robert Elliott | Patricia Peterson |
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| Gregory Lucchesi | John Rogers |
| Archendon MacLaren | Susan Sandstrom |
| Ellen Macneale | Benita Terry |
| | David Wenrick |
| | Olive Zappacosta |

Contributions

To the Bob Hess Memorial Fund

- Jean-Marie Spoelman
 Maryann Danielson
 Richard Still
 Rosalie Lefkowitz
 Sandra Fricker
 Viginia Willcox
 Irene Miura

We would also like to recognize the recent significant donations by **Michael Mammoser** and **Elsie Richey**.



MEMBERSHIPS IN CCRS

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

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

*Or in 4 or installments

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

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

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