

SAN LUIS NATIONAL WILDLIFE REFUGE

MERCED NATIONAL WILDLIFE REFUGE

KESTERSON NATIONAL WILDLIFE REFUGE

ANNUAL NARRATIVE

1972 - 1993

SAN LUIS NATIONAL WILDLIFE REFUGE
MERCED NATIONAL WILDLIFE REFUGE
KESTERSON NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

January 1 to December 31, 1972

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
LOS BANOS, CALIFORNIA

*Links Reference
1/21 - 25/74
R. C. Johnson*

REFUGE PERSONNEL

PERMANENT:

Melvin T. Nail Refuge Manager
Transferred 12/01/72

Gene A. Sipe Assistant Refuge Manager

Jo Ann Barger Clerk-Typist
Resigned 09/02/72

James R. Mayle Maintenceman Foreman

Melvin Ford Engineering Equipment Operator
San Luis NWR

Raymond R. Fuller Engineering Equipment Operator
Kesterson NWR

Edgar M. Derrick Maintenceman
Merced NWR

Michael L. Stevenson Maintenceman
Merced NWR

*Hi Jo Ann
K.R.H. - Ruby Lake*

TEMPORARY:

Patricia R. Enos Clerk-Typist
E.O.D. 09/18/72

Ronald W. Stroh Student Trainee (Wildlife Biology)
(06/11/72 - 09/22/72)

George W. Freeman Maintenceman
Resigned 08/18/72 San Luis NWR

Eugene Dudley Laborer
(08/08/72 - 12/01/72)

Robert E. Hulbert Laborer
(06/19/72 - 08/04/72)

Jeffrey Rosevear Neighborhood Youth Corps (NYC)
(06/21/72 - 08/15/72)

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C O N T E N T S

	<u>PAGE</u> <u>NO.</u>
I. GENERAL	
A. Weather Conditions	1
B. Habitat Conditions	1
II. WILDLIFE	
A. Migratory Birds	3
B. Upland Game Birds	4
C. Big Game Animals	4
D. Fur Animals, Predators, Rodents and Other Mannals ..	4
E. Hawks, Owls, Eagles and Kites	4
F. Other Birds	4
G. Fish	5
H. Reptiles	5
I. Disease	5
III. REFUGE DEVELOPMENT AND MAINTENANCE	
A. Physical Development	6
B. Plantings	7
C. Collections and Receipts	8
D. Control of Vegetation	8
E. Planned Burning	9
F. Fires	9
IV. RESOURCES MANAGEMENT	
A. Grazing	10
B. Fur Harvest	10
V. FIELD INVESTIGATIONS OR APPLIED RESEARCH	
A. Progress Report	10
VI. PUBLIC RELATIONS	
A. Recreational Uses	10
B. Refuge Visitors	11
C. Refuge Participation	11
D. Hunting	11
E. Violations	12
F. Safety	12
VII. OTHER ITEMS	
A. Items of Interest	12
B. Credits	13

I. GENERAL

A. Weather Conditions:

Temperatures throughout the year were normal except for December when abnormally cold conditions covered ponds with about an inch of ice that lasted several days. (See Table I for detailed weather data on a monthly basis.)

B. Habitat Conditions:

1. Water:

Water quality, as determined by monthly irrigation analysis, was comparable to the past two years. Generally, natural run-off water continued to contain more dissolved salts than irrigation drainage.

No problems were encountered in maintaining water levels as planned for all ponds and marsh areas. The "E" Canal and Loaf Lake areas were again closely controlled to avoid undue duck concentrations during the waterfowl hunting season.

2. Food and Cover:

Conditions were good in both the marshes and millet fields. A good crop of millet was produced in Fields B, C and D (175 acres). All marsh areas were optimum except Teal Lake and the West Marsh portion of Loaf Lake which were kept dry for cattail control. Approximately half of Teal Lake was seeded with barley which provided some green browse.

1972 CLIMATOLOGICAL OBSERVATIONS

MONTH	PRECIPITATION (INCHES)	NORMAL PRECIPITATION	EVAPORATION (INCHES)	WIND MILES	MAX. TEMP. (DEGREES F)	MIN. TEMP. (DEGREES F)
JANUARY	0.58	1.67	1.17	1,652	60°	26°
FEBRUARY	0.33	1.39	2.87	2,326	72°	27°
MARCH	0.00	1.31	8.23	4,425	84°	42°
APRIL	0.22	0.76	10.33	4,925	87°	44°
MAY	0.00	0.37	15.12	6,681	99°	49°
JUNE	0.00	0.06	17.79	6,560	100°	52°
JULY	0.00	0.01	19.74	7,416	106°	54°
AUGUST	0.00	0.01	18.97	7,185	102°	53°
SEPTEMBER	0.03	0.13	12.68	5,497	98°	54°
OCTOBER	0.72	0.40	6.31	3,467	87°	39°
NOVEMBER	5.53	0.98	1.57	2,392	71°	35°
DECEMBER	0.74	1.47	1.01	1,731	64°	20°
TOTALS/EXTREMES	8.15	8.56	115.79	54,257	106°	20°

TABLE I. Weather data collected by Bureau of Reclamation at the San Luis Dam, located 12 miles west of Los Banos.

II. WILDLIFE

A. Migratory Birds:

1. Waterfowl:

Swan use days totaled 6,895 which is 2,688 more than last year. However, this year's recorded peak of 225 is a decrease of only five birds from last year. San Luis' swan maintenance objective is 2,000 use days per year.

Total goose use decreased to 1,717,270 use days, which is 351,146 less than 1971. The recorded peak population of 20,375 is also a decrease from the 1971 peak of 30,710. Goose use days this year were slightly less than one-half of the objective level of 2.5 million.

Duck use days totaled 24,280,300 this year and 28,538,736 in 1971. However, this total use decrease was not reflected in the recorded peak population which increased from 436,075 in 1971 to 803,900 this year. The duck maintenance objective is 30 million use days per year.

This year's estimated duck production totaled 275. The 1971 production estimate was 585.

Coot use days totaled 1,040,465 this year. This is a decrease of 236,195 use days from the 1971 total. The peak population numbered 10,500 this year, as compared to 10,000 last year.

2. Marsh and Water Birds:

Common, resident species were great blue herons, common and snowy egrets, American bitterns, black-crowned night herons, and pied-billed grebes. Recorded population numbers and behavior were normal for all these species during 1972.

Sandhill cranes, white pelicans, and white-faced ibises were all migrant visitors again this year. Incidental observations indicated an increase in "crane" use this year and the peak population was estimated to be 6,000. The recorded peak number of pelicans was 300 and the most ibises recorded was seven.

One sighting of a wing-tagged pelican was recorded on November 9. The bird was wearing a dark colored wing tag which appeared to be either black or dark blue. The observer was unable to detect any markings on the tag.

3. Shorebirds, Gulls and Terns:

American avocets, black-necked stilts, long-billed dowitchers, killdeer, western sandpipers, least sandpipers, and greater yellowlegs were all common at various times during the year.

Long-billed curlews, dunlin, common snipe, California gulls, ring-billed gulls, Caspian terns and Forester's terns were observed occasionally throughout the year.

4. Doves:

Nothing significant or unusual to report.

B. Upland Game Birds:

Ring-necked pheasants were released again this year during field dog trials on the refuge. A total of 272 hens and 152 roosters were released by the field trial people.

The California quail population appears to be stable at about 150 birds.

C. Big Game Animals:

No big game species inhabit the refuge or adjacent lands.

D. Fur Animals, Predators, Rodents and Other Mammals:

A total of 17 species have been identified on San Luis. The endangered San Joaquin kit fox was reintroduced in 1970 and a den containing three pups was found this year.

E. Hawks, Owls, Eagles and Kites:

Data on this group of birds shows nothing unusual during the reporting period.

F. Other Birds:

The appended list shows species, abundance and seasonal use for 160 different birds. No new species were observed this year.

G. Fish:

Species include carp, largemouth bass, black crappie, channel catfish, striped bass and threadfin shad. No fishery management or stocking programs are conducted on the refuge. The appended fishing map shows the areas open to public fishing.

H. Reptiles and Amphibians:

A list is being compiled, but no new species were added this year.

I. Disease:

We had no disease outbreaks during 1972.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development:

1. Canals and Water Control Structures:

a. The major work program for the year was cleaning and reshaping the bank along 2.68 miles of "C" Canal and one-mile of "E" Canal. "E" Canal and one-mile of "C" Canal was done with Refuge crawler dragline. The remaining 1.68 miles of "C" Canal was done with a rental dragline.

b. The 60 hp pump at Lift Station 1 was removed and a new impeller and intake manifold was installed.

c. An 18-inch c.m.p. and flashboard riser was installed in the south marsh ponds. This metal flashboard structure replaced a deteriorated wooden structure.

d. Around the south ponds, 1.75 miles of levees were raised and resloped with a refuge dozer and carryall. Approximately 2.4 miles of levees were resloped in Moffat Field.

e. Approximately 451 tons of rock riprap were placed around water control structure and pumping stations to control bank erosion.

f. A contract was awarded to West Side Pump Company of San Joaquin, California, to furnish and install ready for operation, 3 new pumps, a 75 hp at Lift 1, a 60 hp at Lift 2 and 50 hp at Lift 3. As of year's end, only the new control panels have been installed.

2. Road Construction and Maintenance:

All roads were graded as needed and as weather conditions permitted.

3. Fence Construction and Maintenance:

Fence repairs were kept to a minimum this year since we will be removing the interior fences now that the termination of grazing has become a reality.

4. Building Maintenance:

a. Only necessary maintenance was performed on the buildings this year.

b. The hay storage barn received no maintenance, because it will be removed. This barn is no longer needed since it was used only by the grazing permittee.

c. California Department of Fish and Game personnel made necessary repairs to the outside of the check station. They painted it inside and out, and also refinished the cooperative hunting sign.

5. Miscellaneous:

The normal amount of routine maintenance tasks were performed. Although these smaller tasks do not warrant discussion, they collectively require a great deal of time and money to keep the refuge operating.

B. Plantings:

1. Aquatic and Marsh Plants:

Nothing to report.

2. Trees and Shrubs:

Nothing to report.

3. Upland Herbaceous Plants:

Nothing to report.

4. Cultivated Crops:

Of the total 266 acres of cropland on the refuge, only 175 acres were farmed during the year. Fields B, C and D produced excellent stands of wild millet, Echinochloa crusgalli. Preparation of the fields involved disking and reshaping contours. Seeding was done with a tractor powered broadcast seeder.

Water was first turned into these fields on May 5. This early irrigation allowed plenty of time for an early maturing crop of millet. The fields were irrigated just three times during

the growing season. These fields will not be flooded until middle or late January 1973, depending on waterfowl populations.

Approximately 20 acres of Teal Lake were planted to barley this fall. Teal Lake was dried up for cattail control and planting barley afterward, to leech soil moisture, has proven very successful. The barley uses the moisture in early spring and thus cattail are robbed of the most important element necessary for growth.

C. Collections and Receipts:

1. Seed or Other Propagules:

Nothing to report.

2. Specimens:

Several specimens were collected during the year. None were actually killed for a specimen. They were all dead birds found in the field or seized as evidence from hunters. Specimens were donated to Modesto Junior College and the National Museum in Washington, D. C.

D. Control of Vegetation:

The San Joaquin River flood control levee and our lift canal banks were sprayed with 2,4-D iso-octyl ester during March and April. The river levee must be sprayed to satisfy conditions of our agreement with the Levee District. They do not want broadleaf plants competing with sod-forming grasses on the levee slopes. Our lift canal is sprayed to control milk thistles which fall into the canal and hamper pump operation.

Approximately 90 acres of Unit 6 in the Moffat Field and 110 acres in the Loaf Lake area were mowed with a rotary mower and the cattail, bulrush and juncus residue burned. Unit 6 was mowed in May, burned on July 10, and kept dry until early October. The time between mowing and burning let the cattails attain some new growth and the burn resulted in a good kill. The 110 acres in the Loaf Lake area were burned June 28 and kept dry the remainder of the year.

Approximately 80 acres were burned in Teal Lake on March 15. This area remained dry all summer. Barley was planted on some

of the higher ground to help control cattails and juncus growth, as already mentioned.

E. Planned Burning:

Cattail, bulrush, and juncus residue on approximately 280 acres was burned in conjunction with control of vegetation programs.

F. Fires:

No wild fires occurred on the refuge during the year.

IV. RESOURCE MANAGEMENT

A. Grazing:

Mr. Butler Noble grazed cattle on the refuge and utilized a total of 6,683.68 AUM's during the year. The rate charged was \$3.75 per AUM and the total income amounted to \$25,074.03. The following table shows total AUM's and grazing revenue for the years 1967 through 1972.

<u>YEAR</u>	<u>TOTAL AUM's</u>	<u>TOTAL REVENUE</u>
*1967	7,466	\$27,997.50
1968	9,685	36,318.75
1969	10,552	39,571.98
1970	9,157	34,340.27
1971	7,447	27,926.38
1972	<u>6,684</u>	<u>25,074.03</u>
Totals:	50,991	\$191,228.91

*March 1 - December 31, only.

Mr. Noble's grazing permit expired on December 31, 1972, and we decided not to renew it. We plan to manage the area without grazing unless we determine that closely controlled grazing can be used effectively as a tool to control marsh vegetation.

B. Fur Harvest:

Nothing to report.

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

Fisheries Services personnel from Reno, Nevada, operated gill nets in Deadman Slough again this year. The fish taken were for analysis as part of the continuing National Pesticide Monitoring Program.

VI. PUBLIC RELATIONS

A. Recreational Uses:

Total visits to the refuge decreased from 16,087 in 1971, to 14,977 this year. Hunting and fishing accounted for 68 percent of this total with 5,488 hunters and 4,725 fishermen. Wildlife observation accounted for 3,031 visits and 880 visits were from field dog trial events.

B. Refuge Visitors:

The list of official visitors, which is on file at the refuge, is quite lengthy. Those agencies and organizations represented include:

Merced County Agriculture Department
Division of River Basins
California Department of Fish and Game
Committee for the Preservation of Tule Elk
Bureau of Reclamation
Texaco Oil Company
Merced County Health Department
Grassland Water District
Soil Conservation Service
Pacific Telephone Company
Pacific Gas and Electric Company
National Park Service
Lea Act Committee
Division of Management and Enforcement
Sierra Club
Division of Wildlife Services
University of California
Division of Wildlife Refuges
Bureau of Sport Fisheries and Wildlife, Portland, Oregon (R.O.)

C. Refuge Participation:

Refuge personnel attended and/or participated in a variety of meetings, tours, presentations and civic, service organization activities throughout the year.

D. Hunting:

Our section of California had a split waterfowl hunting season this year. The first part opened on October 14 and closed on December 20 and the second part opened December 27 and closed January 20, 1973. Most of the hunters contacted could not understand the reason for such a short mid-season closure and the younger hunters, who were out of school for the holiday vacation, were quite disappointed because of the closure. The consensus was that such a short closed period had no noticeable effect on the birds or hunting.

But you had to buy two licenses instead of one.

The California Department of Fish and Game managed the hunting program much the same as in past years. The fee was \$3.50 per

day for adult hunters while holders of juvenile licenses were admitted free when accompanied by an adult. State personnel operated the check station, posted the hunting area and maintained facilities directly associated with the hunting program. Law enforcement was a combined effort between state and federal personnel.

A total of 270 hunters was checked on the first opening day. This was 31 less than the opening in 1971. Throughout the season, 5,646 hunters bagged 11,563 waterfowl for a season average of 2.1 birds per hunter.

Snipe hunting was allowed, but little interest was shown. The total season bag was 12 common snipe.

Ring-necked pheasants were not hunted on San Luis Refuge this year.

E. Violations:

Thirteen violators paid a total of \$670.00 in fines during the year. All violations were related to hunting or fishing activities and apprehensions were mostly by refuge personnel, although California Department of Fish and Game personnel issued some of the hunting violations.

F. Safety:

Monthly SAFETY meetings were attended by personnel from all three refuges of the San Luis Complex.

A total of four minor accidents involving permanent personnel resulted in no time lost from duty during the year. The only lost time accident involved a summer laborer who twisted his ankle and was off work for 11 days.

VII. OTHER ITEMS

A. Items of Interest:

Ronald W. Stroh was assigned to the San Luis Complex as a Student Trainee during the summer. Ron's enthusiasm, undying interest in learning, and willingness to accept additional responsibility are commendable traits.

Clerk-Typist, Jo Ann Barger resigned on September 2 to undergo back surgery. We began to realize the value of her services in a very few days after her resignation, and Mrs. Patricia Enos was most welcome when she accepted a part-time, short-term appointment on September 18. Pat learned rapidly and her services were a valuable asset to our operation.

Refuge Manager, Mel Nail transferred to the Region VI, Regional Office, on December 1, 1972. Although we regretted to see Mel leave, our best wishes went with him and his family.

B. Credits:

Sections I, II, IV, V, VI and VII - Assistant Refuge Manager, Sipe.
Section III - Maintenance Foreman, Mayle.

Typing of NR Forms - Clerk-Typist, Enos.

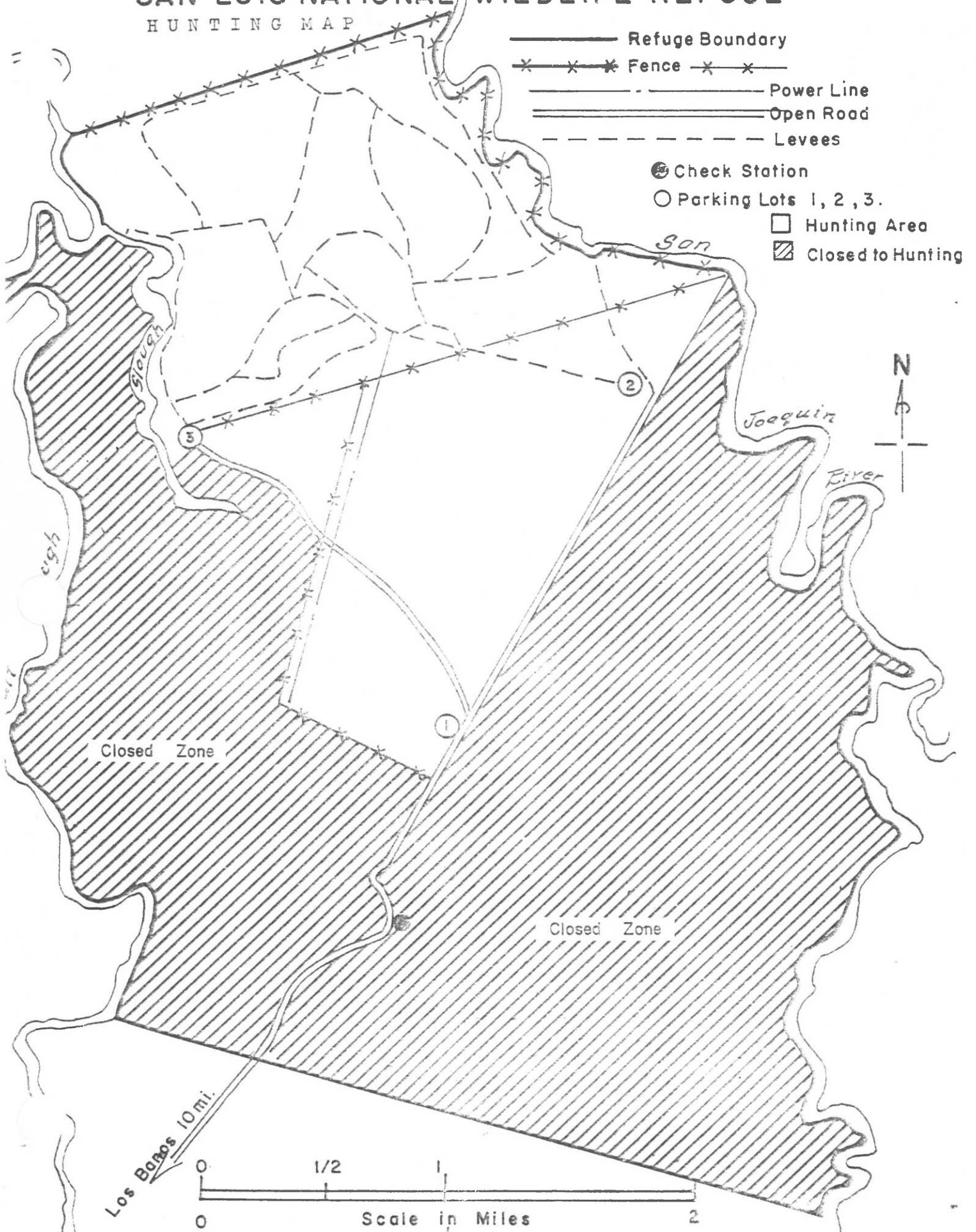
Typing of Narrative, editing, and assembling of report - Clerk-Typist, Barger.

All refuge personnel assisted in reporting much of the information contained herein.

Photograph credits are shown with each photograph caption.

SAN LUIS NATIONAL WILDLIFE REFUGE

HUNTING MAP



SAN LUIS NATIONAL WILDLIFE REFUGE

MERCED COUNTY, CALIFORNIA

UNITED STATES
DEPARTMENT OF THE INTERIOR

U.S. FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

120° 50'

RIOE RII E

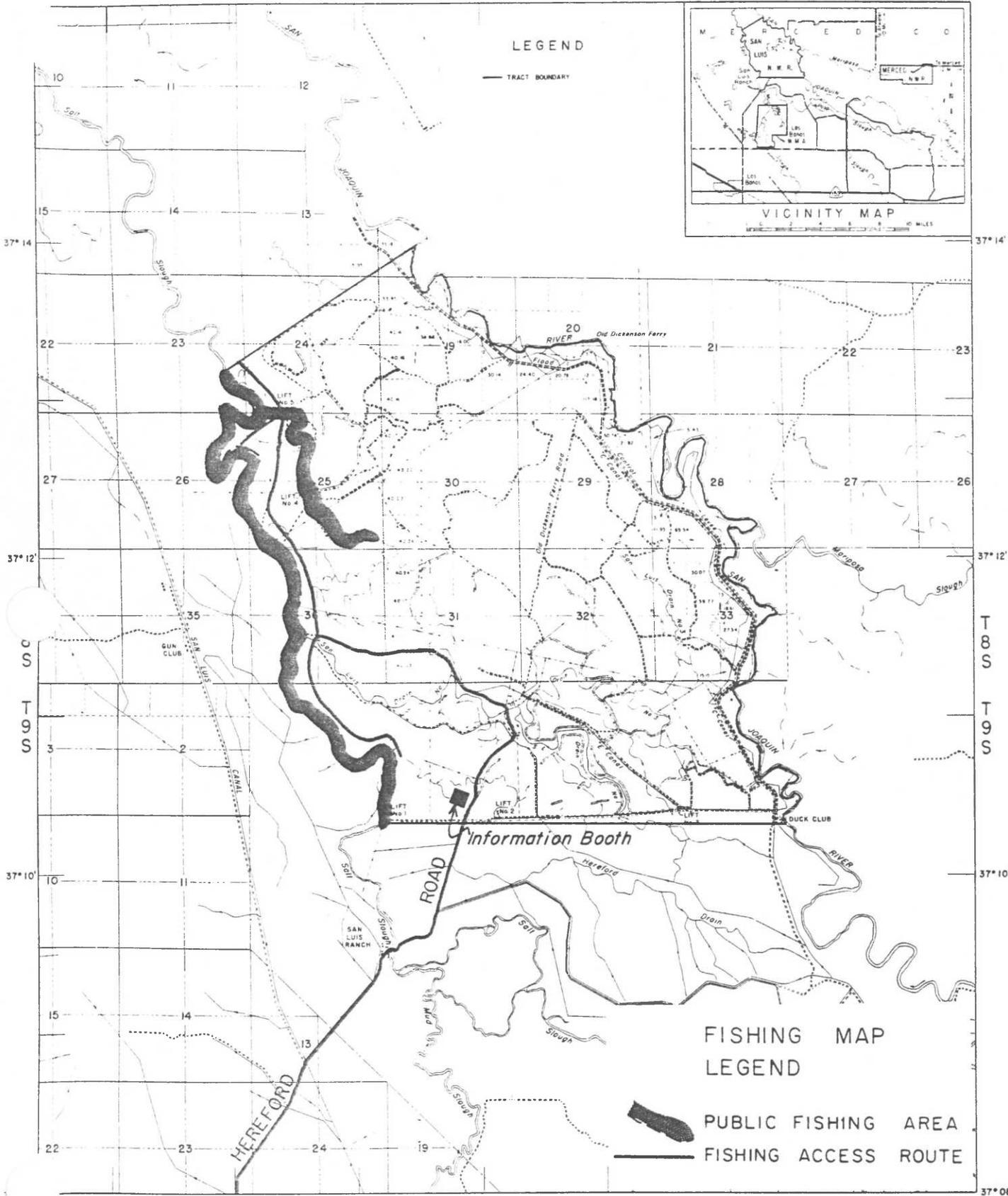
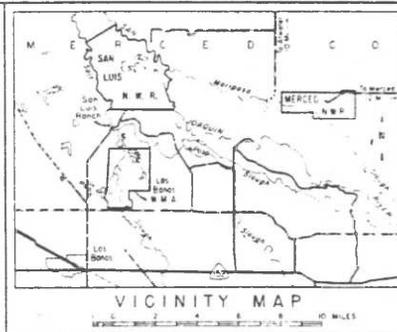
120° 48'

120° 46'

120° 44'

LEGEND

— TRACT BOUNDARY



FISHING MAP LEGEND

Public Fishing Area
Fishing Access Route

COMPILED IN THE BRANCH OF ENGINEERING
FROM SURVEYS BY AERIAL PHOTOGRAPHY,
B.L.M., U.S.G.S., C.E. AND FBWS

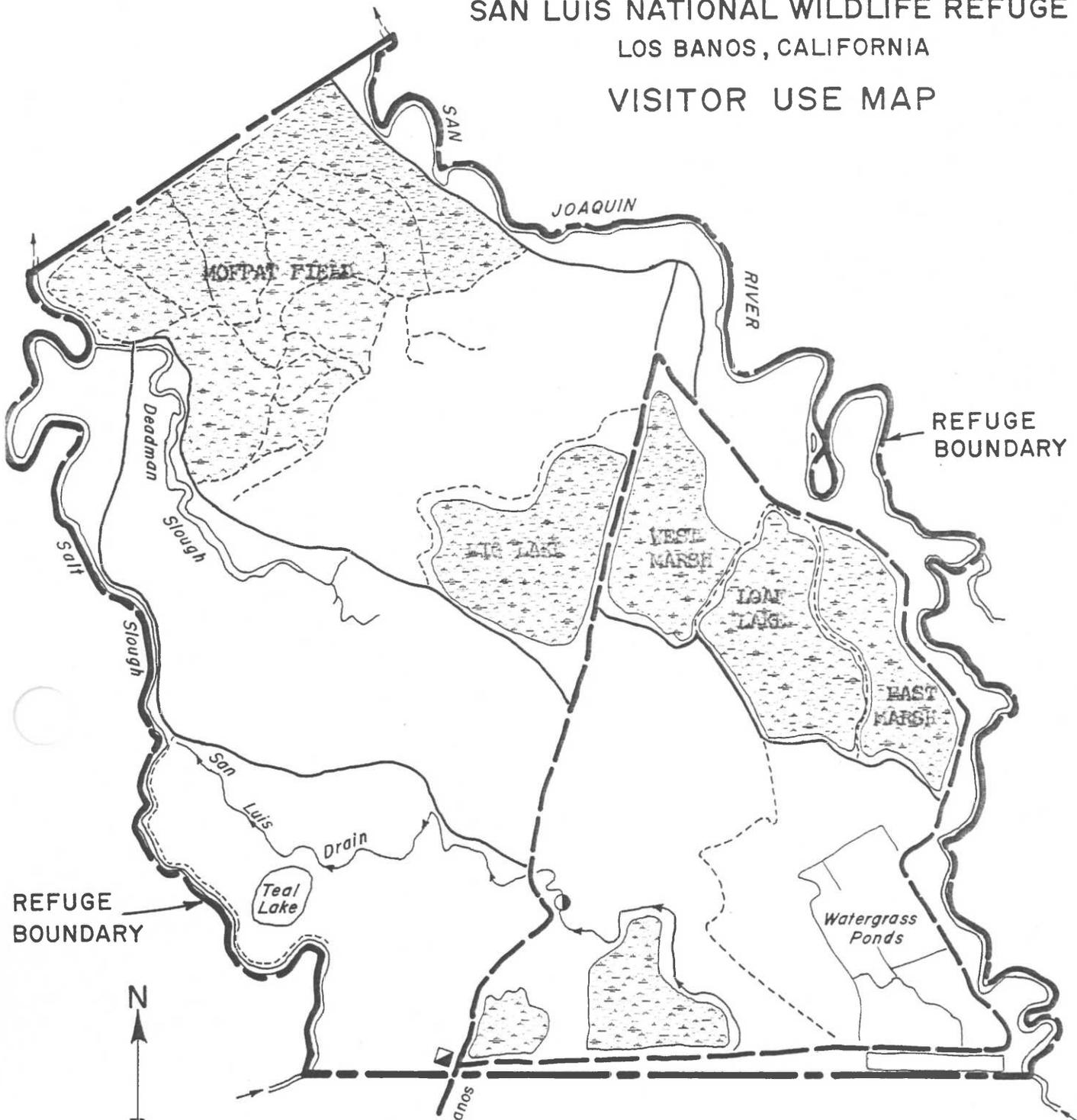
MT. DIABLO MERIDIAN



PORTLAND, OREGON DECEMBER, 1967
REVISED: 4-67

IR CALIF 771 411

SAN LUIS NATIONAL WILDLIFE REFUGE LOS BANOS, CALIFORNIA VISITOR USE MAP



REFUGE
BOUNDARY

REFUGE
BOUNDARY



0 1/4 1/2 1 MILES

--- TOUR ROUTE ROAD - Open daily except opening and closing weekend of waterfowl hunting season. Permit required on Sat., Sun., and Wed. during waterfowl hunting season.

— GRAVEL ROADS } Open daily except closed on Sat., Sun., and Wed. during waterfowl hunting season.
- - - IMPROVED ROADS AND TRAILS. Dry Weather use only.

- ⊙ CHECK STATION, AREA ENTRANCE
- ▣ REGISTRATION AND INFORMATION BOOTH



BIRDS OF THE SAN LUIS NATIONAL WILDLIFE REFUGE

SAN LUIS NATIONAL WILDLIFE REFUGE lies in western Merced County of California's San Joaquin Valley. Established in 1967, it was once part of the San Luis Gonzaga Grant whose extensive marshes attracted waterfowl in numbers "darkening the sky." Great cattle herds ranged this marshy country for many years, finally yielding, as did the waterfowl, to farming and industry. San Luis Refuge remains as a pleasant reminder of the once magnificent San Joaquin marshes.

About a third of the refuge is marsh and ponds, ranging from a half-acre to 40 acres in size. The refuge is bordered on the east by the San Joaquin River and on the west by Salt Slough. Wooded sloughs meander through the area, providing ideal habitat for many birds and other animals. Streams are well supplied with fish, including black and striped bass, catfish, crappies, sunfish, and carp.

The refuge is a year-round home for many kinds of interesting wildlife. Half a million or more waterfowl concentrate here during fall and winter. The best time to view these large waterfowl concentrations is from October through December. Mallards, pintails, cinnamon teal, shovelers, gadwalls, and ruddy ducks nest on the refuge.

Shorebirds, including avocets, black-necked stilts, dowitchers, sandpipers, and curlews, are abundant migrants. Herons, egrets, and bitterns nest at San Luis. Great flocks of sandhill cranes are seen in fall and winter, and large numbers of white-faced ibis come in December. Thousands of mourning doves migrate through the refuge; large numbers remain year-round.

San Luis is a rewarding place for bird watchers. Refuge tours are available all year except when roads become too muddy in extended winter rainy periods. For guided tours contact the Refuge Manager, San Luis National Wildlife Refuge, P.O. Box 2176, Los Banos, California 93635, or phone 209-826-3508. An information and registration booth for self-guided tourists is provided at the refuge entrance.

The following bird list contains 160 species representing observations made by refuge personnel and other qualified observers. This is a preliminary list only, and further study will show additional species are present. Refinements in reporting seasonal abundance will also be forthcoming. Abundance by season is shown as follows:



UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

BUREAU OF SPORT FISHERIES AND WILDLIFE

Refuge Leaflet 229 June 1968



W - December-February
 S - March-May
 S - June-August
 F - September-November

a - abundant
 c - common
 u - uncommon
 o - occasional
 r - rare

	<u>W</u>	<u>S</u>	<u>S</u>	<u>F</u>		<u>W</u>	<u>S</u>	<u>S</u>	<u>F</u>
Common Loon				r	Sharp-shinned Hawk	u			u
Horned Grebe				r	Cooper's Hawk	u	o	o	
Eared Grebe	c	u		r	Red-tailed Hawk	a	a	a	a
Western Grebe	u	u	c	c	Red-shouldered Hawk				u
Pied-billed Grebe	a	a	a	a	Swainson's Hawk				u
White Pelican	c	u	u	c	Rough-legged Hawk	r			
Double-crested Cormorant	c	o	r	u	Ferruginous Hawk	r			
Great Blue Heron	a	a	a	a	Golden Eagle	u			u
Green Heron		r		r	Marsh Hawk	a	a	a	a
Common Egret	a	a	c	a	Peregrine Falcon				r
Snowy Egret	a	a	a	a	Sparrow Hawk	a	a	a	a
Black-crowned Night Heron	a	a	a	a	California Quail				u
Least Bittern				r	Ring-necked Pheasant	c	c	c	c
American Bittern	a	a	c	a	Sandhill Crane	a			a
White-faced Ibis	c	u	u		Virginia Rail	c	c	c	c
Whistling Swan	c				Sora	c	c	c	c
Canada Goose (3 subspecies)	c	u		o	Common Gallinule	a	a	a	a
White-fronted Goose	a	c		a	American Coot	a	a	a	
Snow Goose	a	c		a	Semipalmated Plover				u
Ross' Goose	c	u		u	Snowy Plover	r			
Fulvous Tree Duck	u			r	Killdeer	a	a	a	a
Mallard	a	a	a	a	Black-bellied Plover	u	u	u	u
Gadwall	a	a	c	a	Common Snipe	a	c	u	a
Pintail	a	c	a	a	Long-billed Curlew	a	a	c	a
Green-winged Teal	a	u	u	a	Whimbrel				c
Blue-winged Teal	r	r	r	r	Spotted Sandpiper				u
Cinnamon Teal	c	a	a	a	Willet	r			r
American Widgeon	a	a	u	c	Greater Yellowlegs	a	c	c	a
Shoveler	a	a	c	a	Lesser Yellowlegs				u
Wood Duck		u		c	Least Sandpiper	c	a	c	a
Redhead		u		c	Dunlin	u	c		u
Ring-necked Duck	c			c	Dowitcher (species?)	a	a	c	a
Canvasback	u	r		u	Western Sandpiper				c
Lesser Scaup	c			c	Marbled Godwit				r
Common Goldeneye	u			u	American Avocet	a	a	a	a
Bufflehead	u			u	Black-necked Stilt	r	a	a	u
Ruddy Duck	a	a	c	a	Wilson's Phalarope				u
Hooded Merganser				r	Northern Phalarope				u
Common Merganser	u				California Gull	c	u	u	c
Turkey Vulture	u	c	c	u	Ring-billed Gull	a	u	u	c
White-tailed Kite	c	u	u	a	Forster's Tern				u

	<u>W</u> <u>S</u> <u>S</u> <u>F</u>		<u>W</u> <u>S</u> <u>S</u> <u>F</u>
aspian Tern	u u	Western Bluebird	u u
Black Tern	c c	Ruby-crowned Kinglet	u u u
Mourning Dove	a a a a	Water Pipit	a c a
Barn Owl	c c u c	Loggerhead Shrike	a a a a
Great Horned Owl	c c c c	Starling	a a c a
Burrowing Owl	a a c c	Hutton's Vireo	u r
Short-eared Owl	u c	Warbling Vireo	c
Lesser Nighthawk	u u	Orange-crowned Warbler	u
Rufous Hummingbird	u	Yellow Warbler	u
Belted Kingfisher	u u	Myrtle Warbler	u r
Red-shafted Flicker	a a a a	Audubon's Warbler	a c a
Acorn Woodpecker	u	Black-throated Gray Warbler	u
Lewis' Woodpecker	u u u c	Townsend's Warbler	u
Downy Woodpecker	u u	Yellowthroat	u
Nuttall's Woodpecker	u c u u	Wilson's Warbler	c
Western Kingbird	a a	House Sparrow	a a a a
Ash-throated Flycatcher	c c	Western Meadowlark	a a a a
Black Phoebe	a a a a	Yellow-headed Blackbird	r a c r
Say's Phoebe	u u u	Red-winged Blackbird	a a a a
Western Flycatcher	u u	Tricolored Blackbird	u a c u
Western Wood Pewee	c u	Bullock's Oriole	c a
Horned Lark	a c c a	Brewer's Blackbird	a a a a
Tree Swallow	a a a a	Brown-headed Cowbird	u c u
Rough-winged Swallow	u c	Western Tanager	c u
Barn Swallow	a a	Blue Grosbeak	u u
Cliff Swallow	a a	House Finch	a a a a
Scrub Jay	u u	American Goldfinch	u c u
Yellow-billed Magpie	a a a a	Lesser Goldfinch	u
Common Raven	c c c	Rufous-sided Towhee	u r r
Common Crow	u c c c	Brown Towhee	c c
Plain Titmouse	u	Savannah Sparrow	a a a
White-breasted Nuthatch	u	Vesper Sparrow	r r
Red-breasted Nuthatch	u	Lark Sparrow	u u
House Wren	u u	Oregon Junco	r c u
Bewick's Wren	u c u	White-crowned Sparrow	a a r a
Long-billed Marsh Wren	a a a a	Golden-crowned Sparrow	u c r
Mockingbird	a a a a	Fox Sparrow	r
Robin	o o o r	Lincoln's Sparrow	r
Swainson's Thrush	c r	Song Sparrow	a a a a

Refuge San Luis N.W.R.

1972-73 Season

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
Opening Day 10/14	271	1080	Green-winged Teal 257, Mallard 179, Pintail 131, Cinnamon Teal 50, Shoveler 40, Gadwall 30, Baldpate 13, Coot 7, Ruddy Duck 2, Canvasback 2, Ring-necked Duck 1.	717	353	1075	270	1075
10/15-21	465	1360	Green-winged Teal 417, Cinnamon Teal 109, Mallard 103, Pintail 73, Gadwall 39, Shoveler 32, Coot 23, Baldpate 22, Ruddy Duck 4, Canvasback 2, Scaup 1, Wood Duck 1	833	416	1249	465	1249
10/22-28	406	1624	Green-winged Teal 114, Pintail 52, Gadwall 39, Coot 37, Mallard 35, Cinnamon Teal 30, Ruddy Duck 15, Baldpate 13, Shoveler 5, Ring-necked Duck 2, Scaup 2, Wood Duck 2, Redhead 1, Snipe 1, Snow Goose 1	350	175	525	406	525
10/29-11/4	296	1184	Green-winged Teal 171, Pintail 133, Mallard 76, Gadwall 57, Coot 29, Shoveler 24, Cinnamon Teal 17, Baldpate 14, Ruddy Duck 12, White-fronted Goose 4, Snow Goose 3, Ring-necked Duck 3, Scaup 2, Canvasback 1, Buffle-head 1, Wood Duck 1, Hooded Merganser 1, Ross Goose 1	539	263	807	296	807
11/5-11	333	1532	Green-winged Teal 132, Coot 72, Pintail 30, Mallard 29, Gadwall 24, Ruddy Duck 23, Shoveler 20, Cinnamon Teal 19, Baldpate 12, Canvasback 2, Snipe 1	372	186	558	333	558

Refuge San Luis N.H.R.

1972-73 Season

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
11/12-18	315	1380	Green-winged Teal 412, Pintail 45, Gadwall 27, Mallard 24, Shoveler 22, Cinnamon Teal 19, Baldpate 15, Coot 10, Cackling Goose 5, White-fronted Goose 3, Ruddy Duck 3, Ring-necked Duck 2, Snow Goose 2	839	294	833	315	833
11/19-25	377	1508	Green-winged Teal 195, Coot 98, Cackling Goose 64, Mallard 49, Pintail 39, Gadwall 30, Shoveler 26, Baldpate 25, Cinnamon Teal 21, Ruddy Duck 15, White-fronted Goose 8, Ross Goose 6, Snow Goose 2, Redhead 1, Ring-necked Duck 1	579	289	868	377	868
11/26-12/2	275	1100	Green-winged Teal 264, Shoveler 134, Pintail 61, Gadwall 36, Baldpate 34, Mallard 27, Coot 23, Ruddy Duck 16, Cinnamon Teal 13, Cackling Goose 13, Snow Goose 4, White-fronted Goose 3, Ross Goose 3, Scaup 2, American Merganser 2	635	317	952	275	952
12/3-9	369	1476	Green-winged Teal 421, Shoveler 331, Pintail 100, Gadwall 98, Cackling Goose 5 Baldpate 53, Mallard 44, Ruddy Duck 23, Snow Goose 19, Ross Goose 19, Coot 19, White-fronted Goose 7, Cinnamon Teal 3, Redhead 2, Ring-necked Duck 2, Canvasback 1, Scaup 1, Canada Goose 1	1200	600	1800	369	1800
12/10-16	409	1636	Shoveler 373, Green-winged Teal 269, Gadwall 54, Pintail 44, Baldpate 40, Ruddy Duck 39, Mallard 27, Cackling Goose 25, Coot 24, Cinnamon Teal 7, Canada Goose 3, Ring-necked Duck 3, Scaup 1, White-fronted Goose 1, Snow Goose 1, Ross Goose 1, Swan 1, American Merganser 1	904	452	1356	409	1356

Refuge San Luis N.W.R.

1972-73 Season

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
12/17-23	282	1128	Green-winged Teal 170, Shoveler 87, Ruddy Duck 51, Coot 27, Baldpate 22, Pintail 20, Gadwall 13, Mallard 6, Ross Goose 6, Cackling Goose 5, American Merganser 4, Snow Goose 2, Scaup 2, Cinnamon Teal 2, Canvasback 1, Wood Duck 1, White-fronted Goose 1	420	210	630	282	630
SEASON CLOSED 12/21 thru 12/26								
12/24-30	371	1484	Green-winged Teal 663, Shoveler 274, Cackling Goose 110, Gadwall 71, Baldpate 71, Pintail 70, Ruddy Duck 46, Mallard 41, Ross Goose 38, Coot 27, Snow Goose 13, American Merganser 10, Canada Goose 9, Cinnamon Teal 8, White-fronted Goose 5, Ring-necked Duck 1	1457	728	2185	371	2185
12/31-1/6	337	1548	Green-winged Teal 413, Shoveler 189, Coot 57, Pintail 45, Baldpate 41, Ruddy Duck 41, Ross Goose 28, Gadwall 24, Cackling Goose 19, Mallard 18, Snow Goose 12, Snipe 10, White-fronted Goose 10, American Merganser 4, Cinnamon Teal 3, Canada Goose 2	916	458	1374	337	1374
1/7-13	519	2076	Green-winged Teal 637, Shoveler 119, Baldpate 49, Ruddy Duck 45, Coot 28, Cackling Goose 25, Pintail 25, Mallard 19, Gadwall 14, American Merganser 13, Cinnamon Teal 12, Snow Goose 10, Ross Goose 9, White-fronted Goose 8, Canada Goose 1, Buffle-head 1	1015	507	1522	519	1522

Refuge San Luis N.W.R.

1972-73 Season

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
1/14-20	492	1968	Green-winged Teal 648, Shoveler 118, Cinnamon Teal 70, Baldpate 55, Coot 43, Pintail 27, Cackling Goose 19, Gadwall 14, American Merganser 12, Mallard 8, Buddy Duck 6, Snow Goose 6, Ross Goose 6, White- fronted Goose 3, Ring-necked Duck 1, Scaup 1	1037	513	1555	492	1555

Refuge San Luis NWRYear 1972

Botulism

Lead Poisoning or other Disease

Period of outbreak _____

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) _____

Condition of vegetation and invertebrate life _____

Remarks Nothing to report.

Kind of disease _____

Species affected _____

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks Nothing to report.

Refuge San Luis NWR Year 19 72

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
Nothing to report.													

- (1) Report agronomic farm crops on Form NR-8
- (2) C = Collections and R = Receipts
- (3) Use "S" to denote surplus

Total acreage planted:

Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____

Remarks: _____

3-175c
 Form NR-8
 (Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge SAN LUIS NWR County Mariposa State California

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
							Fallow Ag. Land		

No. of Permittees: Agricultural Operations None Haying Operations None Grazing Operations 1

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	760	6,683.68	25,074.03	7,080
				2. Other	2	2.73	10.24	7,080
				1. Total Refuge Acreage Under Cultivation				
Hay - Wild				2. Acreage Cultivated as Service Operation				

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

3-1576
NR-51
(1/2/51)

REFUGE GRAIN REPORT

Refuge San Luis NWR

Months of January through December, 1942

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Wild Millet	None	100 bu.	100 bu.		100 bu.			None			
Barley	None	51 bu.	51 bu.		51 bu.			None			

(8) Indicate shipping or collection points Received 100 bu. millet from Morced NWR. Purchased 51 bu. barley from Sherwood Hardware, Los Banos, California.

(9) Grain is stored at _____

(10) Remarks Seeded Fields B, C, & D.

*See instructions on back.

(9/63)

Bureau of Sport Fisheries and Wildlife

ANNUAL REPORT OF PESTICIDE APPLICATION

San Luis NWR

Proposal Number

Reporting Year

1972

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2/29	Milk Thistle & Mustard	San Joaquin Levee	8	2,4-D Low Volatile Ester 6L	6 gal.	4 lb./acre	Water 3 gal./ 200 gal.	Tank Sprayer
3/1-3/3	Milk Thistle & Mustard	San Joaquin Levee and Lift Canal	24	2,4-D Low Volatile Ester 6L	18 gal.	4 lb./acre	Water 3 gal./ 200 gal.	Tank Sprayer
4/15	Milk Thistle & Mustard	Lift Canal and Interior Roads	13	2,4-D Low Volatile Ester 6L	6 gal.	4 lb./acre	Water 3 gal./ 200 gal.	Tank Sprayer
5/1-5/3	California Ground Squirrel	Lift Canal	2	Carbon Bisulfide	6 gal.		Undiluted CS ₂ liquid	Atomizer Gun
5/16	California Ground Squirrel	Lift Canal	1.5	Carbon Bisulfide	4 gal.		Undiluted CS ₂ liquid	Atomizer Gun

10. Summary of results (continue on reverse side, if necessary)

2/29: 90% kill
 3/1-3/3: 80% kill
 4/15: 60% kill
 5/1-5/3: 75% kill
 5/16: 25% kill

Coyotes are common on San Luis and a glimpse of one is considered a memorable experience by those refuge visitors who are fortunate enough to see them.

Nail

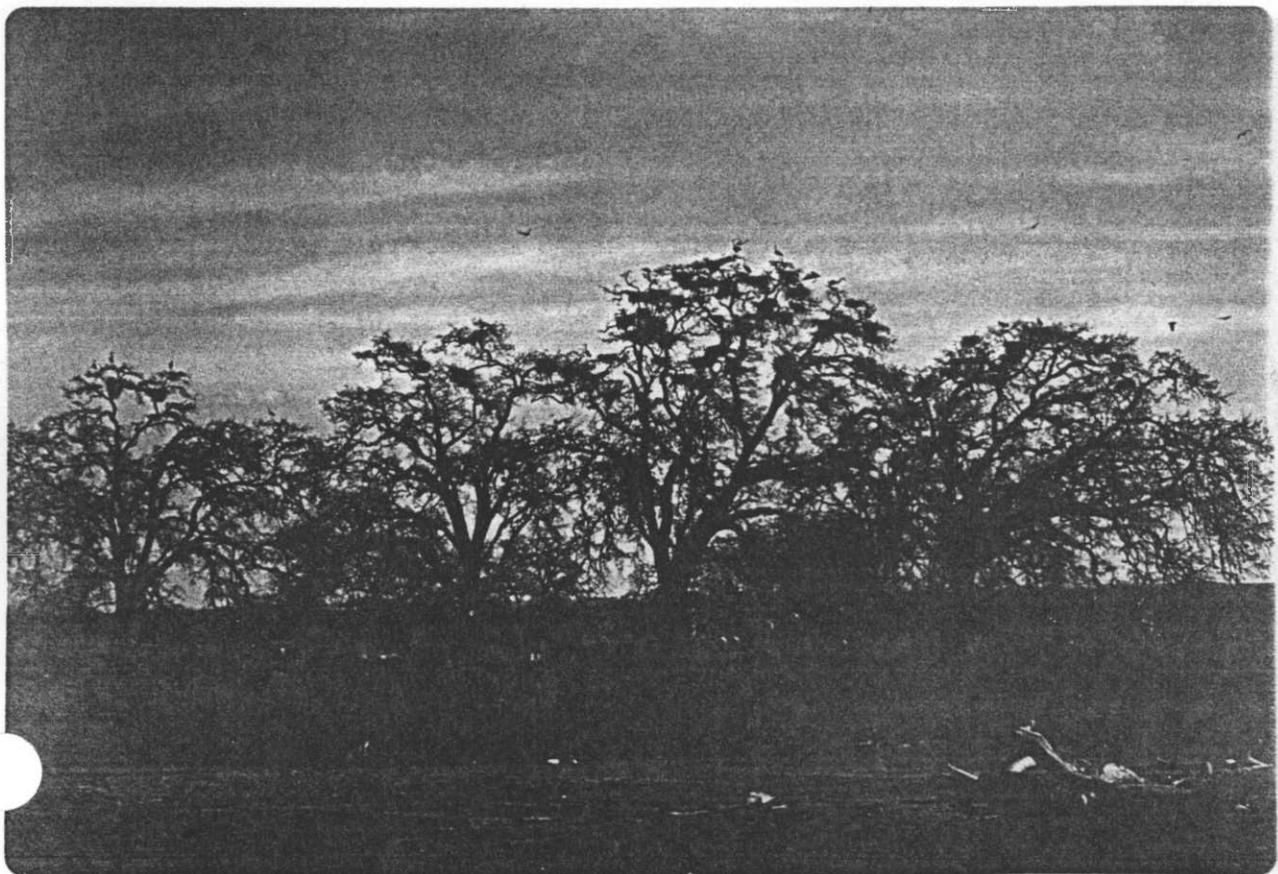
07/15/72

The population of California quail seems to be stable and these birds are often seen by those who visit the refuge early or late during the daylight hours. This pair had a nest located in the brush seen at the lower-right of this picture.

Sipe

03/23/72





Red-tailed hawks are resident and numerous.
This youngster was photographed at what
appears to be an age just shy of fledging.

Sipe

06/08/72

The number of great blue herons that feed in
refuge marshes increases drastically when this
rookery fledges its young. The rookery, which
was originally located on San Luis, has moved
onto adjacent, private land during the past
few years.

Nail

03/11/72

His curiosity aroused . . .

Sipe

03/15/72

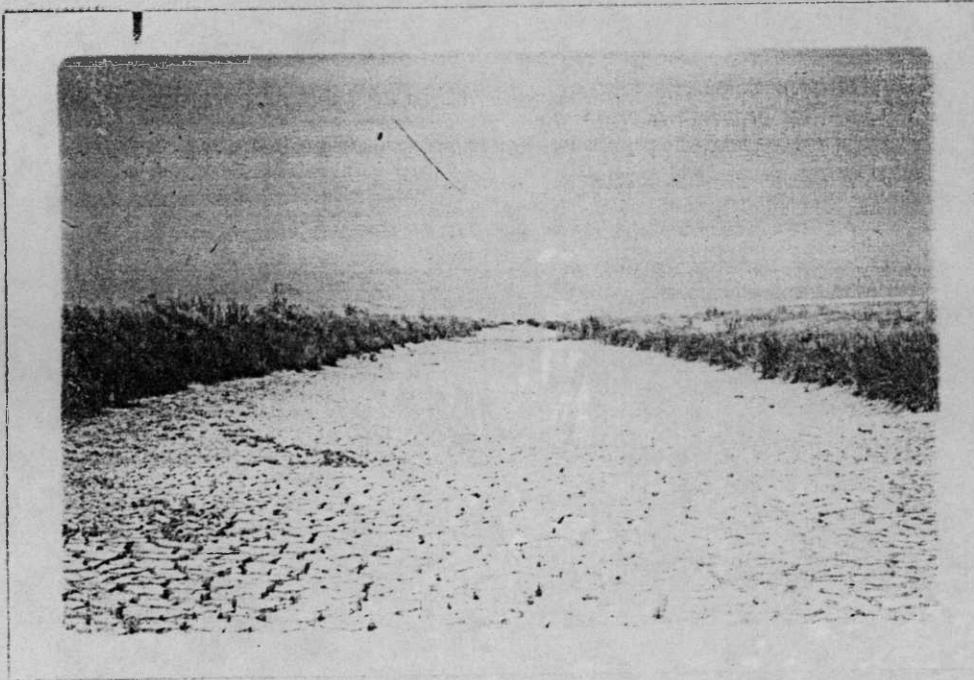
*Excellent - You!
DT
a new file!*

. . . this longtail weasel came out for a
better look.

Sipe

03/15/72

3





"C" Canal, which is one of our primary water distribution facilities, had become blocked by vegetative growth . . .

Nail

09/16/72

. . . and siltation, to the extent that its carrying capacity was only a fraction of design capacity.

Nail

09/16/72

Work on "C" Canal was a soil and moisture
project which . . .

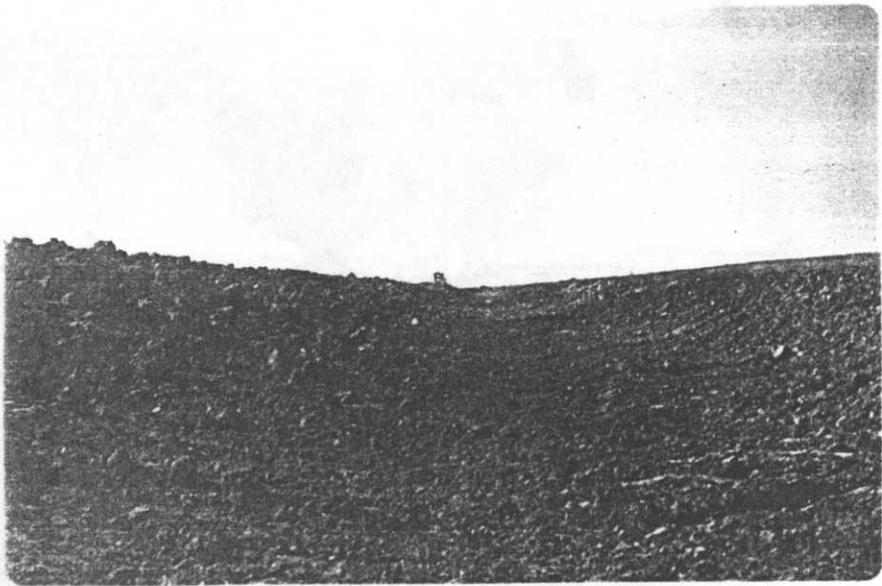
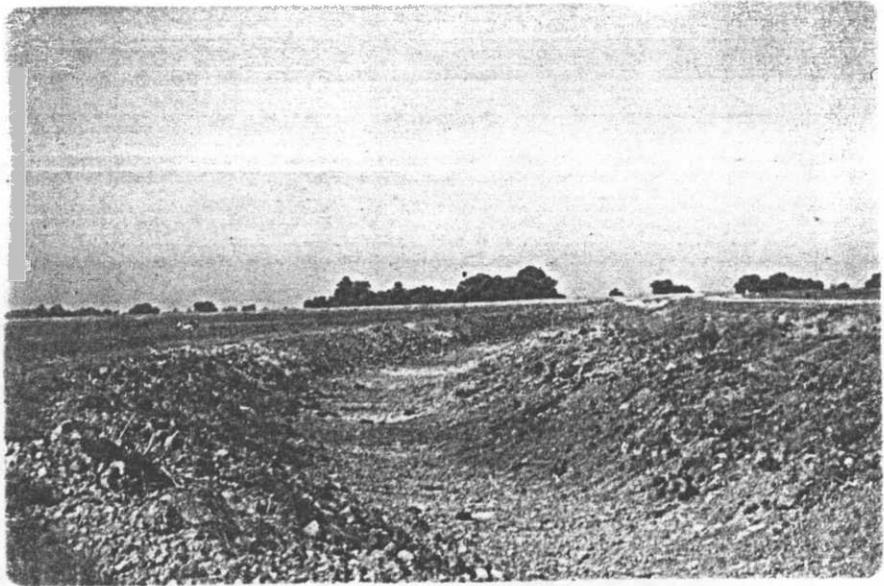
Mayle

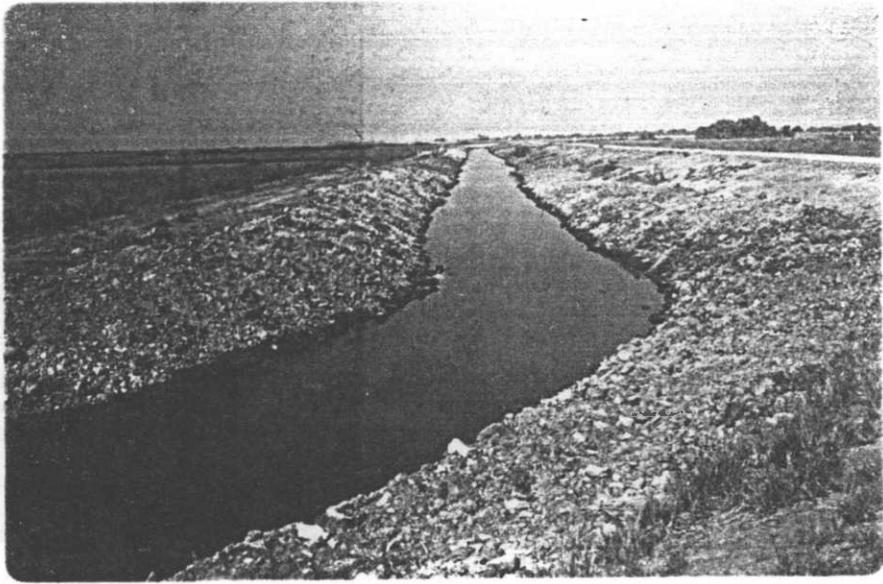
10/72

. . . restored its design capacity and greatly
improved our water distribution capabilities.

Mayle

10/72





*They were watching white Pelicans
Scaup and a G.H. owl on a nest.
7/17/71*

One of the 35 group tours that were conducted by refuge personnel during the year. This group represents the Monterey Peninsula Chapter of the Audubon Society.

Nail

03/11/72

This assortment of Bureau informational literature was displayed at the Western Conference of the National Audubon Society. The March 25-28 meeting was attended by refuge personnel who manned the display and answered questions concerning Bureau activities.

Sipe

03/25/72

The finished product being utilized.

Nail

10/72

Approximately one mile of "E" Canal was cleaned with a refuge dragline. Flow was obstructed in this canal by siltation and vegetation.

Nail

09/16/72



MERCED NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

January 1 to December 31, 1972

C O N T E N T S

	<u>PAGE</u> <u>NO.</u>
I. GENERAL	
A. Weather Conditions	1
B. Habitat Conditions	1
II. WILDLIFE	
A. Migratory Birds	1
B. Upland Game Birds	2
C. Big Game Animals	3
D. Fur Animals, Predators, Rodents and Other Mannals ..	3
E. Hawks, Owls, Eagles and Kites	3
F. Other Birds	3
G. Fish	3
H. Reptiles	3
I. Disease	3
III. REFUGE DEVELOPMENT AND MAINTENANCE	
A. Physical Development	3
B. Plantings	5
C. Collections and Receipts	6
D. Control of Vegetation	6
E. Planned Burning	7
F. Fires	7
IV. RESOURCES MANAGEMENT	
A. Grazing	7
B. Fur Harvest	7
V. FIELD INVESTIGATIONS OR APPLIED RESEARCH	
A. Progress Report	7
VI. PUBLIC RELATIONS	
A. Recreational Uses	7
B. Refuge Visitors	8
C. Refuge Participation	8
D. Hunting	8
E. Violations	8
F. Safety	9
VII. OTHER ITEMS	
A. Items of Interest	9
B. Credits	9

I. GENERAL

A. Weather Conditions:

Refer to San Luis section of this report.

B. Habitat Conditions:

1. Water:

Total cost for electrical power, to operate the 20 deep-well pumps, was \$31,471.81 this year. Water pumped totaled 13,770.56 acre feet for an average electrical cost of \$2.29 per acre foot. The cost per acre foot for 1969, 1970 and 1971 was \$2.00, \$2.00 and \$1.92, respectively. *what will it be in the future?*

One diesel powered pump was operated intermittently from June through December. It was used to lift water from Deadman Slough into Field 1. The pump was operated a total of approximately 700 hours during the year.

2. Food and Cover:

Wild millet was grown on about 550 acres and the standing crop was flooded during the fall and winter to provide food for migrating and wintering waterfowl.

More West Marsh acreage was flooded this year than in past years. This additional marsh provided excellent habitat conditions that attracted large numbers of waterfowl and sandhill cranes.

Again this year, the permanent pastures received decreased goose use. Waterfowl values provided by these pastures have declined steadily during the past five years to the present state of virtually no use. *Why is this and they have not been used?*

II. WILDLIFE

A. Migratory Birds:

1. Waterfowl:

Whistling swan use days totaled 2,015 this year as compared to 1,610 last year. The peak population was 40 both this year and last. Merced's swan use objective is 1,900 use days per year.

Goose use totaled 167,665 use days during the year. This is a decrease of nearly 730,000 use days from 1971. Three main factors probably accounted for the decrease; (1) a trend of use shifting from Merced to San Luis; (2) a revised method of computing use based on average populations rather than peak populations; and (3) a general decline in the wintering goose population in the vicinity. The present goose use objective of 1,500,000 use days per year is now unrealistic and will be revised.

Total duck use days increased nearly 25 percent this year as compared to last year. This year's total was 4,897,945 use days. This year's peak population of 111,000 was nearly double last year's peak of 64,300. The duck use objective for Merced Refuge is 4 million use days per year.

Coot use totaled 330,455 use days, which is a decrease of about 116,000 from 1971. The peak population, however, increased from 3,700 last year to 4,000 this year.

2. Marsh and Water Birds:

Great blue herons, black-crowned night herons, American bitterns, and snowy and common egrets are resident species of this group. The most numerous species, however, was the sandhill crane which normally occurs from September through February. This year's recorded peak number of sandhills was 700 on October 28.

3. Shorebirds, Gulls and Terns:

Killdeer, American avocets, black-necked stilts, western and least sandpipers, long-billed dowitchers, and dunlin were observed using the refuge during the year. No unusual population numbers or behavioral activities were noted.

4. Doves:

The fall mourning dove migration indicated that this year's population was somewhat less than last year. Incidental observation on the refuge also showed a population decline this year as compared to 1971.

B. Upland Game Birds:

Ring-necked pheasants are resident and were seen regularly

Repairs included new bowls, bearings and drive shaft. Also, the motor burned out and had to be rewired.

b. Wells Nos. 6 and 2 caved in and shut off the water supply. Both pumps were pulled and the wells checked. It was determined that the wells were not worth repairing. As of this date, neither of these wells has been replaced.

c. Glory Hole was dried up this year and about 1.5 miles of levee was raised approximately one foot in height and the banks were reshaped. Four 24-inch c.m.p. with flashboard risers were installed to replace old wooden and metal hand made structures. We now have better control of water levels in Glory Hole.

d. All contours in Fields 1, 2, 3, 4, 4A, 6 and 8 were rebuilt prior to seeding watergrass.

e. All contours in the West Marsh were plowed and reshaped prior to fall flooding.

2. Road Construction and Maintenance:

All roads were graded as needed.

3. Fence Construction and Maintenance:

Routine repairs were made to all fences as required.

4. Building Maintenance:

a. Considerable work was done on the residence this year. A new bathroom floor, tile and bath tub was installed by refuge personnel and aluminum siding was installed by a contractor on an informal bid.

b. Routine maintenance was performed on all other buildings as needed.

5. Miscellaneous:

The usual amount of routine maintenance tasks were performed during the year. Although these routine tasks do not warrant

individual discussion, they collectively require a great deal of time and funds.

B. Plantings:

1. Aquatic Marsh Plants:

Horned-pondweed, Zannichellia palustris, was planted in Glory Hole after reflooding. The plants were acquired from the California Department of Fish and Game.

2. Trees and Shrubs:

No trees were planted during the year. Quail brush, Atriplex lentiformis, was planted along Deadman Slough. This year plants approximately 12 inches in height were transplanted from one side of Deadman Slough to the other. We hope this will prove to have been a successful operation. Spring moisture conditions will be an influential factor in this program's success.

3. Upland Herbaceous Plants:

Nothing to report.

4. Cultivated Crops:

Another excellent crop of watergrass was grown this year. The flooded watergrass fields received heavy waterfowl use prior to opening of waterfowl hunting season and at night and on non-shoot days, during the season. Field 8 was kept dry until late December and then flooded to provide good feeding conditions late in the season. This practice worked very well this year and made food available during the entire season. With Well 6 inoperable, it was impossible to adequately flood Field 8 until this later date when evaporation was at its lowest and winter rains provided some additional water.

Crops grown on the refuge during the year are shown in the following table:

<u>FIELD</u>	<u>CROP</u>	<u>ACREAGE</u>	<u>YIELD/GROWTH</u>
1	Millet	60	Good
2	Millet	105	Excellent
3	Millet	60	Good
4	Millet	45	Excellent
4A	Millet	50	Excellent
5	Millet	70	Good
6	Millet	60	Excellent
7	Barley (volunteer)		
8	Millet	98	Good
9	Upland Seeding	36	Good
10	Winter Barley (Green)	55	Good
11	Fallow	110	----

C. Collections and Receipts:

1. Seeds and Propagules:

A total of 11,480 lbs. of rice screenings were purchased from Farmer's Co-op in Dos Palos. The seed cost was \$46. per Ton and total cost was \$264.04. These screenings normally contain from 20 to 70 percent watergrass seed and usually some bulrush seed, also.

We purchased 12,320 lbs. of barley from Sherwood Hardware, in Los Banos. This seed barley cost us \$63.00 per Ton.

2. Specimens:

Several bird specimens were collected during the year. The majority of these birds were seized as evidence during hunting season. Those in good condition were salvaged for specimens. All birds were donated either to the National Museum in Washington, D. C., or to Modesto Junior College in Modesto, California.

D. Control of Vegetation:

Minor vegetation control around pumps, signs and buildings was accomplished through the use of 4% dichlobenil soil sterilant. Some spraying was done along roadsides and contours. In these areas, we used 2,4-D isoctyl ester in an effort to control milk thistles.

A portion of Grazing Unit No. 1 was mowed, burned, disked and then planted to barley in early October. The barley, which uses winter moisture, will be disked under in May and the field planted to watergrass. This method has been proved quite successful for controlling dense cattails and hardstem bulrush stands on our areas.

E. Planned Burning:

A portion of Grazing Unit No. 1 was burned to remove excess vegetation before disking. Also, the Glory Hole area was burned to remove cattail and hardstem bulrush before levee repairs were begun.

F. Fires:

Nothing to report.

IV. RESOURCE MANAGEMENT

A. Grazing:

A permit to graze cattle on the 318 acres of permanent pasture in Fields A, B, C and D, was issued to Favier Brothers Ranch. At \$4.00 per AIM, the revenue from 1,757.03 AIM's utilized, totaled \$7,028.12.

Favier Brothers Ranch was also issued a permit to graze cattle on Grazing Unit No. 1. This permit was for a period of only two months and when it terminated, grazing on this unit was ended since no useful wildlife management benefits are realized from this practice.

Haying, fur harvest, timber removal and other economic uses are not applicable to this refuge.

V. FIELD INVESTIGATIONS

Nothing to report.

VI. PUBLIC RELATIONS

A. Recreational Uses:

Visits to the refuge totaled 2,814 this year. Hunting accounted

Handwritten notes:
49 cc
7 years ago
(Dial)

for about 67 percent of these visits and most of the remainder was for wildlife observation.

B. Refuge Visitors:

See the San Luis section of this report.

C. Refuge Participation:

Refer to San Luis section of this report.

D. Hunting:

The opening of waterfowl hunting was delayed until October 28, since Merced is a Lea Act area. This two week delay from the regular opening date has been implemented for several years and appears to have become a standard recommendation from the Lea Act Committee. Our observations during the past few years indicate that probably, the opening need not be delayed at all since no depredations have occurred.

A total of 1,929 waterfowl hunters at Merced bagged a total of 3,217 ducks, geese and coots for a season average of 1.7 birds per hunter per day. Last year's average of 2.0 birds per hunter was a result of 1,917 total hunters bagging a total of 3,816 birds. As in the past, the State managed the hunting program.

The pheasant season for Merced County was open from November 18 through December 10. The bag limit was two roosters per day for the first two days and four per day thereafter. Shooting hours were from 8:00 a.m. until sunset.

Refuge hunters bagged a total of 42 pheasants this year as compared to 147 last year.

Common snipe were also legal game on the refuge, but the kill figures are not available. We do know, from field checks, that only a small percentage of the total hunters attempted to take snipe.

E. Violations:

Law enforcement was a cooperative effort by Bureau personnel and California Department of Fish and Game personnel. A total of eight violations resulted in total fines of \$330.00.

F. Safety:

Merced Refuge personnel attended monthly SAFETY meetings at the San Luis Complex office in Los Banos.

VII. OTHER ITEMS

A. Items of Interest:

Nothing to report.

B. Credits:

Sections I, II, IV, V, VI and VII - Assistant Refuge Manager, Sipe.
Section III - Maintenceman Foreman, Mayle.

Typing of NR Forms - Clerk-Typist, Enos.

Typing of Narrative, editing, and assembling of report - Clerk-Typist, Barger.

All refuge personnel assisted in reporting much of the information contained herein.

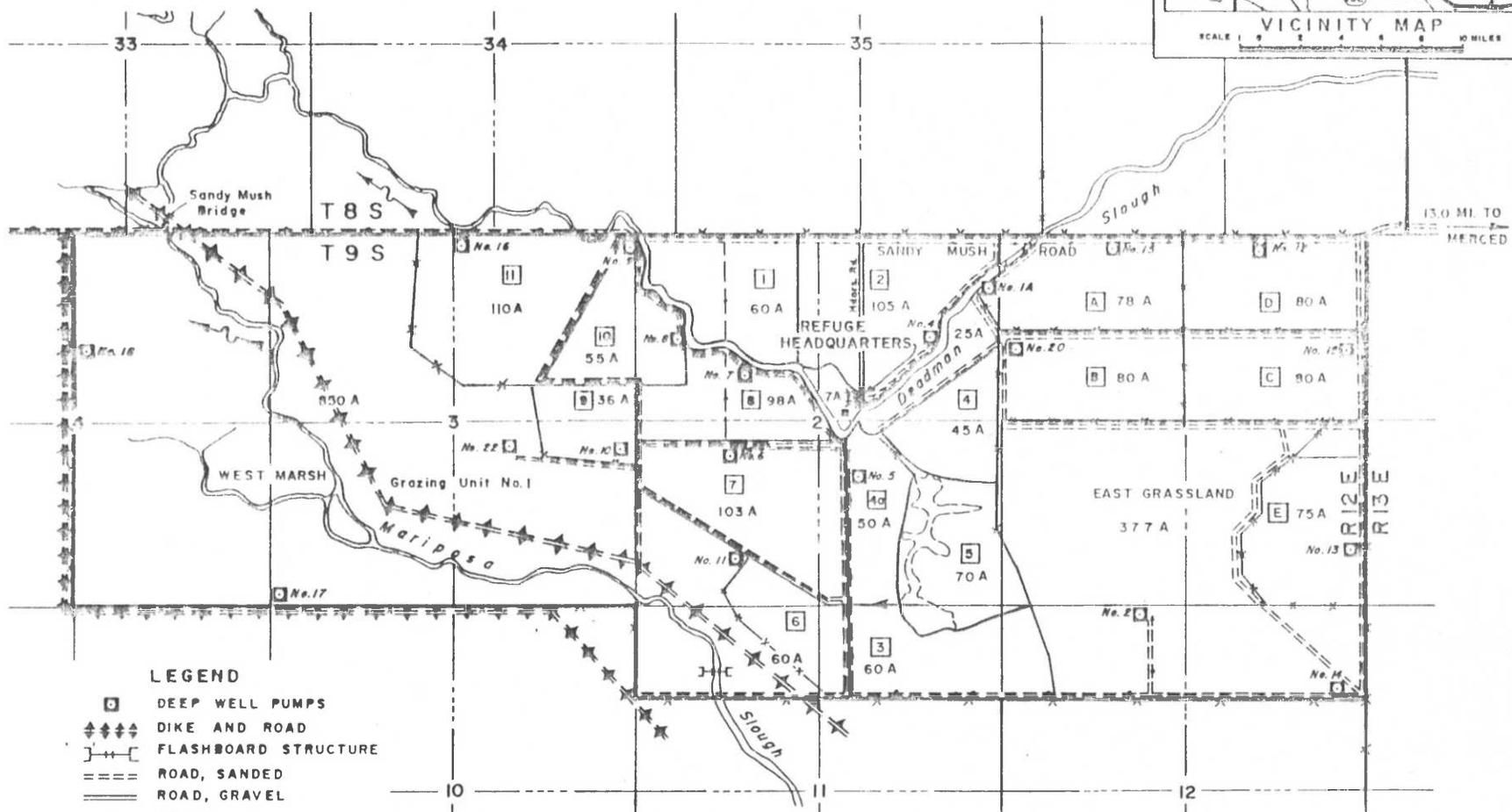
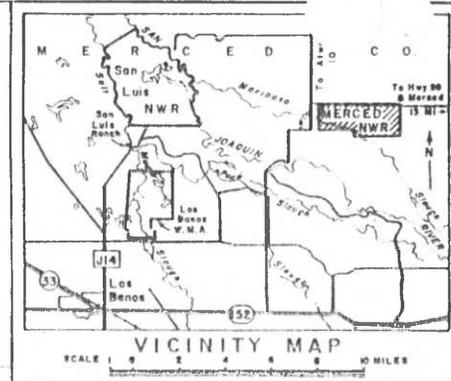
Photograph credits are shown with each photograph caption.

UNITED STATES DEPARTMENT OF THE INTERIOR
 FISH AND WILDLIFE SERVICE
 BUREAU OF SPORT FISHERIES AND WILDLIFE

MERCED NATIONAL WILDLIFE REFUGE

MERCED COUNTY, CALIFORNIA

SCALE 0 1/8 1/4 1/2 1 MILE



- LEGEND**
- DEEP WELL PUMPS
 - ◆◆◆ DIKE AND ROAD
 -]-]-] FLASHBOARD STRUCTURE
 - === ROAD, SANDED
 - ROAD, GRAVEL
 - x- FENCE
 - ③ FIELD NUMBER

INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent. $\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}.$

Refuge Marcel P. D. R.

1972-73 Season

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
Opening Day 10/28	109	436	Mallard 113, Pintail 102, Baldpate 23, Green-winged Teal 22, Shoveler 9, Cinnamon Teal 7, Gadwall 2, Ring-necked Duck 1	279	140	419	109	419
10/29-11/1	128	512	Pintail 155, Mallard 125, Baldpate 91, Green-winged Teal 14, Gadwall 11, Coot 11, White-fronted Goose 5, Snow Goose 4, Shoveler 4, Cinnamon Teal 2, Snipe 2	354	177	531	128	531
11/5-11	204	816	Pintail 147, Mallard 106, Coot 71, Green-winged Teal 42, Baldpate 20, Cinnamon Teal 5, Shoveler 3, Scaup 3, White-fronted Goose 2, Cackling Goose 1, Ross Goose 1, Ruddy Duck 1, Ring-necked Duck 1	403	201	604	204	604
11/12-13	213	852	Mallard 57, Pintail 57, Baldpate 10, Coot 8, Green-winged Teal 8, Shoveler 3, Cackling Goose 3, Gadwall 2, Redhead 1, Wood Duck 1, Ross Goose 1	141	70	211	213	211
11/19-25	156	624	Pintail 15, Mallard 14, Green-winged Teal 10, Cackling Goose 9, Gadwall 9, Coot 8, Cinnamon Teal 5, Baldpate 4, Ruddy Duck 2, Ross Goose 2	84	42	126	156	126
11/26-12/2	147	588	Pintail 79, Mallard 57, Shoveler 15, Baldpate 14, Green-winged Teal 11, Coot 5, Ruddy Duck 4, Gadwall 3, Ring-necked Duck 3, Cackling Goose 1, Ross Goose 1	196	98	294	147	294

Refuge Merced N.W.R.

1972-73 Season

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
12/3-9	143	592	Pintail 99, Mallard 60, Green-winged Teal 50, Shoveler 47, Baldpate 33, Cackling Goose 12, Gadwall 7, Ross Goose 5, Coot 4, Cinnamon Teal 3, Ruddy Duck 2, Redhead 2, Canada Goose 1	331	165	496	143	496
12/10-16	133	532	Pintail 103, Shoveler 93, Green-winged Teal 64, Mallard 31, Ruddy Duck 21, Baldpate 16, Gadwall 11, Coot 5, Cinnamon Teal 4, White-fronted Goose 4, Ruffle-Head 3, Cackling Goose 2, Ross Goose 1	363	181	544	133	544
12/17-23	89	356	Shoveler 32, Green-winged Teal 26, Pintail 23, Baldpate 13, Mallard 3, Ruddy Duck 5, Gadwall 4, Ross Goose 4, Cackling Goose 2, White-fronted Goose 2, Coot 1, Cinnamon Teal 1, Redhead 1	127	63	190	89	190
SEASON CLOSED 12/21 thru 12/26								
12/24-31	129	516	Shoveler 60, Pintail 53, Green-winged Teal 41, Mallard 22, Baldpate 19, Cackling Goose 17, Ruddy Duck 14, Ross Goose 9, Gadwall 7, Cinnamon Teal 4, Snow Goose 2, Canada Goose 2, White-fronted Goose 1, Redhead 1	257	128	385	129	385
12/31-1/6	142	568	Pintail 176, Green-winged Teal 31, Shoveler 40, Mallard 26, Baldpate 14, Cackling Goose 9, Ross Goose 6, Coot 3, Cinnamon Teal 3, Gadwall 3, Ruddy Duck 1, White-fronted Goose 1, Snow Goose 1	366	183	549	142	549

3-1750c
Fo: 1C
(Sept. 1960)

WATERFOWL INTER KILL SURVEY

Page

Refuge Merced N.W.R.

1972-73 Season

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
1/7-13	177	708	Green-winged Teal 49, Pintail 33, Shoveler 30, Baldpate 18, Mallard 10, Cackling Goose 7, Gadwall 6, Cinnamon Teal 6, Ruddy Duck 5, Snow Goose 5, Ross Goose 4, Canada Goose 2, Scaup 2, Snipe 1	177	83	265	177	265
1/14-20	154	616	Green-winged Teal 34, Shoveler 28, Cinnamon Teal 19, Pintail 15, Cackling Goose 13, Mallard 8, Coot 6, Gadwall 4, Baldpate 4, Ruddy Duck 4, Ross Goose 2, Canada Goose 1, White-fronted Goose 1	139	69	208	154	208

Refuge Marced NWR

Year 1942

Botulism

Lead Poisoning or other Disease

Period of outbreak _____

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) _____

Condition of vegetation and invertebrate life _____

Remarks Nothing to report.

Kind of disease _____

Species affected _____

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks Nothing to report.

Refuge Marced NAT Year 19 72

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
Atriplex	25 lb	C	11/17/ 71	Manual Harvest	None	25 lb.	Deadman Slough		2 acres	35 lb. seed	2/15	See Remarks	
Atriplex	10 lb	C	2/10/ 72	Manual Harvest	None	10 lb.	Air Strip and old dump site						

- (1) Report agronomic farm crops on Form NR-8
- (2) C = Collections and R = Receipts
- (3) Use "S" to denote surplus

Remarks: Survival good along Deadman Slough and air strip. Seed
planted at the old dump site did not germinate, due to a lack of
moisture.

Total acreage planted:

Marsh and aquatic _____
 Hedgerows, cover patches _____
 Food strips, food patches 2 acres
 Forest plantings _____

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

3-175c
 Form NR-0
 (Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Merced NWR County Merced State California

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
							Fallow Ag. Land		

No. of Permittees: Agricultural Operations None Haying Operations None Grazing Operations 1

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	27	1,937.96	7,706.00	1,203
				2. Other				
				1. Total Refuge Acreage Under Cultivation				
Hay - Wild				2. Acreage Cultivated as Service Operation				

REFUGEE GRAIN REPORT

NR-8a

REFUGEE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

REFUGE GRAIN REPORT

Refuge Shawnee

Months of January through December, 1972

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
W114 Millet	None	642 bu.	642 bu.	132 bu.	240 bu.			270 bu.	270 bu.		
Barley	None	246 bu.	246 bu.		246 bu.			None			

(8) Indicate shipping or collection points Purchased 546 bu. millet from Farmer's Rice Co-op, Dos Palos, California and 96 bu. from Pacheco Feed & Seed Co., Los Banos, California. Purchased 246 bu. barley

(9) Grain is stored at from Sherwood Hardware, Los Banos, California.

(10) Remarks Transferred 100 bu. millet for seeding at San Luis, 5/72. Transferred 32 bu. millet for seeding in

*See instructions on back at Kesterson 6/9/72.

(9/63)

Bureau of Sport Fisheries and Wildlife

ANNUAL REPORT OF PESTICIDE APPLICATION

Merced FWR

Proposal Number

Reporting Year

1972

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3/8-3/17	Milk Thistle	Roadsides	43	2,4-D Low Volatile Ester 6L	33 gal.	4 lb./acre	Water 3 gal./200 gal.	Tank Sprayer
4/7-4/12	Milk Thistle	Roadsides and Pastures	21	2,4-D Low Volatile Ester 6L	16 gal.	4 lb./acre	Water 3 gal./200 gal.	Tank Sprayer
12/4	ALL Plants	Around buildings, signs & pump control boxes	1.5	4% Dichlobenil	50 lb.	1.6 lb./acre	Granular	Hand Spread

10. Summary of results (continue on reverse side, if necessary)

3/8-3/17: 70% kill
 4/7-4/12: 60% kill
 12/4: 100% kill

Excellent habitat conditions in the West Marsh
attracted both ducks and geese to this portion
of the refuge.

Mayle

12/72

Sandhill cranes also found this marsh attractive
and they used it extensively as a roosting area.

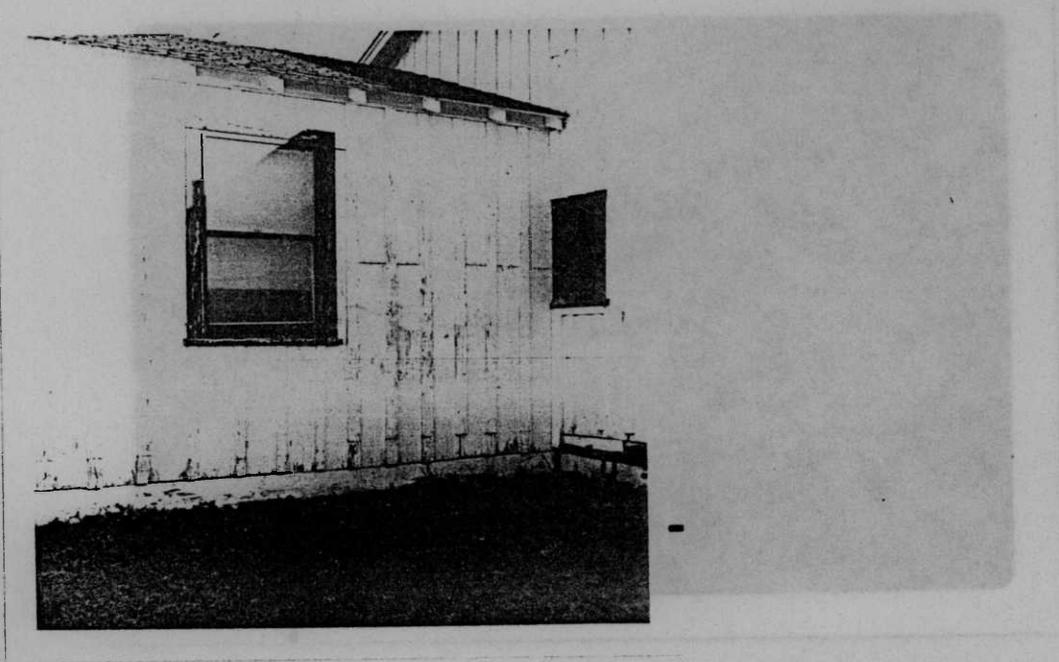
Mayle

12/72

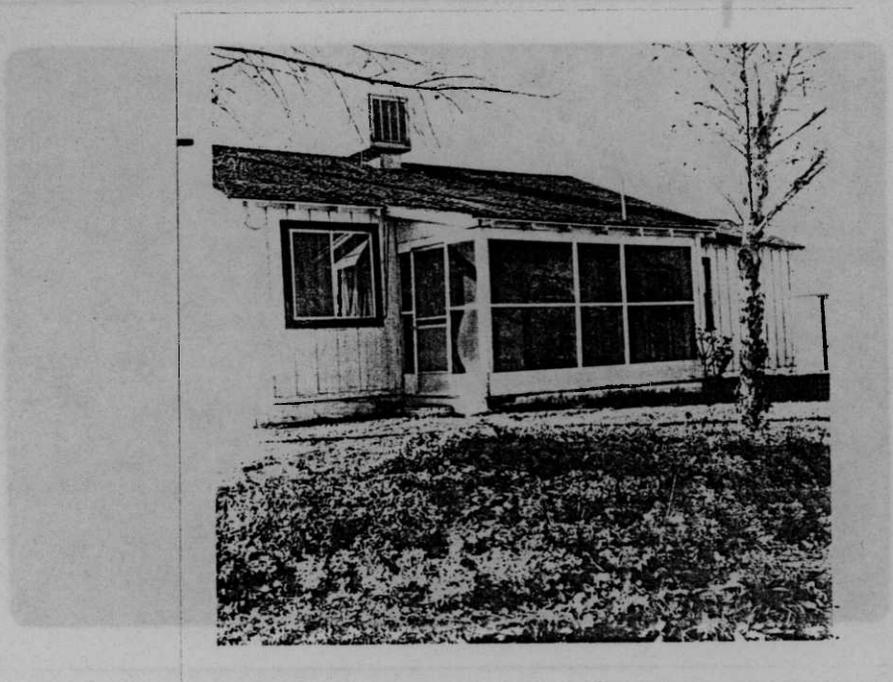
Good ole San Joaquin Smog

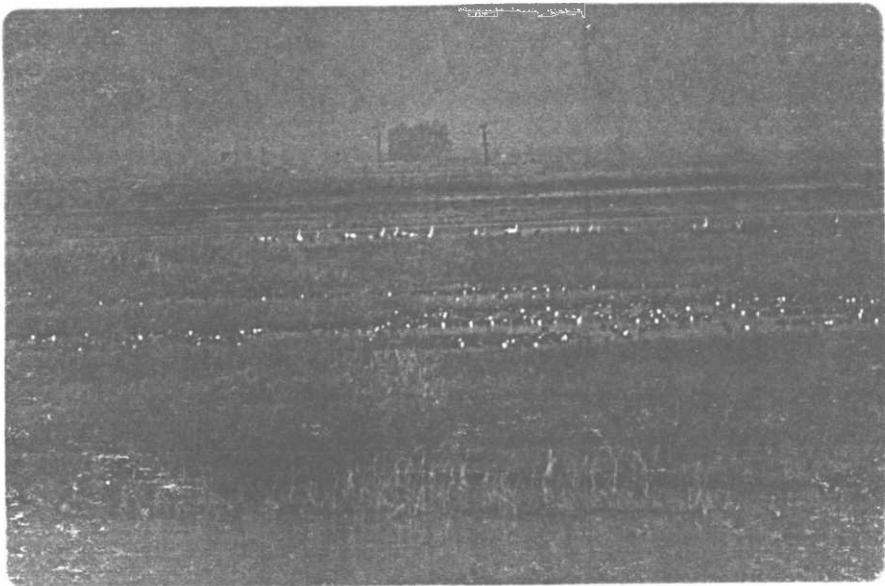
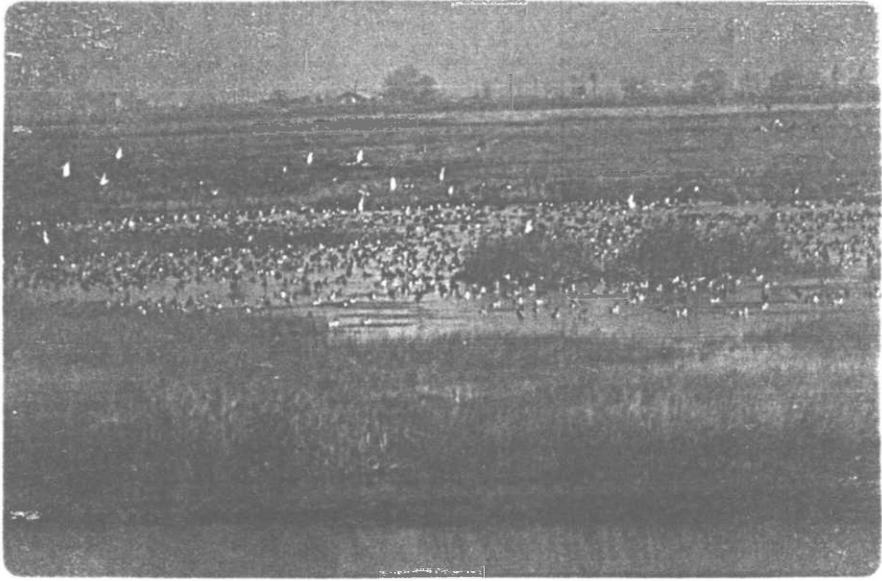
AD

3



3





Corrective measures included removal of the porch
and installation of aluminum siding.

Mayle

11/27/72

New Porch will be added.
7/77

Very good job, but
steel siding is better
Jew

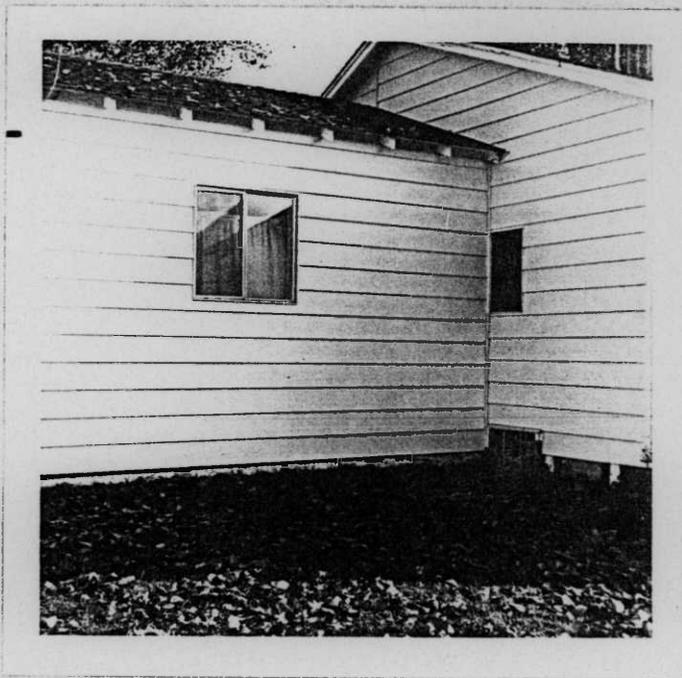
3

This clapboard type siding and deteriorating porch combined to make the Merced quarters a real eyesore.

Mayle

11/72

Faint handwritten notes in the lower right quadrant of the page.

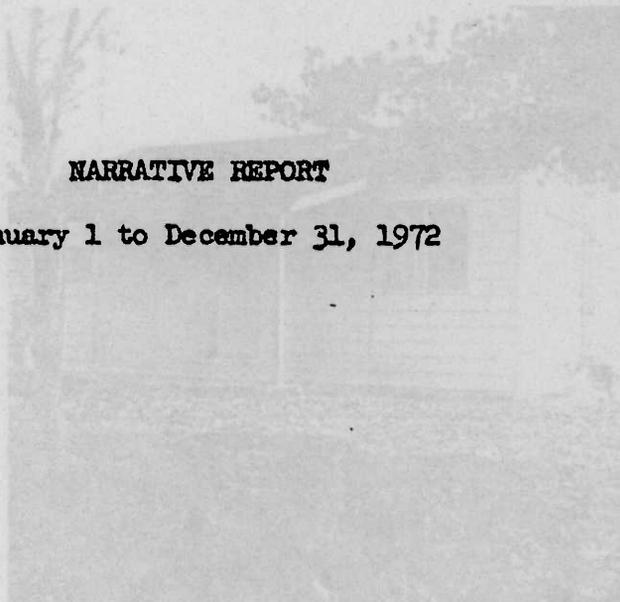


HOUSE FINISHED IN 1918





KESTERSON NATIONAL WILDLIFE REFUGE



NARRATIVE REPORT

January 1 to December 31, 1972

C O N T E N T S

	<u>PAGE</u> <u>NO.</u>
I. GENERAL	
A. Weather Conditions	1
B. Habitat Conditions	1
II. WILDLIFE	
A. Migratory Birds	2
B. Upland Game Birds	3
C. Big Game Animals	3
D. Fur Animals, Predators, Rodents and Other Mammals ..	3
E. Hawks, Owls, Eagles and Kites	3
F. Other Birds	3
G. Fish	3
H. Reptiles	3
I. Disease	3
III. REFUGE DEVELOPMENT AND MAINTENANCE	
A. Physical Development	3
B. Plantings	4
C. Collections and Receipts	5
D. Control of Vegetation	5
E. Planned Burning	5
F. Fires	5
IV. RESOURCES MANAGEMENT	
A. Grazing	6
B. Fur Harvest	6
V. FIELD INVESTIGATIONS OR APPLIED RESEARCH	
A. Progress Report	6
VI. PUBLIC RELATIONS	
A. Recreational Uses	6
B. Refuge Visitors	6
C. Refuge Participation	6
D. Hunting	6
E. Violations	7
F. Safety	7
VII. OTHER ITEMS	
A. Items of Interest	7
B. Credits	7

I. GENERAL

A. Weather Conditions:

Refer to San Luis section of this report.

B. Habitat Conditions:

1. Water:

Most of the ponds and marsh areas were dry by early summer. However, there was enough water available to maintain some ponds through the summer. The four Bureau of Reclamation Evaporation Ponds south of Gum Club Road were supplied summer water from the Grassland Water District and the Bureau of Reclamation. Also, those ponds along the eastern side of the refuge received summer water from our Well No. 2 and from the Grassland Water District.

Water levels in Sprig Lake, Teal Pond and Gallow Ponds were less than optimum for the arrival of early migrant waterfowl and the opening of hunting season. Water for these areas is supplied by spill from private duck clubs to the south. There never seems to be enough water to go around during the early fall, but deliveries were more timely this year than in the past. By late October, most clubs were spilling water and refuge water level improved rapidly.

The entire acreage in the Bureau of Reclamation Ponds was inundated this year. In fact, due to the abnormal rainfall late in the year, some of the lower ponds attained levels too deep for good utilization by waterfowl.

2. Food and Cover:

The spring, summer and fall periods were exceptionally dry this year and plant growth was poor. Consequently, food production from wild plants was also poor. Many of the species that contribute significantly to the annual food crop did not produce seed this year. Mainly, this was due to a lack of sufficient moisture to germinate seeds and sustain growth long enough for the plants to complete their life cycle.

Some relief to the food shortage came in the form of marsh plants that were produced by the four Reclamation Ponds

which received summer water. Patches of horned-pondweed, Zannichellia palustris, began to appear first as small dark spots and then spread rapidly to form large patches readily visible through the relatively clear water in these ponds. We aided this natural food by seeding wild millet which produced a good crop in some sections of the ponds. Alkali bulrush, Scirpus maritimus, also appeared in small patches and we consider this a promising sign for the future.

II. WILDLIFE

A. Migratory Birds:

1. Waterfowl:

Use by whistling swans totaled 5,920 use days during 1972. This is less than half of the 12,425 use days recorded during 1971. The peak number this year was 235 as compared to last year's peak of 380. Kesterson's swan maintenance objective level is 23,000 use days per year.

Geese used the refuge a total of 589,430 use days this year and the peak population numbered 14,450. Last year's peak population numbered only 6,650 and the total use just over 200,000 use days. The refuge objective level is 500,000.

Duck use was essentially the same this year as it was last year. This year's use days totaled 2,239,560 as compared to 2,295,349 last year. However, this year's peak population of 30,600 was almost a 25 percent increase over last year's peak of 24,950. The duck maintenance objective for Kesterson is 5,000,000 use days per year.

Coots used the refuge a total of 1,603,250 use days this year and the population peaked at 20,000. Last year, coot use days totaled 1,450,000 and the peak was 14,000.

2. Marsh and Water Birds:

Species, population numbers, and behavior were normal for this group of birds during 1972. One species, the double-crested cormorant, was observed for the first time at this refuge on March 14.

3. Shorebirds and Gulls:

4. Doves:

Mourning dove use on this area is limited by the lack of proper habitat.

B. Upland Game Birds:

A very limited number of ring-necked pheasants use this area on an intermittent basis.

C. Big Game Animals:

No big game species inhabit this refuge or adjacent lands.

D. Fur Animals, Predators, Rodents and Other Mammals:

No noteworthy or unusual observations to report.

E. Hawks, Owls and Eagles:

No noteworthy observations.

F. Other Birds:

Nothing to report.

G. Fish:

Nothing to report.

H. Reptiles and Amphibians:

Nothing to report.

I. Disease:

Fowl cholera killed a total of approximately 4,000 ducks, coots and shorebirds during February. The dead birds were picked up and burned and the remains were buried. Although the source of infection is not known, we believe it to have been carried in by sick birds.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development:

1. Canals and Water Control Structures:

a. Two miles of the San Luis Canal were cleaned with a dozer and grader to remove vegetation and siltation. This canal carries the major water supply to the east side ponds.

b. Six miles of Gallo Pond levees were rebuilt. These levees receive considerable erosion every year due to the large amount of spill from adjacent duck clubs. This spill water is the only water source for the west side of the refuge.

c. Two 24-inch tubes were installed in Mud Slough. This was a cooperative project with the Bureau of Reclamation and it provided a needed crossing to save travel time and distance for both agencies. The Bureau of Reclamation furnished the pipe and refuge personnel and equipment accomplished the installation.

2. Road Construction and Maintenance:

a. All roads and trails were graded as required.

3. Fence Construction and Maintenance:

Three miles of new fence was built to control grazing of horses and mules. The National Park Service furnished labor and the refuge furnished materials.

4. Building Construction and Maintenance:

The only buildings are a small storage shed and hunter check station. Only routine maintenance was required on these buildings this year.

5. Miscellaneous:

The usual amount of routine maintenance tasks were performed during the year.

B. Planting:

1. Aquatic and Marsh Plants:

a. Approximately 1,600 pounds of alkali bulrush seed, Scirpus maritimus, were seeded in the 1,100 acres of Bureau

of Reclamation ponds. The seed which was furnished by Tule Lake Refuge, was applied aerially at a total cost of \$240.00. All seed was soaked in water for 10 days prior to seeding, but as of December 31, germination was poor. We still believe that these tough little seeds will grow in a year or two.

2. Trees and Shrubs:

Nothing to report.

3. Cultivated Crops:

Nothing to report.

C. Collection and Receipts:

1. Seed or Other Propagules:

Nothing to report.

2. Specimens:

Several birds were collected during the year. These birds were seized from hunters or were dead and crippled birds found on the refuge.

All birds were donated to either the National Museum in Washington, D. C., or Modesto Junior College in Modesto, California.

D. Control of Vegetation:

Nothing to report.

E. Planned Burning:

Nothing to report.

F. Fires:

Nothing to report.

IV. RESOURCE MANAGEMENT

A. Grazing:

Two Special Use Permits were issued to Mr. Frank J. Freitas for grazing cattle on 3,600 acres of the refuge during 1972. Mr. Freitas grazed 825 head of cattle and utilized a total of 2,151.39 AUM's. The revenue, at \$3.75 per AUM, totaled \$8,067.71 and was transferred to the Bureau of Reclamation.

The National Park Service was issued a special use permit to graze horses and mules on about 1,000 acres. This was the second year that we have cooperated with Yosemite National Park by issuing them a free-use permit for grazing. They had formerly been paying \$7.00 to \$10.00 per AUM to winter their animals on private land. A total of 56 horses and mules utilized 114 AUM's during the time they were on the refuge.

No other economic uses are applicable to this refuge.

V. FIELD INVESTIGATION AND APPLIED RESEARCH

Nothing to report.

VI. PUBLIC RELATIONS

A. Recreational Uses:

Total visits to the refuge numbered 4,263 and 3,741 of these were waterfowl hunters. Most of the remaining 522 visits were for the purpose of observing wildlife.

B. Refuge Visitors:

See San Luis section of this report.

C. Refuge Participation:

Refer to San Luis section of this report.

D. Hunting:

The entire 5,900 acres of Kesterson Refuge was open to waterfowl hunting during the 1972-73 season. Approximately 2,675 acres of this was huntable marsh and a total of 3,874

hunters killed 7,868 ducks, geese and coots. This averages out to 2.03 birds per hunter for the season and is a decrease of about 0.3 bird per hunter from the 1971-72 season average.

Common snipe were also legal game on the refuge this year, but neither the hunter interest nor the kill were significant.

The California Department of Fish and Game managed the hunting program as they have done in the past.

E. Violations:

Cooperative enforcement efforts by refuge personnel, Game Management Agents, and California Department of Fish and Game personnel resulted in apprehension of four violators who paid a total of \$95.00 in fines.

F. Safety:

Kesterson Refuge personnel attended monthly SAFETY meetings at the San Luis Refuge Complex office in Los Banos. There were no accidents at Kesterson during the year.

VII. OTHER ITEMS

A. Items of Interest:

Nothing to report.

B. Credits:

Sections I, II, IV, V, VI and VII - Assistant Refuge Manager, Sipe.

Section III - Maintenance man, Foreman - Mayle.

Typing of MR Forms - Clerk-Typist, Enos.

Typing of Narrative, editing, and assembling of report - Clerk-Typist, Barger.

All refuge personnel assisted in reporting much of the information contained herein.

Photograph credits are shown with each photograph caption.

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF FISH AND GAME

NOTICE TO HUNTERS ON THE KESTERSON NATIONAL WILDLIFE REFUGE

1972-73 WATERFOWL SEASON

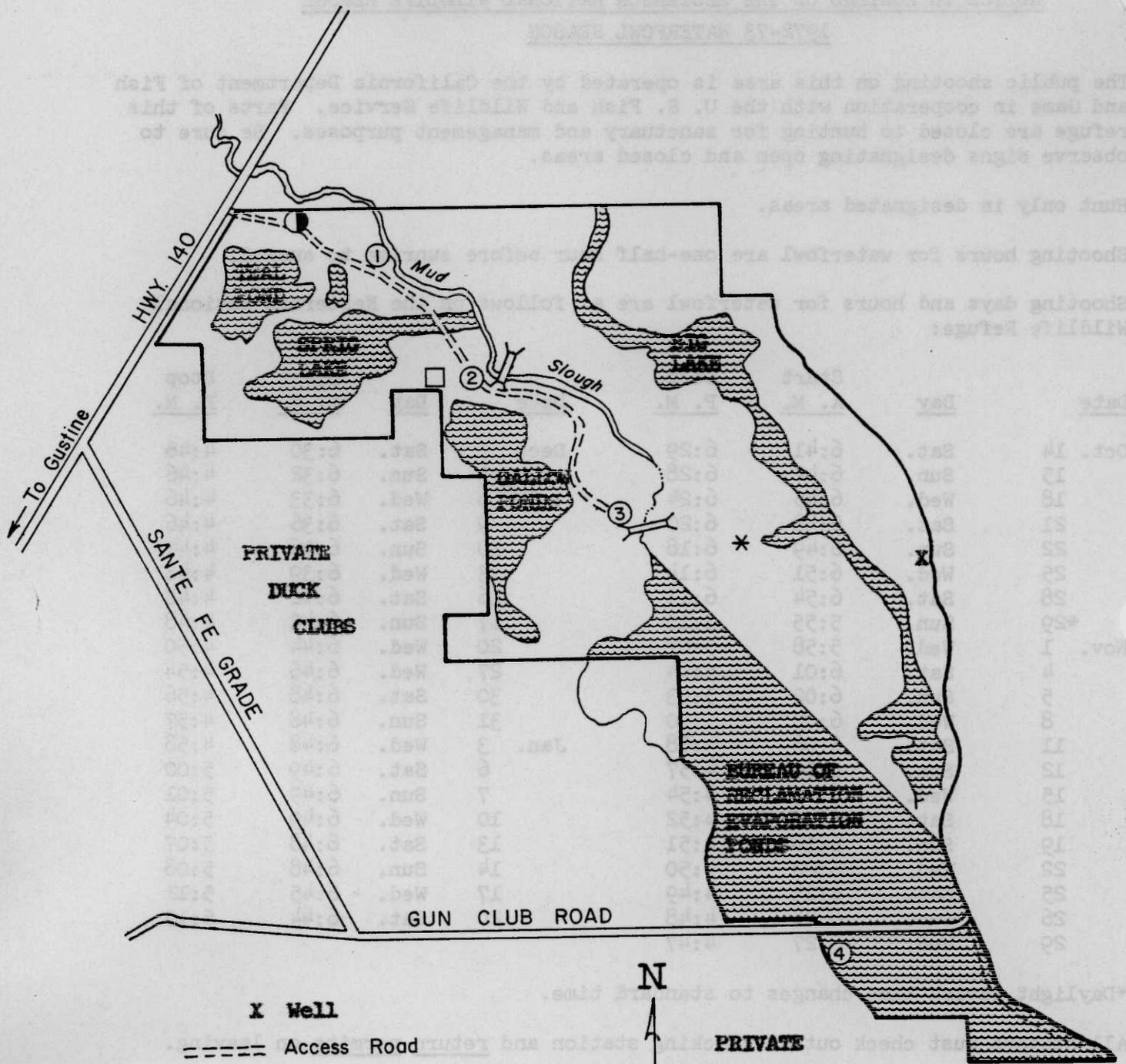
1. The public shooting on this area is operated by the California Department of Fish and Game in cooperation with the U. S. Fish and Wildlife Service. Parts of this refuge are closed to hunting for sanctuary and management purposes. Be sure to observe signs designating open and closed areas.
2. Hunt only in designated areas.
3. Shooting hours for waterfowl are one-half hour before sunrise to sunset.
4. Shooting days and hours for waterfowl are as follows on the Kesterson National Wildlife Refuge:

<u>Date</u>	<u>Day</u>	<u>Start</u> <u>A. M.</u>	<u>Stop</u> <u>P. M.</u>	<u>Date</u>	<u>Day</u>	<u>Start</u> <u>A. M.</u>	<u>Stop</u> <u>P. M.</u>
Oct. 14	Sat.	6:41	6:29	Dec. 2	Sat.	6:30	4:46
15	Sun.	6:42	6:28	3	Sun.	6:32	4:46
18	Wed.	6:45	6:24	6	Wed.	6:33	4:46
21	Sat.	6:48	6:20	9	Sat.	6:36	4:46
22	Sun.	6:49	6:18	10	Sun.	6:36	4:47
25	Wed.	6:51	6:14	13	Wed.	6:39	4:48
28	Sat.	6:54	6:11	16	Sat.	6:42	4:48
*29	Sun.	5:55	5:10	17	Sun.	6:42	4:48
Nov. 1	Wed.	5:58	5:07	20	Wed.	6:44	4:50
4	Sat.	6:01	5:04	27	Wed.	6:46	4:54
5	Sun.	6:02	5:03	30	Sat.	6:48	4:56
8	Wed.	6:05	5:00	31	Sun.	6:48	4:57
11	Sat.	6:08	4:58	Jan. 3	Wed.	6:48	4:58
12	Sun.	6:09	4:57	6	Sat.	6:49	5:00
15	Wed.	6:13	4:54	7	Sun.	6:49	5:01
18	Sat.	6:17	4:52	10	Wed.	6:49	5:04
19	Sun.	6:18	4:51	13	Sat.	6:48	5:07
22	Wed.	6:20	4:50	14	Sun.	6:48	5:08
25	Sat.	6:23	4:49	17	Wed.	6:45	5:12
26	Sun.	6:24	4:48	20	Sat.	6:44	5:15
29	Wed.	6:27	4:47				

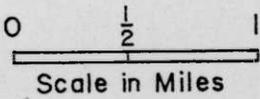
*Daylight saving time changes to standard time.

5. All hunters must check out at checking station and return permits on leaving.

KESTERSON NATIONAL WILDLIFE REFUGE



- X Well
- Access Road
- ② Parking Lot
- Check Station
- * Windmill
- Footbridge
- Building
- ☞ Ponds



PRIVATE
DUCK
CLUBS

Refuge Kesterson N.W.R.

1972-73 Season

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
Opening Da. 10/14	131	524	Pintail 87, Green-winged Teal 66, Mallard 26, Cinnamon Teal 14, Gadwall 12, Shoveler 9, Baldpate 3, Redhead 2, Cackling Goose 2, Ruddy Duck 1, Scaup 1	223	112	335	131	335
10/15-21	256	1024	Green-winged Teal 80, Pintail 79, Coot 28, Cinnamon Teal 18, Shoveler 11, Mallard 9, Baldpate 5, Gadwall 3, Ring-necked Duck 2, Cackling Goose 1, Ruddy Duck 1, Scaup 1	238	119	357	256	357
10/22-28	140	560	Pintail 80, Green-winged Teal 31, Ruddy Duck 8, Coot 5, Mallard 4, Gadwall 3, Cinnamon Teal 2, Ring-necked Duck 2, Baldpate 1	136	68	204	140	204
10/29-11/4	255	1020	Pintail 370, Coot 52, Green-winged Teal 46, Ruddy Duck 18, Baldpate 15, Mallard 14, Shoveler 11, Gadwall 9, Cinnamon Teal 5, Redhead 3, Ring-necked Duck 2, White-fronted Goose 1, Snipe 1	550	275	825	255	825
11/5-11	284	1136	Pintail 125, Coot 49, Green-winged Teal 44, Ruddy Duck 13, Mallard 11, Baldpate 9, Shoveler 7, Gadwall 3, Cinnamon Teal 2, Ring-necked Duck 1	264	132	396	284	396
11/12-18	236	944	Green-winged Teal 85, Shoveler 33, Coot 30, Pintail 25, Mallard 16, Gadwall 9, Ruddy Duck 9, Baldpate 4, Cinnamon Teal 3, Cackling Goose 3, White-fronted Goose 1, Scaup 1	220	110	330	236	330

Refuge Kesterson N. W. R.

1972-73 Season

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
11/19-25	164	656	Green-winged Teal 77, Pintail 53, Cackling Goose 18, Baldpate 18, Mallard 16, Shoveler 16, Ruddy Duck 13, Coot 10, Snow Goose 6, Gadwall 3, Ring-necked Duck 3, Scaup 3, Ross Goose 2, Cinnamon Teal 2, White-fronted Goose 1	241	120	361	164	361
1/26-12/2	222	888	Green-winged Teal 229, Pintail 202, Shoveler 106, Baldpate 83, Mallard 28, Ruddy Duck 11, Cackling Goose 5, Gadwall 4, Coot 4, White-fronted Goose 3, Ross Goose 3, Cinnamon Teal 1, Redhead 1, Scaup 1	681	340	1021	222	1021
12/3-9	275	1100	Pintail 287, Shoveler 266, Green-winged Teal 241, Coot 90, Baldpate 74, Gadwall 27, Mallard 23, Cackling Goose 21, Ruddy Duck 17, Snow Goose 4, Cinnamon Teal 3, Scaup 3, Canada Goose 2, Ross Goose 2, Ring-necked Duck 1, Buffle-head 1	1062	531	1593	275	1593
12/10-16	271	1084	Shoveler 423, Green-winged Teal 253, Pintail 132, Baldpate 49, Gadwall 15, Ruddy Duck 15, Mallard 8, Cackling Goose 7, Coot 7, Cinnamon Teal 2, Snow Goose 1, Ross Goose 1	917	458	1375	271	1375
12/17-23	254	1016	Green-winged Teal 163, Shoveler 148, Coot 24, Pintail 36, Baldpate 33, Ruddy Duck 21, Cinnamon Teal 12, Gadwall 6, Mallard 5, Cackling Goose 5, Buffle-head 3, Goldeneye 2, Scaup 1, White-fronted Goose 1, Snow Goose 1	461	230	691	254	691

Refuge Kesterson N.W.R.

1972-73 Season

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
SEASON CLOSED	12/21 thru 26							
12/24-30	324	1296	Green-winged Teal 357, Shoveler 191, Baldpate 151, Pintail 141, Cackling Goose 53, Ross Goose 27, Snow Goose 23, Coot 23, Mallard 16, Gadwall 11, Cinnamon Teal 5, Ruddy Duck 4, Buffle-head 3, White-fronted Goose 3, Canada Goose 1, Ring-necked Duck 1, Canvasback 1, Goldeneye 1	1012	506	1518	324	1518
12/31-1/6	309	1236	Green-winged Teal 266, Shoveler 213, Pintail 142, Baldpate 106, Coot 43, Mallard 16, Ruddy Duck 13, Gadwall 10, Canada Goose 3, Cackling Goose 3, White-fronted Goose 3, Snow Goose 1, Ross Goose 1, Buffle-head 1	871	435	1306	309	1306
1/7-13	400	1600	Green-winged Teal 186, Shoveler 120, Baldpate 73, Ruddy Duck 54, Pintail 37, Coot 23, Cackling Goose 12, Cinnamon Teal 8, Snow Goose 7, Mallard 4, Gadwall 4, Ross Goose 3, Scaup 2, White-fronted Goose 2, Ring-necked Duck 1, Goldeneye 1, Buffle-head 1, Canada Goose 1	539	269	808	400	808
1/14-20	353	1412	Green-winged Teal 142, Shoveler 94, Coot 69, Cinnamon Teal 38, Pintail 35, Gadwall 22, Baldpate 19, Cackling Goose 13, Ross Goose 8, Mallard 6, Ruddy Duck 2, Canada Goose 2, White-fronted Goose 2, Snow Goose 1	453	226	679	353	679

Refuge Kesterson NWR

Year 1972

Botulism

Lead Poisoning or other Disease

Period of outbreak _____

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized No. Recovered % Recovered

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) _____

Condition of vegetation and invertebrate life _____

Remarks _____

Kind of disease Fowl Cholera

Species affected Coots, Ducks & Shorebirds

Number Affected Species	Actual Count	Estimated
<u>Ducks</u>	<u>68</u>	<u>75</u>
<u>Coots</u>	<u>3,883</u>	<u>4,000</u>
<u>Shorebirds</u>	<u>1</u>	<u>10</u>

Number Recovered _____

Number lost 3,952

Source of infection Unknown

Water conditions Good

Food conditions Average

Remarks _____

Refuge Kesterson NWR

Year 1972

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
Bulrush	1,600lb.	R	2/24	Tule Lake NWR	0	0	B.R. Cells	Approx. 1.5 lb./A	1,100 acres	Bulrush Seed	3/20	See Remarks	

- (1) Report agronomic farm crops on Form NR-8
- (2) C = Collections and R = Receipts
- (3) Use "S" to denote surplus

Remarks: Several checks of the area were made throughout the year and no germinated seeds were found despite the fact that the seed was pre-soaked. The ponds were flooded all winter and we still have hopes that some seed will germinate this coming summer.

Total acreage planted:

Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____

3-1758

Form NR-6

(Rev. Jan. 1956)

Fish and Wildlife Service - Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Henderson NWR County Maricopa State California

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
								Fallow Ag. Land	None

No. of Permittees: Agricultural Operations None Haying Operations None Grazing Operations 2

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	825	2,151.39	\$8,067.71	3,600
				2. Horses & Mules	56	114	None*	1,000
				1. Total Refuge Acreage Under Cultivation				
Hay - Wild				2. Acreage Cultivated as Service Operation				

* Grazing by National Park Service (Yosemite National Park).

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

REFUGE GRAIN REPORT

Refuge Keaterson NWR

Months of January through December 1972
1972

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Wild Millet	None	32 bu.	32 bu.		32 bu.			None			

(8) Indicate shipping or collection points Received 32 bu. from Merced NWR.

(9) Grain is stored at _____

(10) Remarks _____

*See instructions on back.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

(9/63)

Bureau of Sport Fisheries and Wildlife

Kesterson NWF

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number

Reporting Year

1972

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
No applications this year.								

10. Summary of results (continue on reverse side, if necessary)

Summer water in the Bureau of Reclamation ponds resulted in a good growth of horned-pondweed (note dark patches).

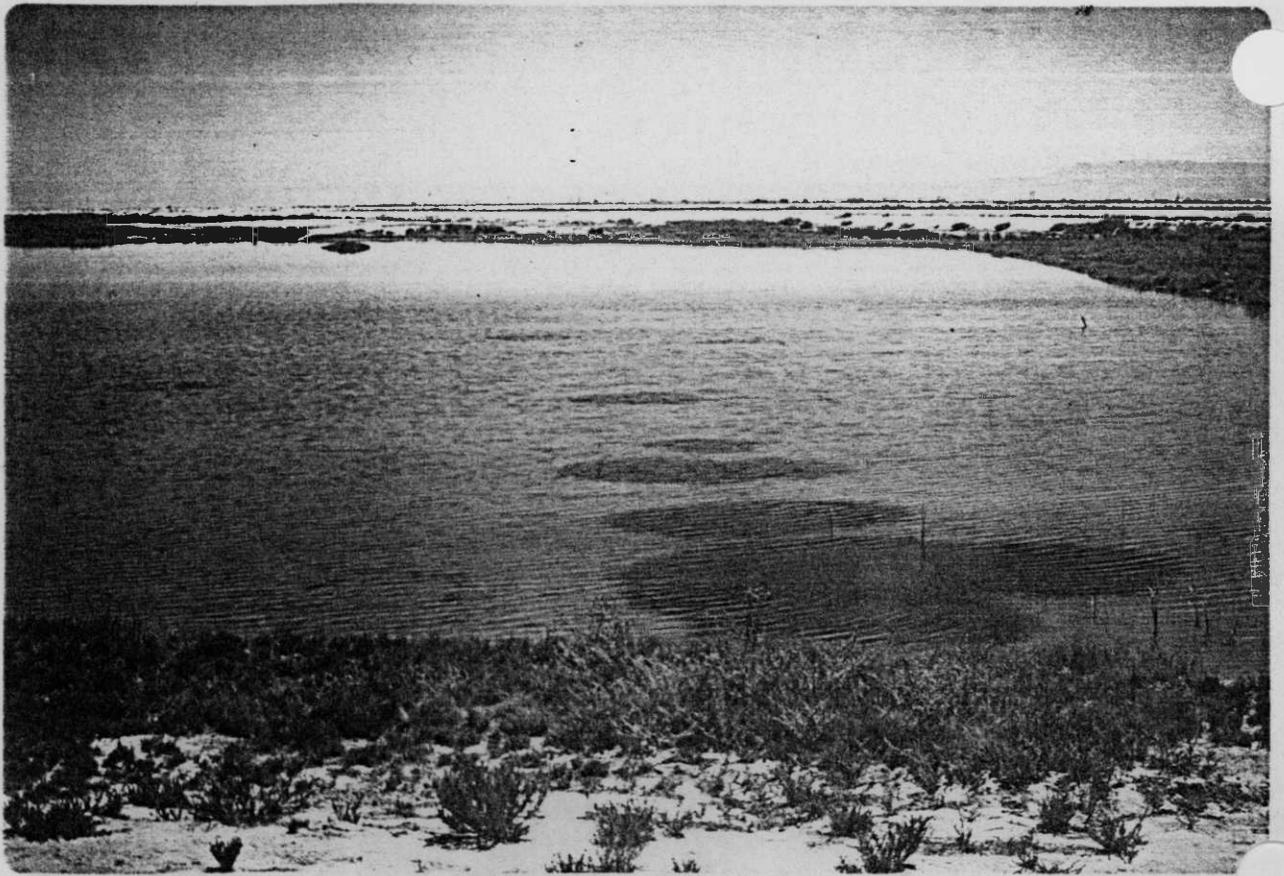
Nail

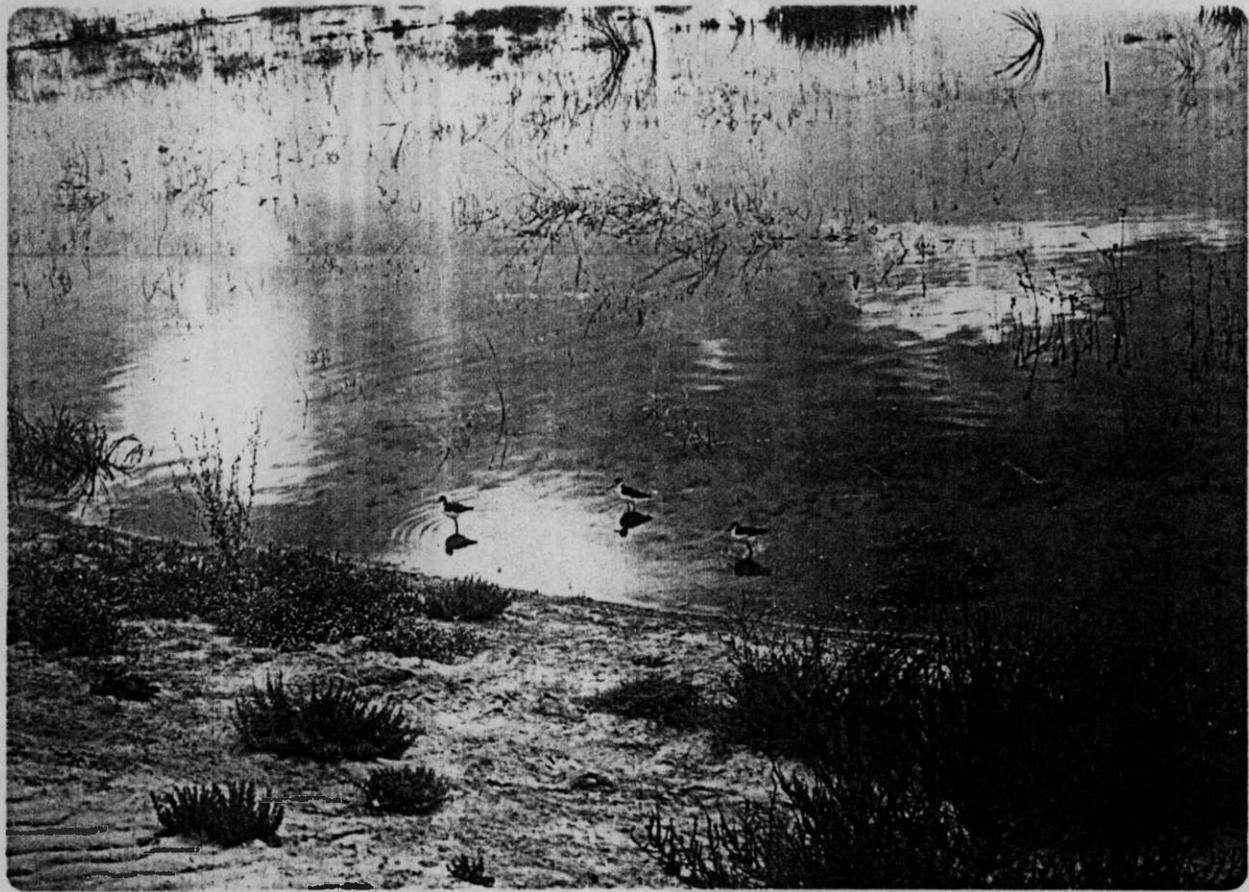
08/14/72

Emergent marsh vegetation also appeared in those ponds which received summer water.

Nail

08/14/72





Shorebirds were immediately attracted by the
new habitat created in these ponds.

Nail

08/14/72

The summer water made it possible to grow
some waterfowl food. This wild millet is
almost ripe.

Sipe

09/30/72

08/27/72
The waterfowl are
now being cleaned in
the canal.

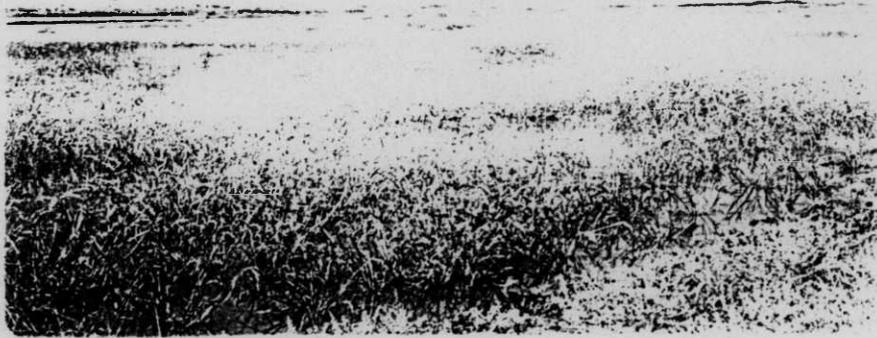
Yours truly,
Sipe

About two-miles of the San Luis Canal were
cleaned and reshaped.

Nail

09/16/72

11



SIGNATURE PAGE

Submitted By: Gene A. Sipe
Gene A. Sipe, Acting Refuge Manager

Date: June 18, 1973

Approved By: _____

Date: _____

PLANNING AND ACCOMPLISHMENT NARRATIVE - F. Y. 1973

SAN LUIS NATIONAL WILDLIFE REFUGE

P. O. BOX 2176

LOS BANOS, CALIFORNIA 93635

PERSONNEL

Permanent:

Melvin T. Nail	Refuge Manager
Transferred 12/01/72	
Gene A. Sipe	Ass't. Refuge Manager
Charles J. Mack.	Ass't. Refuge Manager
Resigned 06/22/73	
Jo Ann Barger.	Clerk-Typist
Resigned 09/02/72	
James R. Mayle	Maintenanceman, Foreman
Melvin Ford	Engineering Equipment Operator San Luis N.W.R.
Edgar M. Derrick	Maintenanceman Merced N. W.R.
Michael L. Stevenson	Maintenanceman Merced N. W. R.
Raymond R. Fuller.	Engineer Equipment Operator Kesterson N. W. R.

Temporary:

Patricia Rae Enos	Clerk-Typist
(09/18/72--04/06/73)	
Jo Ann Barger.	Clerk-Typist
E.O.D. 04/16/73	
Eugene Dudley.	Laborer
(08/07/72--12/01/72)	

APPROVED, REGIONAL OFFICE

Signature

Title

Date

Gene A. Sipe

Prepared by: Gene A. Sipe

Leon A. Littlefield

Reviewed by: Leon A. Littlefield

02/15/74

Date:

TABLE OF CONTENTS

<u>Part I:</u>	<u>Page</u>
Refuge Highlight Statement	3
<u>Part II:</u>	
Refuge Accomplishments	3
A. Wildlife - Wildlands Interpretation	3
B. Environmental Education	4
C. Wildlife - Wildlands Recreation	4
D. Professional Services	5
E. Wildlife	5

PART I
REFUGE HIGHLIGHT STATEMENT

Rainfall was abnormal during November 1972, and January and February 1973. Normal for these months in 0.98 inches, 1.67 and 1.39 inches respectively. This year we received 5.53 inches in November, 2.67 inches in January and 3.62 during February.

Work on a 1972 contract, to rehabilitate Lift Stations 1, 2 and 3 and install one new pump at each of these lifts, was completed in May 1973. These additions expand our pumping capabilities sufficiently to meet the conditions required for being granted a water right at San Luis. Rehabilitation included new electrical entrance panels for all pumps at each of the three lifts; installation of treated, heart-redwood baffles between the pumps in each of the three sumps; and rebuilding the bowls on Pump 2B.

Additional work under the above contract included new electrical entrance panels at Lifts 4 and 5; rebuilding the bowls on Pumps 4 and 5; and installing float switches on Pump 5.

PART II
REFUGE ACCOMPLISHMENTS

A. Wildlife - Wildlands Interpretation

Our Motorized Wildlife Tour Route (code 6-11) was completed during the year and received 960 activity hours of use. Since we had not expected to complete the tour route this year, no outputs were planned.

Four activity hours were reported for Exhibits-Demonstrations (code 6-14). Nothing was planned for this output and it appears that this reported use was an error in interpreting the output definition.

A total of 350 activity hours was planned for Other Wildlife Interpretive Programs (code 6-15) and actual use amounted to 462 activity hours. Nearly all of the use in this output is off-refuge film and slide presentations to schools and other groups such as Sierra Club and Audubon Society. The number of requests for presentations varies from year to year, making accurate planning quite difficult.

B. Environmental Education

A total of 69 activity hours was accomplished in the Students (code 6-20) category of this output. This is another category that is quite variable from one year to the next and use seems to depend a great deal on the individual teachers and their interest in the environment.

Actual use amounted to 75 activity hours by Teachers (code 6-21) and planned use was 50 activity hours. This output, like others which had a small amount of planned use, needed only a few activity hours change to amount to 25%. As in the previous category, we believe the difference in this category is due to user interest.

C. Wildlife - Wildlands Recreation

Warmwater Fishing (code 6-32) received a total of 17,270 activity hours of use during the year. Planned use was 25,000 hours and the difference was likely due to poor quality fishing plus abundant fishing opportunities off-refuge.

Mushroom picking accounts for all the use in the category Other Consumptive Recreation (code 6-33) and use was 260 activity hours compared to 150 planned use. The difference was due to a good mushroom crop resulting from the abnormally high rainfall during early spring.

Total use of 1,108 activity hours for Wildlands Appreciation (code 6-35) was less than the planned 2,500 hours. Most of the use in this category is by observers of hunting and fishing activities. We have no good explanation for the difference. It might be that the inclement weather during much of the hunting season kept observers indoors.

Photography (code 6-36) totaled 190 activity hours of use compared to zero planned use. The difference is due to a more liberal interpretation of the output definition.

Planned units for Field Trials (code 6-37) was 5,000 activity hours and actual use was 7,205 activity hours. This is a relatively new activity at San Luis and insufficient past use data resulted in inaccurate planning.

A total of ten programs was planned for Public Affairs (code 6-38) but only four programs were accomplished. The accomplished programs were quarterly submissions to American Birds. Six local news releases

were the planned difference and only a lack of newsworthy developments prevented their accomplishment.

D. Professional Services

Four programs were planned for Ecological Monitoring (code 6-55), but the addition of one Breeding Bird Survey Route brought the accomplished total to five programs.

A total of five programs were accomplished in the Other Cooperative Programs (code 6-57) category even though none was planned. This difference resulted from a clarification of what programs qualified under this category.

E. Wildlife

Use by Special Recognition Species (code 6-71) totaled 1,254,701 use days compared to the planned use of 383,000. The abnormal January and February rainfall filled shallow depressions and created mudflat conditions about the same time migrant shorebirds were passing through our area. We believe this to be the reason for increased use in this category.

A total of 21,875,701 use days were recorded for Waterfowl Maintenance (code 6-73). This is about 7,000,000 use days less than planned and the majority of the difference is duck use. Because of criticism from local duck clubs and the Grasslands Water District, we altered our water management program to reduce the concentration of ducks in the refuge closed area on hunting days. Our efforts resulted in the above mentioned difference between planned and accomplished use.

Both Species Transplanted (code 6-81) and Specimens Donated (code 6-82) result from cripples and contraband acquired during the hunting season. Thus the accomplished outputs vary considerably from year to year and we have no good explanation as to why hunters violate and/or cripple more birds during one year than another.

All output elements not specifically discussed in this report varied less than + or - 25% from the planned amount.

PLANNING AND ACCOMPLISHMENT NARRATIVE - F. Y. 1973
KESTERSON NATIONAL WILDLIFE REFUGE

P. O. BOX 2176
LOS BANOS, CALIFORNIA 93635

PERSONNEL

See San Luis N.W.R. Report.

APPROVED, REGIONAL OFFICE

Signature:

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Prepared by: Gene A. Sipe

Title:

Leon A. Littlefield

Reviewed by: Leon A. Littlefield

Date:

February 26, 1974

Date:

TABLE OF CONTENTS

	<u>Page</u>
<u>Part I:</u>	
Refuge Highlight Statement.	2
<u>Part II:</u>	
Refuge Accomplishments.	2
A. Wildlife - Wildlands Interpretation.	2
B. Environmental Education.	2
C. Wildlife - Wildlands Recreation.	3
D. Professional Services.	3
E. Wildlife	3
F. Economic Benefits.	4

PART I

REFUGE HIGHLIGHTS STATEMENT

Kesterson received an abnormal amount of rainfall during the same periods and in the same amounts reported in the San Luis Narrative. However, at Kesterson we did experience some adverse effects from the resulting water.

Kesterson is a Bureau of Reclamation overlay and about 1,300 acres of the refuge is holding ponds constructed by Reclamation. These ponds are Stage I of a two stage project which will not be operable, for Reclamation's uses, until the Stage II construction is completed. In the interim, we were given permission to flood the ponds for waterfowl use and hunting. We had the ponds flooded to optimum levels, for our purposes, when the rains began. As the rain continued, water levels increased to about a foot below Reclamation's operational design level. Reclamation had constructed these ponds with about a three to one inside slope and no riprap or other stabilizing materials had been applied. Consequently, some erosion resulted from wave action on the dikes which were constructed of poor quality alkaline soils.

Under our present agreement for management of Kesterson and since the water in the ponds was to benefit our programs, we were obligated to help repair the damaged dikes. The refuge supplied one dump truck, one D-7 Caterpillar, one man intermittently, and one man nearly full-time for a period of about two months. Total costs assumed by the Refuge was approximately \$4,000 for repairing the eroded areas.

PART II

REFUGE ACCOMPLISHMENTS

A. Wildlife - Wildlands Interpretation

Other Programs (code 6-15) include mainly off-refuge slide and film presentations and planned outputs were 120 activity hours. However, since all requests for these programs are received and handled in the Los Banos office, all outputs in this category were reported for San Luis Refuge.

B. Environmental Education

Professional Services (code 6-22) had a planned output level of 50 activity hours. This was an error in interpretation. The planned

outputs should have been in the Level II Output Group: Professional Services (code 6-5X).

C. Wildlife - Wildlands Recreation

No outputs were planned for Other Consumptive Recreation (code 6-33), but 110 activity hours was recorded. All this use was for mushroom picking which was probably due to the abnormal rainfall.

A total of 662 activity hours of Wildlife Observation (code 6-34) was accomplished this year. This was considerably more than the 75 activity hours planned. The increase was probably due to the abnormal spring rainfall which caused the birds to remain longer than normal before migrating northward.

A total of 45 activity hours was recorded for Wildlands Appreciation (code 6-35) even though nothing was planned. This was obviously an error in planning, since we always have some use by Observers of Hunting activities which is recorded in the Wildlands Appreciation category.

Planned programs for Public Affairs (code 6-38) was five. Only one program was accomplished this year however, due to personnel transfers which left us somewhat shorthanded during the last half of the period.

D. Professional Services

Two Ecological Monitoring (code 6-55) programs were planned, but due to personnel transfers there was not adequate manpower to complete these programs.

E. Wildlife

The abnormally wet spring resulted in habitat conditions attractive to shorebirds. Consequently, a total of 1,257,181 use days was recorded for Special Recognition Species (code 6-71). This total is considerably more than the planned amount of 222,625.

Waterfowl Maintenance (code 6-73) accomplished was 39 percent less than the planned amount. Excess rainfall during the late winter and early spring created good habitat conditions throughout the vicinity. Thus, the birds dispersed rather than concentrated on the refuges as they would under normal conditions.

Specimens Donated (code 6-82) totaled three this year. This is 80 percent less than the planned amount of 15 donations. Specimens

for donation are collected from illegal kills or cripples during hunting season and the number collected varies considerably from year to year.

F. Economic Benefits

Planned units for Grazing (code 6-93) were 11,000 and no accomplished units were shown on the P. and A. Report. Actually this is misleading since we did have grazing on Kesterson during the report period. However, according to the output reporting instructions, grazing outputs are reported during the quarter when payment is made and not when the grazing occurred. Consequently, no outputs were reported since the permittee paid after the grazing season ended which was in the next fiscal year.

PLANNING AND ACCOMPLISHMENT NARRATIVE - F. Y. 1973

MERCED NATIONAL WILDLIFE REFUGE

P. O. BOX 2176

LOS BANOS, CALIFORNIA 93635

PERSONNEL

See San Luis N.W.R. Report.

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TABLE OF CONTENTS

	<u>Page</u>
<u>Part I:</u>	
Refuge Highlight Statement	2
<u>Part II:</u>	
Refuge Accomplishments	2
A. Wildlife - Wildlands Interpretation	2
B. Environmental Education	2
C. Wildlife - Wildlands Recreation	2
D. Professional Services	3
E. Wildlife.	3
F. Economic Benefits	4

PART I

REFUGE HIGHLIGHT STATEMENT

The abnormal rainfall mentioned in the San Luis report was received in the same amounts at Merced.

Wells 6 and 2 were abandoned in August and September 1972, respectively. Both wells began yielding large amounts of sand and attempts to blow them out failed. Consequently the 1972-73 wintering season passed without the services of these two wells; and although we managed to maintain desired water levels during this abnormally wet year, our water management program would probably suffer in a normal rainfall year.

PART II

REFUGE ACCOMPLISHMENTS

A. Wildlife - Wildlands Interpretation

No outputs were planned for Exhibits and Demonstrations (code 6-14) and the two activity hours reported appear to have been a reporting error.

Other Programs (code 6-15), which includes primarily off-refuge slide and film presentations, had planned outputs of 150 activity hours. However, since all requests for these programs are received and handled through the Refuge Complex office in Los Banos, outputs for this category were credited to San Luis Refuge.

B. Environmental Education

No use was planned for Students (code 6-20) but 20 activity hours were recorded. Use in this category depends on teacher interest in most instances and the general trend has been one of increasing use. However, year to year, use is quite variable and planning for such use is quite difficult.

C. Wildlife - Wildlands Recreation

The lack of any accomplished units for Resident Game Hunting (code 6-31) was due to an omission error. Activity hours of use was close to the 1,000 planned capacity.

Twenty-five activity hours of Other Consumptive Recreation (code 6-33)

was recorded for mushroom picking. Nothing was planned for this activity and the use was probably due to good mushroom growing conditions created by the abnormal spring rainfall.

Wildlife Observation (code 6-34) received 1,208 activity hours of use compared to a planned 2,851 activity hours. The difference is mostly due to a shifting use by school groups, Audubon groups, etc. We have encouraged these groups to use San Luis since its proximity to the Los Banos office makes conducting these groups more practical.

Wildlands Appreciation (code 6-35) had a planned output of 150 activity hours. No units were accomplished, probably due to the abnormal rainfall which made many roads impassable and kept sightseers indoors.

Photography (code 6-36) showed only 20 activity hours accomplished of the 150 planned. We believe this was because of bad weather conditions during the time when most species were present in sufficient numbers to attract photographers.

The one Public Affairs (code 6-38) program that was accomplished was the quarterly contributions to American Birds. The additional six programs planned were to have been news releases, but due to a lack of newsworthy events they were not accomplished.

D. Professional Services

A lack of enough personnel to get the job done prevented our accomplishing any Ecological Monitoring (code 6-55) programs at Merced this year. The two planned programs were the Breeding Bird Survey and Nest Record-Card Program.

E. Wildlife

Special Recognition Species (code 6-71) use totaled 51 percent more than the amount that was planned for. The increase is very likely due to the abnormal amount of spring rainfall. We received much of the rain during the peak of our spring shorebird migration and the resulting habitat conditions were quite attractive to this group of birds.

Species Transplanted (code 6-81) depends entirely on live cripples taken during the hunting season and since none were received this year, no units were accomplished. Planned units were 8 animals transplanted.

Species Donated (code 6-38) also come from seizures and collections during hunting season. This year only two animals were suitable for donation, compared to a planned total of 20.

F. Economic Benefits

Merced is a Lea Act Refuge and crop depredation prevention is a primary objective. Since depredations prevented are reported in dollars of damage prevented, varying market values dictate units accomplished. Consequently, this year's accomplishments showed a 75 percent increase over planned units.

Recent changes in policy and management practices brought about a reduction in Grazing (code 6-93) at Merced this year. Planned units were 5,500 and accomplished units amounted to 2,000. Half of the 320 acres of pastures, that have supported grazing during the past few years, will be planted to come under a cooperative farming program. Hopefully, by raising corn, we can reclaim some of the past goose use that Merced once enjoyed.