

STILLWATER WILDLIFE MANAGEMENT AREA
Fallon, Nevada

WILDLIFE INVENTORY PLAN

1984

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PART I

INTRODUCTION

Stillwater Wildlife Management Area is the largest and one of the most important waterfowl areas in Nevada. It not only is an important waterfowl production area, especially for redheads, but during fall migration the area has reached peaks of 150-200 thousand ducks.

A three-way agreement between the Fish & Wildlife Service, Nevada Fish & Game Commission and the Truckee-Carson Irrigation District established Stillwater WMA in 1948. It is managed jointly by the two wildlife agencies.

The tri-party agreement specifies that a muskrat inventory be conducted jointly by the two agencies. This assures agreement concerning the harvestable number of muskrats.

There is good cooperation between State and Federal personnel. Biological information is sometimes collected jointly and all is passed between agencies. Examples are collecting check station data for harvest estimates, breeding pair counts, brood counts, and waterfowl population counts.

During the drought years of 1959-62 much of the emergent vegetation was eliminated which was necessary for nesting diver ducks. After a period of rejuvenation of emergents with a gradual increase in production, the flood waters beginning in 1983 again eliminated necessary emergent vegetation. At the present time there is little nesting habitat for divers. However when water recedes, the marsh will again become productive.

One of the principle inventory problems on Stillwater concerns highly reliable information from an extremely large area. On Refuges of 10-20 thousand acres, intensive surveys can be justified while the same type surveys are not practical on Stillwater's 200,000 acres.

Another problem is the conditions of different management units. Water and habitat conditions vary the attractiveness of each unit. Intensive surveys therefore cannot be conducted on certain unit and applied to all others. With few exceptions, each unit must be surveyed by itself, which limits the time, expense, and intensity for the entire inventory.

Anaho Island National Wildlife Refuge is also administered by Stillwater. Refuge and census procedures are included in the plan for this area. Species represented on both areas will be covered in this inventory plan and include those currently listed as National Species of Special Emphasis (NSSE), in Regional Resource Plans (RRP's), Sensitive Species and Endangered and Threatened Species. Other species of Refuge significance will also be included in this plan.

PART II

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PART III

HABITAT UNITS

The following is a breakdown of management units according to habitat types. A map of the management units is in Appendix A.

<u>Unit</u>	<u>Habitat Type</u>	<u>Acreage</u>
Stillwater Point Reservoir	Upland	46
	Marsh	132
	Water	<u>1,707</u>
	Total	1,885
Upper Foxtail	Upland	30
	Marsh	300
	Water	<u>100</u>
	Total	430
Foxtail Lake	Marsh	221
	Water	<u>890</u>
	Total	1,111
Dry Lake	Upland	36
	Marsh	97
	Water	<u>466</u>
	Total	599
Cattail Lake	Upland	15
	Marsh	20
	Water	<u>250</u>
	Total	285
Division Pond	Upland	10
	Marsh	1
	Water	<u>99</u>
	Total	110

<u>Unit</u>	<u>Habitat Type</u>	<u>Acreage</u>
Goose Lake	Upland	88
	Marsh	372
	Water	<u>694</u>
	Total	1,154
Tule Lake	Upland	123
	Marsh	69
	Water	<u>1,175</u>
	Total	1,367
Nutgrass	Upland	200
	Marsh	2,400
	Water	<u>1,100</u>
	Total	3,700
Swan Lake	Upland	175
	Marsh	359
	Water	<u>1,223</u>
	Total	1,757
Pintail Bay	Upland	132
	Marsh	45
	Water	<u>1,473</u>
	Total	1,650
Lead Lake	Upland	140
	Marsh	486
	Water	<u>539</u>
	Total	1,165
Millen Lake	Upland	303
	Marsh	771
	Water	<u>658</u>
	Total	1,732

<u>Unit</u>	<u>Habitat Type</u>	<u>Acreage</u>
Willow Lake	Upland	133
	Marsh	530
	Water	<u>873</u>
	Total	1,536
East Alkali Flat (N. of Division Road)	Upland	1,900
	Water	<u>1,300</u>
	Total	3,200
Big Water	Water	<u>1,800</u>
	Total	1,800
Indian Lakes & Vaughn Slough	Upland	3,400
	Water	<u>1,100</u>
	Total	4,500
Pelican Island	Marsh	1,335
	Water	<u>2,480</u>
	Total	3,815
Sand Dunes	Water	<u>2,600</u>
	Total	2,600
East Alkali Flat (S. of Division Road)	Upland	2,600
	Marsh	20
	Water	<u>680</u>
	Total	3,300

<u>Unit</u>	<u>Habitat Type</u>	<u>Acreage</u>
Other	Crops	200
(Leter Reservoir,	Upland	123,454
Lower Carson,	Marsh	50
Adjacent Ponds, All	Water	<u>600</u>
Other Upland)	Total	124,304

Summary of land within Stillwater Wildlife Management Area boundary:

Crops	200
Upland	132,785
Marsh	7,208
Water	<u>21,807</u>
Total Public Land	162,000
Privately-owned Land	<u>40,000</u>
Total Acreage	202,000

PART IV

PHYSICAL FACILITY NEEDS

To conduct these inventories, a great deal of travel is required. Roads and trails must be maintained for vehicle travel.

A necessary item of equipment is the four-wheeled drive pickup. Four-wheeled drive is essential to cross alkali flats or loose sand. This pickup will have a mobile or portable 2-way radio and will be equipped with a shovel and sections of landing mat for use in emergencies or when stuck. The vehicle should be kept in top operating condition at all times. Approximately 2,000-3,000 miles may be driven annually while conducting inventories.

An airplane is used for many inventories. Nevada Department of Wildlife or a rented OAS Source List approved airplane will be used. The preferred local approved pilot is Bill Davig, Davig's Fallon Airmotive. Approximately 20 hours are logged annually on various surveys.

Of the water craft available, there is limited canoe use on inventories. Most work on the water is accomplished by airthrust boat. A portable radio and personal flotation devices will be taken along on all inventories using powered or unpowered boats. Boats will be used for counts to determine duck production. Annually, 10-20 hours of boat use may be recorded for wildlife surveys.

Safety precautions for surveys on Anaho Island NWR are necessary because of rattlesnakes. When leather boots are not worn by inventory personnel, snake leggings will be used.

The tape recorder is an essential item of equipment in the airplane and we are finding application for it on airthrust boats.

A 15-60 power spotting scope and 7 power binoculars are standard equipment to be carried in the pickup. These are necessary for bird identification on the ground. Hip boots are worn where any walking or boat work is involved.

A good library should be available to include various identification books on birds, mammals, amphibians and reptiles.

PART V
WILDLIFE INVENTORY PROCEDURES

REFUGE : Stillwater Wildlife Management Area
SPECIES : Ducks, Geese, Coots
TITLE : Waterfowl Production

P U R P O S E

Stillwater is a major waterfowl production area in Nevada, hosting diving and dabbling ducks such as redheads, ruddy ducks, cinnamon teal, gadwall, pintails, and mallards. Improving and maintaining production is a primary refuge objective. Accurate production surveys are necessary to evaluate habitat management.

Historically, Stillwater had only limited goose production. Currently the breeding population usually consists of 10 to 20 pairs and there is little justification for intensive production surveys. With this small population scattered over almost 200,000 acres, annual goose production will only be estimated by aerial pair counts and brood counts incidental to other activities.

P R O C E D U R E

Duck production will be calculated by determining the breeding population and the percentage of nesting success. Brood counts will be conducted only to compute average class III brood size. With this information total production is figured by combining the computed number of broods with average class III brood size.

BREEDING PAIR COUNT

Aerial pair count results are provided by a Nevada Department of Wildlife (NDOW) Biologist. The count is conducted in late May. Procedures, specific dates, times, and other sampling techniques will not be discussed as NDOW has provided FWS with this data for several years without a change in personnel. However an aerial census route map is in Appendix B.

NESTING SUCCESS

Nesting studies have been conducted for several years and a percentage of nesting success has been determined for each species. This average percentage is then applied to the breeding pairs to calculate the number of breeds produced. The following nesting success percentages will be used:

Redheads	62.9	Gadwalls	31.3	G.W. teal	49.2
Mallards	41.7	Ruddys	63.6	Shoveler	46.8
Pintails	50.7	Cinn. Teal	44.9	Coots	72.5
Canvasback	62.0	Wigeon	46.3		

The percent should be checked periodically using the Mayfield 40% method. The results should then be included in the average. After 4 years of additional data using the Mayfield method a new average of nesting success should be established and applied to determine the number of broods.

BROOD COUNTS

With reliable pair count information there is less need for intensive brood counts to determine production. The objective of brood counts is to find average class III brood sizes for each nesting species. No attempt will be made to conduct a comprehensive survey over all the marsh.

Persons conducting this survey must be familiar with identification of female ducks and broods. They should know characteristics of brood age classes and be able to classify them in the field. Broods should be recorded by the habitat units on which they are observed. This will help evaluate units as to their value as brood rearing areas.

No route is necessary for this survey. Brood habitat must be kept in mind when searching for particular species. For instance, a higher proportion of mallard and pintail broods would be found in the Indian Lakes area rather than large open water areas of Stillwater Marsh where more redhead and gadwall broods would be found. A set route cannot be prescribed due to changing water conditions.

An adequate sample should be taken to obtain an average number of ducklings per brood. Early morning counts on marsh units must be conducted in conjunction with observations recorded during the performance of other duties.

Many observations can be made on dikes from a pickup truck. If better coverage of habitat units is desired, the airthrust boat is the best transportation.

No special forms will be used but results will be typed by brood with species, age class, number of young, and management unit. These will be filed under Wildlife - Waterfowl Production.

Binoculars and spotting scope are absolute necessities. Hip boots are recommended. A tape recorder facilitates recording of broods from the airthrust boat.

SPECIAL CONSIDERATIONS

The most accurate method of census would be from the air as a total population count is possible. A ground count is much less reliable as visibility into some units are reduced because of emergent vegetation and other units are inaccessible due to lack of roads.

Aerial censuses performed by the NDOW Biologist are set in the fall for the entire September - May period without regard to rapid changes in the population. Fluctuations in flight schedules only relate to adverse weather. Therefore periodic waterfowl counts are necessary during this period to recognize large influxes or decreases in waterfowl populations and help establish a population trend which can be applied to the aerial count.

MANPOWER

Man-days

Brood Counts

4 days

Summarization of Data

1.5 days

Equipment

Vehicle

600 miles

Airthrust boat

12 hours

REFUGE : Stillwater Wildlife Management Area
SPECIES : Ducks, Geese, Swans, Coots
TITLE : Periodic Waterfowl Survey

P U R P O S E

Since Stillwater is managed for waterfowl, not only for production but also maintenance, it is important to know the present population and annual use. This involves regular surveys to determine species composition as well as total numbers. Census figures are then used to analyze the effect of habitat management.

P R O C E D U R E

Waterfowl censuses will be made by both ground and aerial surveys. During periods of high waterfowl use, aerial counts should be made at least monthly.

AERIAL CENSUS

Monthly aerial surveys are conducted by a NDOW Biologist from September through May. Results by management unit are provided following these counts. Specific dates, conditions and techniques will not be discussed in this plan. An aerial census route is in Appendix B.

GROUND CENSUS

Only one person is required to conduct a ground count. This individual must be able to identify all species of waterfowl both on the water and in the air. For proficiency, inexperienced personnel should accompany the person making the census. A ground count census route is in Appendix C.

Ground census will be made between June and August by Refuge personnel. At times only one count will be made during the month because during extended periods of stable populations a weekly census is not necessary. During Fall and Spring migrations additional ground counts may be necessary to census rapidly changing populations.

A census takes a full working day as nearly 100 miles is driven. It should be started near daybreak and continued until completed. It is essential during the hot summer months that the count begin early as heat waves in the afternoon limits visibility through the spotting scope.

Weather factors seldom hamper censusing at Stillwater. A survey should be postponed if winds exceed 20 mph or when snow or rain limit visibility. Precipitation can make roads impassable for several days.

Survey figures will be recorded by habitat units. See form following this section.

The census route is designed to cover all habitat units. Ground counts are made from roads which surround most units. The census begins at Stillwater Point Reservoir. By starting here, the early morning sun helps with species identification as most observations will be made to the south and west.

A four-wheel drive pickup is necessary to conduct the census. Along water impoundments, speeds should not exceed 20 mph. Stops are necessary at points of good observation.

A pair of binoculars and spotting scope are essential. A tally counter is helpful when counting individual birds such as geese or swans. A tape recorder is a time saving device when counting on the ground.

SPECIAL CONSIDERATIONS

The most accurate method of census would be from the air as a total population count is possible. A ground count is much less reliable as visibility into some units are reduced because of emergent vegetation and other units are inaccessible due to lack of roads.

Aerial censuses performed by the NDOW Biologist are set in the fall for the entire September - May period without regard to rapid changes in the population. Fluctuations in flight schedules only relate to adverse weather. Therefore periodic waterfowl counts are necessary during this period to recognize large influxes or decreases in waterfowl populations and help establish a population trend which can be applied to the aerial count.

MANPOWER

Man-days

Field Work	12 days
Summarizations of data	5 days

Equipment

Vehicle	1200 miles
Airthrust boat	6 days

REFUGE : Stillwater Wildlife Management Area
SPECIES : Shorebirds
TITLE : Shorebird Survey

P U R P O S E

Stillwater hosts a large population of shorebirds. It is one of the largest in the state and produces a significant amount of use within The Great Basin. Although few species are important enough to warrant special census procedures, overall use needs to be monitored to detect long term trends in populations, production and quality of habitats, and to provide this information for use in meeting National or Regional Migratory Bird objectives.

P R O C E D U R E

A special census will not be conducted for most species. Notes are kept of observations made in the field in conjunction with other census surveys or routine Refuge field work. Dates of migration are important as are unusual or rare sightings. Data is compiled and summarized on output report forms and also discussed in the Station Annual Narrative Report.

Binoculars, spotting scope and a copy of Peterson's Field Guide to Western Birds should be used when making these observations.

SNOWY PLOVER

During May and June, two ground searches will be conducted of all accessible playa lakes that contain water. Total birds, nesting activity and areas used will be recorded.

LONG-BILLED CURLEW

During spring migration, sightings will be recorded on maps. In early spring, the location of pairs will also be recorded. Particular attention will be paid to dry meadow or shortgrass areas near water, especially those of restricted human access where nesting occurs more frequently than other sites. Types of habitat used will be listed. Areas used by pairs will be placed under surveillance during early daylight hours to determine nest activity and location. Production or lack of will be documented.

In late summer, personnel will be alerted to report sightings of small groups of curlew in order to more accurately record pre-migration and migration use. Curlew use at the nearby Carson Lake Pasture will be recorded as observed by (NDOW) or Refuge personnel, if possible.

SPECIAL CONSIDERATIONS

A certain amount of difficulty and reliability is involved to inventory these species. Depending on water elevations a major amount of use can occur on mudflats in Carson Sink, and accessibility can be difficult. An aerial survey solely for censusing this group cannot be justified. Production estimates will be made for Forster's tern, American avocets, black-necked stilts, long-billed curlews, and snowy plover. This data will be submitted along with population estimates on output report forms.

MANPOWER

Man-days

Field work	3 days
Summarization of data	3 days

Equipment

Airthrust boat	8 hours
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REFUGE : Stillwater Wildlife Management Area
SPECIES : Colonial Nesters
TITLE : Colonial Waterbirds

P U R P O S E

The development and management of waterfowl production habitat also provides excellent habitat for egrets, herons, and ibis. These species will be inventoried to record more accurate and reliable data on their use in order to more precisely detect long-term trends in population, production, and quality of habitats, and to provide this information for use in meeting National or Regional Migratory Bird objectives and plans. We have also been directed to submit population and production information to the Colonial Bird Register.

P R O C E D U R E

Colonial Nesters - white-faced ibis, great and snowy egrets, black-crowned night heron, great blue heron.

An aerial or airboat census of units containing water and emergent vegetation will be conducted during the last half of April. (A routine waterfowl census can be used for this purpose). Populations of birds in nesting colonies will be recorded and depicted on maps.

Around May 1, the airboat or other boats will be used to record average clutch size in known or suspected colony nesting sites. Water levels and other habitat conditions will be noted to record effects on nesting success and site selection. Between May 15 and June 15, colonies will be again checked to determine the average number of surviving young. At this time, late nesting or re-nesting in these or additional colonies will be documented. Observers should note evidence of thin egg shells or other indications of loss caused by pesticides.

Personnel will maintain coordination with NDOW personnel in order to make sure adequate surveys of white-faced ibis are being conducted on the Carson Lake Pasture.

A great blue-heron rookery is also located in a series of eight cottonwood trees along the East Canal. About May 1 the rookery will be checked for the number of active nests. Between May 15 and June 15 a check will be made to determine the average number of surviving young.

An annual report will be prepared documenting white-faced ibis use, numbers and production in the Lahontan Valley. Information will also be submitted on all colonies and all species to the National Colonial Bird Register and Regional Office by August 1.

SPECIAL CONSIDERATIONS

Habitat changes during periods of drought or floods may cause these colonial nesters to change nesting locations and establish a rookery in another unit. In these years if nesting occurs, it will be necessary to locate the new nesting areas between April 15 and 30.

Rookeries are located in dense stands of hardstem bulrush between 10 and 75 acres in size. An aerial survey is helpful to estimate active nests as the rookery contains five different species. Two of the species are great and snowy egrets. A problem with ground checks is that the nest and eggs of these species are similar and can be confused.

MANPOWER

Man-days

Field work

5 days

Summarization of data

3 days

Equipment

Vehicle

400 miles

Airplane

1 flight

REFUGE : Anaho Island National Wildlife Refuge
SPECIES : White Pelicans, Double-Crested Cormorants, California Gulls,
Great Blue Herons
TITLE : Colonial Waterbirds

P U R P O S E

The major purpose for the establishment of Anaho Island Refuge was to preserve an area for breeding of colony nesting birds. Anaho Island is one of only eight nesting colonies of American white pelicans in the western U. S. and Canada. Colonial waterbirds are at the top of the wetland food chain and are excellent indicator species of the status of wetland habitats. For these reasons more accurate and reliable data on the use of these species is necessary to more precisely detect long-term trends in population, production and quality of these habitats. Data is also needed to provide information for use in meeting National or Regional Migratory objectives and plans for these species.

P R O C E D U R E

Access to the Island is made by boat to a cove on the northwest corner. Observers hike behind a ridge from the colonies to the highest point on the Island and use a 15-60 power spotting scope and binoculars to estimate breeding populations and production of colonial nesters. Counts should begin by 9:00 a.m.

WHITE PELICANS

Three counts will be conducted each summer, one each in the months of May, June and July. Based on Woodbury's and Anderson's theses and past experience, production will be estimated by recording each incubating adult during early morning. One adult equals one young fledged. The total population is estimated by the following formula:

one incubating adult x two = total nesting population + young
(one incubating adult) + non-incubating pelicans on or adjacent to the
Island = total population.

Nesting adults, non-incubating pelicans and age of young of subcolonies are plotted on maps.

Most hatching has been completed by July 5. Surveys accomplished in early July will be used to count young before they disperse to shoreline areas. This information is used to check earlier production estimates.

DOUBLE-CRESTED CORMORANTS

Cormorant nests are interspersed with most subcolonies of pelicans. Total active nests and adults are easy to count. Production is estimated by multiplying the average clutch size, determined by random sample and observations by spotting scope, times the number of active nests.

GREAT BLUE HERONS

Nesting occurs in tall greasewood or sagebrush along the east shore. Active nests will be counted. A few nests will be checked to determine clutch size. Information will be expanded to calculate total production.

CALIFORNIA GULLS

A colony is presently located on the southeast side of the Island. Gulls are counted from the high ridge adjacent to the colony. The population is estimated by counting the number of nesting gulls per 100 square feet multiplied by the total number of 100 square feet areas occupied. Unless unusual conditions are observed, production is estimated at one young per active nest site.

An annual report is developed which includes hatching period, colony locations plotted on a map (see Appendix D), dates of counts, total counts and production estimates. This data will be summarized in the annual narrative. Completed forms will be submitted to the Colonial Bird Register.

SPECIAL CONSIDERATIONS

Two experienced observers are needed to conduct the July count. Both observers should individually estimate young and compare totals of each species for more accurate production estimates.

Counts should start early as heat rays affect visibility in late morning. Early morning counts are also important because returning feeding flights of pelicans between mid and late morning can confuse counting procedures and affect estimates of adult birds.

Another factor that increases the difficulty of estimating pelican production is the extended period of time pelicans initiate nesting. Formation of subcolonies and egg laying begins in mid-March. The subcolony expands when different groups of pelicans begin nesting on the periphery. Since egg laying extends to July 1, subcolonies have some young that disperse and form pods while other adults in the same subcolony are still incubating. For this reason three counts are necessary. Accurate maps of numbers of incubating adults are necessary to determine fluctuation in subcolonies on subsequent counts.

Although cloudy or windy days may have little effect on count results, it is necessary to wait for a clear calm day. Boating to and from Anaho Island can be hazardous due to windy conditions. Counts will be scheduled following a favorable marine forecast for Pyramid Lake.

MANPOWER

Man-days

Field work

6 days

Summarization of data

2 days

Equipment

Boat

5 hours

Vehicle

400 miles

REFUGE : Stillwater Wildlife Management Area
SPECIES : Bald and Golden Eagles, Prairie Falcons, Western Burrowing Owl
TITLE : Raptor Survey

P U R P O S E

Stillwater hosts a small population of eagles and other special emphasis raptors. Bald eagles will be inventoried because of the current concerns of lead poisoning and the importance to document wintering populations. Also for the past several years Stillwater has participated in the mid-winter eagle survey. Other species in the group are in the status undetermined category. Their population will continue to be monitored to detect long-term trends.

P R O C E D U R E

BALD AND GOLDEN EAGLES

A mid-winter bald eagle count is sponsored annually by the National Wildlife Federation. Within the state, NDOW organizes counts and consolidates inventory data. Golden eagles are also included in the count.

NDOW conducts an aerial survey of the state to record and monitor use. Refuge personnel will conduct a ground survey during midday on the date the Management Area is surveyed by air. Routes, inventory procedure and reporting has been established by the Federation and NDOW.

Personnel conducting the survey will need binoculars and 20X power spotting scope and must be familiar with identification of immature and adult bald and golden eagles.

Results will be submitted to NDOW on the Federation Mid-winter Survey Field form. The results will also be reported on Refuge Output Report forms and be summarized in the annual narrative.

PRAIRIE FALCONS AND WESTERN BURROWING OWL

No separate population survey of these species is planned. Observations of numbers will be recorded anytime qualified personnel are on the Management Area and from miscellaneous observations made while doing route Refuge duties. To arrive at a population estimate all field observations, past records and discussions with personnel will be considered.

Data will be summarized and reported on Refuge Output Report forms and in the Annual Narrative Report.

SPECIAL CONSIDERATIONS

The individual(s) conducting the survey should be familiar with the Bald Eagle Mid-winter Survey form and information required prior to inventory day. Additional information is filed under Endangered Species - Bald Eagles that is helpful in completing the field form.

MANPOWER

Man-days

Field work	1 day
Summarization of Data	.5 day

Equipment

Vehicle	100 miles
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REFUGE : Stillwater Wildlife Management Area
SPECIES : Muskrats
TITLE : Small Mammals

P U R P O S E

The management of Stillwater for the production of waterfowl is also conducive to the growth and development of the muskrat population. A healthy muskrat population can be an asset to the area by opening dense stands of vegetation and providing nesting sites. However, there are some detrimental effects from a high population of muskrats. During periods of low water levels, muskrats compete with waterfowl for submergents. Whenever there is a lack of emergent aquatic vegetation more bank dens are established which results in rapid deterioration in dikes. The management of muskrats on the area is important because of their beneficial and non-beneficial contributions. The 1948 agreement specifies that the muskrat inventory be conducted jointly by NDOW and SWMA.

P R O C E D U R E

Because of wide fluctuations in water levels and emergent aquatic vegetation specific units will be selected to sample muskrat populations. Trappers will be required to record on a map the specific areas that they trap in addition to the number of trap nights along with the number of muskrats caught. With this information muskrat number will be estimated by the following method:

Acres trapped X No. of muskrats caught X 2* = total muskrats present
on sample area

Total muskrats on sample area ÷ acres on sample area = density (muskrats/
acre) of habitat type

Density (muskrats/acre) X total acres of habitat type = total number of
muskrats in habitat
type

The total number of muskrats in each habitat type are added to obtain the muskrat population for the entire management area.

*Estimated that 50% of muskrats on the sample area were caught. Actually the percentage caught is unknown, but is probably much lower than 50%. Using 50% should result in a fairly conservative estimate.

S P E C I A L C O N S I D E R A T I O N S

The above procedure was established after a census method described in the 1968 inventory plan was determined inadequate after trappers removed more muskrats than the total estimated population.

Even though a joint inventory for this species was addressed in the 1948 agreement the last inventory of this kind was conducted in the 1950's or perhaps in the early 1960's.

At the present time no muskrat survey can be justified. Trappers are required to report harvest information and this total will be reported as is appropriate. This harvest information can also be used to detect long-term trends and will also reflect annual fluctuations in habitat.

M A N P O W E R

Man-days

Administrative work	2 days
Summarization of data	.5 days



FALLON NATIONAL WILDLIFE REFUGE

CARSON

PELICAN ISLAND

BATTLEGROUND POINT

BOAT LAUNCHING SITES

TIMBER LAKE

CARSON RIVER

PLEYER RESERVOIR

PAPOOSE LAKE

UPPER LAKE

TWIN LAKES

SAVOUSPE DAM

INDIAN LAKES

OLE'S POND

S-LINE RESERVOIR

BIG INDIAN LAKE

COTTONWOOD LAKES

VAUGHN SLOUGH

STILLWATER WILDLIFE MANAGEMENT AREA

PAUTE PASTURE

PAUTE DRAIN

PAUTE

PAUTE

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SWAN LAKE

SWAN LAKE LANDING

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STR NO 15

STR NO 16

STR NO 17

STR NO 18

STR NO 19

STR NO 20

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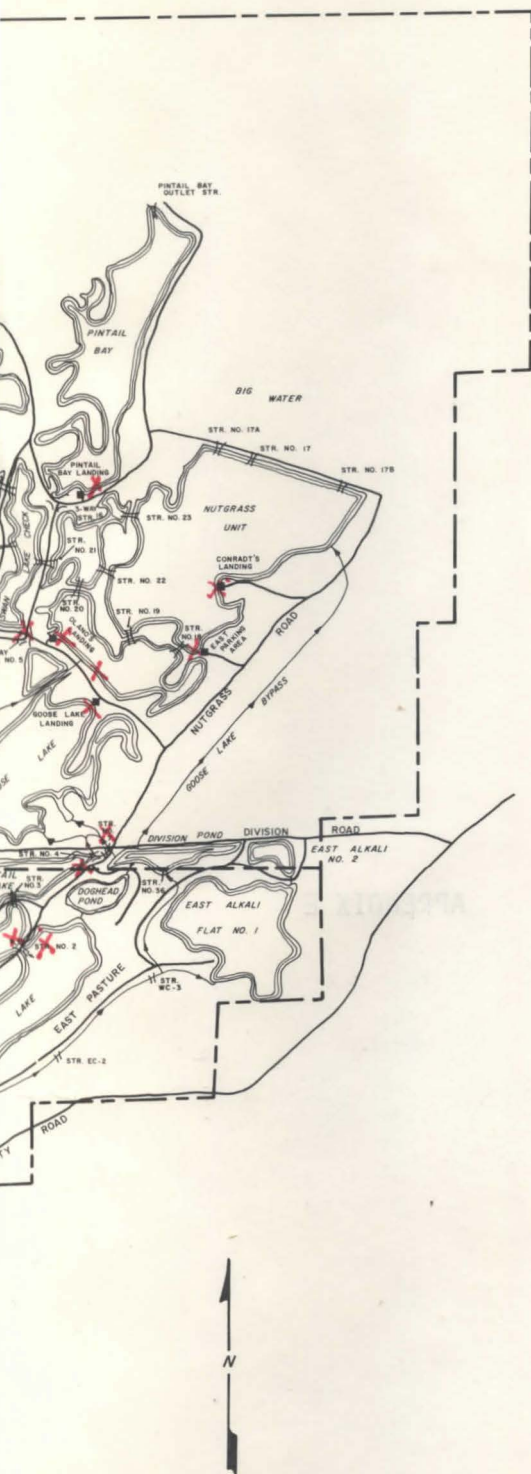
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UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

STILLWATER WILDLIFE MANAGEMENT AREA
CHURCHILL COUNTY NEVADA