SAN LUIS NATIONAL WILDLIFE REFUGE

MERCED NATIONAL WILDLIFE REFUGE

KESTERSON NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

January 1 to December 31, 1971

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

BUREAU OF SPORT FISHERIES AND WILDLIFE

LOS BANOS, CALIFORNIA

REFUGE PERSONNEL

Permanent:

Melvin T. Nail. . . . . Refuge Manager

Stephen R. Vehrs. . . . . Assistant Refuge Manager
Transferred 01/09/71

Gene A. Sipe. . . . . Wildlife Biologist (Management)

Jo Ann Barger . . . . . Clerk-Typist

James R. Mayle. . . . . Maintenanceman Foreman

Melvin Ford . . . . . Engineering Equipment Operator
San Luis NWR

Edgar M. Derrick. . . . . Maintenanceman
Merced NWR

Raymond R. Fuller . . . . . Engineering Equipment Operator
Kesterson NWR

Michael L. Stevenson. . . . . Maintenanceman
E.O.D. 11/28/71 Merced NWR

Temporary:

George W. Freeman . . . . . Maintenanceman
San Luis NWR

Daniel P. Connelly. . . . . Laborer
(07/06/71 - 07/17/71)

Eugene (nmn) Dudley . . . . . Laborer
(08/04/71 - 12/07/71)

SAN LUIS NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

January 1 through December 31, 1971

C O N T E N T S

I. GENERAL

A. Weather Conditions:

Detailed weather data are included in Table I. These data were collected by the Bureau of Reclamation at the San Luis Dam, located twelve miles west of Los Banos.

This year's temperatures were normal, but precipitation was about two-inches below normal. October and November were abnormally dry. Wind conditions were near normal throughout the year, with most of the wind accompanying the hot summer temperatures. Dense fog occurred mostly during January and early-February. Freezing temperatures were recorded during four months this year.

B. Habitat Conditions:

1. Water:

Water quality, as determined by monthly irrigation water analysis, was generally the same as during comparable seasons last year. Again this year, natural run-off water contained more dissolved salts than did irrigation drainage water. Thus water quality was better during the period from mid-February to October.

Generally, water levels were optimum with no real problems. During the waterfowl hunting season, we kept water levels in the Loaf Lake and E-Canal areas below last year's levels, to discourage undue concentrations of ducks.

Spring run-off water in the San Joaquin River was not sufficient to fill the few oxbows. Thus, these areas were dry by early summer.

2. Food and Cover:

Conditions were good throughout the refuge. Fields B, C and D were flooded to optimum in January. These three fields total 175 acres of millet and were exceptionally attractive to wintering mallards. Barley was planted in Field A during early-November and by year's end it was being used by geese and sandhill cranes.

Marshes in Moffat Field provided excellent food and cover again this year. Cattails are invading several of the ponds, however, and some control will be necessary during 1972. The same is true of Teal Lake which will be kept dry throughout 1972 and the 1972-1973 hunting season.

1971 CLIMATOLOGICAL OBSERVATIONS

MONTH	PRECIPITATION (INCHES)	NORMAL PRECIPITATION	EVAPORATION (INCHES)	WIND MILES	MAX. TEMP. (DEGREES F)	MIN. TEMP. (DEGREES F)	MONTHLY MEAN TEMP.	NORMAL MONTHLY MEAN TEMP.
JANUARY	0.79	1.67	1.39	1,522	64°	27°	44.9°	45.2°
FEBRUARY	0.22	1.39	2.83	2,201	67°	32°	47.3°	50.2°
MARCH	0.69	1.31	5.24	3,117	76°	28°	53.6°	54.7°
APRIL	1.48	.76	8.12	5,110	82°	37°	57.5°	60.4°
MAY	0.91	.37	10.81	4,140	87°	44°	61.5°	66.5°
JUNE	0.00	.06	15.65	6,162	100°	37°	69.0°	72.8°
JULY	T	.01	20.30	7,493	101°	54°	77.7°	78.7°
AUGUST	0.00	.01	20.18	7,271	106°	48°	78.4°	77.1°
SEPTEMBER	0.02	.13	12.94	4,855	99°	49°	71.5°	72.9°
OCTOBER	0.32	.40	8.09	3,506	92°	33°	61.8°	64.3°
NOVEMBER	0.27	.98	3.37	2,361	74°	34°	52.5°	53.4°
DECEMBER	2.04	1.47	1.64	2,702	63°	27°	43.8°	46.4°
TOTALS/EXTREMES	6.74	8.56	110.56	50,740	106°	27°	----	----

TABLE 1. Weather data for San Luis - Merced - Kesterson National Wildlife Refuges for Calendar Year 1971.

Big Lake area was drained to facilitate dike repair and marsh renovation. Shallow areas of this marsh were disced and seeded with wild millet before reflooding. The theory was good, but grazing cattle got there before the ducks. We'll try again - after 1972. While this area was dry, we also built three horse-shoe-shaped islands to provide loafing areas for waterfowl and other marsh birds.

Loaf Lake area contained some of the best marshes on the refuge, and being in the portion closed to hunting, they hosted much of our total waterfowl use.

II. WILDLIFE

A. Migratory Birds:

1. Waterfowl:

a. Swans: Whistling swan use increased nearly tenfold over last year. The 1970 total was 405 use days, and this year's total was 4,207 use days. The peak number this year was 230 compared to 25 last year. Our swan maintenance objective is 2,000 use days.

A noteworthy sighting of three juvenile swans wearing dark blue collars was made by Foreman Mayle on November 30. The sighting was reported to Johns Hopkins University and their reply indicated that the three swans (all from the same brood) were banded at Seward Peninsula, Alaska, on August 25, 1971. It is likely that these birds were banded by personnel of Clarence Rhode N.W.R., since they are cooperators in this continent-wide whistling swan study.

b. Geese: This year's goose use days totaled 2,068,416 for all species. Last year's total was 980,342 use days. Even though the total this year is more than double the 1970 total, it is about 125,000 use days less than the 1968 high and 500,000 below our objective level of 2.5 million.

We believe this year's marked increase in goose use days is mostly due to a general use pattern shift from Merced to San Luis. Since the establishment of San Luis Refuge in 1967, waterfowl use has declined steadily at Merced and increased rapidly at San Luis. The birds seem to be attracted more by the "natural" habitat on San Luis than the "artificial" conditions at Merced. Figure 1 compares waterfowl use for the last four years.

Use by "honkers" showed a marked increase this year. They accounted for a total of 13,160 use days compared to only 2,140 in 1970. Hunter take of this species increased proportionately, with three killed in 1970 and 14 this year.

A partial albino "honker" was seen several times during mid-December, but despite high hopes it didn't show up in the hunter bag. We would have considered it a worthy addition to our mounted specimens.

The increase in goose use could have been partly a result of below normal precipitation during October, November and December. Wild upland grasses did not green up and thus refuge marsh areas were

attractive to geese. A peak of 30,710 geese occurred during late February.

c. Ducks: Duck concentrations in the "closed area" of San Luis Refuge drew criticism from the duck hunting public during the 1970-71 hunting season. As a result of these protests, we implemented regulatory measures prior to and during the 1971-72 hunting season. As compared to 1970-71, the inundated portion of the closed area was decreased about 550 acres, and total marsh acreage in the hunting area was increased slightly. The resulting duck use decrease satisfied most, but there is always that "ten percent".

Duck use days in 1970 totaled 40,634,367. This year's total was reduced to 28,538,736, which was a little shy of our objectives. We have the facilities to regulate water levels and consequently control waterfowl populations, within certain limits. Thus, the waterfowl maintenance objective can be readily obtained by slightly increasing water levels next year. Since this was the first year we attempted to regulate duck use, a misjudgement of approximately five-percent isn't too bad. The use-day decrease is not due entirely to less use either, since last year we computed our use days on the basis of peak weekly populations (which is the common practice by many) and this year we used average weekly populations to compute use days. Duck numbers this year peaked at 436,075 and last years peak was 586,725.

It may appear that outside pressure groups are dictating management of the refuge, and they may well be to a slight degree. But consider the fact that these people own and control approximately 48,000 acres of prime waterfowl wintering marshes that otherwise would certainly go into agricultural production. Since we are entrusted with perpetuating the nations waterfowl resource, swallowing a little pride seemed to be the right management practice in this instance.

Estimated production this year totaled 585 ducks. Last year's production estimate was 775. This portion of California is not attractive to nesting waterfowl, and predation is an additional limiting factor.

d. Coots and Gallinules: Coots used San Luis Refuge a total of 1,276,660 days this year as compared to 1,022,420 last year. The 1970 peak number was 8,000 and this year's peak was 10,000.

Common gallinule numbers fluctuate throughout the year with the greatest number occurring during months of September and October.

2. Water and Marsh Birds:

The most numerous residents were the great blue heron and snowy egret. Common egrets, black-crowned night herons, American bitterns and pied-billed grebes are also residents of San Luis. All these species occurred in numbers essentially unchanged from last year.

Sandhill cranes, white pelicans and white-faced ibises were all migrant visitors this year. "Sandhills" were considerably less numerous than last year, and this year's recorded peak was only 400 as compared to 4,000 last year. The peak number of pelicans recorded this year was 800. Last year's peak was 500. No sightings of ibises were recorded during 1970, but this year the species was present during much of December and peaked at 250 on December 15.

Only one recorded sighting of marked white pelicans occurred this year. This observation of two birds wearing red wing-tags on their left wings, was made on November 19. The tags bore black markings which could not be clearly identified.

3. Shorebirds, Gulls and Terns:

Long-billed dowitchers and western sandpipers were common during migration. However, the numbers appeared to be less than in 1970, especially in the fall migration. Black-necked stilts, killdeer, American avocets, greater yellowlegs and least sandpipers were also common, but did not occur in great numbers. No more than a hundred or so of these species were seen at any one time. Long-billed curlew, dunlin, common snipe and Wilson's phalarope were also observed throughout the year.

California and ring-billed gulls, Caspian terns, Forester's terns, and black terns were all seen occassionally throughout the year. All these sightings were of from one to a few individuals each except for one sighting of about 400 ring-billed gulls on November 19.

4. Doves:

Mourning doves were common from May through October. The migration peak occurred in late August and when the hunting season opened in early September, most of the birds were gone. We do not hunt doves on San Luis Refuge, but it is an important roosting area.

B. Upland Game Birds:

Ring-necked pheasant numbers increased noticeably during 1971. A total of 430 pheasants (mostly hens) were released during field

dog trials conducted on the refuge during August and September. However, incidental observations indicated a general increase even prior to any releases. We estimate our present population to be about 400-500 as compared to 100 last year. We're hoping for good performance from all those hens this spring.

Our **California quail** population appeared unchanged this year, and the present number is estimated to be approximately 150 birds.

C. Big Game Animals:

No big game species inhabit this refuge or adjacent lands.

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

The mammal list in last year's report listed 17 species and no additions were made during 1971. Coyotes, California ground squirrels, blacktail jackrabbits, and desert cottontails were the species most frequently seen. Longtail weasels were seen occasionally, and one report each of a bobcat and a kit fox observation was received from a reliable observer.

San Joaquin kit foxes were reintroduced to San Luis Refuge in two separate transplants during 1970. We inadvertently omitted reporting these transplants in last year's report. The first release, an adult male and adult female, was made on March 5, 1970. A second release on June 30, 1970, included two male and two female pups.

E. Hawks, Owls, Eagles and Kites:

Red-tailed hawks, sparrow hawks, and great-horned owls were the most common species in this category again this year. Cooper's hawks, sharp-shinned hawks, barn owls, burrowing owls, short-eared owls, golden eagles and white-tailed kites were also present all or part of the year.

A pair of Swainson's hawks nested on the refuge for the second consecutive year. We believe these were the same two birds that nested here last year, which was the first time for this species since the refuge was established.

F. Other Birds:

This large, general category continued to attract individuals and groups from the birding public. In future years, we plan

to operate a mist net during migration periods, in an effort to keep our bird list current. There were no significant observations this year.

G. Fish:

Channel catfish and carp are the most common species taken by fishermen. Largemouth bass, black crappie, and striped bass also occur in refuge waters. Threadfin shad are abundant at times and are important as food for fish-eating birds.

H. Reptibles and Amphibians:

The brief list included in last year's narrative report was not expanded this year. We suspect that additional species are present, but verification takes considerable time and manpower.

I. Disease:

Fortunately we had no disease this year.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development:

1. Canals and Water Control Structures:

a. The major work program for the year was rehabilitation of 1.7 miles of levee around the Big Lake area. Bringing the levee top up to grade and sloping the banks was accomplished by the use of a rented rubber-tired, self-loading scraper and the use of refuge dozers and carry-alls. Two existing water control structures were replaced with 24-inch c.m.p. and flashboard risers. Both structures were riprapped to prevent erosion. One-half mile of levee north of Big Lake was also rehabilated as part of this project.

b. The intake from Salt Slough to Lift Pump 5 was cleaned with the crawler dragline. This .17-mile intake is subject to heavy silting and it requires periodic cleaning to deliver an adequate flow of water to the pump when Salt Slough is low.

c. The 20 hp motor at Lift Station 3 burned up and had to be rewired.

d. New trashracks were fabricated in the refuge shop and installed in the Lift Canal at Lift Stations 2 and 3.

e. A 36-inch c.m.p. with flashboard riser was installed in C-Canal where this canal crosses the Dickenson Ferry Road. This structure provides us with a satisfactory crossing across the canal and a method of regulating water levels in the canal.

f. A 18-inch c.m.p. with flashboard riser was installed at the outlet of the Mallard Pond. This structure replaced a deteriorated metalpipe, and the flashboard riser provides a means of regulating water levels in this pond.

g. In addition to the above, several lesser water control structures were replaced or installed and the normal amount of maintenance and repairs to existing structures were required.

2. Road Construction and Maintenance:

a. A total of 2.53 miles of road was graveled during the year. The 1.41 miles graveled through the East Marsh area completed a gravel route from Dickenson Ferry Road to the San

Joaquin Levee Road. This road through the closed area of the refuge provides an excellent route for guided tours of the refuge, provides for better enforcement patrol of the closed area, and gives access during wet weather for manipulation of water levels. The .37-mile extension of the Dickenson Ferry Road was graveled. A .75-mile section of the fishing road was re-graveled. This section of road has been graveled previously, but the small amount of gravel put on and the poor quality of the gravel made it necessary to add additional gravel this year. All gravel was obtained free-of-charge from the Bureau of Reclamation and hauled and tailgate spread by a contractor on an informal bid.

b. The west slope of .94-mile of the Dickenson Ferry Road was widened and sloped to a 5:1 slope. This slope will prevent severe erosion to the road shoulder and keep the muskrat burrowing activity farther from the traveled portion of the road.

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

3. Fence Construction and Maintenance:

a. Forty rods of new fence were constructed at the hunter check station in connection with the enlarging of the parking area.

b. Routine repairs were made to all fences as required. Fence replacement and repairs were kept to a bare minimum this year, since we plan to remove most of the existing fences when the present grazing permit expires in December 1972.

4. Building Maintenance:

a. There are only four buildings on this relatively new refuge. These are a concrete-block house which is used for storage of refuge supplies, a building which serves as a shop and oil-house, a hunter check station, and a barn. We still hope for money someday to build a new shop-service building which will eliminate the need for the concrete-block house and the present shop building. The barn will be removed when the present grazing permit expires in December 1972.

b. Considerable repair and painting was performed on the hunter check station by personnel of the California Department of Fish and Game. Although it is the refuges' responsiblity to furnish an adequate check station, they volunteered to make considerable repairs. The work was done by seasonal workers hired to run the hunter check station. Since hunting is only permitted three days a

week, they worked on the check station on the other days. The outside of the building, including all trim, was repainted, and new screen-wire was put on all the windows. The appearance of the check station was greatly improved, and this portion of the California Department of Fish and Game are to be congratulated for their fine cooperation.

5. Miscellaneous:

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

B. Plantings:

1. Aquatic and Marsh Plants:

While the Big Lake area was dry for levee rehabilitation, the shallow areas of the lakebed were disced and seeded with rice screenings. These rice screenings contain considerable wild millet, alkali bulrush, and smartweed seed. Germination was good, but waterfowl benefits were not significant since most of this growth was consumed by cattle.

2. Trees and Shrubs:

Nothing to report.

3. Upland Herbaceous Plants:

Nothing to report.

4. Cultivated Crops:

No wild millet, Echinochloa crusgalli, was grown as a crop this year. Fields B, C and D were not disced, seeded or irrigated. A good crop of millet volunteered, but it did not mature seed due to a lack of adequate moisture. The decision was made not to produce a millet crop this year as part of an effort to cut down the number of ducks using the closed area of the refuge on shoot days.

A good stand of smartweed and some mature watergrass did provide some feed when Fields B, C and D were flooded after the close of the hunting season. At the end of the year approximately 10,000

ducks were feeding in these fields. We do plan next year to produce a crop of millet, keep it dry during the waterfowl hunting season, and flood it after the hunting season is over. With one irrigation, these fields would have produced an excellent crop of millet. Our other objectives would have been realized just the same except that instead of flooding a poor crop of millet at the end of the hunting season we would have been flooding a good crop. These fields can provide good late winter feed if properly managed.

The 36 acres in Field A were seeded to winter barley during the last week of October. This barley will provide food and cover for pheasants, and it should be especially attractive to sandhill cranes wintering on the refuge. Field A cannot be used for wild millet production. It cannot be flooded without raising the water table on adjoining private croplands and leaching up salts harmful to their crops.

C. Collections and Receipts:

1. Seed or Other Propagules:

Approximately 10 pounds of Atriplex lentiformis seed was obtained from the California Department of Fish and Game. This plant, known locally as quail bush, makes excellent escape cover and furnishes food for quail, pheasants and songbirds. The seed will be used to establish upland cover plantings to increase the numbers and spread the range of upland game birds and provide additional songbird habitat.

2. Specimens:

Many bird specimens were collected during the year. None were actually killed for a specimen, and they were all dead birds found in the field or siezed from hunters as evidence. During the year specimens were donated to the National Museum in Washington, D. C., Modesto Junior College in Modesto, California and Superintendent of Schools in Stockton, California.

Several specimens were mounted for display in the refuge office. These specimens included barn owl, American bittern, greater yellowlegs, American merganser, sora rail and Virginia rail. All specimens were mounted free-of-charge by students at Modesto Junior College.

D. Control of Vegetation:

Soil sterilant, 4-percent Dichlobenil, was used around pump stations, buildings and some signs to control grass and weed growth.

The San Joaquin River levee and the lift canal banks were sprayed with 2,4-Diso-octyl ester in April and again in May. The San Joaquin River levee must be sprayed in accordance with our agreement with the levee district. They do not want broadleaf plants competing with the sod-forming grasses and a dense growth of broadleafs makes the detection and control of ground squirrel damage difficult. The lift canal banks are sprayed to control annual weeds which otherwise end up in the lift canal and clog trashracks at the pump stations.

Approximately 125 acres in Unit 9 in the Moffat Field, and 90 acres between D and E-Canals, were mowed with a rotary mower and the cattail, bulrush and juncus residue burned.

Unit 9 was mowed in early October, burned on October 21, and then flooded as rapidly as possible. This unit was held at maximum water level throughout the hunting season. It was drained after the hunting season, and it will be left dry all next summer. This unit provided some excellent waterfowl hunting throughout the season. The lack of cover made it very attractive to pintails.

The 90 acre area between D and E-Canals was mowed during the latter part of November and burned on December 8. This area will remain dry throughout the summer for further drying out for cattail control. It will be re-flooded in November 1972.

E. Planned Burning:

Cattail, bulrush, and juncus residue on approximately 215 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:

One permittee, former owner Butler Noble, grazed cattle on the refuge during the year. He utilized 7,447 AUM's out of a maximum allowable total of 11,033 AUMs. At the rate of $3.75 per AUM, the total grazing income for the year was $27,926.38.

The following table shows total AUMs of grazing and total grazing income for 1967 through 1971.

	TOTAL AUMs	TOTAL REVENUE
*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
TOTALS	44,307	$166,154.88

*March 1 - December 31, only.

A grazing rate survey was made in August, and it was determined that the grazing fee should be increased from $3.75 per AUM to $4.15 per AUM. This recommendation was submitted to the Regional Office, but due to the price controls imposed by the administration no action has been taken.

Former owner, Butler Noble, was given written notice by Certified Mail on December 6, 1971, that his grazing permit will not be renewed when it expires on December 31, 1972. This will remove all grazing from the refuge. We plan to operate for a few years with no grazing on the refuge. If after a period of time we decide some grazing is necessary for marsh management, we will permit limited grazing on certain portions of the refuge. We rather doubt that this will be the case.

B. Fur Harvest:

A trapping permit was issued to Mr. Ray Delmas, Stevenson, California, allowing him to trap muskrat on the refuge from January 1 to February 28, 1971. The permit was granted for muskrat only, and all other animals taken were to be released unless they were dead or injured to the extent they could not survive. The trapper received 100 percent of the pelts.

The trapper caught 56 muskrats, three mink and eight raccoon. One mink and one raccoon were kept due to injury. This is pretty poor trapping success, and no trapping permit will be issued in 1972. Muskrats do cause extensive damage to levees, dams and roadways. Since they are bank dwellers in this part of the country, they are of no value in waterfowl management and we could not tolerate numbers high enough to be of value in marsh management.

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

Mr. Warren Shanks, Fisheries Services, Reno, Nevada, set gill nets in Deadman Slough on October 1 and 2. The fish taken were for pesticide analysis as part of the National Pesticide Monitoring Program. We have not received progress reports from Fisheries Services, so we are unable to report their findings.

A study by the Davis Research Center, Davis, California, concerning the relationships of pesticides and eggshell thickness in red-tailed hawks and great-horned owls was inactive during 1971.

Last year we initiated a grazing study to determine the effects of cattle grazing on waterfowl food production. This year, due to a staff vacancy and higher priority programs, the study was dormant. This study may be abandoned since grazing will be terminated with the expiration of the current use permit (December 1972).

VI. PUBLIC RELATIONS

A. Recreational Uses:

There were 16,087 actual visits to the refuge during the year. This is slightly above the 15,931 visits in 1970. Hunting and fishing accounted for 72 percent of the total refuge visitors. Warmwater fishermen accounted for 5,825 visits which is 508 more than last year. During the calendar year 5,748 hunters visited the refuge to hunt waterfowl.

During the 1971-72 waterfowl hunting season, 5,321 hunters hunted on the refuge. Compared to the 6,826 hunters during the 1970-71 season, this is a decrease of 1,505 hunters. This is the first year since the refuge was established that the number of hunters has not greatly increased.

Field trial activity on the refuge increased greatly during the year. Field trials were held on four weekends with a total of 725 people participating. The agreement with the San Luis Field

Trial and Conservation Association was ammended during the year to permit them to hold field trials during the months of March and September rather than August and September. This will permit them to have trials during cooler weather and when cover conditions on the refuge are more desirable. Weather conditions during August are usually too hot for both dogs and people to hold a successful field trial.

The attached recreational use form illustrates the type of activity visitors to the refuge participated in.

Bureau of Sport Fisheries and Wildlife
Division of Wildlife Refuges

ANNUAL RECREATIONAL USE REPORT

Refuge name: SAN LUIS
State: CALIFORNIA

State Code (1-2) | Congressional District Code (3-4) | Refuge Code (5-7) | Report Period Yr. Mo. (8-11)

(Card Columns). . . . . (12-13)		(14-18)	(19-25)
ACTIVITY	Code	VISITS FOR THE MONTH Total Number	Total Hours
Hunting: Big Game	01		
Upland Game	02		
Waterfowl	03	5,748	22,992
Other Migratory	04		
Other	05		
Bow	06		
Fishing: Salt Water	07		
Warm Water	08	5,825	17,475
Cold Water	09		
Environmental Education	10	130	283
Wildlife Photography	11	54	192
Wildlife Observation	12	3,175	4,765
Conducted Programs	13	160	240
Field Trials	14	733	5,816
Wildlife Trails	15		
Wildlife Tours/Routes	16	2,795	3,905
Visitor Contact Stations	17	6,760	1,690
Camping (wildlife related)	18		
Picnicking (wildlife related)	19	8,050	5,550
Wildlife Interpretive Center	20		
Off-Site Programs	21	165	6

(Card Columns). . . . . (12-13)		(14-18)	(19-25)
ACTIVITY	Code	VISITS FOR THE MONTH Total Number	Total Hours
On-Site Programs	22		
*Miscellaneous Wildlife	23	357	177
Swimming	24		
Boating	25		
Water Skiing	26		
Camping	27		
Group Camping	28		
Picnicking	29		
Horseback Riding	30		
Bicycling	31		
Winter Sports	32		
Fruit, Nut and Vegetable Collecting	33	85	55
*Miscellaneous Non-Wildlife	34	2	4
Peak Load Day	35	310	
Actual Visits	36	16,087	
Fee Area Use	37		
Number of Fee Areas	38	(14-18)	
Fee Collections	39	$	
Collection Costs	40	$	

Form 3-123
(Revised July 1969)

*Use reverse side to indicate types of activities summarized under miscellaneous codes 23 and 34. MAKE NO OTHER ENTRIES ON FACE OF THIS FORM.

B. Refuge Visitors:

The following list is a list of the more important visitors to the refuge or the refuge office:

DATE	NAME	AFFILIATION	PURPOSE OF VISIT
1/12	Frank Stokes	Asst. Regional Director Portland, Oregon	Administrative Inspection
1/22	Jim McClung	Outdoor Writer Modesto Bee	Feature Article
1/22	Bob McVein	Div. of Engineering Portland, Oregon	Water Facilities
1/22	Thor Risdal	Div. of Engineering Portland, Oregon	Water Facilities
1/26-27	Ellis Klett	Div. of Wildlife Refuges Portland, Oregon	Soil & Moisture
2/3	Frank Stanton	Bureau of Land Mgmt. Portland, Oregon	Tule Elk Task Force
2/3	Dale McCullough	Univ. of Michigan Ann Arbor, Michigan	Tule Elk Task Force
2/3	Jim Blaisdell	National Park Service San Francisco, CA	Tule Elk Task Force
2/3	Clinton Lostetter	Endangered Species Co-Ordinator, Portland, Or.	Tule Elk Task Force
2/22	John Findlay	Regional Director Portland, Oregon	Inspection
2/22	Jerry Wilson	Div. Wildlife Refuges Portland, Oregon	Inspection
3/5	Ed Roper	Bureau of Reclamation Tracy, California	Grasslands Water Dist. Agreement
3/18	Don Zable	General Services Admin. San Francisco, CA	Office Space
4/20 4/29 & 5/5	Grant Birmingham	Div. Wildlife Services Fresno, California	Kit Fox Dens
6/1	Dan Sullivan	Red Rock Lakes N.W.R. Monida, Montana	Pick up Airboat
6/16	Lou Wenzel	Bureau of Reclamation Sacramento, CA	Inspect Kesterson N.W.R.
6/16	Ed Roper	Bureau of Reclamation Tracy, CA	Inspect Kesterson N.W.R.

DATE	NAME	AFFILIATION	PURPOSE OF VISIT
6/16	Roy Hines	Calif. Dept. of Fish & Game, Fresno, CA	Inspect Kesterson N.W.R.
6/17	Jack Hiehle	Calif. Dept. Parks & Recreation, Sacramento, California	Tule Elk Information
6/17	James Barry	Calif. Dept. Parks & Recreation, Sacramento, California	Tule Elk Information
7/12	Edward Brannon	Bureau of Reclamation Fresno, California	Kesterson Reservoir
7/12	Paul Jones	Bureau of Reclamation Los Banos, California	Kesterson Reservoir
7/12	Robert Mason	Bureau of Reclamation Tracy, California	Kesterson Reservoir
7/14	Bob Hulbert	Soil Conservation Serv. Los Banos, California	Marsh Management Field Tour
7/14	Jack Smith	Calif. Dept. Fish & Game, Los Banos, CA	Marsh Management Field Tour
7/14	Wendel Miller	Soil Conservation Serv. Berkley, California	Marsh Management Field Tour
7/14	Dan Hinz	Calif. Dept. Fish & Game, Los Banos, CA	Marsh Management Field Tour
8/6	Gene Rapp	University of Calif. Davis, California	Student
9/17	C.E. Van Atta	Lea Act Committee Dos Palos, California	Lea Act Meeting
9/13	Roy Lower	Lea Act Committee Los Banos, California	Lea Act Meeting
9/13	Earl Rieke	Lea Act Committee Merced, California	Lea Act Meeting
9/13	Bob Brueggueman	Calif. Dept. Fish & Game, Fresno, CA	Lea Act Meeting
9/13	Frank Dutra	Calif. Dept. Fish & Game, Merced, CA	Lea Act Meeting
9/22	Larry Greenough	County Agricultural Commission, Dos Palos, CA	Squirrel Control

DATE	NAME	AFFILIATION	PURPOSE OF VISIT
9/29	Merv Cross	National Park Service Yosemite Natl' Park	Horse Pasture
9/29	Walt Castle	National Park Service Yosemite Natl' Park	Horse Pasture
10/1-2	Warren Shanks	Div. Fishery Services Portland, Oregon	Pesticide Monitoring
10/4	Mike Macias	Calif. Dept. Fish & Game, Los Banos, CA	Preseason Enforcement Meeting
10/4	Bob Hudson	Calif. Dept. Fish & Game, Gustine, CA	Preseason Enforcement Meeting
10/4	Frank Dutra	Calif. Dept. Fish & Game, Merced, CA	Preseason Enforcement Meeting
10/12-13	Jerry Wilson	Div. Wildlife Refuges Portland, Oregon	Systems Review
11/2	Terry Cochran	Div. Federal Aid Portland, Oregon	Excess Property
11/27	Will Gesebracht	Div. of Engineering Portland, Oregon	Pump Rehabilitation
12/6	Walt Castle	National Park Service Yosemite National Park	Horse Pasture
12/16-17	Ellis Klett	Div. Wildlife Refuges Portland, Oregon	Soil & Range Survey
12/16	Wendel Miller	Soil Conservation Serv. Berkley, California	Soil & Range Survey
12/16	Bob Hulbert	Soil Conservation Serv. Los Banos, California	Soil & Range Survey
12/17	Dr. Dennis Ravelings	University of California Davis, California	Information

In addition to those listed above, the following persons were frequent visitors to the refuge or the refuge office:

Charles Stribling	USGMA, Fresno, California
Bob Freeman	USGMA, Merced, California
Jerry Cawthon	Calif. Dept. of Fish & Game, Los Banos, CA
Bob Hudson	Calif. Dept. of Fish & Game, Gustine, CA
Jack Smith	Calif. Dept. of Fish & Game, Los Banos, CA
Butler Noble	Permittee, Manteca, California

C. Refuge Participation:

Refuge personnel attended and/or participated in the following meetings, speaking engagements, or tours. To avoid duplication, the activities of personnel on San Luis, Merced and Kesterson National Wildlife Refuges are combined here.

a. Melvin T. Nail -Refuge Manager:

January 29-30	Attended California-Nevada Section of the Wildlife Society meeting in Sacramento.
February 3	Discussed Tule elk and conducted Tule elk Task Force on a tour of San Luis Refuge. Task Force - Clinton Lostetter, BSF&W, Portland, Oregon; Jim Blaisdell, National Park Service, San Francisco, California; Frank Stanton, BLM, Portland, Oregon; Dale McCullough, University of Michigan, Ann Arbor, Michigan.
February 8-12	Attended Civil Service Training Program, Middle Management Institute, in Los Angeles, California.
February 21	With Regional Director, John Findlay, and Assistant Regional Refuge Supervisor, Jerry Wilson, attended Flyway Institute meeting in Fresno, California.
February 22-26	Attended Training Conference on Environmental Education for Resource People at Cispus Environmental Learning Center, Randle, Washington.
March 8-12	Attended Law Enforcement Workshop in Yakima, Washington.
March 20	Conducted 10 member of the Monterey Peninsula Audubon Society on a tour of San Luis Refuge.
March 21	Conducted 25 members of the Sacramento Audubon Society on a tour of San Luis Refuge.
March 29 - April 1	Attended U. S. Department of the Interior Safety Management Program Planning Conference at Yosemite National Park.
May 3	Interviewed Mrs. Elisabeth Lindeman at Richmond, California for Regional Office in Atlanta, Georgia.
May 19	Attended meeting at Romero School in Santa Nella to discuss the schools development of a marsh natural area on school property.
May 23	Attended Rotary Club family picnic at the Los Banos Fairgrounds.

June 16	Conducted annual inspection tour of Kesterson Refuge for Lou Wenzel, Bureau of Reclamation; Ed Roper, Bureau of Reclamation; Roy Hines, Dept. of Fish and Game; Dan Hinz, Calif. Dept. of Fish and Game and personnel from the California Department of Water Resources.
June 17	Conducted tour of San Luis Refuge and discussed tule elk with Jack Hiehle, Wildlife Ecologist and James Barry, Plant Ecologist for California Dept. of Parks and Recreation.
July 12	Meeting with Bureau of Reclamation personnel from Fresno and Sacramento offices to inspect San Luis Drain and Kesterson Reservoir and discuss future operation and maintenance of these facilities.
July 13	Conducted tour of San Luis Refuge for 20 students from Merced summer school.
July 14	Participated in habitat management tour with representatives from Soil Conservation Service, California Dept. of Fish and Game, and private duck clubs. Inspected and discussed management of waterfowl habitat at San Luis Refuge, Los Banos Wildlife Area and 101 Duck Club.
August 11-12	Attended Systems Management Workshop in Portland, Oregon.
August 23	Attended meeting in Portland, Oregon with personnel from our bureau and Bureau of Reclamation to discuss administration of the Cooperative Habitat Agreement between the two bureaus and the Grassland Water District.
September 13	Conducted Lea Act Committee meeting to decide on date to open Merced Refuge to hunting.
September 20	Attended meeting at Grassland Water District office as part of a committee to plan a tour of federal and state waterfowl areas and private duck clubs for the State Soil Conservation Commissioners.
September 29	With Soil Conservation Service and California Department of Fish and Game personnel, made a field run of the tour route for the State Soil Conservation Commissioners.
October 4	With refuge enforcement personnel, U.S.G.M.A. Stribling and State Wardens, Hudson, Macias and Dutra, held preseason law enforcement meeting at the refuge office.

October 12	Attended luncheon for State Soil Conservation Commissioners. Participated in waterfowl habitat tour for commissioners. Attended evening banquet for commissioners, and showed film, "California Wetlands".
October 14	Attended a meeting at the Grassland Water District office with Bureau of Reclamation personnel to discuss details of Cooperative Habitat Agreement.
November 8-12	Attended systems workshop in Reno, Nevada.
December 1	With Grassland Water District board members, attended duck club tax protest hearing in Merced.
December 16	Attended meeting of group interested in forming a local chapter of the Audubon Society.

In addition to the above activity, Manager Nail attended regular monthly meetings of the Grassland Water District, attended weekly meetings of the Los Banos Rotary Club, and attended weekly meetings of the Los Banos Westside Toastmasters.

b. Gene A. Sipe - Wildlife Biologist (Management):

January 24	Conducted 20 members of the Ohlone Audubon Society on a tour of San Luis Refuge.
January 31	Conducted a tour of San Luis and Merced Refuges for 22 members of the Golden Gate Audubon Society.
February 10	Showed the film, "Water Birds" to 45 third-graders at McSwain Elementary School.
February 18	Conducted a tour of San Luis Refuge for 90 third-grade students from Turlock Elementary School.
March 4	Conducted 27 sixth-grade students and three adults from Tenaya School on a tour of San Luis Refuge.
March 8-12	Attended Law Enforcement Workshop in Yakima, Washington.
March 13	Accompanied 22 students and one instructor from Merced Junior College on a field trip to San Luis Refuge. Assisted this aquatic biology class in insect collection.
March 27	Escorted 58 scouts from Cub Scout Pack 252 and 14 adults on a tour of San Luis Refuge.

April 1	Conducted a tour of San Luis Refuge for 6 adults and 60 fifth-grade students from Los Banos Elementary School.
April 4	Accompanied 13 members of the Santa Barbara Audubon Society on a tour of San Luis and Merced Refuges.
April 6	Attended a meeting in Sacramento between California refuge managers and the California Department of Fish and Game personnel to discuss refuge hunting programs.
April 28	Conducted a tour of Merced Refuge for 60 students and two teachers from the fifth-grade and sixth-grade classes of Hoover Elementary School, in Merced.
June 29	Tour of San Luis Refuge for 41 Merced summer school students.
June 30	Tour of San Luis Refuge for 43 Merced summer school students.
August 28	Conducted a tour of Merced Refuge for 5 adults and 25 scouts from Cub Scout Pack 120 at Castle Air Force Base.
October 13	Attended meeting of Merced Fish and Game Club and talked on the waterfowl outlook for the 1971-72 waterfowl hunting season.
October 19	Escorted 2 adults and 31 sixth-grade students from Tenya School in Merced on a tour of San Luis Refuge.
October 28	Accompanied one instructor and 12 wildlife students from Reedley Junior College at Reedley, California on a tour of San Luis Refuge.
November 8-12	Attended Systems Workshop in Reno, Nevada.
November 24	Escorted 50 students from a West Valley College biology class on a field trip at San Luis Refuge.
December 17	Conducted a tour of San Luis Refuge for 9 students from San Jose State College.

In addition to the above activity, Biologist Sipe attended weekly meetings of the Los Banos Westside Toastmasters Club.

c. James R. Mayle - Maintenanceman, Foreman:

July 14	Conducted a tour of San Luis Refuge for 23 Merced summer school students.

October 26 — Escorted 30 third and fourth-grade students and three adults from the Plainsburg School on a tour of Merced Refuge.

In addition to the above activity, Foreman Mayle attended weekly meetings of the Los Banos Westside Toastmasters Club.

D. Hunting:

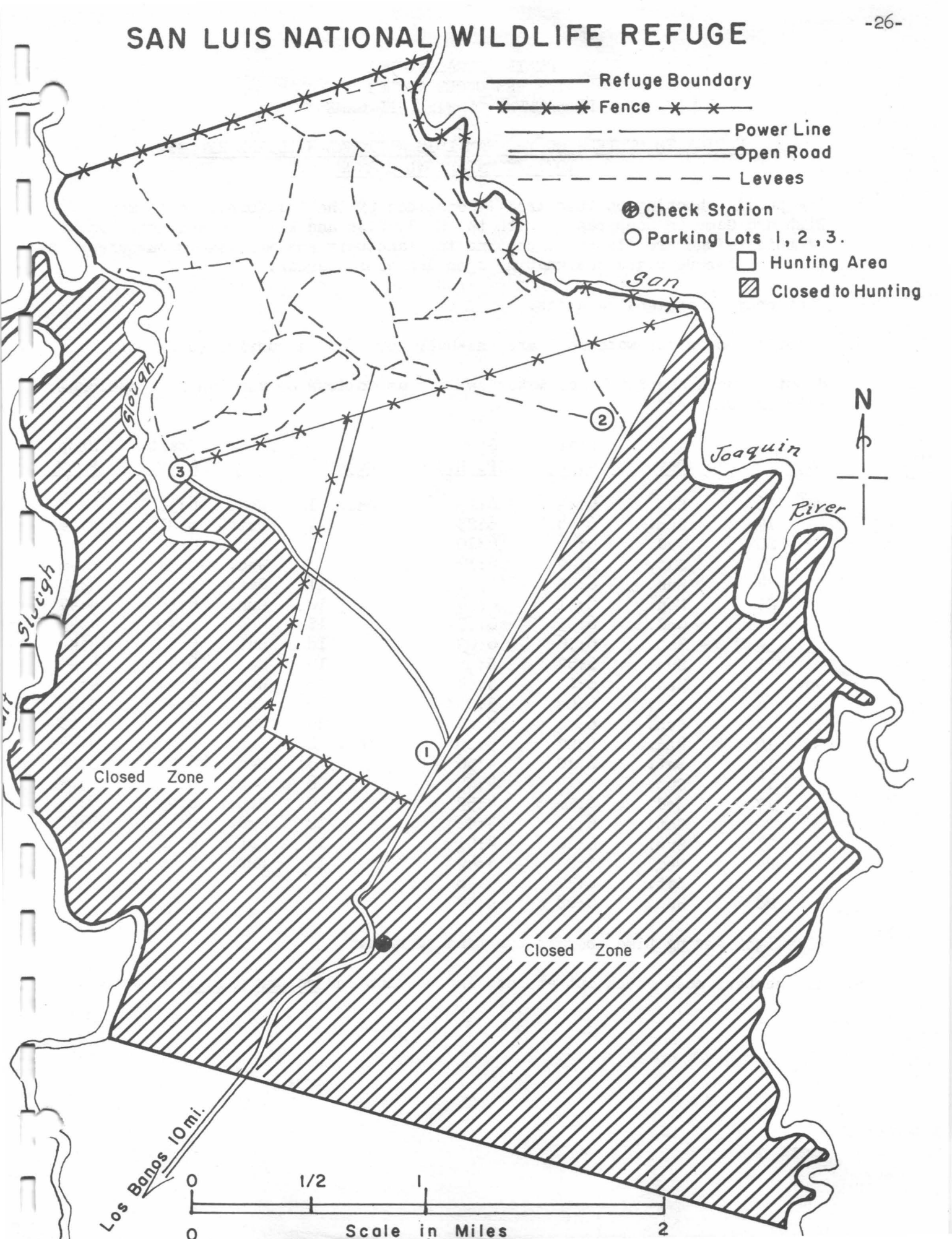
The migratory watefowl hunting season in Merced County opened on October 16 and ran through January 16, 1972. The season length was almost identical to last year. Christmas and New Years were both on Saturday this year and no hunting was permitted on these days. Hunting, as usual, was permitted only on Wednesday, Saturday and Sunday, and the refuge was open to hunting on 40 days during the season.

The California Department of Fish and Game again operated the actual hunting program. They issued reservations and permits, collected a $3.50 fee for hunting on the area and manned the checking station. The quota for the number of hunters on the area at one time was 150, the same as in past years. Enforcement was a joint effort between the California Department of Fish and Game and the Bureau of Sport Fisheries & Wildlife.

Total hunter visits for the 1971-72 waterfowl hunting season decreased from last year. This is the first year since the refuge was established that the number of hunters has not increased. This year there was a decrease from last year of 1,505 hunters. This decrease is believed to be a result of several factors: (1) San Luis is a relatively new refuge, and it has taken time for the word to get around that hunting is available there. The increase in the number of hunters is now stabilizing. The scheduled shooting capacity of the refuge (daily quota of hunters multiplied by the number of shoot days) for the 1971-72 season was 6,000 hunters, and during the season 5,311 hunters hunted on the refuge. (2) The shooting capacity on Kesterson Refuge was greatly increased this year, and many of the hunters that otherwise would have hunted on San Luis hunted there. (3) Many of the hunters hunting on the refuge are from metropolitan areas. They are highly mobile and they tend to go where the hunting is best. Hunting success was very good on the hunting areas in the Sacramento Valley, and we suspect many of "our" hunters went there. The fact that the shooting areas in the Sacramento Valley were crowded this year supports this theory.

On opening day, 308 hunters checked through the checking station. This was 17 less than last year and was, as usual, the busiest day

SAN LUIS NATIONAL WILDLIFE REFUGE



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF FISH AND GAME

NOTICE TO HUNTERS ON THE SAN LUIS NATIONAL WILDLIFE REFUGE
1971-72 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 San Luis National Wildlife Refuge:

Date	Day	Start A. M.	Stop P. M.	Date	Day	Start A. M.	Stop P. M.
Oct. 16	Sat.	6:43	6:27	Dec. 1	Wed.	6:30	4:47
17	Sun.	6:44	6:25	4	Sat.	6:31	4:46
20	Wed.	6:46	6:20	5	Sun.	6:32	4:46
23	Sat.	6:49	6:17	8	Wed.	6:34	4:46
24	Sun.	6:50	6:16	11	Sat.	6:37	4:47
25	Mon.	6:51	6:14	12	Sun.	6:38	4:47
27	Wed.	6:53	6:12	15	Wed.	6:40	4:48
30	Sat.	6:56	6:09	18	Sat.	6:43	4:49
*31	Sun.	5:57	5:08	19	Sun.	6:43	4:49
Nov. 3	Wed.	6:00	5:04	22	Wed	6:44	4:51
6	Sat.	6:03	5:01	26	Sun.	6:46	4:53
7	Sun.	6:04	5:01	29	Wed.	6:48	4:55
10	Wed.	6:07	5:00	Jan. 2	Sun.	6:48	4:57
13	Sat.	6:10	4:56	5	Wed.	6:49	5:00
14	Sun.	6:13	4:55	8	Sat.	6:49	5:02
17	Wed.	6:16	4:53	9	Sun.	6:49	5:03
20	Sat.	6:19	4:52	12	Wed.	6:48	5:07
21	Sun.	6:20	4:51	15	Sat.	6:48	5:09
24	Wed.	6:23	4:49	16	Sun.	6:46	5:11
27	Sat.	6:27	4:48				
28	Sun.	6:28	4:47				

*Daylight saving time changes to standard time.

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

of the year.

A total of 5,321 hunters bagged 11,280 ducks, 877 geese and 368 coots for a total of 12,525 birds for the season. The average hunter kill per day was 2.4 birds. The average hunter kill was up .3 from the 2.1 average of last year. The highest success for a single day was on January 15, 1972 when 200 hunters averaged 5.0 birds per hunter. This day also produced the best goose hunting of the year. Of the total goose kill of 877 geese, 269 were killed on January 15.

No pheasant hunting was allowed on the refuge during the year. Although pheasant numbers are increasing, we do not feel there is a huntable population yet.

The following table is a tabulation of waterfowl kill by species for the 1968-69, 1969-70, 1970-71 and 1971-72 waterfowl hunting seasons.

KILL BY SPECIES	1968-69	1969-70	1970-71	1971-72
DUCKS:				
Mallard	751	1,053	1,067	1,098
Gadwall	249	576	710	878
Pintail	588	2,038	1,479	1,507
G. W. Teal	5,639	5,641	6,149	4,353
B. W. Teal	---	---	---	---
Cinnamon Teal	205	256	431	249
Baldpate	381	792	1,273	620
Shoveler	1,028	1,836	2,071	1,943
Wood Duck	1	11	1	3
Redhead	7	12	4	21
Ring-necked duck	12	21	41	47
Canvasback	13	17	50	94
Scaup	10	8	13	29
C. Goldeneye	---	1	2	3
Bufflehead	1	2	7	5
Ruddy Duck	154	209	299	359
Mergansers	40	14	22	71
Coots	171	296	445	368
TOTAL	9,250	12,783	14,064	11,648
GEESE:				
Common Canada	2	3	3	14
Cackling Goose	108	142	105	292

GEESE: (Cont'd)

W. F. Goose	59	93	37	86
Snow Goose	55	101	123	307
Ross' Goose	31	27	51	178
TOTAL	255	366	319	877
Total Waterfowl	9,505	13,149	14,383	12,525
Total Hunters	4,503	5,401	6,826	5,321
Average Waterfowl/ hunter	2.11	2.43	2.10	2.40
No. Snipe killed	No hunting	No hunting	?	13

E. Violations:

No serious violations, other than game violations, were apprehended on the refuge during the year. The "dirtest" violation of the year came to light when we discovered that the company we were renting chemical toilets from was dumping the waste on the refuge. They were notified to cease this practice and issued a citation to show we were serious about it. A phone call to the County Health Officer revealed that it is legal and a common practice to dump this waste on open land with the permission of the land owner. YUK!

California Department of Fish and Game wardens Macias and Bryan patrolled the refuge frequently during the waterfowl hunting season and made routine visits throughout the summer to check fishermen. Their cooperation greatly strengthens the refuge law enforcement program.

Game Agent Stribling visited the refuge frequently and made numerous enforcement patrols during the waterfowl hunting season. He either filed all cases or arranged for a state warden to file them and completed all case reports.

As expected, refuge personnel carry the ball on the bulk of the refuge law enforcement program. We try to maintain an active preventive enforcement program, but some people don't want to be prevented, so we try to apprehend them. The following list of violations are the result of our efforts along this line:

DATE	NAME & CITY	VIOLATION	AGENT	DISPOSITION
10/31	Donald Nusser Modesto	Hunting Closed Area	Sipe	Juvenile Not prosecuted

DATE	NAME & CITY	VIOLATION	AGENT	DISPOSITION
10/31	Bruce Gowans Modesto	Hunting Closed Area	Sipe	Juvenile Not prosecuted
11/6	Floyd Parker San Jose	Killing Sandhill Crane	Nail	Justice Court 11/26/71-$150.
11/10	Donald Ross San Jose	Shooting After Hours	Mayle	Justice Court 12/6/71-$25.
11/20	David Mello Morgan Hill	Shooting early	Nail	Justice Court 12/13/71-$25.
11/21	Kurt Werner San Jose	Trespass	Mayle Nail	Justice Court 12/16/71-$25.
11/21	Ardys Hooper San Jose	Trespass	Mayle Nail	Justice Court 12/17/71-$50.
11/27	Gary Johnson San Jose	Possession of Grebe	Nunes*	Pending
1972				
1/8	Abraham Feltus Compton	Shooting After Hours	Nail	Pending
1/15	Gordon Hart	Shooting Swan	Mayle	Justice Court 2/7/72-$250.

*California Dept. of Fish and Game - Joe Nunes

F. Safety:

Joint Safety Meetings of all San Luis, Merced and Kesterson Refuges personnel were held each month during the year.

In accordance with Bureau instructions, a roll-bar canopy was installed on the D-7 crawler tractor which did not have this SAFETY feature. All crawler tractors on the refuge complex are now equipped.

A new door was installed in the oil house for SAFETY reasons. The location of the door previously and its small size made it difficult to load or unload barrels and other heavy objects. The new door permits trucks to be backed right up to the door, and it is very convenient to load or unload since it has a large opening and the floor is at pickup bed level.

On March 21 through April 1, Manager Nail attended the U. S. Dept. of the Interior Safety Management Program Planning Conference at Yosemite National Park.

During the year, Foreman Mayle completed the home study course "Supervising For Safety". Mr. Mayle achieved a score of 97% on the course, and we are quite proud of this accomplishment.

There was only one fatality on the refuge during the year. On December 15, 1971, a hunter suffered a fatal heart attack while hunting on the refuge.

Refuge employees suffered several accidents during the year. On February 25, 1971, George Freeman suffered a back injury while loading empty trash barrels in the back of a truck. This accident resulted in 61 days lost time. On October 3, 1971, he suffered a back injury while at home on annual leave. He returned to work following this injury on November 15, 1971.

On May 13, 1971, Melvin Ford was removing a broken cable from a crawler tractor-scraper unit when he got a metal particle in his eye. The particle had to be removed by a doctor, but it did not result in a lost time accident. On May 18, 1971, Mr. Ford got something else in his eye. This also required medical attention, but it did not result in any lost time.

We had one accident during the year which involved equipment damage only. On November 18, 1971, Melvin Ford parked a pickup close to a slough he was cleaning with the crawler dragline. He worked up towards the pickup, and when he moved the dragline over a small knoll the boom circled to the left and the dragline bucket scraped the pickup causing an estimated $100 damage.

VII. OTHER ITEMS

A. Items of Interest:

On January 9, 1971, Assistant Manager Steve Vehrs transferred to Modoc National Wildlife Refuge at Alturas, California.

On May 17, 1971, the refuge office was moved from the Bureau of Reclamation building at 821 West L Street to 535 J Street in Los Banos.

Foreman Mayle arranged for the local Caterpillar dealer to hold a servicing and adjustment workshop for refuge equipment operators. On June 30 a class was held in the conference room at the Los Banos office, and on July 16, a field class was held at San Luis Refuge. Several employees of the California Department of Fish and Game also attended these training sessions.

B. Credits:

Credits for the preparation of this report are as follows:

Refuge Manager Nail - Sections III, IV, VI and VII.
Wildlife Biologist Sipe - Sections I, II and V.
Clerk-Typist Barger - Edited, typed and assembled the entire report.
Maintenanceman, Foreman Mayle - Provided many helpful notes and assisted in locating and compiling much of the information for the body of the report.

Photograph credits are shown with each photograph in the photograph section of the report.

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE San Luis NWR MONTHS OF January thru ~~TO~~ April, 1971

(1) Species	(2) Weeks of reporting period									
	1/3 - 1/9	1/10 - 1/16	1/17 - 1/23	1/24 - 1/30	1/31 - 2/6	2/7 - 2/13	2/14 - 2/20	2/21 - 2/27	2/28 - 3/6	3/7 - 3/13
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling	25	10	15	10	10	20	15	15	10	5
Trumpeter										
Geese:										
Canada	150	200	200	200	200	150	100	100	75	75
Cackling	12,000	12,000	12,000	10,500	10,000	9,000	7,000	7,000	6,500	6,500
Brant										
White-fronted	500	500	550	650	700	800	800	900	1,000	1,000
Snow	5,000	5,000	5,000	6,000	6,500	5,500	5,000	3,800	3,500	3,000
~~Blue~~ Ross'	5,500	5,500	5,500	5,000	4,500	3,000	2,000	2,000	1,700	1,500
~~Other~~ Total	23,150	23,200	23,250	22,350	21,900	18,450	14,900	13,800	12,775	12,075
Ducks:										
Mallard	22,000	22,000	12,000	10,000	7,300	6,000	4,500	4,000	3,200	2,500
Black										
Gadwall	5,500	5,500	2,800	2,100	2,000	1,200	500	500	450	400
Baldpate	133,200	133,200	75,000	50,000	40,000	25,000	20,000	17,000	16,200	15,000
Pintail	83,700	83,700	30,000	30,000	15,000	12,000	8,000	7,000	6,300	5,700
Green-winged teal	40,000	40,000	35,000	20,000	20,000	15,000	10,000	8,700	7,000	4,500
Blue-winged teal										
Cinnamon teal	2,500	2,500	2,500	3,000	3,500	3,500	4,000	4,500	3,700	2,900
Shoveler	99,500	99,500	65,500	55,000	29,000	18,000	15,000	11,500	10,200	8,000
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy	500	500	400	400	350	300	300	350	400	400
Other (Merganser)	50	25	25	25	25	25	25	25		
Total	386,950	386,925	223,225	170,525	117,175	81,025	62,325	53,575	47,450	39,400
Coot:										
	6,000	6,000	6,500	7,000	9,000	10,000	10,000	10,000	10,000	9,500

3 -1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE San Luis NWR MONTHS OF January thru ~~TO~~ April, 1971

(1) Species	(2) Weeks of reporting period: 11 (3/14-3/20)	12 (3/21-3/27)	13 (3/28-4/3)	14 (4/4-4/10)	15 (4/11-4/17)	16 (4/18-4/24)	17 (4/25-5/1)	18	(3) Estimated waterfowl days use	(4) Production: Broods seen	(4) Production: Estimated total
Swans:											
Whistling	1								952		
Trumpeter											
Geese:											
Canada	25	50	25						10,850		
Cackling	6,000	5,000	3,500	500	350	100			755,650		
Brant											
White-fronted	1,000	700	500	650	710	250			78,470		
Snow	2,500	3,000	1,500	300	30	25	2		389,599		
~~Blue~~ Ross'	1,500	500	100						268,100		
~~Other~~ Total	11,025	9,250	5,625	1,450	1,090	375	2		1,502,669		
Ducks:											
Mallard	1,250	1,000	950	800	575	350	275		690,900		
Black											
Gadwall	400	375	225	250	150	200	250		156,600		
Baldpate	10,900	8,700	4,300	1,000	350	100	50		3,850,000		
Pintail	5,200	3,200	1,150	625	325	175	100		2,045,225		
Green-winged teal	3,000	2,600	2,475	2,100	1,950	950	450		1,496,075		
Blue-winged teal					2				14		
Cinnamon teal	1,850	1,600	1,500	1,225	1,000	500	350		284,375		
Shoveler	6,700	3,900	3,350	2,800	2,300	1,250	350		2,970,450		
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy	500	425	300	175	75	50	50		38,325		
Other									1,575		
Total	29,800	21,800	14,250	8,975	6,727	3,575	1,875		11,589,039		
Coot:											
	9,400	7,250	6,300	5,000	4,500	2,500	1,800		845,250		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	952	25	
Geese	1,502,669	23,250	
Ducks	11,589,039	386,950	
Coots	845,250	10,000	
Total	13,937,910	420,225	

SUMMARY

Principal feeding areas Millet fields, Moffatt Field and Loaf Lake.

Principal nesting areas

Reported by Gene A. Sipe, Wildl. Biologist

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE SAN LUIS NATIONAL WILDLIFE REFUGE MONTHS OF May through August, 19 71

(1) Species	(2) Weeks of reporting period: 5/2-8 (1)	5/9-15 (2)	5/16-22 (3)	5/23-29 (4)	5/30-6/5 (5)	6/6-12 (6)	6/13-19 (7)	6/20-26 (8)	6/27-7/3 (9)	7/4-10 (10)
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted					1					
Snow										
Blue										
Total					1					
Ducks:										
Mallard	275	300	325	325	250	125	200	250	250	200
Black										
Gadwall	250	200	175	150	150	150	125	125	100	75
Baldpate	50	25								
Pintail	100	50	25	25	25	25	10	10	10	10
Green-winged teal	250	150	100	50	25	25	15	15	15	15
Blue-winged teal		2	2							
Cinnamon teal	350	275	225	175	150	125	100	75	75	100
Shoveler	200	150	75	50	50	50	25			
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy	50	50	25	25	25	25	15	10	10	10
Wood Duck						2				
Total	1,525	1,202	952	800	675	527	490	485	460	410
Coot:										
	1,000	800	500	350	225	125	75	50	50	50

3-17-0a
Cont. 1-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE SAN LUIS NATIONAL WILDLIFE REFUGE MONTHS OF May through August, 19 71

(1) Species	(2) Weeks of reporting period 7/11-17 : 11	7/18-24 : 12	7/25-31 : 13	8/1-7 : 14	8/8-14 : 15	8/15-21 : 16	8/22-28 : 17	8/29-9/4 : 18	(3) Estimated waterfowl days use	(4) Production Broods seen	(4) Production Estimated total
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada											
Cackling											
Brant											
White-fronted									7		
Snow											
Blue											
Total									7		
Ducks:											
Mallard	200	150	150	200	275	300	375	500	32,550	6	175
Black											
Gadwall	50	50	35	50	75	75	100	125	14,420	14	200
Baldpate									525		
Pintail	10	10	10	50	300	250	250	400	10,990		25
Green-winged teal	10	10	10			25	75	100	6,230	1	10
Blue-winged teal									28		
Cinnamon teal	100	100	100	175	200	200	225	250	21,000	7	175
Shoveler									4,200		
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy	10	10	10						1,925		
Wood Duck									14		
Total	380	330	315	475	850	850	1,025	1,375	91,882	28	585
Coot:											
	50	40	35	50	75	75	100	125	26,425		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese	7	1	
Ducks	91,882	1,525	585
Coots	26,425	1,000	
Total:	118,314		

SUMMARY

Principal feeding areas Moffat Field and Loaf Lake.

Principal nesting areas Moffat Field.

Reported by Gene A. Sipe

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1750
Form No. 1
(Rev. March 1953)

WATERFOWL

REFUGE SAN LUIS NATIONAL WILDLIFE REFUGE MONTHS OF September through December, 19 71

(1) Species	(2) Weeks of reporting period									
	9/5-11 1	9/12-18 2	9/19-25 3	9/26-10/2 4	10/3-9 5	10/10-16 6	10/17-23 7	10/24-30 8	10/31-11/6 9	11/7-13 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada										
Cackling									120	
Brant										
White-fronted										380
Snow										
Ross'										
Totals									120	380
Ducks:										
Mallard	500	600	700	1,000	4,250	7,500	35,000	33,500	29,500	22,275
Black										
Gadwall	125	100	100	200	475	800	2,500	3,500	3,600	4,500
Baldpate					25	100	250	500	1,550	1,950
Pintail	600	1,200	2,600	3,000	3,700	5,000	133,050	110,600	74,500	113,900
Green-winged teal	100	125	125	150	200	350	13,000	17,400	15,400	19,200
Blue-winged teal										
Cinnamon teal	200	175	125	200	350	600	3,500	1,750	1,300	1,600
Shoveler				25	50	100	200	1,000	2,550	3,200
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy	10	10	25	75	100	150				
Totals	1,535	2,210	3,675	4,650	9,150	14,600	187,500	168,250	128,400	166,625
Coot:	250	500	3,750	3,000	2,500	2,300	2,100	3,000	3,280	2,700

3 -1750a
Cont. -1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE SAN LUIS NATIONAL WILDLIFE REFUGE MONTHS OF September through December, 19 71

(1) Species	(2) Weeks of reporting period: 11/14-20 (11)	11/21-27 (12)	11/28-12/4 (13)	12/5-11 (14)	12/12-18 (15)	12/19-25 (16)	12/26-1/1 (17)	(18)	(3) Estimated waterfowl days use	(4) Production: Broods seen	Estimated total
Swans:											
Whistling	8	17	25	35	50	130	200		3,255		
Trumpeter											
Geese:											
Canada			30	50	100	75	75		2,310		
Cackling	25	700	2,500	5,650	8,700	4,500	5,000		190,365		
Brant											
White-fronted	400	300	665	250	300	200	250		19,215		
Snow		2,000	5,000	6,500	9,000	7,200	8,000		263,900		
Ross'		750	1,300	2,500	3,000	2,100	3,200		89,950		
Totals	425	3,750	9,495	14,950	21,100	14,075	16,525		565,740		
Ducks:											
Mallard	41,100	45,525	47,000	40,700	34,800	44,700	59,800		3,139,150		
Black											
Gadwall	1,500	1,800	2,500	3,700	5,000	7,800	9,200		331,800		
Baldpate	2,150	2,500	3,500	5,000	10,000	11,000	14,000		367,675		
Pintail	101,500	130,500	65,000	193,600	71,000	73,700	48,900		7,926,450		
Green-winged teal	31,575	33,400	34,600	37,000	44,400	63,000	74,200		2,689,575		
Blue-winged teal											
Cinnamon teal	2,300	2,000	1,800	1,300	1,000	1,200	1,600		147,000		
Shoveler	9,300	12,400	18,150	41,000	74,600	84,400	69,300		2,213,925		
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy	225	350	475	550	800	1,500	1,750		42,140		
Other											
Totals	189,650	228,475	173,025	322,850	241,600	287,300	278,750		16,857,715		
Coot:											
	3,075	4,000	4,700	5,000	5,700	6,000	6,000		404,985		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	3,255	225	
Geese	565,740	~~30,710~~ 21,100	
Ducks	16,857,715	~~436,075~~ 322,850	
Coots	404,985	6,000	
Total	17,831,695		

SUMMARY

Principal feeding areas Loaf Lake and Teal Lake areas.

Principal nesting areas

Reported by Gene A. Sipe

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge San Luis N.W.R. Months of January through April 19 71

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Pied-billed Grebe	Resident		76	02/16						125
White Pelican	1	02/16	700	04/08						1,500
Great Blue Heron	Resident		32	03/16						200
Common Egret	Resident		48	02/16						100
Snowy Egret	Resident		80	02/16						250
Black-crowned Night Heron	Resident		82	04/29						400
American Bittern	Resident		3	03/16						100
Sandhill Crane			500	03/19	1	04/19				2,500
Common Gallinule	Resident		1	04/29						150
II. Shorebirds, Gulls and Terns:										
Killdeer	Resident		62	03/16						250
Common Snipe			1	02/16						100
Long-billed Curlew			12	01/31						250
Greater Yellowlegs			5	03/16						50
Least Sandpiper			35	02/16						1,000
Dunlin	840	03/16	840	03/16						3,000
Dowitcher			2,100	03/16						5,000
Western Sandpiper			685	04/16						2,500
American Avocet			140	04/16						500
Black-necked Stilt			25	04/29						250
Ring-billed Gull			100	02/20						150
Caspin Tern			2	04/29						10

(over)

(1)	(2)	(3)		(4)	(5)	(6)
III. Doves and Pigeons:						
Mourning dove		10	01/16			100
White-winged dove						
IV. Predaceous Birds:						
Golden eagle		1	01/29			2
Duck hawk						
Horned owl	Resident	3	03/27			35
Magpie	Resident	2	03/16			75
Raven						
Crow						
White-tailed Kite		2	01/10			5
Sharp-skinned Hawk		1	03/28			5
Cooper's Hawk		1	01/16			10
Red-tailed Hawk	Resident	13	02/16			100
Swainson's Hawk		2	03/04			5
Ferruginous Hawk		1	02/11			2
Marsh Hawk	Resident	2	04/16			25
Sparrow Hawk	Resident	4	02/16			50
Short-eared Owl		1	01/09			10

Reported by Gene A. Sipe, Wildlife Biologist

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INTERIOR--PORTLAND, OREGON

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge San Luis NWR Months of May to August 1971

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Pied-billed Grebe	Resident		10	06/11						50
White Pelican	Previous Period		800	05/19	350	06/02				1,200
Great Blue Heron	Resident		88	06/11						200
Green Heron	1	08/17	only sighting this period							5
Common Egret	Resident		4	06/11						50
Snowy Egret	Resident		13	05/24						100
Black-crowned Night Heron	Resident		79	05/24						250
American Bittern	Resident		1	08/11						25
II. Shorebirds, Gulls and Terns:										
Killdeer	Resident		130	08/11						500
Long-billed Curlew	Previous Period		400	07/14	Still Present					1,000
Greater Yellowlegs	"	"	31	07/26	"	"				75
Least Sandpiper	"	"	200	08/11	"	"				350
Long-billed Dowitcher	"	"	1,065	08/11	"	"				1,500
Western Sandpiper	"	"	127	08/11	"	"				500
American Avocet	"	"	160	07/26	"	"				400
Black-necked Stilt	"	"	42	08/11	"	"				200
Wilson's Phalarope	2	08/17	only sighting this period							10
California Gull	30	05/19	"	"	"	"				50
Ring-billed Gull	15	05/24	"	"	"	"				75
Forester's Tern	2	05/10	"	"	"	"				10
Caspian Tern	1	07/26	"	"	"	"				5
Black Tern	2	05/10	"	"	"	"				5

(over)

(1)	(2)	(3)		(4)	(5)	(6)
III. Doves and Pigeons:						
Mourning dove	Previous Period	17	08/11	Still Present		200
White-winged dove						
IV. Predaceous Birds:						
Golden eagle						
Duck hawk						
Horned owl	Resident	4	07/26			35
Magpie yellow-billed	"	11	08/11			75
Raven						
Crow						
White-tailed Kite	Previous Period	3	08/28	Still Present		5
Red-tailed Hawk	Resident	12	05/24			100
Swainson's Hawk	Previous Period	5	06/23			5
Marsh Hawk	Resident	1	08/11			10
Sparrow Hawk	Resident	1	08/11			25
Turkey Vulture	4 05/01	4	05/1	Still Present		10

Reported by Gene A. Sipe, Wildlife Biologist

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INTERIOR--PORTLAND, OREGON

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge San Luis NWR Months of September through December 19 71

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Western Grebe	1	10/25	Only sighting this period							10
Pied-billed Grebe	Resident		5	09/20						300
White Pelican	100	10/05	150	10/09	Still Present					250
Great Blue Heron	Resident		33	11/19						350
Common Egret	Resident		29	10/14						75
Snowy Egret	Resident		29	10/14						200
Black-crowned Night Heron	Resident		50	10/14						100
American Bittern	Resident		4	10/14						125
White-faced Ibis	24	11/04	250	12/15	Still Present					300
Sandhill Crane	40	09/19	400	11/07	Still Present					2,500
Common Gallinule	Resident		2	09/20						350
II. Shorebirds, Gulls and Terns:										
Killdeer	Resident		49	09/20						350
Common Snipe	1	11/19			Still Present					50
Long-billed Curlew	Previous Period		30	12/05	Still Present					250
Greater Yellowlegs	Previous Period		5	11/19	Still Present					75
Least Sandpiper	Previous Period		3	11/19	Still Present					175
Dunlin	11	11/19								250
Long-billed Dowitcher	Previous Period		375	09/20	Still Present					2,500
Western Sandpiper	Previous Period		285	09/20	Still Present					1,800
American Avocet	Previous Period		25	11/19	Still Present					200
Black-necked Stilt	Previous Period									100
California Gull	Previous Period		400	11/19						600
Ring-billed Gull	Previous Period									150
Caspian Tern	1	10/02	Only sighting this period							5

(over)

(1)	(2)		(3)		(4)	(5)	(6)
III. Doves and Pigeons:							
Mourning dove	Previous Period		51	09/20			5,000
White-winged dove							
IV. Predaceous Birds:							
Golden eagle	1	10/16	1	11/19			4
Duck hawk							
Horned owl	Resident						25
Magpie, Yellow-billed	Resident						75
Raven							
Crow	3	10/25	Only sighting this period				25
Turkey Vulture	1	10/14	Only sighting this period				15
White-tailed Kite	Resident		4	10/03			8
Cooper's Hawk			1	11/28	Still Present		2
Red-tailed Hawk	Resident						175
Marsh Hawk	Resident						50
Prairie Falcon	1	10/28	Only sighting this period.				1
Sparrow Hawk	Resident						30
Short-eared Owl	2	11/17			Still Present		5

Reported by Gene A. Sipe

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INTERIOR--PORTLAND, OREGON

3-1750b
Form NR-1B
(Rev. Nov. 1957)

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

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge San Luis NWR For 12-month period ending August 31, 1971

Reported by Gene A. Sipe Title Wildlife Biologist

(1) Area or Unit Designation	(2) Habitat Type	(2) Habitat Acreage		(3) Use-days	(4) Breeding Population	(5) Production
Unit I	Crops	266	Ducks	47,008,195	350	235
	Upland	2,700	Geese	1,664,928		
	Marsh	1,000	Swans	1,045		
	Water	225	Coots	908,842		
	Total	4,191	Total	49,583,010	350	235
Unit II	Crops		Ducks	959,351	650	350
	Upland	1,964	Geese	33,978		
	Marsh	1,100	Swans	312		
	Water	175	Coots	557,033		
	Total	3,239	Total	1,550,674	650	350
Total	Crops	266	Ducks	47,967,546	1,000	585
	Upland	4,664	Geese	1,698,906		
	Marsh	2,100	Swans	1,357		
	Water	400	Coots	1,465,875		
	Total	7,430	Total	51,133,684	1,000	585
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

(1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.

(2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.

(3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.

(4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.

(5) **Production:** Estimated total number of young raised to flight age.

Interior Duplicating Section, Washington, D. C. 27580

1750
Form NR-
(Sept. 1960)

WATERFOWL HUNTER KILL SURVEY

Refuge San Luis N.W.R.

1971-72 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
10/16-22	597	2,388	Pintail 467, Green-winged Teal 317, Mallard 221, Gadwall 108, Cinnamon Teal 95, Shoveler 75, Widgeon 54, Coot 25, Ruddy Duck 13, Ring-necked Duck 10, Canvasback 2, Wood Duck 1, Redhead 1, Bufflehead 1.	1,390	695	2,085	597	2,085
10/23-29	397	1,588	Green-winged Teal 90, Pintail 75, Mallard 35, Cinnamon Teal 29, Gadwall 26, Widgeon 24, Coot 24, Shoveler 20, Cackling Goose 3, Wood Duck 2, Canvasback 2, Redhead 1, Ring-necked Duck 1.	332	166	498	397	498
10/30-11/5	381	1,524	Green-winged Teal 160, Pintail 113, Gadwall 104, Mallard 60, Shoveler 59, Baldpate 50, Coot 32, Canvasback 15, Cinnamon Teal 12, Ring-necked duck 6, Ruddy 5, Scaup 5, Ross' Goose 3, Redhead 2, Buffle-head 1, Snow Goose 1, White Fronted Goose 1, Cackling Goose 1.	630	315	945	381	945
11/6-12	325	1,300	Green-winged Teal 102, Pintail 76, Gadwall 48, Coot 28, Shoveler 26, Baldpate 24, Cinnamon Teal 17, Mallard 16, Canvas-back 16, Ruddy 12, Scaup 5, Bufflehead 2, Ring-necked Duck 2, Redhead 1.	375	188	563	325	563
11/13-19	323	1,292	Green-winged Teal 239, Pintail 107, Mallard 67, Shoveler 37, Gadwall 32, Ruddy 21, Cinnamon Teal 20, Baldpate 17, Coot 10, Canvasback 6, Snow Goose 5, Redhead 3, Ring-necked duck 3, Bufflehead 1, Cross: Muscovie-Mallard 1.	569	285	854	323	854

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. Column 9 = $\frac{\text{Column 8}}{\text{Column 2}}$ x Column 7.

Form NP[illegible]C
(Sept. 1960)

WATERFOWL HUNTER KILL SURVEY

Refuge San Luis N.W.R.

1971-72 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
11/20-26	229	916	Green-winged Teal 165, Mallard 114, Pintail 81, Gadwall 29, Shoveler 23, Cinnamon Teal 16, Baldpate 13, Ruddy 12, Coot 10, Canvasback 7, White-fronted Goose 7, Ring-necked Duck 3, Snow Goose 3, Scaup 1, Cackling Goose 1.	485	243	728	229	728
11/27-12/3	374	1,496	Green-winged Teal 238, Mallard 95, Coot 86, Pintail 73, Ruddy 59, Shoveler 44, Gadwall 42, Baldpate 17, Snow Goose 12, Canvasback 10, Redhead 8, Cinnamon Teal 7, Ring-necked Duck 4, White-fronted Goose 4, Ross' Goose 2, Scaup 1, Cackling Goose 1.	703	352	1,055	374	1,055
12/4-10	353	1,412	Green-winged Teal 297, Shoveler 71, Pintail 63, Gadwall 59, Mallard 42, Baldpate 20, Coot 16, Ruddy 11, Canvasback 10, Ring-necked Duck 7, Cackling Goose 7, White-fronted Goose 6, Snow Goose 6, Cinnamon Teal 5, Scaup 2, Redhead 1, Blue-winged Teal 1, Ross' Goose 1, Snipe 1.	626	313	939	353	939
12/11-17	382	1,528	Green-winged Teal 496, Cinnamon Teal 111, Pintail 80, Mallard 70, Gadwall 54, Ruddy 43, Shoveler 41, Baldpate 40, Canvasback 37, Snow Goose 30, Coot 19, Merganser 12, Blue-winged Teal 11, Ross' Goose 9, Scaup 8, Cackling Goose 6, White-fronted Goose 2, Golden-eye 2, Fulvous Tree Duck 2, Ring-necked Duck 2, Bufflehead 1.	1,076	538	1,614	382	1,614

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. $\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}$.

Form NR [illegible]
(Sept. 1960)

WATERFOWL HUNTER KILL SURVEY

Refuge San Luis N.W.R.

1971-72 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
12/18-24	428	1,712	Green-winged Teal 498, Blue-winged Teal 136, Mallard 126, Pintail 99, Shoveler 95, Snow-Goose 65, Gadwall 58, Baldpate 42, Coot 32, Ruddy 31, Cackling Goose 27, Cinnamon Teal 24, Canvasback 14, Merganser 10, Ross' Goose 7, White-fronted Goose 6, Ring-necked Duck 4, Scaup 3, Muscovie-Mallard 1, Canada Goose 1.	1,279	640	1,919	428	1,919
12/25-31	401	1,604	Green-winged Teal 529, Shoveler 170, Mallard 51, Ruddy 48, Baldpate 44, Pintail 42, Gadwall 35, Cackling Goose 20, Snow Goose 20, Coot 18, Ross' Goose 18, Cinnamon Teal 11, White-fronted Goose 5, Canvasback 5, Merganser 3, Wood Duck 2, Scaup 1, Canada Goose 1.	1,023	512	1,535	401	1,535
1/1-7	301	1,204	Green-winged Teal 402, Shoveler 167, Baldpate 108, Mallard 58, Cackling Goose 50, Gadwall 45, Pintail 43, Ross' Goose 21, Ruddy 20, Snow Goose 16, White-fronted Goose 9, Cinnamon Teal 7, Merganser 6, Canvasback 6, Coot 4, Canada Goose 3, Ring-necked Duck 1, Scaup 1, Golden-eye 1, Blue-winged Teal 1.	969	485	1,454	301	1,454
1/8-14	497	1,988	Green-winted Teal 472, Shoveler 341, Baldpate 129, Pintail 88, Gadwall 68, Snow Goose 49, Cackling Goose 52, Coot 49, Mallard 59, Ruddy 39, Ross' Goose 37, Merganser 17, Cinnamon Teal 11, White-fronted Goose 11, Canvasback 9, Canada Goose 4, Scaup 1.	1,436	718	2,154	497	2,154

INSTRUCTIONS

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(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. Column 9 = $\frac{\text{Column 8}}{\text{Column 2}}$ x Column 7.

Form NB[illegible]C
(Sept. 1960)

WATERFOWL HUNTER KILL SURVEY

Refuge San Luis N.W.R.

1971-72 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
1/15 & 16	333	1,332	Green-winged Teal 494, Shoveler 394, Cackling Goose 114, Snow Goose 108, Baldpate 99, Pintail 93, Gadwall 77, Ross' Goose 76, Mallard 68, White-fronted Goose 30, Ruddy 19, Merganser 18, Coot 14, Cinnamon Teal 10, Canvasback 10, Canada Goose 6, Ring-necked Duck 2.	1,632	816	2,448	333	2,448
TOTALS:	5,321	21,284		12,525	6,266	18,791	5,321	18,791

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.

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(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. Column 9 = $\frac{\text{Column 8}}{\text{Column 2}}$ x Column 7.

UPLAND GAME BIRDS

Refuge SAN LUIS N.W.R. Months of January through April, 1971

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Calif. Quail	Wooded areas & adjacent upland, 300 acres.	2							150	Total number estimated from incidental observations.
Ring-necked Pheasant	Millet fields, 60 acres; and portions of upland, 5,000 acres.	50.6							100	Total number estimated from incidental observations.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-17[illegible]
Form [illegible]2
(April 1946)

UPLAND G[illegible] BIRDS

161

Refuge San Luis NWR Months of May through August, 1971

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
California Quail	Wooded areas & adjacent upland, 300 acres	1.5	3	50					175	Numbers estimated from incidental observations.
Ring-necked Pheasant	Fields, 266 acres; and portions of upland, 5,000 acres	42.1	5	30					125	100 (mostly hens) released during field trials 8/8/71. Other numbers estimated from incidental observations.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

Form [illegible]2
(April 1946)

UPLAND GAME BIRDS

Refuge San Luis N.W.R. Months of September through December, 1971

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
California Quail	Wooded areas & adjacent upland, 300 acres.	2.0							150	Numbers estimated from incidental observations.
Ring-necked Pheasant	Fields & portions of upland, 5,266 acres.	10.5							500	330 released during field trials in September. Others estimated from incidental observations.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1753
Form R-3
(June 1945)

BIG GAME

Refuge San Luis N.W.R. Calendar Year 1971

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
No big game species inhabit this refuge or adjacent lands.														

Remarks:

Reported by Gene A. Sipe

INSTRUCTIONS

Form NR-3 - BIG GAME

(1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.

(2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated total number of young produced on refuge.

(4) REMOVALS: Indicate total number in each category removed during the year.

(5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.

(6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.

(7) TOTAL REFUGE POPULATION: Give the estimated population of <u>each species</u> on the refuge at period of its greatest abundance and also as of Dec. 31.

(8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

3-1754
Form N...4
(June 1945)

SMALL M... ALS

Refuge SAN LUIS N.W.R. Year ending April 30, 1971

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5) Total Population
								Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share				
Muskrat	Marsh & Water, 2,500 A	2.5		56*				SL-11	56					1,000
Mink	" " "			1*				SL-11	1					25
Striped Skunk	Upland & Shallow Marsh 5,860 A.													50
Longtail Weasel	" "													25
Coyote	" "													15
Kit Fox	" "													6
Raccoon	" "			1*					1					100
Opossum	" "													75
Blacktail Jackrabbit	Upland, 4,860 A.	9.7												500
Desert Cottontail	" "	19.4												250
Badger	" "													10
Calif. Ground Squirrel	" "	3.24			50**									1,500

* List removals by Predator Animal Hunter

REMARKS: * Removed by permittee trapper.

** Removed by refuge personnel for dike damage control.

Reported by Gene A. Sipe, Wildlife Biologist

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

INTERIOR--PORTLAND, OREGON

3-1755
Form 1
60701

DISEA

Refuge San Luis N.W.R. Year 19 71

Botulism

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 Nothing to report.

Lead Poisoning or other Disease

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.

3-1757
Form NR-7
(Rev. June 1960)

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS (1)

Refuge San Luis N.W.R. Year 19 71

	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
Species	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: _____

INTERIOR--PORTLAND, OREGON

3-1758
Form NR-8
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge San Luis N.W.R. County Merced State California

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

No. of Permittees: Agricultural Operations 0 Haying Operations 0 Grazing Operations 1

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	1,175	7,435	$27,881.25	7,080
				2. Horses	2	12.03	$ 45.13	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.

3-1570
NR-38
(1/54)

REFUGE GRAIN REPORT

Refuge San Luis N.W.R. Months of January through December, 19 71

(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		40 bu.	40 bu.		40 bu.		40 bu.	None			
Barley		35 bu.	35 bu.		35 bu.		35 bu.	None			

(8) Indicate shipping or collection points

(9) Grain is stored at

(10) Remarks

*See instructions on back.

NR-8a

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.

25818

INT.-DUP. SEC., WASH., D.C.

3-1979 (NR-12)
(5/63)

Bu of t F rie d W ife

F

San Luis N.W.R.

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number	Reporting Year
	1971

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)
1/21	Calif. Ground Squirrel	San Joaquin Levee	50	Carbon Bisulfide	5 gal.		undiluted CS_2 liquid	Atomizer Gun
1/29	Calif. Ground Squirrel	San Joaquin Levee	50	Carbon Bisulfide	5 gal.		undiluted CS_2 liquid	Atomizer Gun
2/2	Calif. Ground Squirrel	San Joaquin Levee	50	Carbon Bisulfide	8 gal.		undiluted CS_2 liquid	Atomizer Gun
2/5	All plants	Around pumps, signs and buildings	1/2	4% Dichlobenil	15 lb.	1.2 lb. active ingredient per acre	Granular	Hand Spread
4/14-4/20	Annual broadleaf weeds	San Joaquin Levee & lift canal banks.	30	2,4-D low volitile ester	6 gal.	1.5 lb. active ingredient per acre	Water 1.5 gal/ 200 gal.	Tank Sprayer
5/11-5/12	Annual broadleaf weeds	San Joaquin Levee & lift canal banks.	25	2,4-D low volitile ester	11 gal.	4 lb. active ingredient per acre	Water 6 gal/ 200 gal.	Tank Sprayer

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

1/21 - 70% kill
1/29 - 95% kill
2/2 - 95% kill
2/5 -100% kill
4/14-4/20 - 50% kill
5/11-5/12 - 30% kill

INTERIOR--PORTLAND, OREGON

MERCED NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

January 1 to December 31, 1971

CONTENTS

I. GENERAL

A. Weather Conditions:

Refer to San Luis N. W. R. portion of this report.

B. Habitat Conditions:

1. Water:

The 20 deep-well pumps provided most of Merced's water supply. These pumps, operating intermittently, pumped a total of 15,054 acre feet of water onto 2,022 acres. Electrical power costs totaled $28,984 or an average of $1.92 per acre foot pumped. Last year the total pumped was 14,218 acre feet at an average cost of $2.00 per acre foot for electrical power.

A portable, diesel powered pump was also operated intermittently. It pumped water from Deadman Slough (when there was sufficient flow) onto Field 1. This pump was operated a total of about 500 hours during the year.

Pumping costs account for nearly fifty percent of the total Merced budget, and the amount of water pumped is still somewhat less than optimum conditions require. This shortage of water is not due solely to limited funds. In dry years, the lowered water table reduces well efficiency and results in less water pumped.

This year we succeeded in flooding only a small part of the "east grasslands", an area of about 375 acres. Last year we were able to flood a larger portion and it was used extensively by ducks. Naturally, with a shortage of water, we give first priority for flooding to the food patches. Thus the millet fields get flooded and quite often the grassland areas do not.

2. Food and Cover:

A total of 485 acres of millet was left standing and flooded to make it attractive to waterfowl. Grain production was good and Fields 6 and 3 were used heavily prior to the opening of hunting season. The millet fields were used by night-feeding ducks after the hunting season opened at Merced.

About five acres of mature barley were left standing in Field 3. This was also flooded to make the grain available and attractive

to ducks. Use was extensive the first few days after flooding and most of the grain was harvested by hungry mallards and pintails.

The permanent pastures received almost no use by grazing geese this year. Conditions were much the same as past years, but wintering birds seem to be using San Luis Refuge more and Merced less. Pasture E was heavily grazed in the spring and was not irrigated throughout the summer months. It was then burned in late September. By these methods we hoped to eliminate the undesirable perennial bunch grass. However, precipitation during the fall and early winter was not sufficient for grass growth, so we still don't know if the treatment was successful.

Contour checks were rebuilt with a grader in the west marsh, and reflooding was started late in the summer. Growth by marsh plants and volunteer millet was excellent, making this area of the refuge exceptionally attractive to ducks and sandhill cranes.

II. WILDLIFE

A. Migratory Birds:

1. Waterfowl:

a. Swans: Whistling swans used Merced a total of 1,610 days this year as compared to 686 total use days in 1970. The peak number this year was 40, which was only five more than last year's peak.

b. Geese: Total 1971 goose use decreased approximately 16,000 use days. However, a good portion of this was late-winter use during the 1970-71 winter season. The 1971-72 winter goose use has, thus far, been considerably less than last year's. If this trend continues, total 1972 use days will decrease drastically. Figure 1 shows waterfowl use for the period 1967-71.

As mentioned in the San Luis section, waterfowl use (especially goose use) appears to be shifting from Merced to San Luis.

c. Ducks: This year's duck use days totaled 3,685,115 and the peak population numbered 64,300. Last year's peak was 60,075 and use days totaled 4,055,105. Annual duck use days totals have declined steadily since 1964. We can only guess as to what might be causing this use decline. No doubt San Luis has been partly responsible, since its inception in 1967. Other possible influence

might have been in the Sacramento Valley which is about 150 miles north of us. Another possibility is that changing migration routes and flyways have left Merced Refuge off the "beaten path".

d. Coots and Gallinules: Coot use increased from 327,816 use days in 1970 to 446,600 this year. The peak population this year was 3,700 and last year's peak was 3,450.

Common gallinules are not numerous at Merced and are normally present from about October to March. This year's peak population was estimated to be fifty, compared to a peak of 125 last year.

2. Water and Marsh Birds:

Black-crowned night herons, American bitterns and great blue herons were the most commonly seen members of this group. Sandhill crane use on the refuge was below normal again this year. However, this year's peak of 1,500 birds, recorded on October 13, was comparable to last year's peak of 1,454. The Mariposa By-pass portion of the refuge was closed to hunting this year and cranes used the By-pass marsh for roosting. Sandhill cranes roosting in this same marsh area during 1969 reached a peak of 5,950. This decrease might be a result of the same sort of shifting use pattern that we believe has affected waterfowl use at Merced.

3. Shorebirds, Gulls and Terns: Killdeer and American avocets were present throughout most of the year. During migration periods, long-billed dowitchers, least and western sandpipers, and dunlin were migrant visitors at Merced Refuge.

A sighting of 26 black-bellied plovers was recorded on August 12. This species is considered only an occasional visitor.

4. Doves:

Mourning dove numbers reached a migrational peak of 176 on August 12. Last year's recorded peak was 225 on July 9. A few doves nested on Merced, but no attempt was made to evaluate the production of such a small nesting population.

B. Upland Game Birds:

Ring-necked pheasants were the only upland game birds observed this year. The remanent California quail population (about

six birds) was not seen all year. Habitat conditions attractive to quail have been lacking at Merced. However, recent plantings of quail brush (Atriplex lentiformis) interspersed with a variety of small grain plants should develop into suitable quail habitat, and hopefully quail will become re-established at Merced.

We abandoned our formal pheasant surveys this year, since it was determined that detailed surveys were not necessary for our needs. Incidental observations indicated a decrease in this year's fall pheasant population as compared to last year. However, the total pheasants killed by hunters was greater this year than during the 1970 season which was one day longer.

C. Big Game Animals:

No big game species inhabit the refuge or adjacent lands.

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

California ground squirrels, blacktail jackrabbits and cottontails are common and were seen frequently. Coyotes, muskrats, longtail weasels, badgers and striped skunks were seen occasionally; while mink, raccoons and opossums left only tracks as evidence of their presence. The presence of their remains in owl pellets was indicative of small rodent populations also.

E. Hawks, Owls, Eagles and Kites:

No unusual observations were recorded, and population numbers were normal for most species. White-tailed kite numbers reached a peak of 22 on September 9. This is an increase of ten over the 1971 peak and considering the low populations as recent as five years ago, the increase is significant.

Two golden eagle sightings were recorded this year. One was of a lone bird on January 2 and the other, also a lone bird, was on November 19.

F. Other Birds:

No noteworthy observations were recorded this year.

G. Fish:

Glory Hole, the only permanent water on the refuge, continued to support a carp population and possibly remnants of a

"mosquito fish" (Gambusia sp.) population.

H. Reptiles and Amphibians:

Nothing to report.

I. Disease:

An estimated 150 birds died from fowl cholera during March. A total of 34 ducks and 30 coots were actually picked up, burned and buried.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development:

1. Canals and Water Control Structures:

a. Pump 10 required major repairs during the year. Repairs included new bowls, replacement of 20-feet of 10-inch pipe, and replacement of bearings, etc.

b. Six 18-inch c.m.p. with flashboard risers were installed in contours in the East Grasslands. These pipes were needed to replace deteriorated wooden control boxes.

c. All contours in the Mariposa Bypass and the West Marsh were plowed and graded-up prior to fall flooding.

d. All contours in Fields 1, 2, 3, 4, 4a and 6 were rebuilt prior to seeding and irrigation of watergrass.

2. Road Construction and Maintenance:

a. Approximately .9 mile of road from the headquarters area to the south boundary, then west to the Mariposa Bypass levee, was graveled. The 960 cubic yards of gravel was obtained free-of-charge from the Bureau of Reclamation and hauled and tailgate spread by a contractor on an informal bid.

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

3. Fence Construction and Maintenance:

a. Rebuilt fence around Pump 22.

b. Removed old fence from Pump 2 to Field 5.

c. Routine repairs were made to all fences as required.

4. Building Maintenance:

a. The interior of the residence received some much needed work during the year. The two bedrooms and hallway were paneled, acoustical ceiling tile installed, and new light fixtures were installed. The four windows in the two bedrooms and the bathroom were removed and replaced with new windows in aluminum frames. This residence, especially the exterior, still needs considerable improvement.

b. The oil-house, information booth, and the trim on the office-service building was painted during the year.

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 expense to keep the refuge operating.

B. Plantings:

1. Aquatic Marsh Plants:

None.

2. Trees and Shrubs:

No trees were planted during the year. Quail brush, Atriplex lentiformis, was planted along Deadman Slough between the shop area and Sandy Mush Road. This seed was planted on February 18, and by the end of the summer plants were from 2-3 feet tall. Germination and survival was excellent. With the cover already present, this planting should provide enough habitat to support a covey of quail. We plan to ask the California Department of Fish and Game to trap some quail to restock the refuge. Preliminary contacts with field personnel indicate that this can be done during the coming summer.

3. Upland Herbaceous Plants:

Field 9 was planted to a variety of food and cover crops for pheasants. In past years, the sandy fields have been used to grow barley rather than watergrass, because they do not hold water well. Since large acreages of barley have not been utilized by waterfowl in past years, their only value is in food and cover for pheasants. We decided to experiment with a variety of plants rather than one. Field 9 was planted on February 10, 1971, to alternate strips of common vetch-sweetclover-oats mixture, barley, and the shrub, Atriplex lentiformis, known locally as quail brush. The quail brush will form a series of hedgerows through the field, and the other plants will provide food. The cereal grains can be allowed to volunteer for a couple of years and reseeded when it becomes necessary. This planting did very well, and it was a favorite hangout for pheasants during the summer and fall months.

4. Cultivated Crops:

The refuge had an excellent crop of watergrass. Maintenanceman Derrick considered it the best crop he had ever seen on the area. The flooded watergrass fields received heavy use by waterfowl prior to the opening of the waterfowl hunting season and at night and on non-shoot days during the early part of the season.

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

FIELD	CROP	ACREAGE	YIELD/GROWTH
1	Millet	60	Good
2	Millet	105	Excellent
3	Millet	60	Excellent
4	Millet	45	Excellent
4a	Millet	50	Good
5	Millet	70	Good
6	Millet	60	Excellent
7	Winter Barley (Green)	103	Good
8	Fallow	98	---
9	Upland Seeding	36	Good
10	Mature Barley	55	Good
11	Fallow	110	---

C. Collections and Receipts:

1. Seeds and Propagules:

Approximately 220 bushels of barley were harvested from Field 10 for use by the refuge for barley seed. An additional 80 bushels were harvested and donated to the California Department of Fish and Game for use on state wildlife areas. Ten bushels of barley were purchased to seed Field 9 in February.

Forty pounds of Atriplex, Atriplex lentiformis, seed were obtained from the California Department of Fish and Game and an additional 20 pounds were harvested on the refuge. This seed was used to plant Field 9 and along Deadman Slough. Twenty pounds of sweetclover, 100 pounds common vetch and 400 pounds of oat seed were purchased to plant Field 9.

Two-hundred forty-six bushels of rice screenings were purchased from the Farmers Rice Co-op at Dos Palos for watergrass seed. At $46.00 per ton, the total cost was $282.67.

2. Specimens:

Numerous bird specimens were collected during the year. The majority of these birds were birds seized as evidence during the waterfowl hunting season. The balance are birds found dead which are still in good enough condition to salvage for a specimen. All birds were donated either to the National Museum in Washington, D. C., or 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 with 2,4-D isoctyl ester. The major target of this spraying was milk thistle.

Field 8 was not disced prior to irrigation of the field for the growth of watergrass, and the result was an almost solid stand of slender aster, Aster exilis. The field was dried up, disced, and left in fallow throughout the winter.

Portions of grazing unit No. 1 were mowed with the rotary mower and portions were disced to thin out the dense stands of cattail and hardstem bulrush. This is only a temporary control measure. It does open up the marsh for the current waterfowl use season, but it has no long term effect.

E. Planned Burning:

Field E was burned to remove excess vegetation. This field has been in permanent pasture since 1966. The amount of goose use we are now getting at Merced Refuge does not justify the maintenance of 393 acres of permanent pasture. We decided to quit irrigating the field and let it revert back to annual grasses. These annual grasses can be irrigated with the present irrigation system to start them growing prior to the arrival of the geese. Natural rainfall need not be depended on. If this practice is successful, it will cut the cost of pumping summer water considerably.

F. Fires:

There was one unplanned fire on the refuge during the year. On June 11, a fire started near Pump 22 and burned approximately 20 acres of wild grassland before it was extinguished. The exact cause of the fire could not be determined, but it did not start at the pump.

IV. RESOURCE MANAGEMENT

A. Grazing:

The Favier Brothers Ranch was issued a permit to graze the 318 acres of permanent pasture in Fields A, B, C and D. A charge of $4.00 per AUM was charged and the permittee furnished an irrigator to manage the water. The pastures were grazed from April 1 through November 15. They utilized 1,239.4 AUMs for a total revenue of $4,957.60.

Another permit was issued to the Favier Brothers Ranch for Grazing Unit 1. The area was grazed from April 23 through August 2. They utilized 374 AUMs which, at a rate of $3.75 per AUM, resulted in a total revenue of $1,402.50.

Favier Brothers Ranch was notified by letter on November 3, 1971, that we did not plan to graze Grazing Unit 1 anymore. Since we were not able to give the permittee the required six months advance notice, they will be permitted to graze the unit from April 1 through May 31, 1972, if they wish to. Grazing in this unit did not serve any useful management purpose, and was in fact harmful to pheasant habitat.

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

V. FIELD INVESTIGATIONS

Nothing to report.

VI. PUBLIC RELATIONS

A. Recreational Uses:

There were 3,066 actual visits to the refuge during the year. This is slightly below the 3,548 visits in 1970. Hunting accounted for 68 percent of the total use.

During the 1971-72 waterfowl hunting season, 1,917 hunters hunted on the refuge. Compared to the 2,484 hunters during the 1970-71 season, this is a decrease of 567 hunters.

The attached recreational use form illustrates the type of activity visitors to the refuge participated in.

Bureau of Sport Fisheries and Wildlife
Division of Wildlife Refuges

ANNUAL

RECREATIONAL USE REPORT

Refuge name: MERCED

State: California

State Code: 05 (1-2) | Congressional District Code: 16 (3-4) | Refuge Code: 116 (5-7) | Report Period Yr. 71 Mo. (8-11)

(Card Columns). . . . . (12-13) (14-18) (19-25) ACTIVITY	Code	VISITS FOR THE MONTH Total Number	Total Hours
Hunting: Big Game	01		
Upland Game	02	200	600
Waterfowl	03	2,078	8,312
Other Migratory	04		
Other	05		
Bow	06		
Fishing: Salt Water	07		
Warm Water	08		
Cold Water	09		
Environmental Education	10	62	186
Wildlife Photography	11	7	26
Wildlife Observation	12	764	959
Conducted Programs	13		
Field Trials	14		
Wildlife Trails	15		
Wildlife Tours/Routes	16	660	930
Visitor Contact Stations	17	324	84
Camping (wildlife related)	18		
Picnicking (wildlife related)	19	1,405	905
Wildlife Interpretive Center	20		
Off-Site Programs	21	47	4

(Card Columns). . . . . (12-13) (14-18) (19-25) ACTIVITY	Code	VISITS FOR THE MONTH Total Number	Total Hours
On-Site Programs	22	30	3
*Miscellaneous Wildlife	23	153	128
Swimming	24		
Boating	25		
Water Skiing	26		
Camping	27		
Group Camping	28		
Picnicking	29		
Horseback Riding	30		
Bicycling	31		
Winter Sports	32		
Fruit, Nut and Vegetable Collecting	33		
*Miscellaneous Non-Wildlife	34		
Peak Load Day	35	100	
Actual Visits	36	3,066	
Fee Area Use	37		
Number of Fee Areas	38	(14-18)	
Fee Collections	39	$	
Collection Costs	40	$	

Form 3-123
(Revised July 1969)

*Use reverse side to indicate types of activities summarized under miscellaneous codes 23 and 34. MAKE NO OTHER ENTRIES ON FACE OF THIS FORM.

B. Refuge Visitors:

All official visitors are included in the San Luis Report.

C. Refuge Participation:

Refer to the San Luis Report.

D. Hunting:

1. Waterfowl:

As Merced Refuge is a Lea Act refuge, the opening date of public hunting is decided upon by the Lea Act Committee. This committee is made up of eight local sportsmen and farmers. The committee predicts when 75 percent of the local rice crops will be harvested and recommends this date for opening the waterfowl hunting season on the refuge. The Regional Director sets the date the refuge will be open, based on this recommendation. The hunting season was delayed two weeks upon recommendation of the committee and therefore, opened on October 30, 1971. Christmas and New Years were both on Saturday this year, and no hunting was permitted on those days. Hunting, as usual, was permitted only on Wednesday, Saturday and Sunday, and the refuge was open to hunting on 33 days during the season.

The California Department of Fish and Game again operated the actual hunting program. They issued reservations and permits, collected a $3.50 fee for hunting on the area and manned the checking station. The quota for the number of hunters on the area at one time was 65, the same as in past years. Enforcement was a joint effort between the California Department of Fish and Game and the Bureau of Sport Fisheries and Wildlife.

Total hunter visits for the 1971-72 waterfowl hunting season decreased from past years. This is the first year the total number of hunters hunting on the area has shown a decrease since 1965. The most likely causes of this decrease are discussed in the San Luis section of this report.

On opening day, ninety hunters checked through the checking station. This was 21 less than last year and was, as usual, the busiest day of the year.

A total of 1,917 hunters bagged 3,238 ducks, 346 geese, and 232 coots for a total of 3,816 birds for the season. The

average hunter kill per day was 2.0 birds, the same as last year. The highest success for a single day was on October 31, when 49 hunters averaged 4.4 birds per hunter.

The following table is a tabulation of waterfowl kill by species for the 1968-69, 1969-70, 1970-71 and 1971-72 waterfowl hunting season:

KILL BY SPECIES	1968-69	1969-70	1970-71	1971-72
DUCKS:				
Mallard	722	1,366	1,248	907
Gadwall	81	62	74	88
Pintail	128	688	776	617
G. W. Teal	424	772	1,108	833
B. W. Teal	---	---	---	---
Cinn. Teal	73	73	92	59
Baldpate	304	323	675	280
Shoveler	215	359	496	416
Wood Duck	---	2	---	11
Redhead	3	1	---	---
Ring-necked duck	3	1	2	4
Canvasback	34	34	10	10
Scaup	6	3	8	---
C. Goldeneye	---	---	---	---
Bufflehead	---	---	7	4
Ruddy Duck	32	21	43	9
Mergansers	---	---	3	---
Coots	74	70	129	232
TOTAL	2,099	3,775	4,671	3,470
GEESE:				
Common Canada	1	4	---	9
Cackling Goose	206	320	96	97
W. F. Goose	37	51	38	19
Snow Goose	73	55	91	99
Ross' Goose	49	61	58	122
TOTAL	366	491	283	346
Total Waterfowl	2,465	4,266	4,954	3,816
Total Hunters	1,814	2,216	2,484	1,917
Ave. Waterfowl/hunter	1.3	1.9	2.0	2.0
No. Snipe Killed	No hunting	No hunting	?	122

The hunting area was reduced in size this year compared to last year. The hunting area was enlarged during the 1970-71 hunting season to include the area within the Mariposa Bypass. This was necessary since Fields 2, 3 and 6 were dried up for cattail control. With Fields 2, 3 and 6 back in production, the size of the refuge hunting area was reduced to the same size it has been for several years. Merced Refuge is small anyway, only 2,561 acres. The amount of the area open to hunting has a drastic effect on the amount of waterfowl use the area receives.

2. Pheasant:

Pheasant season in Merced County was open from November 13 through December 5. The bag limit was two male pheasants per day on the opening weekend of the season, and four male pheasants per day for the remainder of the season. The season bag limit per hunter was 10 birds.

Hunting was permitted on the refuge on eleven days during the season. A total of 149 pheasants was killed on the refuge. This is 25 more than the 124 killed last year.

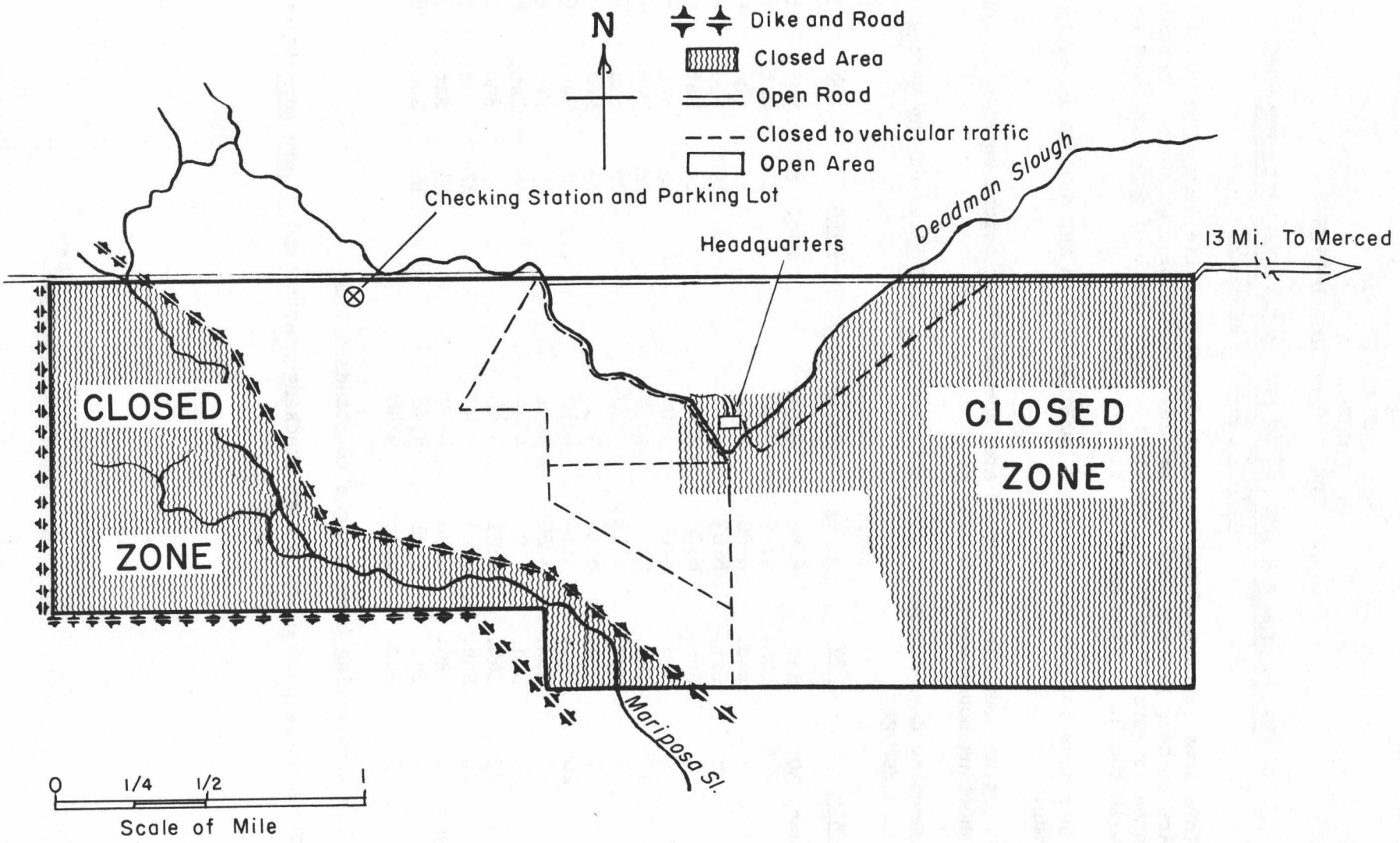
The following table shows the pheasant kill on Merced Refuge for the past eight years:

YEAR	PHEASANT KILL
1971	149
1970	124
1969	168
1968	146
1967	203
1966	70
1965	180
1964	147

E. Violations:

Law enforcement duties on the public hunting area at Merced Refuge are a cooperative effort between refuge personnel and the California Department of Fish and Game. Although refuge personnel perform most of the law enforcement duties, excellent cooperation and assistance was provided by California Department of Fish and Game Warden, Frank Dutra.

MERCED NATIONAL WILDLIFE REFUGE



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF FISH AND GAME

INFORMATION FOR HUNTERS ON MERCED NATIONAL WILDLIFE REFUGE
1971-72 WATERFOWL SEASON

1. This area is part of the Merced National Wildlife Refuge, acquired under the Lea Act to help provide feed for waterfowl and public hunting. Operation of this area is carried on by the California Department of Fish and Game in cooperation with the U. S. Fish and Wildlife Service.

2. This area is open to waterfowl hunting only in the designated areas shown on the map.

3. Shooting hours for waterfowl are one-half hour before sunrise to sunset. Pheasant shooting hours are 8:00 a.m. to sunset.

4. Shooting days and hours for waterfowl are as follows on the Merced National Wildlife Refuge:

Date	Day	Start A. M.	Stop P. M.	Date	Day	Start A. M.	Stop P. M.
Oct. 30	Sat.	6:56	6:09	Dec. 8	Wed.	6:34	4:46
31*	Sun.	5:57	5:08	11	Sat.	6:37	4:47
Nov. 3	Wed.	6:00	5:04	12	Sun.	6:38	4:47
6	Sat.	6:03	5:01	15	Wed.	6:40	4:49
7	Sun.	6:04	5:01	18	Sat.	6:43	4:49
10	Wed.	6:07	5:00	19	Sun.	6:43	4:49
13	Sat.	6:10	4:56	22	Wed.	6:44	4:51
14	Sun.	6:13	4:55	26	Sun.	6:46	4:53
17	Wed.	6:16	4:53	29	Wed.	6:48	4:55
20	Sat.	6:19	4:52	Jan. 2	Sun.	6:48	4:57
21	Sun.	6:20	4:51	5	Wed.	6:49	5:00
24	Wed.	6:23	4:49	8	Sat.	6:49	5:02
27	Sat.	6:27	4:48	9	Sun.	6:49	5:03
28	Sun.	6:28	4:47	12	Wed.	6:48	5:07
Dec. 1	Wed.	6:30	4:47	15	Sat.	6:48	5:09
4	Sat.	6:31	4:46	16	Sun.	6:46	5:11
5	Sun.	6:32	4:46				

*Daylight saving time changes to standard time.

5. All hunters must check out at checking station and <u>return permits</u> on leaving.

On April 28, 1971, the refuge shop was broken into. The F.B.I. was called, but they were, as usual, too busy to investigate such a minor crime. Maintenanceman Mike Stevenson, is now living in the residence on the refuge, and his presence will deter most vandalism and other unlawful activity.

The following is a list of violators apprehended on the refuge:

DATE	NAME & CITY	VIOLATION	AGENT	DISPOSITION
11/13	John Griffin Campbell, CA	Shooting After Hrs.	Mayle	Justice Court 12/3/71 $25.00
11/14	Herman McIntosh Mission Hills, CA	Hunting Without Permit	Nail	U.S. Magistrate Sacramento 11/25/71 $25.00
11/14	David Nunez Sylmar, CA	Hunting Without Permit	Nail	U.S. Magistrate Sacramento 11/25/71 $25.00
11/20	David Perry Modesto, CA	Shooting After Hrs.	Mayle	Pending
11/20	Philip Costa Modesto, CA	Shooting After Hrs.	Mayle	Pending
11/20	Larry Stotts Modesto, CA	Shooting After Hrs.	Mayle	Justice Court 1/20/72 $25.00
11/21	Joe Campos Merced, CA	Hunting Without Permit	Nail	Juvenile-Not Prosecuted
11/21	Phillip Rubacalva Merced, CA	Hunting Without Permit	Nail	Justice Court 12/20/71 $25.00
11/21	Joseph Valenzuela Merced, CA	Hunting Without Permit-Unplugged Gun	Nail	Justice Court 1/18/72 $75.00
11/26	Harry Provolt Tujunga, CA	Refuge Trespass	Sipe	Justice Court 12/21/71 $25.00
11/26	Toto Augustyniak Studio City, CA	Refuge Trespass	Sipe	Justice Court 12/24/71 $25.00
11/26	Raymond Miller Reseda, CA	Refuge Trespass	Sipe	Pending
1/15	Stan Buckstad San Jose, CA	Hunting Closed Area	Stevenson	Pending
1/15	Richard Harding Sunnyvale, CA	Hunting Closed Area	Stevenson	Pending

F. Safety:

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

VII. OTHER ITEMS

A. Items of Interest: (Also refer to San Luis Report.)

Mr. Dan Connelly was hired as a laborer on July 6, 1971. Dan and his wife moved into the refuge residence on that date. Dan was a graduate of Humbolt State College, but he had not been able to locate a permanent job. We told him not to feel obligated to us, and if he found a permanent job to be sure and take it. On July 17, 1971, Dan resigned to accept a permanent position with the California Department of Fish and Game. Dan is now a Junior Biologist at the Mendota Wildlife Area.

On November 28, 1971, Michael Stevenson transferred from Sheldon National Antelope Refuge in Nevada to fill a permanent maintenanceman position at Merced Refuge. Mike and his wife Barbara moved into the refuge residence, and we hope they occupy it for many years. Mike's talent and willingness to work is a welcome addition to the refuge.

B. Credits:

Credits for the preparation of this report are as follows:

Refuge Manager Nail - Sections III, IV, VI and VII.
Wildlife Biologist Sipe - Sections I, II and V.
Clerk-Typist Barger - Edited, typed and assembled the entire report.
Maintenanceman, Foreman Mayle - Provided many helpful notes and assisted in locating and compiling much of the information for the body of the report.

Photograph credits are shown with each photograph in the photograph section of this report.

1750
Form 1
(Rev. March 1953)

WATERFOWL

REFUGE MERCED NATIONAL WILDLIFE REFUGE MONTHS OF January through April, 19 71

(1) Species	(2) Weeks of reporting period: 1/3-9 (1)	1/10-16 (2)	1/17-23 (3)	1/24-30 (4)	1/31-2/6 (5)	2/7-13 (6)	2/14-20 (7)	2/21-27 (8)	2/28-3/6 (9)	3/7-13 (10)
Swans:										
Whistling	20	25	25	40	30	25	15	15	5	
Trumpeter										
Geese:										
Canada							40			
Cackling	3,500	1,700	1,000	500	500	500	500	200	100	
Brant										
White-fronted	200	300	250	200	100	75	50	50	25	
Snow	1,000	1,500	1,500	1,500	800	600	200	100	100	
Ross'	5,000	6,500	4,000	3,000	1,200	1,000	600	300	100	
Total	9,700	10,000	6,750	5,200	2,600	2,175	1,390	650	325	
Ducks:										
Mallard	700	600	600	450	450	450	475	500	500	550
Black										
Gadwall	175	150	150	75	60	50	50	50	150	200
Baldpate	6,500	7,000	7,200	5,000	3,700	3,000	4,500	7,500	15,000	15,000
Pintail	2,500	2,000	1,500	900	475	450	375	400	425	475
Green-winged teal	2,500	2,500	2,000	1,200	725	700	650	750	1,350	2,000
Blue-winged teal										
Cinnamon teal		25	25	75	150	200	325	400	350	325
Shoveler	1,600	1,500	1,500	1,000	700	600	575	600	950	1,500
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy	350	375	250	200	175	125	50	50	150	200
Merganser										
Total	14,325	14,150	13,225	8,900	6,435	5,575	7,000	10,250	18,875	20,250
Coot:	1,900	2,000	2,500	2,000	1,150	1,500	1,700	2,000	2,500	3,000

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Cont NR-1
(Rev March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE MERCED NATIONAL WILDLIFE REFUGE MONTHS OF January through April, 19 71

(1) Species	(2) Weeks of reporting period: 3/14-20 (11)	3/21-27 (12)	3/28-4/3 (13)	4/4-10 (14)	4/11-17 (15)	4/18-24 (16)	4/25-5/1 (17)	18	(3) Estimated waterfowl days use	(4) Production: Broods seen	Estimated total
Swans:											
Whistling									1,400		
Trumpeter											
Geese:											
Canada									280		
Cackling									59,500		
Brant											
White-fronted									8,750		
Snow									51,100		
Ross'									151,900		
Total:									271,530		
Ducks:											
Mallard	600	400	300	250	115	125	150		50,505		
Black											
Gadwall	200	100	75	80	60	60	50		12,145		
Baldpate	17,500	5,000	3,100	850	375	200	50		710,325		
Pintail	500	250	175	100	60	50	25		74,620		
Green-winged teal	2,975	1,700	1,000	500	510	300	175		150,745		
Blue-winged teal											
Cinnamon teal	250	250	200	175	175	75	50		21,350		
Shoveler	1,775	1,200	600	250	160	100	50		102,620		
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy	250	150	100	75	55	50	25		18,410		
Merganser											
Total:	24,050	9,050	5,550	2,280	1,510	960	575		1,140,720		
Coot:	3,700	2,300	1,500	950	675	400	325		210,700		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	1,400	40	
Geese	271,530	10,000	
Ducks	1,140,720	24,050	
Coots	210,700	3,700	
TOTAL:	1,624,350	37,790	

SUMMARY

Principal feeding areas Millet fields and permanent pastures.

Principal nesting areas

Reported by Gene A. Sipe, Wildlife Biologist

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-175
Form ...-1
(Rev. March 1953)

WATERFOWL

REFUGE MERCED NATIONAL WILDLIFE REFUGE MONTHS OF May through August, 1971

(1) Species	(2) Weeks of reporting period: 5/2-8 (1)	5/9-15 (2)	5/16-22 (3)	5/23-29 (4)	5/30-6/5 (5)	6/6-12 (6)	6/13-19 (7)	6/20-26 (8)	6/27-7/3 (9)	7/4-10 (10)
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	150	135	175	240	125	150	165	150	125	125
Black										
Gadwall	50	50	50	60	75	75	65	50	50	25
Baldpate	10	5	5	5						
Pintail	15	10	10	10	5					
Green-winged teal	50	15	10	5						
Blue-winged teal										
Cinnamon teal	25	25	50	70	50	50	25			
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy	25	20					15	15	10	10
Other										
Total	350	270	300	390	255	275	270	215	185	160
Coot:	250	225	175	130	130	125	125	100	75	50

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Con NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE MERCED NATIONAL WILDLIFE REFUGE MONTHS OF May through August, 19 71

(1) Species	(2) Weeks of reporting period 7/11-17 11	7/18-24 12	7/25-31 13	8/1-7 14	8/8-14 15	8/15-21 16	8/22-28 17	8/29-9/4 18	(3) Estimated waterfowl days use	(4) Production Broods seen	(4) Production Estimated total
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada											
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Ducks:											
Mallard	100	100	90	100	100	400	500	700	25,410	6	22
Black											
Gadwall	25	10	10	25	50	100	100	150	7,140	3	10
Baldpate									175		
Pintail				50	225	200	225	350	7,700		
Green-winged teal									560		
Blue-winged teal											
Cinnamon teal					25	75	100	150	4,515		8
Shoveler									245		
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy	10	10	10						875		
Total	135	120	110	175	400	775	925	1,350	46,620	9	40
Coot:	25	25	15	15	25	25	50	100	11,655		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese			
Ducks	46,620	1,350	40
Coots	11,655	250	
Total:	58,275		

SUMMARY

Principal feeding areas Glory Hole and West Marsh.

Principal nesting areas West Marsh area and fields.

Reported by Gene A. Sipe

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-175
Form 3-1
(Rev. March 1953)

WATERFOWL

REFUGE MERCED NATIONAL WILDLIFE REFUGE MONTHS OF September through December, 19 71

(1) Species	(2) Weeks of reporting period: 9/5-11 (1)	9/12-18 (2)	9/19-25 (3)	9/26-10/2 (4)	10/3-9 (5)	10/10-16 (6)	10/17-23 (7)	10/24-30 (8)	10/31-11/6 (9)	11/7-13 (10)
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada										
Cackling									150	200
Brant										
White-fronted									100	200
Snow									50	300
Ross'										50
Total									300	750
Ducks:										
Mallard	2,000	2,000	2,000	2,050	3,000	5,200	8,000	14,350	15,800	11,350
Black										
Gadwall	600	400	200	200	200	200	700	800	1,000	800
Baldpate						50			500	600
Pintail	150	2,000	3,000	3,000	4,000	6,650	15,000	21,800	20,000	18,425
Green-winged teal	250	400	450	600	600	600	5,000	7,000	8,000	5,500
Blue-winged teal										
Cinnamon teal	150	200	350	600	500	350	1,000	900	700	300
Shoveler				200	200	300	400	900	1,500	2,000
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Total	3,150	5,000	6,000	6,650	8,500	13,350	30,100	45,750	47,500	38,975
Coot:	35	150	500	825	875	950	1,500	1,400	1,150	2,800

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Con NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE MERCED NATIONAL WILDLIFE REFUGE MONTHS OF September through December, 19 71

(1) Species	(2) Weeks of reporting period: 11/14-29 (11)	11/21-27 (12)	11/28-12/4 (13)	12/5-11 (14)	12/12-18 (15)	12/19-25 (16)	12/26-1/1 (17)	18	(3) Estimated waterfowl days use	(4) Production: Broods seen	Estimated total
Swans:											
Whistling						5	25		210		
Trumpeter											
Geese:											
Canada				20		15	15		350		
Cackling	3,200	3,200	3,400	5,300	5,000	3,000	500		167,650		
Brant											
White-fronted	300	300			200	200	150		10,150		
Snow	2,000	2,000	10,675	6,000	4,900	3,500	2,000		219,975		
Ross'	200	200	1,500	1,500	1,200	950	800		44,800		
Totals	5,700	5,700	15,575	12,820	11,300	7,665	3,465		442,925		
Ducks:											
Mallard	4,250	7,700	8,350	5,250	18,800	11,400	7,000		899,500		
Black											
Gadwall	200	250	400	475	525	450	400		54,600		
Baldpate	600	900	1,100	1,500	1,600	1,100	500		59,150		
Pintail	3,400	8,700	3,600	6,000	9,250	6,500	3,200		942,725		
Green-winged teal	1,500	2,750	1,900	2,700	4,500	5,000	6,200		370,650		
Blue-winged teal											
Cinnamon teal	300	250	250	200	150	100	100		44,800		
Shoveler	175	350	950	1,700	3,000	3,000	2,500		120,225		
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy	75	75	100	125	150	150	200		6,125		
Totals	10,500	20,975	16,650	17,950	37,975	27,700	20,100		2,497,775		
Coot:											
	2,600	2,100	2,800	3,500	3,700	3,500	3,650		224,245		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	210	25	
Geese	442,925	15,575	
Ducks	2,497,775	~~64,300~~ 47,500	
Coots	224,245	3,700	
Totals:	3,165,155		

SUMMARY

Principal feeding areas Millet Fields, Pastures, and Mariposa By-Pass.

Principal nesting areas

Reported by Gene A. Sipe

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Merced N.W.R. Months of January through April 1971

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Eared Grebe			2	04/15						15
Pied-billed Grebe			2	02/04						75
Great Blue Heron	Resident		11	02/04						50
Common Egret	Resident		2	02/19						25
Snowy Egret	Resident		6	04/15						75
Black-crowned Night Heron	Resident		175	04/15						250
American Bittern	Resident		8	02/04						100
Sandhill Crane			1,107	02/13	10	03/15				2,000
Common Gallinule			4	04/15						75
II. Shorebirds, Gulls and Terns:										
Killdeer	Resident		25	04/15						125
Common Snipe			2	02/04						250
Long-billed Curlew			107	02/15						400
Greater Yellowlegs			5	02/04						25
Least Sandpiper			375	02/04						700
Long-billed Dowitcher			250	02/04						600
Western Sandpiper			228	04/15						500
American Avocet			99	04/15						250
Black-necked Stilt			15	04/15						50

(over)

(1)	(2)	(3)		(4)	(5)	(6)
III. Doves and Pigeons:						
Mourning dove		10	04/15			100
White-winged dove						
IV. Predaceous Birds:						
Golden eagle		1	01/02			3
Duck hawk						
Horned owl						
Magpie						
Raven						
Crow						
White-tailed Kite	Resident	5	03/17			15
Cooper's Hawk		2	02/04			5
Red-tailed Hawk	Resident	5	02/19			50
Rough-legged Hawk		1	03/07			5
Marsh Hawk	Resident	9	02/04			50
Prairie Falcon		1	02/15			1
Sparrow Hawk	Resident	1	02/19			75
Burrowing Owl	Resident	2	02/04			10

Reported by Gene A. Sipe, Wildlife Biologist

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INTERIOR--PORTLAND, OREGON

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Merced NWR Months of May to August 19 71

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Pied-billed Grebe	Resident		3	07/28						28
Great Blue Heron	"		12	06/15						50
Snowy Egret	"		3	05/11						25
Black-crowned Night Heron	"		100	05/26						250
II. Shorebirds, Gulls and Terns:										
Killdeer	Resident		89	08/12						250
Black-bellied Plover	26	08/12	Only observation during period							50
Greater Yellowlegs	Previous Period		5	07/28	Still Present					25
Long-billed Dowitcher	125	07/28	500	08/12	"	"				1,000
Western Sandpiper	30	08/12	30	08/12	"	"				150
American Avocet	Previous Period		82	05/11	"	"				400
Black-necked Stilt	"	"	52	08/12	"	"				200
Wilson's Phalarope	3	07/28	Only observation during period							10

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove	Previous Period	176	08/12	Still Present	1,000
White-winged dove					
IV. Predaceous Birds:					
Golden eagle					
Duck hawk					
Horned owl					
Magpie					
Raven					
Crow					
White Tailed Kite	Resident	14	08/12		25
Red-tailed Hawk	"	6	08/12		25
Marsh Hawk	"	2	05/26		10
Sparrow Hawk	"	3	08/12		15
Barn Owl	1 07/28	Only observation during period			5
Burrowing Owl	Resident	4	05/26		10

Reported by Gene A. Sipe, Wildlife Biologist

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INTERIOR--PORTLAND, OREGON

(1)	(2)	(3)		(4)	(5)	(6)
III. Doves and Pigeons:						
Mourning dove	Previous Period	102	09/11			3,000
White-winged dove						
IV. Predaceous Birds:						
Golden eagle		1	11/19	Only sighting this period		2
Duck hawk						
Horned owl	Resident					5
Magpie						
Raven						
Crow						
Turkey Vulture		2	10/02			5
White-tailed Kite	Resident	22	09/09			30
Sharp-shinned Hawk		1	11/19	Only sighting this period		2
Red-tailed Hawk	Resident	9	11/19			50
Marsh Hawk	Resident	7	11/19			30
Sparrow Hawk	Resident	4	09/11			20
Burrowing Owl	Resident	3	10/02			5

Reported by Gene A. Sipe

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INTERIOR--PORTLAND, OREGON

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Merced NWR Months of September through December 19 71.

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Pied-billed Grebe	Resident		5	10/02						250
Great Blue Heron	Resident		4	09/11						50
Black-crowned Night Heron	Resident		100	09/11						150
American Bittern	Resident		2	11/19						75
Sandhill Crane	125	09/18	1,500	10/13	Still Present					3,500
Common Gallinule	Resident		4	11/19						75
II. Shorebirds, Gulls and Terns:										
Killdeer	Resident		25	09/11						150
Common Snipe										100
Greater Yellowlegs	Previous Period		8	11/19	Still Present					40
Least Sandpiper	Previous Period		32	11/19						400
Long-billed Dowitcher	Previous Period		700	09/11						3,500
Western Sandpiper	Previous Period		15	10/16						700
American Avocet	Previous Period		37	09/11	Still Present					500

(over)

3-1750b
Form NR-1B
(Rev. Nov. 1957)

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

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Merced NWR — For 12-month period ending August 31, 1971

Reported by Gene A. Sipe — Title Wildlife Biologist

(1) Area or Unit Designation	(2) Habitat Type	(2) Habitat Acreage		(3) Use-days	(4) Breeding Population	(5) Production
Unit I	Crops		Ducks	1,136,078	75	25
	Upland	100	Geese	4,441		
	Marsh	374	Swans			
	Water	120	Coots	160,859		
	Total	594	Total	1,301,378	75	25
Unit II	Crops	667	Ducks	1,809,310	25	15
	Upland	40	Geese	36,084		
	Marsh	441	Swans	1,720		
	Water	50	Coots	265,201		
	Total	1,198	Total	2,112,315	25	15
Unit III	Crops		Ducks	1,262,309		
	Upland	695	Geese	514,615		
	Marsh	75	Swans			
	Water		Coots	8,695		
	Total	770	Total	1,785,619		
Total	Crops	667	Ducks	4,207,697	100	40
	Upland	835	Geese	555,140		
	Marsh	890	Swans	1,720		
	Water	170	Coots	434,755		
	Total	2,562	Total	5,199,312	100	40
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

Form [illegible]1C
(Sept. 1960)

WATERFO[illegible] HUNTER KILL SURVEY

Refuge Merced N.W.R.

1971-72 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
10/30-11/5	186	744	Mallard 244, Coot 112, Pintail 111, Green-winged Teal 33, Widgeon 22, Cinnamon Teal 21, Gadwall 14, Wood Duck 11, Shoveler 5, Canvasback 3, White-fronted Goose 3, Snow Goose 2, Ring-necked Duck 2, Ruddy 1, Ross' Goose 1.	585	293	878	186	878
11/6-12	134	536	Mallard 53, Pintail 37, Green-winged Teal 22, Coot 11, Baldpate 8, Shoveler 5, Gadwall 4, Cinnamon Teal 2, Ross' Goose 1.	143	72	215	134	215
11/13-19	203	812	Mallard 120, Pintail 70, Green-winged Teal 34, Baldpate 8, Gadwall 3, Cinnamon Teal 3, Shoveler 3, Cackling Goose 2, Snow Goose 2, Ross' Goose 2, Coot 1.	248	124	372	203	372
11/20-26	140	560	Mallard 42, Pintail 27, Green-winged Teal 27, Coot 11, Gadwall 4, Cackling Goose 4, Baldpate 3, Snow Goose 2, Ross' Goose 2, Shoveler 1.	123	62	185	140	185
11/27-12/3	174	696	Mallard 64, Pintail 22, Ross' Goose 20, Green-winged Teal 18, Cackling Goose 15, Coot 11, Snow Goose 11, Baldpate 10, Shoveler 4, Gadwall 3, White-fronted Goose 2, Cinnamon Teal 2, Buffle-head 1.	183	92	275	174	275
12/4-10	157	628	Mallard 49, Green-winged Teal 40, Pintail 31, Baldpate 14, Shoveler 11, Cackling Goose 9, Coot 6, Snow Goose 5, Gadwall 4, Cinnamon Teal 4, Canvasback 3, Ross' Goose 3, White-fronted Goose 2, Ring-necked Duck 1.	182	91	273	157	273

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. Column 9 = $\frac{\text{Column 8}}{\text{Column 2}}$ x Column 7.

Form [illegible]1C
(Sept. 1960)

WATERFO[illegible] HUNTER KILL SURVEY

Refuge Merced N.W.R.

1971-72 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
12/11-17	187	748	Green-winged Teal 112, Pintail 86, Mallard 64, Baldpate 26, Cinnamon Teal 24, Snow Goose 15, Shoveler 13, Gadwall 11, Ross' Goose 10, Cackling Goose 9, Coot 6, Canada Goose 5, Ruddy 4.	385	193	578	187	578
12/18-24	199	796	Green-winged Teal 162, Shoveler 83, Pintail 83, Mallard 73, Baldpate 33, Coot 32, Ross' Goose 15, Snow Goose 9, Cackling Goose 9, Gadwall 7, Cinnamon Teal 3, Canvasback 3, Ruddy 2, White-fronted Goose 1.	515	258	773	199	773
12/25-31	153	612	Green-winged Teal 79, Shoveler 70, Mallard 41, Pintail 29, Baldpate 18, Snow Goose 15, Ross' Goose 9, Cackling Goose 9, Coot 4, Gadwall 3, Cinnamon Teal 3, Ruddy 2, White-fronted Goose 1, Canada Goose 1.	284	142	426	153	426
1/1-7	101	404	Mallard 70, Green-winged Teal 68, Pintail 48, Shoveler 39, Baldpate 33, Gadwall 7, Cinnamon Teal 6, Cackling Goose 6, Snow Goose 5, Ross' Goose 4, Coot 3, Ruddy 3, Canada Goose 1.	293	147	440	101	440
1/8-14	173	692	Green-winged Teal 173, Shoveler 84, Baldpate 70, Mallard 64, Pintail 41, Ross' Goose 34, Coot 31, Snow Goose 22, Gadwall 20, Cackling Goose 15, Cinnamon Teal 7, White-fronted Goose 6, Canada Goose 2, Ruddy 1, Ring-necked Duck 1.	571	286	857	173	857

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.

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(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. Column 9 = $\frac{\text{Column 8}}{\text{Column 2}}$ x Column 7.

Form [illegible]1C
(Sept. 1960)

WATERFO[illegible] HUNTER KILL SURVEY

Refuge Merced N.W.R.

1971-72 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
1/15 &16	110	440	Shoveler 74, Green-winged Teal 65, Baldpate 35, Pintail 32, Mallard 23, Ross' Goose 21, Cackling Goose 19, Snow Goose 11, Gadwall 8, Cinnamon Teal 4, White-fronted Goose 4, Coot 4, Ruddy 2, Canvasback 1.	303	152	455	110	455
TOTALS:	1,917	7,668		3,815	1,912	5,727	1,917	5,727

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. Column 9 = $\frac{\text{Column 8}}{\text{Column 2}}$ x Column 7.

3-1752
Form NR-2
(Apr 1946)

UPLAND GAME BIRDS

1611

Refuge Merced N.W.R. Months of January through April, 19 71

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifioally requested. List introductions here.
Ring-necked Pheasant	Cropland, 820 A. Marsh, 1,000 A. Grassland, 620 A.	9.76							250	Total number estimated from incidental observations.

3-1752
Form N.
(April 1946)

UPLAND GA BIRDS

Refuge Merced NWR Months of May through August, 19 71

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Cropland, 820 acres Marsh, 1,000 acres Grassland, 620 acres	4.88	15	500					500	Total numbers estimated from incidental observations.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Merced N.W.R. Months of September through December, 1971

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Cropland, 820 A. Marsh, 1,000 A. Grassland, 620 A.	3.05				149			800	Number estimated from incidental observations.

3-1755
Form R-3
(June 1945)

BIG GAME

Refuge Merced N.W.R. Calendar Year 1971

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
No big game species inhabit this refuge or adjacent lands.														

Remarks:

Reported by Gene A. Sipe

3-1754
Form N 4
(June 1945)

SMALL MAMMALS

Refuge Merced N.W.R. Year ending April 30, 1971

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5) Total Population
								Share Trapping						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
Muskrat	Marsh & Water, 1,060 A	2.1		125*				SL-11	125					500
Mink	" " "			1*				SL-11	1					15
Striped Skunk	Upland & Shallow Marsh 2,000 A													15
Longtail Weasel	" "													10
Coyote	" "													5
Raccoon	" "													50
Opossum	" "													25
Blacktail Jackrabbit	Upland, 1,500 A	6												250
Desert Cottontail	" "	10												150
Badger	" "													5
Calif. Ground Squirrel	" "	3												500

* List removals by Predator Animal Hunter

REMARKS: * Removed by permittee trapper.

Reported by Gene A. Sipe, Wildlife Biologist

Form N
60701

DISEA

Refuge Merced N.W.R. Year 19 71

Botulism

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 _____

Lead Poisoning or other Disease

Kind of disease Fowl Cholera

Species affected Ducks & Coots

Number Affected

Species	Actual Count	Estimated
Ducks	34	75
Coots	30	75

Number Recovered 64

Number lost 150 (estimated)

Source of infection Infected immigrant birds.

Water conditions Good

Food conditions Good

Remarks Dead birds were burned and buried.

3-
Form NR-7
(Rev. June 60)

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

Refuge Merced N.W.R. Year 19 71

	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
Species	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	40 lb.	R	2/10	Cal. F. & G. Dept.	None	None	Fields 7 & 9 & Deadman Slough	8 lb/acre	5 acres		2/18	Very Good (9) Nil (7)	
Yellow Sweetclover	20 lb.	R	2/17	Pacheco Feed & Seed	$8.00	None	Fields 7 & 9	5 lb/acre	4 acres		2/17	Good (9) Nil (7)	
Oats	400 lb.	R	2/16	"	$26.00	None	Fields 7 & 9	16 lb/ac.	25 acres		2/25	Good (9) Nil (7)	
Common Vetch	100 lb.	R	2/17	"	$19.00	None	Field 9 & 7	5 lb./ac.	20 acres		2/25	Good (9) Nil (7)	
Atriplex	20 lb.	C	11/17	Manual Harvest	None	20 lb.	Deadman Slough	8 lb./ac.	2.5 acres		2/26	Good	

(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 1 acre
Food strips, food patches 35 acres
Forest plantings _____

Remarks: These plantings were to establish upland habitat for pheasants mainly. However, the food and cover will benefit rabbits, songbirds and other wildlife as well. Only one small check in Field 7 was planted and since it got no water, the seeds did not germinate. Irrigation of this field is impractical because of the sandy soil, so we were hoping for rain which never came.

Field 9 was irrigated 3 times.

INTERIOR--PORTLAND, OREGON

3-1758
Form NR-8
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Merced N.W.R. County Merced State California

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Waterfowl Browsing Crops Type and Kind	Total Acreage
			Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
Barley			5	300 bu.	50	3,000	150	Browsing Barley	140
Wild Millet					485	4,850			
								Fallow Ag. Land	

No. of Permittees: Agricultural Operations _____ Haying Operations _____ Grazing Operations _____

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	347	1,613.4	$6,360.10	1,243
				2. Other				
				1. Total Refuge Acreage Under Cultivation				
Hay - Wild				2. Acreage Cultivated as Service Operation				

3-1570
NR-58
(1/54)

REFUGE GRAIN REPORT

Refuge Merced N.W.R. Months of January through December, 19 71

(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
Barley	40 bu.	310 bu	350 bu.	115 bu.	235 bu.		350 bu.	None			
Wild Millet		246 bu.	246 bu.	40 bu.	206 bu.		246 bu.	None			

(8) Indicate shipping or collection points

(9) Grain is stored at

(10) Remarks Purchased 10 bu. barley and harvested 300 bu. from Field 10. Transferred 35 bu. to San Luis NWR and 80 bu. to California Department of Fish and Game.

*See instructions on back.

(9/63) Bureau of Sport Fisheries and Wildlife

ANNUAL REPORT OF PESTICIDE APPLICATION

Refuge: Merced N.W.R.

Proposal Number:

Reporting Year: 1971

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)
2/5	All plants	Around buildings, signs and pumps.	1-1/4	4% Dichlobenil	35 lb.	1.6 lb. active ingredient per acre	Granular	Hand Spread
4/8-4/13	Annual broadleaf weeds	Road sides	20	2,4-D low volatile ester	4 gal.	1.5 lb. active ingredient per acre	Water 1.5 gal/ 200 gal.	Tank Sprayer

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

2/5 - 100% kill 4/8-4/13 - 50% kill

INTERIOR--PORTLAND, OREGON

KESTERSON NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

January 1 to December 31, 1971

CONTENTS

I. GENERAL

A. Weather Conditions:

Refer to the San Luis N.W.R. section of this report.

B. Habitat Conditions:

1. Water:

Kesterson's ponds and marshes received water from three supply sources during the year. These three were San Luis Canal, Pump 2 and duck club spill. An annual total of approximately 2,300 acre feet was received through the San Luis Canal and Pump 2 supplied an additional 1,200 acre feet. Total usable duck club spill was estimated to be about 1,150 acre feet.

The refuge is divided from southeast to northwest by Mud Slough. Pump 2 and the San Luis Canal supplies water to the eastern portion while the western part is dependent solely upon duck club spill water. Consequently, several ponds on the westside were still dry when the waterfowl hunting season opened on October 16. The clubs started spilling some water a few days prior to opening day, but spill was not sufficient to raise our ponds to optimum until early-November.

Some of the ponds on the eastside had a water supply throughout the year. Pump 2 was operated intermittently and the San Luis Canal ran water intermittently from May until November. Thus, many of the eastside ponds had good water conditions for opening of waterfowl hunting. Water flow in the canal became steady during November and after that, we had no water shortage at Kesterson.

Late in October, the Bureau of Reclamation began running water from the San Luis Drain into the Kesterson holding ponds. The total inundated area was about 330 acres on December 1, and by December 29, it had increased to nearly 700 acres.

2. Food and Cover:

New plant growth on upland areas provided excellent browse during the first three and a-half months of 1971. Flooded annual grasses provided food for the first fall migrants and continued as an important food source until the seed supply was exhausted. Good growths of swamp timothy, (Heleochloa schoenoides), were present

in Sprig Lake on the westside and Big Lake on the eastside. That in Sprig Lake, however, produced only a scant amount of seed, due to lack of summer water.

Teal Pond was flooded once during the summer by irrigation spill from Lone Tree Duck Club. The result was an almost unbelievable growth of spikerush, (Eleocharis sp.). Despite an excellent stand, the spikerush was not an important food producer since it received no additional summer water.

Marsh cover was lacking at Kesterson because of a lack of summer water. Upland cover is mostly iodine bush, (Allenrolfea occidentalis) or annual grasses and herbs. Some areas of the refuge also support stands of the native, perennial bunchgrass, alkali sacaton (Sporobolus airoides).

Trees are nearly nonexistent on this refuge, with only a few scattered willows along the northeast boundary.

II. WILDLIFE

A. Migratory Birds:

1. Waterfowl:

a. Swans: Total use days by whistling swans were 12,425 this year, compared to 2,275 last year. Nearly all of this year's use was during January and February. The peak number of 380 this year is almost double 1970's peak of 200.

We have no idea why use increased so drastically over last year, since habitat conditions were the same both years. However, we hope this increasing trend continues (within reasonable limits). The objective level is 23,045 use days.

b. Geese: Goose use during 1971 was approximately half a-million use days less than 1970. The total use was also nearly 300,000 use days short of the refuge objective of 500,000. A peak number of 6,650 this year was also a marked decrease from last year's recorded peak of 20,050.

Increased hunting pressure and elimination of the closed zone were two factors which probably helped reduce goose use. Also, much of this year's decrease occurred during the months of January and February and is probably an indirect result of below normal precipitation during these months. Lack of moisture

caused a scarcity of green browse which is normally available and attractive to geese.

c. Ducks: Use days increased from 1,402,681 last year to 2,295,349 this year. Although this is a substantial increase, the total is still less than half of the objective level of five million. Pintail, American widgeon and shoveler, combined, accounted for nearly 75 percent of the total duck use.

The recorded peak population this year was 24,950 during the first week of February. A peak of 14,151 was reported during the same period last year.

d. Coots and Gallinules: Last year's coot use days totaled 891,170 and this year's total was 1,450,050. This increased use was accompanied by an increased peak from 9,100 in 1970 to 14,000 this year.

Common Gallinules were seen only occasionally during the year.

2. Water and Marsh Birds:

Pied-billed grebes, great blue herons and common and snowy egrets were common residents at Kesterson. White pelicans, black-crowned night herons and sandhill cranes were migrant visitors. The peak "crane" population was 1,554 recorded on February 24.

3. Shorebirds and Gulls:

Species and populations were essentially unchanged from last year. One exception was recorded on May 9, when about 1,500 Wilson's phalarope were counted on Big Lake.

4. Doves:

Mourning dove use was limited, as it has been in past years. The lack of trees is probably the main limiting factor.

B. Upland Game Birds:

A limited number of ring-necked pheasants used the area. An estimate, based on incidental observations, of 50 birds is considered quite liberal.

C. Big Game Animals:

No big game species inhabit the refuge or adjacent lands.

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

Raccoons, muskrats, mink, coyotes, striped skunks, longtailed weasels, opossums, badgers, California ground squirrels, black-tailed jackrabbits and cottontails were all common. We have evidence that several species of small rodents were present, but no list has been compiled.

E. Hawks, Owls, Eagles and Kites:

Marsh hawks, red-tailed hawks and sparrow hawks were common throughout the year. Burrowing owls and white-tailed kites were seen only occasionally. Three golden eagle sightings were recorded, and short-eared owls were migrant visitors.

F. Other Birds:

Nothing unusual or noteworthy to report.

G. Fish:

Carp, catfish and probably other warmwater species occurred in Mud Slough. Refuge ponds were intermittently dry and did not support fish populations.

H. Reptiles and Amphibians:

Nothing to report.

I. Disease:

Fowl cholera killed an estimated total of 4,500 coots, ducks and geese during March. Approximately 4,000 dead birds were picked up, burned and buried. We believe the disease was transmitted by infected immigrant birds.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development:

1. Canals and Water Control Structures:

a. The one deep-well pump on the refuge required extensive

repairs during the year. The impeller and bowl was replaced with a re-built set, 80 feet of shaft and tubing was replaced, and 20 feet of pipe column had to be replaced.

b. A 48-inch c.m.p. with flashboard riser was installed at the Five Pardners structure to replace this deteriorated concrete structure.

c. Levees were re-built around the Gallo Pond and along the east levee of the 80 Gun Club.

d. A 36-inch c.m.p. was installed in the Windmill Pond Canal. This pipe was needed to raise the water in this canal to permit us to flood additional waterfowl habitat.

2. Road Construction and Maintenance:

a. One-half mile of new roadbed was prepared with crawler tractor and scraper. This road extends the hunter access road to give hunters access to some of the better hunting areas on the refuge.

b. The one-half mile of new roadbed was graveled, and an additional 1.3 miles of hunter access road was regraveled so it would hold up under heavy traffic during wet weather. All gravel was obtained free-of-charge from the Bureau of Reclamation and hauled and tailgate spread by a contractor on an informal bid.

c. All roads and trails were graded as required and as weather conditions permitted.

3. Fence Construction and Maintenance:

a. Refuge personnel constructed .6 miles of new fence along the east bank of the San Luis Drain. This completed the fence started and partially built by Bureau of Reclamation to seperate the reservoir area from the rest of the refuge. The Bureau of Reclamation furnished most of the fencing material.

b. Two cattleguards were installed where fences cross the hunter access roads. Both cattleguards were installed on wooden timber, since they will be removed within a few years.

4. Sign Construction and Maintenance:

a. Four miles of refuge boundary was reposted. These boundary posts were removed during construction of the

Kesterson Reservoir cells, and they were replaced when the contractor completed construction of the cells.

b. The sign portion of the refuge recognition sign along Highway 140 was replaced.

c. A sign was installed at the hunter check station to inform hunters of the Department of the Interior's role in providing the area as a public hunting area. Since the California Department of Fish and Game manages the check station, most hunters think the area is provided and managed by them. The sign reads:

KESTERSON NATIONAL WILDLIFE REFUGE

Jointly Managed by the

U. S. Dept. of the Interior's

Bureau of Sport Fisheries & Wildlife

and

Bureau of Reclamation

Thru Agreement, Public Hunting is Managed by

The California Department of Fish and Game

5. Building Construction and Maintenance:

a. California Department of Fish and Game personnel repainted the interior of the hunter check station during the waterfowl hunting season.

6. Miscellaneous:

a. A foot bridge was built across Mud Slough to give waterfowl hunters access to waterfowl habitat on the east side of Mud Slough.

b. A loading ramp was built to load and unload equipment transferred between Kesterson and San Luis and Merced Refuges.

c. A Galion road grader was obtained from excess. This grader only required a valve job to put it in excellent condition. The Austin Western road grader was transferred to Salton Sea N.W.R.

d. A Caterpillar 25 power control unit and hardnose were installed on the D-7 crawler tractor. The hardnose unit

permitted removal of the overhead "headache" bar, and the power control unit replaced a worn out Le Tourneau unit.

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:

Nothing to report.

C. Collections and Receipts:

1. Seed or Other Propagules:

Nothing to report.

2. Specimens:

Several bird specimens were collected during the year. These birds consist of dead and crippled birds found on the refuge and birds seized from hunters during the waterfowl hunting season. All birds were disposed of to either the National Museum in Washington D. C. or Modesto Junior College in Modesto, California.

D. Control of Vegetation:

Nothing to report. Since this area has had little summer water in the past, no vegetation problems have been encountered yet.

E. Planned Burning:

Nothing to report.

F. Fires:

There were no fires on refuge land during the year.

IV. RESOURCE MANAGEMENT

A. Grazing:

Two grazing permits to Mr. Frank J. Freitas were in effect during the year. On November 15, 1970, the refuge issued a permit to graze 1,000 acres of Tract KR-1 from November 15, 1970 through March 31, 1971. The total number of cattle on the area could not exceed 100 head at any one time and total use under the permit could not exceed 500 AUM's. Total use under this permit was 440.23 AUM's, which at $3.75 per AUM resulted in a total revenue of $1,650.86.

Another permit was issued to Mr. Freitas on October 7, 1971. This permit authorized grazing on 3,200 acres from November 1, 1971 through April 15, 1972. The total number of cattle on the area cannot exceed 320 head at any one time, with total use not to exceed 1,760 AUM's. By the end of the year, approximately 514 AUM's were utilized. Final billing and payment will be made on the basis of actual use at the termination of the permit.

On October 6, 1971, a permit was issued to Yosemite National Park to graze not to exceed 80 horses and mules on 1,000 acres of Tract KR-1. This was, of course, a free-use permit, since they are a Department of the Interior agency. The Park Service has been paying $7.00 to $10.00 per AUM to graze these horses on private land. We do not agree with grazing horses or mules on a normal national wildlife refuge, but Kesterson is a unique situation. All the land now being grazed at this refuge is scheduled for construction of approximately 100 acre evaporation cells in fiscal year 1974. It is, therefore, not possible to manage the area for any long term benefit to the land or wildlife.

All income from refuge grazing permits are transferred to the Bureau of Reclamation at the end of the fiscal year.

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

V. FIELD INVESTIGATION AND APPLIED RESEARCH

Refer to the San Luis field investigations section.

VI. PUBLIC RELATIONS

A. Recreational Uses:

There were 4,274 actual visits to the refuge during the year. This is 1,713 visits more than the 2,561 visits recorded last year. The bulk of this increase, 1,433 visits, is a result of additional visits by waterfowl hunters.

Public recreational use at this new refuge will continue to be light until development progresses to the point where more forms of recreational use are available to refuge visitors. Under the present conditions, the only significant public use is waterfowl hunting. It will not be possible to develop any major recreation facilities until the present state of development by Bureau of Reclamation is over and the area stabilizes. This will probably be about fiscal year 1975. Our goal now is to provide as much recreation as possible as cheaply as possible. The expenditure of recreational development funds is not practical now.

The attached recreational use form illustrates the type of activity refuge visitors participated in.

B. Refuge Visitors:

All important visitors to the refuge are included in the visitor list for San Luis Refuge.

C. Refuge Participation:

All refuge participation concerning this refuge is included in the San Luis Refuge report.

D. Hunting:

Approximately 4,500 acres of the refuge was open to waterfowl hunting from October 16 through December 25, 1971: From December 26, 1971 through January 16, 1972, the entire area, 5,900 acres, was open to hunting.

The California Department of Fish and Game again operated the actual hunting program. They issued reservations and permits,

Bureau of Sport Fisheries and Wildlife
Division of Wildlife Refuges

ANNUAL

RECREATIONAL USE REPORT

Refuge name: KESTERSON
State: CALIFORNIA

State Code 05 (1-2) | Congressional District Code 16 (3-4) | Refuge Code 140 (5-7) | Report Period Yr. 71 Mo. (8-11)

(Card Columns)	(12-13)	(14-18)	(19-25)
ACTIVITY	Code	VISITS FOR THE MONTH Total Number	Total Hours
Hunting: Big Game	01		
Upland Game	02		
Waterfowl	03	3,544	14,176
Other Migratory	04		
Other	05		
Bow	06		
Fishing: Salt Water	07		
Warm Water	08		
Cold Water	09		
Environmental Education	10		
Wildlife Photography	11		
Wildlife Observation	12	265	206
Conducted Programs	13		
Field Trials	14		
Wildlife Trails	15		
Wildlife Tours/Routes	16	25	12
Visitor Contact Stations	17		
Camping (wildlife related)	18		
Picnicking (wildlife related)	19	2,175	1,300
Wildlife Interpretive Center	20		
On-Site Programs	21		

(Card Columns)	(12-13)	(14-18)	(19-25)
ACTIVITY	Code	VISITS FOR THE MONTH Total Number	Total Hours
On-Site Programs	22		
*Miscellaneous Wildlife	23	293	128
Swimming	24		
Boating	25		
Water Skiing	26		
Camping	27		
Group Camping	28		
Picnicking	29		
Horseback Riding	30		
Bicycling	31		
Winter Sports	32		
Fruit, Nut and Vegetable Collecting	33	60	42
*Miscellaneous Non-Wildlife	34		
Peak Load Day	35	190	
Actual Visits	36	4,274	
Fee Area Use	37		
Number of Fee Areas	38	(14-18)	
Fee Collections	39	$	
Collection Costs	40	$	

Form 3-123
(Revised July 1969)

*Use reverse side to indicate types of activities summarized under miscellaneous codes 23 and 34. MAKE NO OTHER ENTRIES ON FACE OF THIS FORM.

collected a $3.50 fee for hunting on the area, and manned the checking station. The quota for the number of hunters on the area at one time was 100 during most of the season and 120 during the last three weeks of the season. Enforcement was a joint effort between the California Department of Fish and Game and the Bureau of Sport Fisheries and Wildlife.

During the 1971-72 waterfowl hunting season, 3,608 hunters bagged 7,880 ducks, 254 geese and 355 coots, for a total of 8,489 birds. The average hunter kill per day was 2.35 birds. The highest success for a single day was on November 17, 1971 when 46 hunters averaged 4.2 birds per hunter.

The following table is a tabulation of waterfowl kill by species for the 1969-70, 1970-71, and 1971-72 waterfowl hunting seasons:

KILL BY SPECIES:	1969-70	1970-71	1971-72
DUCKS:			
Mallard	45	97	289
Gadwall	46	81	174
Pintail	1,168	1,288	2,552
G.W. Teal	1,319	1,820	2,562
Cinn. Teal	31	70	4
Baldpate	335	737	896
Shoveler	414	1,092	47
Wood Duck	1	3	---
Redhead	8	6	51
Ring-necked Duck	1	8	26
Canvasback	7	6	1
Scaup	11	10	1
C. Goldeneye	1	7	186
Bufflehead	---	---	4
Ruddy Duck	59	138	1,083
Coots	48	235	355
*Other	---	89	4
Totals	3,494	5,687	8,235
GEESE:			
Common Canada	2	5	20
Cackling Goose	59	140	73
W.F. Goose	9	6	9
Snow Goose	16	29	89
Ross' Goose	7	40	63
Totals	93	220	254

Total Waterfowl	3,587	5,907	8,489
Total Hunters	1,414	2,643	3,608
Average Waterfowl/Hunter	2.5	2.3	2.35
No. Snipe Killed	No hunting	?	3

*Other includes birds not identified by check station personnel due to lack of time and includes some minor species.

E. Violations:

Excellent cooperation with game management agents and state wardens was experienced throughout the year. The following list of violators were apprehended during the year:

DATE	NAME	VIOLATION	AGENT	DISPOSITION
10/23	Willis Caldwell Menlo Park, CA	Killing Protected Species	Nail	Justice Court 11/8/71 $25.00
11/7	Ronald Focht San Jose, CA	Trespass	Mayle	Justice Court 11/18/71 $25.00
11/7	Charles Kimball San Jose, CA	Trespass	Mayle	Pending
12/11	Billy McGuire Ceres	Possession of Swans	Sipe	Justice Court 12/27/71 10-days Jail suspended 1-year probation $250.00 Fine

F. Safety:

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

VII OTHER ITEMS

A. Items of Interest:

Nothing to report.

B. Credits:

Credit for the preparation of this report is as follows:

Refuge Manager Nail - Sections III, IV, V, VI and VII.
Wildlife Biologist Sipe - Sections I and II.
Clerk-Typist Barger - Edited, typed and assembled the entire report.
Maintenanceman, Foreman Mayle - Provided many helpful notes and assisted in locating and compiling much information for the body of the report.

Photograph credits are shown with each photograph in the photo section of this report.

3-1750
Form N. 1
(Rev. March 1953)

WATERFOWL

REFUGE KESTERSON NATIONAL WILDLIFE REFUGE MONTHS OF January through April, 1971

(1) Species	(2) Weeks of reporting period: 1/3-9 (1)	1/10-16 (2)	1/17-23 (3)	1/24-30 (4)	1/31-2/6 (5)	2/7-13 (6)	2/14-20 (7)	2/21-27 (8)	2/28-3/6 (9)	3/7-13 (10)
Swans:										
Whistling	115	250	380	200	200	200	200	200	25	5
Trumpeter										
Geese:										
Canada	25	25	25	25	25	75	175	350	25	
Cackling	400	400	700	2,300	3,000	3,000	2,700	2,500	800	500
Brant										
White-fronted	75	75	75	100	100	150	250	300	50	25
Snow	400	300	300	250	150	500	1,200	2,500	1,200	300
Ross'	50	50	100	200	250	500	700	1,000	500	100
Total	950	850	11,200	2,875	3,525	4,225	5,025	6,650	2,575	925
Ducks:										
Mallard	100	100	75	75	50	50	75	100	100	150
Black										
Gadwall	75	50	75	125	200	200	200	200	50	50
Baldpate	4,500	4,000	4,500	5,300	6,500	8,000	8,500	10,000	9,000	5,000
Pintail	2,000	3,000	2,500	4,700	5,000	4,300	3,000	2,000	700	600
Green-winged teal	1,500	2,000	2,500	4,000	4,500	3,700	2,800	2,000	2,000	1,700
Blue-winged teal										
Cinnamon teal			25	75	200	250	300	400	300	100
Shoveler	3,500	4,500	4,500	6,000	6,500	6,000	5,700	5,500	4,750	3,500
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy	500	500	700	1,500	2,000	1,900	1,500	1,200	1,200	1,100
Merganser										
Total	12,175	14,150	15,875	21,775	24,950	24,400	22,075	21,400	18,100	12,200
Coot:	6,500	8,000	9,500	10,800	13,000	13,000	13,000	13,000	14,000	12,000

3 -1750a
Cont. R-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE KESTERSON NATIONAL WILDLIFE REFUGE MONTHS OF January through April, 19 71

(1) Species	(2) Weeks of reporting period: 3/14-20 11	3/21-27 12	3/28-4/3 13	4/4-10 14	4/11-17 15	4/18-24 16	4/25-5/1 17	18	(3) Estimated waterfowl days use	(4) Production: Broods seen	Estimated total
Swans:											
Whistling									12,425		
Trumpeter											
Geese:											
Canada									5,250		
Cackling									114,100		
Brant											
White-fronted									8,400		
Snow									49,700		
[illegible]									24,150		
[illegible]									201,600		
Ducks:											
Mallard	150	100	50	75	100	100	75		10,675		
Black											
Gadwall		50	125	75	50	50	50		11,375		
Baldpate	3,000	2,500	1,400						505,400		
Pintail	500	400	250	200	125	100	50		212,975		
Green-winged teal	1,500	900	500	500	500	500	150		218,750		
Blue-winged teal											
Cinnamon teal	75	100	125	125	100	100	50		16,275		
Shoveler	3,000	2,500	1,700	1,700	1,700	1,700	500		442,750		
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy	1,000	750	400	250	150	100	75		103,775		
Merganser											
Total:	9,225	7,300	4,550	2,925	2,725	2,650	950		1,521,975		
Coot:	10,000	8,000	5,500	4,500	3,500	3,000	1,500		1,041,600		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	12,425	380	
Geese	201,600	6,650	
Ducks	1,521,975	24,950	
Coots	1,041,600	14,000	
TOTAL:	2,777,600	45,980	

SUMMARY

Principal feeding areas Sprig Lake, Teal Pond, Big Lake, Mud Slough and upland grasses.

Principal nesting areas

Reported by Gene A. Sipe, Wildlife Biologist

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1750
Form [illegible]
(Rev. March 1953)

WATERFOWL

REFUGE KESTERSON NATIONAL WILDLIFE REFUGE MONTHS OF May through August, 19 71

(1) Species	(2) Weeks of reporting period: 5/2-8 (1)	5/9-15 (2)	5/16-22 (3)	5/23-29 (4)	5/30-6/5 (5)	6/6-12 (6)	6/13-19 (7)	6/20-26 (8)	6/27-7/3 (9)	7/4-10 (10)
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	50	30	50	100	75	75	50	25	50	75
Black										
Gadwall	50	50	25	25	50	75	50	10	10	15
Baldpate				1						
Pintail	25	10	10	10	10	10	5	5	5	5
Green-winged teal	50							5		
Blue-winged teal										
Cinnamon teal	25	25	25	25	50	50	50	25	25	25
Shoveler	50	10				15				
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy	50	25	25	75	25	15				
Other										
Total	300	150	135	237	210	240	155	70	90	120
Coot:	650	475	250	150	75	25	25	10	10	

3 -1750a
Cont R-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE KESTERSON NATIONAL WILDLIFE REFUGE MONTHS OF May through August, 1971

(1) Species	(2) Weeks of reporting period: 7/11-17 11	7/18-24 12	7/25-31 13	8/1-7 14	8/8-14 15	8/15-21 16	8/22-28 17	8/29-9/4 18	(3) Estimated waterfowl days use	(4) Production: Broods seen	Estimated total
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada											
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	100	150	200	175	100	75	100	125	11,235	5	35
Black											
Gadwall	25	25	25	25	25	25	50	75	4,445	2	27
Baldpate									7		
Pintail	5	10	10	10	15	50	150	250	4,165		5
Green-winged teal					25	100	75	100	2,485		
Blue-winged teal									7		
Cinnamon teal	50	50	75	50	25	15	25	75	4,830	2	22
Shoveler									525		
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy						10			1,575		
Other											
Total	180	235	310	260	190	275	400	625	29,274	8	89
Coot:											
						15	25	50	12,320		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese			
Ducks	29,274	625	93
Coots	12,320	650	
Total:	41,594		

SUMMARY

Principal feeding areas: Big Lake and Mud Slough.

Principal nesting areas: Uplands adjacent to water areas.

Reported by: Gene A. Sipe

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1750
Form 1 1
(Rev. March 1953)

WATERFOWL

REFUGE KESTERSON NATIONAL WILDLIFE REFUGE MONTHS OF September through December, 1971

(1) Species	(2) Weeks of reporting period: 9/5-11 (1)	9/12-18 (2)	9/19-25 (3)	9/26-10/2 (4)	10/3-9 (5)	10/10-16 (6)	10/17-23 (7)	10/24-30 (8)	10/31-11/6 (9)	11/7-13 (10)
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Ross'										
Total										
Ducks:										
Mallard	300	400	300	600	700	500	350	300	150	150
Black										
Gadwall	25	50	50	25	25	25	50	50	100	100
Baldpate							25	150	150	200
Pintail	500	300	2,000	2,500	2,500	4,000	5,500	5,750	6,500	6,000
Green-winged teal			50	200	300	650	1,500	1,900	2,500	2,000
Blue-winged teal										
Cinnamon teal	75	50	100	150	150	175	225	275	300	200
Shoveler					100	100	150	150	150	150
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy					25	75	75	100	150	150
Other										
Total	900	800	2,500	3,475	3,800	5,525	7,875	8,675	10,000	8,950
Coot:										
	15	25	50	100	200	700	2,200	2,500	3,000	3,500

3 -17-50a
Cont. -1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE KESTERSON NATIONAL WILDLIFE REFUGE MONTHS OF September through December, 19 71

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods seen	(4) Production Estimated total
	11/14-20 11	11/21-27 12	11/28-12/4 13	12/5-11 14	12/12-18 15	12/19-25 16	12/26-1/1 17	18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	17				50				469		
Cackling		50	100	100	150	200	250		5,950		
Brant											
White-fronted					25	25	50		700		
Snow		25	75	100	200	400	400		8,400		
Ross'			25	50	50	100	75		2,100		
Total	17	75	200	250	475	725	775		17,619		
Ducks:											
Mallard	200	200	150	175	225	250	250		36,400		
Black											
Gadwall	150	150	200	250	100	75	50		10,325		
Baldpate	250	250	300	450	700	1,000	1,500		34,825		
Pintail	5,700	5,500	5,000	4,500	3,800	3,500	3,900		472,150		
Green-winged teal	1,500	800	1,000	1,200	1,500	1,500	2,000		130,200		
Blue-winged teal											
Cinnamon teal	150	100	100	75	50	50	75		16,100		
Shoveler	200	200	250	175	150	250	400		16,975		
Wood											
Redhead											
Ring-necked											
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy	200	400	450	600	600	500	550		27,125		
Total	8,350	7,600	7,450	7,425	7,125	7,125	8,725		744,100		
Coot:	4,500	5,000	6,100	6,400	7,000	7,500	7,800		396,130		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese	17,619	775	
Ducks	744,100	10,000	
Coots	396,130	7,800	
Total	1,157,849		

SUMMARY

Principal feeding areas Sprig Lake, Teal Pond, Gallo Ponds and Big Lake.

Principal nesting areas

Reported by Gene A. Sipe

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Kesterson N. W. R. Months of January through April 1971

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
White Pelican			250	04/21						500
Great Blue Heron			6	02/03						75
Common Egret			2	02/03						15
Snowy Egret			3	04/23						50
Sandhill Crane			1,554	02/24	116	03/18				2,500
II. Shorebirds, Gulls and Terns:										
Killdeer	Resident		24	02/24						250
Long-billed Curlew			8	02/24						200
Greater Yellowlegs			4	02/03						25
Least Sandpiper			25	03/30						500
Dunlin	135	03/18	150	04/23						1,000
Long-billed Dowitcher			2,150	04/23						5,000
Western Sandpiper			50	04/23						1,500
American Avocet			88	04/23						500
Black-necked Stilt			10	04/23						150
California Gull			2	04/23						10
Ring-billed Gull			83	02/24						200

(over)

(1)	(2)	(3)		(4)	(5)	(6)
III. Doves and Pigeons:						
Mourning dove						
White-winged dove						
IV. Predaceous Birds:						
Golden eagle		2	04/23			10
Duck hawk						
Horned owl						
Magpie						
Raven						
Crow						
Red-tailed Hawk	Resident	10	02/03			75
Rough-legged Hawk		1	01/05			5
Marsh Hawk	Resident	7	02/03			25
Sparrow Hawk		1	02/24			25
Burrowing Owl	Resident	1	03/18			15
Short-eared Owl		2	02/24			5

Reported by Gene A. Sipe, Wildlife Biologist

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INTERIOR--PORTLAND, OREGON

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Kesterson NWR Months of May to August 19 71

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Eared Grebe	12	05/09		Only observation this period						25
Pied-billed Grebe	Resident		4	08/17						15
Great Blue Heron	"		57	07/27						150
Common Egret	"		1	08/17						25
Snowy Egret	"		19	08/17						50
II. Shorebirds, Gulls and Terns:										
Killdeer	Resident		71	08/17						250
Long-billed Curlew	35	08/17	35	08/17						150
Greater Yellowlegs	Previous Period		3	05/25						25
Dunlin	200	08/17	200	08/17						300
Long-billed Dowitcher	Previous Period		581	08/17						1,200
Western Sandpiper	"	"	100	07/27						300
American Avocet	"	"	96	06/10						500
Black-necked Stilt	"	"	50	05/25						250
Wilson's Phalarope	1,500	05/09	1,500	05/09	1	06/10				2,000
California Gull	Previous Period		31	07/27						50
Ring-billed Gull	"	"	4	06/10						25
Forester's Tern	2	05/09		Only observation this period						5

(over)

(1)	(2)	(3)		(4)	(5)	(6)
III. Doves and Pigeons:						
Mourning dove		4	05/25	Still Present		200
White-winged dove						
IV. Predaceous Birds:						
Golden eagle						
Duck hawk						
Horned owl						
Magpie						
Raven						
Crow						
Red-tailed Hawk	Resident	7	05/25			50
Marsh Hawk	"	1	06/24			10
Sparrow Hawk	"	3	05/09			25
Burrowing Owl	"	1	05/09			5
Turkey Vulture	"	2	07/27			10

Reported by Gene A. Sipe, Wildlife Biologist

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INTERIOR--PORTLAND, OREGON

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Kesterson N.W.R. Months of September through December 1971

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Eared Grebe			4	10/03						25
Western Grebe			1	10/03						5
Pied-billed Grebe	Resident		9	09/12						75
Great Blue Heron	Resident		9	10/03						75
Common Egret	Resident		1	09/12						25
Snowy Egret	Resident		25	11/05						100
American Bittern	Resident		1	11/23						25
II. Shorebirds, Gulls and Terns:										
Killdeer	Resident		16	11/05						250
Long-billed Curlew	Previous Period		150	11/05						500
Western Sandpiper	Previous Period		4	11/23						175
American Avocet	Previous Period		15	11/05						300
Black-necked Stilt	Previous Preiod		15	11/23						75

(over)

(1)	(2)	(3)		(4)	(5)	(6)
III. Doves and Pigeons:						
Mourning dove						
White-winged dove						500
IV. Predaceous Birds:						
Golden eagle		1	09/24			3
Duck hawk						
Horned owl	Resident	1	10/03			5
Magpie						
Raven						
Crow						
White-tailed Kite		2	10/03			4
Red-tailed Hawk	Resident	9	11/23			75
Marsh Hawk	Resident	17	11/23			50
Sparrow Hawk	Resident	4	11/23			35

Reported by Gene A. Sipe

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INTERIOR--PORTLAND, OREGON

3-1750b
Form NR-1B
(Rev. Nov. 1957)

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

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Kesterson NWR   For 12-month period ending August 31, 19 71

Reported by Gene A. Sipe   Title Wildlife Biologist

(1) Area or Unit Designation	(2) Habitat Type	Acreage		(3) Use-days	(4) Breeding Population	(5) Production
	Crops		Ducks	2,142,464	125	89
	Upland	5,000	Geese	243,925		
	Marsh	900	Swans	14,195		
None	Water		Coots	1,357,620		
	Total	5,900	Total	3,758,204	125	89
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

Form NP[illegible]
(Sept. 1960)

WATERFOWL HUNTER KILL SURVEY

Refuge Kesterson N.W.R.

1971-72 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
10/16-22	165	660	Pintail 179, Mallard 56, Widgeon 32, Green-winged Teal 28, Gadwall 13, Shoveler 10, Cinnamon Teal 7, Coot 4, Wood Duck 1, Redhead 1, Canvasback 1.	332	166	498	165	498
10/23-29	216	864	Pintail 132, Coot 28, Widgeon 15, Mallard 14, Green-winged Teal 9, Gadwall 6, Ruddy 3, Ring-necked Duck 2, Shoveler 2, Cinnamon Teal 1, Redhead 1, Canvasback 1.	214	107	321	216	321
10/30-11/5	212	848	Pintail 333, Baldpate 116, Green-winged Teal 59, Gadwall 43, Shoveler 29, Coot 27, Mallard 20, Ruddy 7, Scaup 5, Canvasback 5, Snow Goose 4, Cinnamon Teal 4, Ring-necked Duck 3, Redhead 1.	656	328	984	212	984
11/6-12	236	944	Pintail 204, Coot 37, Baldpate 35, Green-winged Teal 24, Gadwall 17, Shoveler 11, Ruddy 8, Canvasback 5, Mallard 4, Scaup 3.	348	174	522	236	522
11/13-19	213	852	Pintail 382, Green-winged Teal 65, Baldpate 43, Mallard 25, Coot 20, Gadwall 19, Ruddy 13, Shoveler 4, Cinnamon Teal 4, Canvasback 4, Scaup 3, Redhead 1, Ring-necked Duck 1, Wood Duck 1, Ross' Goose 1.	586	293	879	213	879
11/20-26	238	952	Pintail 235, Green-winged Teal 54, Baldpate 34, Coot 14, Mallard 13, Ruddy 11, Shoveler 7, Gadwall 6, Canvasback 4, Snow Goose 4, Ross' Goose 1.	383	192	575	238	575

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. Column 9 = $\frac{\text{Column 8}}{\text{Column 2}}$ x Column 7.

3-1750
Form NP
(Sept. 1960)

WATERFOWL HUNTER KILL SURVEY

Refuge Kesterson N.W.R.

1971-72 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
11/27-12/3	271	1,084	Pintail 168, Green-winged Teal 60, Ruddy 31, Mallard 30, Baldpate 21, Coot 21, Shoveler 12, Gadwall 7, Canvasback 5, Snow Goose 4, Ring-necked duck 1, Bufflehead 1, Canada Goose 1, Cackling Goose 1.	363	182	545	271	545
12/4-10	259	1,036	Green-winged Teal 153, Pintail 146, Blue-winged Teal 64, Coot 30, Baldpate 12, Mallard 11, Cinnamon Teal 11, Ring-necked Duck 7, Gadwall 4, Canada Goose 2, Scaup 2, Ross' Goose 1, Shoveler 1, American Merganser 1.	445	223	668	259	668
12/11-17	267	1,068	Green-winged Teal 386, Shoveler 141, Pintail 112, Coot 40, Ruddy 20, Mallard 18, Baldpate 14, Gadwall 13, Canvasback 2, Snow Goose 2, Cinnamon Teal 1, Scaup 1.	750	375	1,125	267	1,125
12/18-24	347	1,368	Green-winged Teal 435, Shoveler 195, Pintail 121, Coot 60, Mallard 29, Baldpate 23 Ruddy 18, Snow-Goose 11, Ross' Goose 9, Gadwall 8, Cackling-Goose 5, Cinnamon Teal 4, Canada Goose 2, Ring-necked Duck 1, Canvasback 1.	922	461	1,383	347	1,383
12/25-31	326	1,304	Shoveler 211, Green-winged Teal 208, Pintail 72, Baldpate 48, Coot 32, Ruddy 15, Mallard 13, Ross' Goose 6, Snow Goose 5, Canvasback 4, Cinnamon Teal 3, Canada Goose 3, Cackling Goose 2, White-fronted Goose 1, Wood Duck 1.	624	312	936	326	936

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. Column 9 = $\frac{\text{Column 8}}{\text{Column 2}}$ x Column 7.

3-1750c
Form NF
(Sept. 1960)

WATERFOWL HUNTER KILL SURVEY

Refuge Kesterson N.W.R.

1971-72 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
1/1-7	196	784	Green-winged Teal 236, Pintail 105, Baldpate 83, Blue-winged Teal 48, Shoveler 46, Cackling Goose 23, Mallard 14, Snow Goose 11, Ross' Goose 10, White-fronted Goose 6, Canada Goose 6, Canvasback 4, Gadwall 4, Cinnamon Teal 3, Coot 2, Ring-necked Duck 1.	602	301	903	196	903
1/8-14	370	1,480	Green-winged Teal 468, Baldpate 232, Pintail 205, Shoveler 179, Cackling Goose 29, Ruddy 23, Snow Goose 22, Mallard 20, Ross' Goose 13, Gadwall 12, Coot 8, Canvasback 6, Red Breast Merganser 2, White-fronted Goose 2, Cinnamon Teal 2, Canada Goose 1, Ring-necked Duck 1, Wood Duck 1, American Merganser 1, Scaup 1.	1,228	614	1,842	370	1,842
1/15 & 16	287	1,148	Green-winged Teal 344, Baldpate 188, Pintail 158, Shoveler 157, Coot 32, Ruddy 26, Snow Goose 26, Ross' Goose 23, Mallard 22, Gadwall 22, Cinnamon Teal 17, Cackling Goose 13, Canada Goose 4, Canvasback 3, Scaup 1.	1,036	516	1,552	287	1,552
TOTALS:	3,603	14,392		8,489	4,244	12,733	3,603	12,733

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.

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(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. Column 9 = $\frac{\text{Column 8}}{\text{Column 2}}$ x Column 7.

Z 1752

Form NR-2
(April 46)

UPLAND GAME BIRDS

1613

Refuge KESTERSON N.W.R. Months of January through April, 19 71

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Upland, 5,000	200							25	Total number estimated from incidental observations.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Kesterson NWR Months of May through August, 19 71

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Upland, 5,000 acres	143	0	15					35	Numbers estimated from incidental observations.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

J-1752
Form 3-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Kesterson NWR Months of September through December, 1971

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasants	Upland, 4,000 acres.	80							50	Number estimated from incidental observations.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1753
Form R-3
(June 1945)

BIG GAME

Refuge Kesterson N.W.R. Calendar Year 1971

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
No big game species inhabit this refuge or adjacent lands.														

Remarks:

Reported by Gene A. Sipe

INSTRUCTIONS

Form NR-3 - BIG GAME

(1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.

(2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated total number of young produced on refuge.

(4) REMOVALS: Indicate total number in each category removed during the year.

(5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.

(6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.

(7) TOTAL REFUGE POPULATION: Give the estimated population of <u>each</u> <u>species</u> on the refuge at period of its greatest abundance and also as of Dec. 31.

(8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

3-1754
Form N..4
(June 1945)

SMALL MA..ALS

Refuge KESTERSON N.W.R. Year ending April 30, 1971

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5) Total Population
								Share Trapping						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
Muskrat	Marsh & Water, 900 A.	4.5												200
Mink	" " "													25
Striped Skunk	Upland & Shallow Marsh, 900 A.													25
Longtail Weasel	" "													15
Coyote	" "													25
Raccoon	" "													50
Opossum	" "													50
Blacktail Jackrabbit	" "													1,000
Desert Cottontail	" "													300
Badger	" "													10
Calif. Ground Squirrel	" "													3,000

* List removals by Predator Animal Hunter

REMARKS:

Reported by Gene A. Sipe, Wildlife Biologist

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

INTERIOR--PORTLAND, OREGON

Form N 60701

DISEA

Refuge Kesterson N.W.R. Year 19 71

Botulism

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 _____

Lead Poisoning or other Disease

Kind of disease Fowl Cholera

Species affected Ducks, Geese, Coots & Misc. Birds.

Number Affected

Species	Actual Count	Estimated
Ducks	308	375
Geese	36	50
Coots	3,650	4,000
Misc. Birds	12	50

Number Recovered 4,006

Number lost 4,475 (estimated)

Source of infection Infected immigrant birds.

Water conditions Fair.

Food conditions Fair.

Remarks Dead birds were burned and buried. Lowering water levels and adding fresh water helped alleviate the problem.

3-1[illegible] (1[illegible]

Form NR-7
(Rev. June [illegible]0)

NONAGRICULTURAL COLLECTIO[illegible], RECEIPTS, AND PLANTINGS

Refuge Kesterson NWR Year 19 71

	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
Species	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: _____

INTERIOR--PORTLAND, OREGON

3-1758
Form NR-8
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Kesterson NWR County Merced State California

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

No. of Permittees: Agricultural Operations 0 Haying Operations 0 Grazing Operations 2

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	443	833.74	$3,126.51	4,200
				2. Mules & Horses	65	120	0*	1,000
				1. Total Refuge Acreage Under Cultivation				
Hay - Wild				2. Acreage Cultivated as Service Operation				

* Grazing by National Park Service (Yosemite Natl. 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.

3-1570
NR-8a
(4/54)

REFUGE GRAIN REPORT

Refuge Kesterson N.W.R. Months of January through December, 19 71

(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
Nothing to report.											

(8) Indicate shipping or collection points

(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.

25810

INT.-DUP. SEC., WASH., D.C.

(9/63) Bureau of Sport Fisheries and Wildlife

Kesterson N.W.R.

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number	Reporting Year
	1971

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)
2/8	All plants	Around refuge recognition signs and pump.	1/4	4% Dichlobenil	10 lb.	1.5 lb. active ingredient per acre.	Granular	Hand Spread

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

2/8 - 100% kill

INTERIOR--PORTLAND, OREGON