

# RipariaNews

Newsletter of the Coyote Creek  
Riparian Station

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Number 1

## CCRS BIRD BANDING SUMMARY 1986

By L. Richard Mewaldt and Elsie Richey

In 1986 we captured 13,233 birds in our nets and traps at Coyote Creek Riparian Station. This included 6,112 banded with U. S. Fish and Wildlife Service serially numbered bands and released, 4,199 recaptures, and 2,922 House Finches recorded by date but released unbanded (Table 1). Since beginning pilot work on the site in 1982 we have captured 21,893 birds, including 12,627 banded, about 2,500 of these recaptured another 6,109 times, and 3,157 finches released unbanded (Figure 1). These captures and recaptures are providing us with useful information on such subjects as:

### BIRD BANDING 1982-86 Coyote Creek Riparian Station

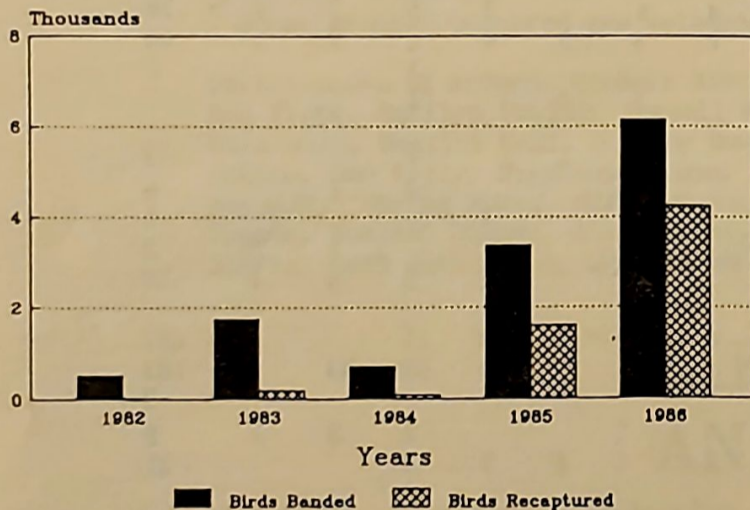


Figure 1

1. home range in riparian habitat,
2. return to winter home after nesting somewhere from northern California to Alaska,
3. timing of reproduction in resident species,
4. timing and extent of premigratory fattening,
5. timing and pattern of molt,
6. comparative survivorship on breeding and wintering ranges.

Look for stories on these subjects in future issues of the Newsletter. Most of these nearly 22,000 captures and recaptures were in

mist nets, many were in Potter traps, and a few (mostly Black Phoebes) were banded as nestlings.

The 110 kinds of birds, all captured on or immediately adjacent to our research area since 1982, include representatives of 13 taxonomic Orders and within the Order Passeriformes (perching birds) 15 Families. Fifteen species new to our CCRS capture roster in 1986 were Poorwill, Black-chinned Hummingbird, Rufous Hummingbird, Belted Kingfisher, Saw-whet Owl, Hybrid Flicker, Red-breasted Sapsucker, Least Flycatcher, Gray Flycatcher, Hammond's Flycatcher, Solitary Vireo, Hutton's Vireo, Nashville Warbler, Black-throated Gray Warbler, and Slate-colored Junco. These include several species we hope will become residents or more frequent visitors as we assist Harvey and Stanley Associates and the Santa Clara Valley Water District restore the riparian habitat along Coyote Creek. Others were vagrants or were local species we are less likely to capture with our present methods.

In 1986 we operated nets/traps 191 days, which may be compared to 15 in 1982, 42 in 1983, 30 in 1984, and 91 in 1985. In 1986 we averaged processing 54 birds a day including 32 newly banded and 22 recaptures. Although most of the work was done by 10 regulars, another 30 people participated as banders or helpers in 1986 (Table 1). Our usual crew of banders and helpers was four to five.

Flood waters in February and March, nearly destroyed our field office/laboratory trailer. On 19 February we had over a meter of swirling water flowing by the trailer bringing 5 cm of muddy water onto the floor at 0800. It nearly floated off its blocks. Flooding recurred in March and flood waters were present in low lying areas into April. Several of our nets were destroyed by higher water than we anticipated. Many of our traps and trap sites were caked with mud. Temporary habitat alteration (scouring and silt deposition), of especially ruderal areas, depressed our captures from February to June (Figure 2). In September, using building jacks and timbers, we raised the trailer another 20 cm. We hope to have an earthen pad, above the 100-year flood level, for our office-laboratory and storage facilities before the next flood.

BANDING SUMMARY - COYOTE CREEK RIPARIAN STATION - 1986

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Sharp-shinned Hawk				1					1	2	2	2	8
Cooper's Hawk										1	1	2	4
Red-tailed Hawk												1	1
American Kestrel							1						1
Ring-necked Pheasant					(3)								(3)
California Quail	4	1	2	2	2			7	6	9			33
Mourning Dove			4	8	19	13	19	13	3		3	1	83
Saw-whet Owl												1	1
Common Poorwill										1			1
Black-ch Hummingbird					(2)		(1)	(1)					(4)
Anna Hummingbird	(1)				(2)		(6)	(6)	(5)		(2)		(22)
Rufous Hummingbird								(1)	(1)		(1)		(3)
Allen's Hummingbird			(1)	(1)	(2)	(2)	(1)	(4)	(3)				(14)
Belted Kingfisher								1					1
Red-breasted Sapsucker									1	2			3
Downy Woodpecker			2			1	4	1	1			1	10
Red-shafted Flicker	1								1	5		1	8
Hybrid Flicker												1	1
Western Wood Pewee						1		1	1				3
Willow Flycatcher								2	37	2			41
Least Flycatcher							2	1	1				4
Hammond's Flycatcher								2	5				7
Gray Flycatcher				2									2
Western Flycatcher			1	4	18	5	38	93	267	34			460
Ash-throated Flycatcher					1		1						2
Black Phoebe	1	1	3	2	11	26	19	8	7	7	2		87
Tree Swallow				1	3								4
Violet-green Swallow				8			10		2				20
Cliff Swallow					1	10	1						12
Barn Swallow				1	4	9	17	1	3				35
Scrub Jay				1			1		1	1		1	5
Chestnut-bk Chick	1				4	4	6		3	6	2	4	30
Common Bushtit			1		4	7	8	9	4	1	5	5	44
Brown Creeper										1			1
Bewick's Wren					1		1	4		1			7
House Wren								1		1			2
Winter Wren										4	2		6
Marsh Wren									1				1
Golden-cr Kinglet											1	1	2
Ruby-crowned Kinglet	1		1						1	5	6	4	18
Swainson's Thrush				1	105	6	2	2	110	11			237
Hermit Thrush		2	4		1				34	98	33	9	181
Robin		2	4		1								7
Varied Thrush										2	3	3	8
Mockingbird			3		1	2		4	7	4			21
Loggerhead Shrike							7	5	1	1			14
Starling						1							1
Solitary Vireo									1	1			2
Hutton's Vireo										1			1
Warbling Vireo								1	7				8
Orange-cr Warbler			1	1	4	2	1	1	16	5	1		32
Nashville Warbler					1								1
Yellow Warbler					2			1	88	19			110
Myrtle Warbler			4						1	1	1		7
Audubon's Warbler		4	10	9						8		1	32
Black-throated Gray Warb										2			2
MacGillivray's Warbler								3	3				6
Yellowthroat	1		2			4	11	10	12	4			44
Wilson's Warbler				5	15	1	1	5	9	2			38
Western Tanager								1	5	1			7



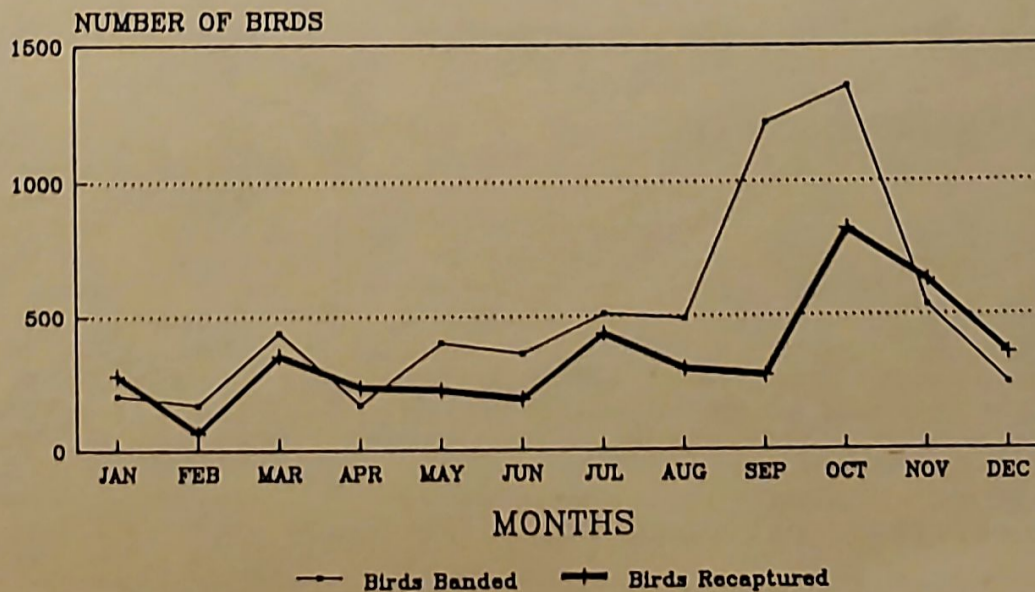
SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Black-headed Grosbeak				1	6	6	7	1	2				23
Rufous-sided Towhee									1	5	1	1	8
Brown Towhee	1		3	2	2	5	2	8	2	1		2	28
Savannah Sparrow								2	12	1			15
Fox Sparrow	2	2	4						56	171	59	16	310
Song Sparrow	24	6	21	6	27	95	131	87	55	14	10	5	481
Lincoln Sparrow	3		2	1	1			1	32	91	28	9	168
White-throated Sparrow	1										1		2
Golden-crowned Sparrow	41	32	59	8					27	320	136	44	667
Puget Sound Wh-cr Sp	29	31	58	6					40	127	49	25	365
Gambel's Wh-cr Sp	41	22	47	35	2				13	211	102	26	499
Slate-colored Junco										1	1		2
Oregon Junco			2				1		2	19	4	16	44
Red-winged Blackbird		20	107	21	22	6						9	185
Tri-colored Blackbird			1										1
Brown-headed Cowbird				3	1	4	1						9
Bullock's Oriole				2	3	3							8
Purple Finch										1			1
House Finch	52	46	81	37	124	141	196	175	207	128	85	73	1345
(Released unbanded)*	4	21	28		106	468	1028	489	594	96	65	23	(2922)
Pine Siskin											1		1
Lesser Goldfinch						2	1	12	71	9	2		97
American Goldfinch			11		2	3	12	13	47	8			96
House Sparrow					3			1					4
Total New Captures	204	169	439	169	400	359	509	489	1216	1350	544	264	6112
Cum New Captures	204	373	812	981	1381	1740	2249	2738	3954	5304	5848	6112	
Recaptures	279	66	353	233	223	190	434	301	276	824	629	391	4199
Cum Recaptures	279	345	698	931	1154	1344	1778	2079	2355	3179	3808	4199	
Species	16	12	27	25	34	25	30	38	50	47	28	27	83
Cum Species	16	20	31	41	49	52	55	64	69	78	80	83	
Days of operation	8	7	14	9	15	13	19	19	25	25	20	17	191

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

Participants of record: Michele Abare, Carol Blecke, Ken Corey, Penelope Delevoryas, Mary Ann Flett, Marilyn Fowler, Russell Fowler, Holly Fretfeld, Tim Gates, Anna Grace, Larry Haimowitz, Harriet Hill, Dorothy Hunt, David Jensen, David Johnson, George Jonkel, Bruce Katano, Dan Kelly, Stephanie Jones, Clarice Lincoln, Max Lincoln, Joe Marshall, Richard Mewaldt, Syndie Meyer, Mark Meyers, Vi Nisonger, Debbie Oexmann, Elsie Richey, Michael Rigney, Theresa Rigney, Allan Royer, Susan Sanders, Alfred Schmitz, Allan Sillett, Don Starks, Mark Sutherland, Lynn Tennefoss, Judy Wiley, Blair Wolf, Woodruff.

## VARIATION IN BANDING AND RECAPTURE RATE Coyote Creek Riparian Station 1986

Figure 2



## BANDING COMPUTER PROGRAM DEVELOPED

by Michael Rigney

By the time New Years Day rolls around, the Coyote Creek Riparian Station will have amassed data on nearly 10,000 birds (6,000 newly banded and 4,000 recaptures) in 1986. For each bird caught, processed and released 20 separate bits of information are recorded including band number, species, age, sex, weight, location caught, etc. Those of you with quick minds or ready access to a calculator will find that we have gathered 200,000 discrete bits of information!! You can immediately grasp the enormity of the task involved in "making sense of it all."

The obvious answer to anyone from Silicon Valley would be of course to...that's right, computerize it. It may sound simple to you software engineers and data base managers but to us bird banders and wildlife biologists developing a comprehensive computer program to handle such quantities of data is asking a bit too much.

### B.C. SOFTWARE TO THE RESCUE

An energetic group of software wizards took pity on our plight and devised a program which almost speaks plain english and yet has the power to check for entry errors, do routine mathematical computations, and keep track of volunteer activity.

We are just now beginning to enter data into the program (no small task in itself) and hope to have the basic banding data (minus recapture data) entered soon after the beginning of the year. We are currently entering data on Dick Mewaldt's and my computer. We hope in the near future to acquire (anybody out there have or know where we can get an IBM or compatible computer with a 20mb hard disc) a computer for the Station. In the meantime Dick and I are throwing open our houses and computer rooms to anyone who would like to spend some time pounding a keyboard.

Only when we get the information into the computer can we be able to make something out of the very important information we have gathered this year. If we get the chance and we don't all go blind staring at the screen, we'll also try to get the 200,000 bits of information FROM THE PREVIOUS 4 YEARS onto the computer. But more about that at a later date.

### LIFE MEMBERSHIPS

Since appearance of the last Newsletter, Dorothy Hunt and Marilyn Fowler have become Life Members. This particular contribution of \$500 by each of them has of course gone into the CCRS Endowment Fund. This modest but growing fiscal "backbone" reached nearly \$13,500 as of the end of 1986. As invested it is yielding about \$100 a month. We have earmarked this income to pay our monthly electric and telephone bills, as well as to purchase a portion of our essential station supplies.

Another of our Members has invested three of five \$100 portions on his Life Membership in a lay-away plan. We encourage all who share our long-term goals of enlightened riparian restoration and management, and the study of riparian and wetland wildlife, to help us build our Endowment Fund. At the expense of growing slowly, we wish to grow surely for the future. We wish minimum dependence on "soft funds". Please send what you can, or contact me (or any other member of our Board of Directors) with your ideas.

Dick Mewaldt

### OUR MEMBERSHIP GROWS

We welcome forty new Memberships in the last three months:

Michele Abare	Active Member
Viola Anderson	Member
Michael & Debbie Basham	Members
William Bousman	Member
Douglas & Gale Cheeseman	Members
Howard L. Cogswell, PhD	Member
David DeSante. PhD	Member
John Delevoryas	Member
Ronald R. Duke	Member
Bill Ekwall	Member
Bernard H. Goldner PhD	Member
Phil & Pat Gordon	Members
B. Philip Hand	Member
H. Thomas Harvey, PhD	Active Member
Harriet Hill	Active Member
Hugh Judd	Member
Bruce Katano	Active Member
Dan Kelly	Active Member
James R. King, PhD	Member
John & Betty MacDonald	Members
Connie & Bill Mewaldt. PhD	Members
John Mewaldt	Member
Frances Mewaldt	Active Member
Paul Noble	Active Member
Joan Priest	Member
Wilbur Quay, PhD	Member
John & Carol Ralph. PhDs	Members
David Regnery, PhD	Member
Allen Royer	Active Member
Howard Shellhammer, PhD	Member
Ronald Stecker PhD	Member
Mark Sutherland	Active Member
Otis Swisher	Member
Harriet Thomas	Member
Hazel & Bill Tilden PhD	Members
Ruth Troetschler	Member
Joan & Robert Tweit PhD	Members
Jack Wallace	Member
Sally Walters	Member
Don Weden	Member
Anna Wilcox	Member
Ellen Yeoman	Member

As of December 31 1986 the Coyote Creek Riparian Station boasted a membership of 63. We wish to thank all those who have generously supported our work at Coyote Creek. Our volunteer banders and census takers have accomplished much in a short period of time and we gratefully acknowledge their service and dedication. Our members, both active and supporting, provide the financial foundation upon which we hope to build a research facility capable of providing much needed information on riparian ecology. Welcome to our new members and THANKS!

# SAN FRANCISCO BAY WETLANDS

by H. T. Harvey

San Francisco Bay has long been recognized as one of the most important wetland areas in the State of California. To determine what constitutes wetlands and the Bay are involved tasks. In this brief analysis of each, the Bay will be considered as extending from the outer margin of the Golden Gate to Chipps Island and south to Alviso. This is the same area as that recognized by the San Francisco Bay Conservation and Development Commission. Other agencies and private groups sometimes use other boundaries, e.g., U.S. Geological Survey studies may include the Delta. Therefore, acreages of various habitat types as determined by various individuals may differ. Wetlands will be defined here in the same terms as the U.S. Fish and Wildlife Service (Coward, et.al. 1979). However, common terms such as "mud flat" will be used instead of "estuarine, intertidal, unconsolidated shore, mud." The determination of acreages is based on habitat characteristics (ecological wetlands) not legal interpretations of regulations or rulings as to what is a wetland. It is important to distinguish between the two. There is general agreement between experienced ecologists as to the characteristics of an ecological (or functional) wetland, but not among interested parties as to the meaning of the "legal" definitions of wetlands and how they are to be determined.

The U.S. Fish and Wildlife Service's definition of wetland is based on three major criteria, namely presence of hydrophytes, hydric soils, and a hydrological regime that creates conditions that support or produce the above. Under their criteria, two major wetland habitat types are in or around the Bay. There are vegetated (emergent or floating, rooted plants) and non-vegetated habitats (ponds and mud flats). To say a habitat is not vegetated is not to say that plants (e.g., algae) are not present.

The vegetated habitats can be further divided into tidal and non-tidal habitats. And furthermore, tidal marshes range from salt marshes to nearly freshwater marshes where rivers or streams enter the Bay. Along such water courses a distinct riparian community occurs, dominated by tree species, such as cottonwoods and willows. This rapidly disappearing habitat is of great importance to wildlife.

The non-tidal vegetated areas are often segregated into those that are managed for waterfowl, and thus may have extensive open water, or unmanaged areas which may seasonally pond rain water. Although both are to some extent seasonal in plant growth and wildlife use, the characteristic plants adapted to wetlands are present all year long in some stage of development, e.g., seedlings to dead remains.

Three main types of non-vegetated habitats occur in or around the Bay, namely mud flats, permanent ponds, and seasonal ponds. The extent of mud flats and permanent ponds, e.g., salt ponds, are relatively easy to calculate. However, the temporary nature of the seasonal ponds which vary in size during

a year and from year to year, makes their extent difficult to estimate. The same variability is true of the vegetated wetlands that occur in seasonally wet lowlands around the Bay; their extent is yet to be determined.

The major conversion of historic wetlands around the Bay is that of alteration of the tidal marshes. In the Suisun Bay portion of San Francisco Bay about 60,000 acres have been diked off for managed marsh, primarily for hunting. Throughout the Bay about 46,000 acres were converted into salt ponds. Although some former salt ponds have been lost to urbanization, over half of the tidal marsh acres are still wetlands. The other half has gone into agriculture, ruderal or bare areas, or been filled by landfills. Some of the agricultural and ruderal/bare areas still function partially as seasonal wetlands. Table 1 attempts to summarize these important changes.

Table 1. Approximate acreages of some habitats of San Francisco Bay, 1880 vs. 1980.

Habitat Type	Acres ca 1880 <sup>a</sup> (to the nearest 1,000 acres)	Acres ca 1980 <sup>b</sup>
Mud Flat	45,000	44,000
Tidal Marsh	200,000	35,000
Diked Marsh	-	68,000
Salt Pond	-	45,000 <sup>c</sup>
Agriculture	-	35,000 <sup>d</sup>
Ruderal/Bare	-	13,000 <sup>d</sup>
Miscellaneous (urbanized)	-	2,000 <sup>d</sup>
Total	245,000	245,000

<sup>a</sup> Estimates from Nichols and Wright (1979)

<sup>b</sup> Estimates from Harvey and Stanley Associates (1978)

<sup>c</sup> Some dewatered or urbanized

<sup>d</sup> Partially wetlands, in undetermined proportion

The Coyote Creek Riparian Station is a non-profit membership organization dedicated to the study, restoration and management of riparian habitat. Our research facility is located adjacent to Coyote Creek near Alviso, California. Our research projects are conducted by volunteers under the guidance of a Board of Directors and Manager/Biologist, Dr. L. Richard Mewaldt. We welcome all persons interested in the protection and enhancement of California's rivers and streams to contact us about volunteering or membership. Our telephone number is (408) 262-9204 or you may contact Dick Mewaldt at (408) 258-7491. The quarterly newsletter "RipariaNews" is edited by Michael Rigney and Syndie Meyer and publication assistance is afforded by Harvey and Stanley Associates, Inc. of Alviso, California.

# COYOTE CREEK PILOT REVEGETATION PROJECT

by Penelope Delevoryas

Sometime in 1987, a controversial Environmental Impact Statement on proposed flood control measures for Coyote Creek will be finalized and adopted. Described in this document is a mitigation plan to replace losses in riparian forest vegetation which will be lost to flood control structures.

An integral part of this plan is a pilot revegetation project designed to re-establish 44 acres of mature riparian forest at several different locations adjacent to Coyote Creek. The site of the initial pilot revegetation project (a plot of slightly over 4 acres) is only about 100 meters from our laboratory/banding station. The Coyote Creek Riparian Station will take an active role in management to enhance wildlife use of this project site as the forest matures.

The revegetation project is being administered by the Santa Clara Valley Water District which has, in turn, contracted with Harvey and Stanley Associates, Inc. of Alviso to oversee and perform the work. We feel privileged to have the opportunity to study this project from its inception. Few studies of this sort have been conducted.

The overall goals of the pilot revegetation project are to 1.) establish a biologically productive floodplain riparian forest and 2.) test planting and irrigation techniques for future revegetation programs, including additional sites along Coyote Creek.

Harold Appleton, forester and project director for Harvey and Stanley Associates, began preparing the site for planting in September, 1986. He was assisted in this task by CCRS members Bruce Katano and Penelope Delevoryas. In September, a bulldozer-tractor cleared the project site of all non-native, weedy vegetation. We removed some additional giant reed (Arundo donax). A nearby Eucalyptus tree will be girdled and left as a snag roost for the many resident and migratory raptors which use the creek habitats. A San Jose/Santa Clara Water Pollution Control Plant tractor disced the area to further prepare the ground for planting.

After clearing, the project boundaries were marked by flags and six foot metal stakes. The site is divided into two planting zones that recognize natural differences in the requirements of plant species for soil moisture. In order to limit the potential damage to new plants from the abundant gopher and rabbit populations, drift fences were installed along the western boundary of the project.

Three weeks of hard labor and the fence was installed. The final product is a hardware cloth fence buried two feet below the ground level to limit gopher and mole invasion and stands three to four feet above ground to limit rabbits, larger mammals and (hopefully) vehicles from access to the planting area.

The valiant three-person crew surveyed transects, chalked and flagged the boundaries of the plant groupings. Trees and shrubs which typically occur together will be planted in clusters or groupings. Some species will be planted as individuals.

Holes for three rows of groundwater monitoring wells were drilled to a depth of ten feet, PVC pipe was installed in the holes and the wells were capped. These wells will be monitored twice monthly with the help of CCRS volunteers.

Two methods of irrigation will be compared, impact sprinklers and flood irrigation. Installation of sprinkler pipe will begin in early spring. Water will be pumped from adjacent Coyote Creek to supply the irrigation systems. At this point in January, due to the lack of rainfall, irrigation may have to be started before summer.

Planting of acorns has already begun. As the soil becomes more moist (hopefully), a variety of planting stock (including seed, cuttings, poles, tublings and container stock) will be used. To protect seedlings against rodent and mammal damage, temporary plastic collars attached to cylindrical wire screens will be placed around each seedling. In anticipation of losses, plants will be spaced more closely than in nature, about four to six feet apart. Species to be used in this project are:

## TREES

California box elder	<u>Acer negundo</u> ssp. <u>californicum</u>
California black walnut	<u>Juglans hindsii</u>
California bay	<u>Umbellularia californica</u>
Blue elderberry	<u>Sambucus mexicana</u>
Coast live oak	<u>Quercus agrifolia</u>
Flowering ash	<u>Fraxinus dipetala</u>
Fremont cottonwood	<u>Populus fremontii</u>
Valley oak	<u>Quercus lobata</u>
White alder	<u>Alnus rhombifolia</u>
Western sycamore	<u>Platanus racemosa</u>
Red and yellow willow	<u>Salix laevigata</u> , <u>S. lasiandra</u>

## SHRUBS

California black-berry	<u>Rubus vitifolius</u>
California Rose	<u>Rosa californica</u>
Mugwort	<u>Artemisia douglasiana</u>

Each plant will be labeled with species, planting regime and a coded planting location. Plants will be inspected and evaluated twice yearly for the first three years for survival, height, spread and vigor. Weed competition, herbivore damage to plants, stress, disease will be noted as well as the presence and abundance of flowers and fruit. Color and black and white photographs will be taken annually of the site as well as color and color infrared aerial photographs. To record the process and procedures used during planting and inspection, a videotape will be made which will allow others in the riparian revegetation field to learn from this experience.