

MONTHLY NARRATIVE REPORTS FOR THE  
MEDICINE LAKE WILDLIFE REFUGE

1937

MEDICINE LAKE

MONTHLY NARRATIVE REPORTS

JANUARY 1937 - DECEMBER 1937

UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF BIOLOGICAL SURVEY

ANNUAL REPORT  
Fiscal Year 1937

MEDICINE LAKE MIGRATORY WATERFOWL REFUGE  
MONTANA

UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF BIOLOGICAL SURVEY

ANNUAL REPORT

Fiscal Year 1937

MEDICINE LAKE MIGRATORY WATERFOWL REFUGE

MONTANA

General

The fiscal year 1937 represents the first full year of operations for the Medicine Lake Migratory Waterfowl Refuge. The major water control structures and the headquarters buildings were completed in late 1935 and it was not until after the spring run-off of 1936 that the effects of the development work became evident.

Development work on the refuge during the fiscal year just past was given a fine boost forward by an extensive WPA program which at its peak was employing 178 men. A Civilian Conservation Corps Camp was obtained for the refuge and moved in on May 21.

Considering the continued low precipitation which has continued through the fall and winter with the resulting lowering of water levels, the area has indicated fine possibilities for a major refuge development.

Water Situation

Precipitation in the Medicine Lake region during the year has been very low. One period in July 1936 netted 7 inches. Rains during the balance of the year were so scattered and light that no run-off was received. The following table gives a general resume of water levels on the area during the year:

Water Area	Elevation		Elevation		Elevation	
	when full	8-30-36	7" rain	run-off	6-30-37	General condition
Medicine Lake	1942.00	1935.00	1935.13	1934.00*		Dry
Dam No. 10	1945.00	1943.27	1945.38	1943.50*	1942.50*	
Dam No. 11	1952.00	1950.63	1951.99	1950.30		Pract.dry
Dam. No. 12	1953.50	1950.05	1952.60	1950.70	1949.50	
Homestead Area	1937.00	1933.78	1936.35	1935.30	1934.20	

\*Approximately

NOTE: -Heavy rains starting July 11, 1937, have filled the Homestead Unit almost to capacity and is raising water levels in all the other areas.

Natural Vegetative Improvement of Water Areas During 1936 Season

Medicine Lake.--The water was too low and too alkaline in this

area to permit growth of aquatics. However, an excellent stand of prairie bullrush (*S. campestris*) developed along the margins on the north and southwest shores of the lake. The food produced by this stand of bullrush was utilized by several thousand ducks during the fall and spring migration.

Medicine Lake is the main concentration point for golden-eyes during both the spring and fall migration. As many as 3,500 golden-eyes have been seen at one time on this lake. An extensive patch of "3-square" (*S. americanus*) at the mouth of Lake Creek offered a feeding ground for a band of snow geese for about ten days during the 1937 spring migration.

Dam No. 10 Water Area.--This area was formed by diverting water from Lake Creek into several small lakes and pot holes. After the July 1936 rains most of this area had been supplied with water but several of the ponds were not full. This area had been severely overgrazed prior to the time the government acquired title and when the area was flooded there was no marginal cover. This lack of cover discouraged use by waterfowl during the 1936 season but a few nests were found and several broods observed. The area was a concentration point for avocets, willets, and lesser yellow-legs.

Dam No. 11 Water Area.--This area was dry in 1935 when the dam was completed. Twice during 1936 the area was full to spillway elevation. Excellent recovery of marsh vegetation was noted during 1936. A dense stand of hard-stemmed bullrush took over the north side of the area but with sufficient patches of open water to make an ideal spot for waterfowl. The balance of this area supported good stands of "3-square" and several varieties of marsh grasses. During the 1936 season, this area was the most heavily populated on the refuge. At one time during the fall migration it was estimated that there were over 10,000 ducks on No. 11 area. Because this pond is shallow, it was used most by the puddle ducks. Pintail, mallards, widgeon, and blue-winged teal were the most common species present.

Dam No. 12 Water Area.--While this area stood most of the year at from 4 to 5 feet below the spill level, it showed excellent improvement in marginal and aquatic vegetation. Horned pondweed (*Zanichellia*) and Sego pondweed (*P. pectinatus*) were beginning to show in spots. The extensive bullrush and cane beds interspersed with fairly deep areas of open water made it especially desirable to the red heads, ruddys, canvasbacks, and grebes. Several hundred pair of redheads nested in the rushes and cane of this area.

Homestead Area.--This unit was only partially flooded most of the year, but the area under water developed some fine stands of bullrush. The bullrush stands were very popular with the redheads, ruddys, canvasbacks, and shovellers. Also nesting on the area were pintails, blue-winged teal, and widgeon. Several small patches of smartweed were starting in the south end of this unit. Once Medicine Lake reaches a level high enough to insure the Homestead Unit a permanent water level, this area should develop into one of the best waterfowl areas on the refuge.

Waterfowl and Game Bird Use of the Refuge

Summer Use by Waterfowl.--A waterfowl estimate made at the end of June 1936 follows:

Shoveller	2,340
Pintail	2,240
Redhead	1,140
Canvasback	70
Gadwall	1,310
Mallard	700
Blue-winged teal	930
Green-winged teal	350
Cinnamon teal	20
Widgeon	960
Ruddy	700
Lesser scaup	425
Coot	650
	<hr/>
	11,855

An estimate made late in July indicated that more than 20,000 ducks were using the area, the proportion by species remaining about the same as in the June estimate.

Probable summer use of the refuge in 1937 is indicated by an average of several estimates made during May.

Gadwall	4,000
Shoveller	3,500
Pintail	3,400
Mallard	2,700
Blue-winged teal	2,700
Widgeon	2,100
Coot	1,800
Redhead	1,400
Lesser scaup	1,200

Ruddy	800
Canvasback	500
Green-winged teal	150
Cinnamon teal	30
	<hr/>
	24,280

A list of waterfowl, shore birds, and upland game birds known to have nested on the refuge in 1936 and their nesting abundance follows: (A-abundant; C-common; O-occasional; R-rare.)

Shoveller	(A)
Pintail	(A)
Gadwall	(C)
Mallard	(A)
Redhead	(C)
Canvasback	(O)
Blue-winged teal	(A)
Green-winged teal	(O)
Widgeon	(A)
Ruddy	(C)
Coot	(A)
Lesser scaup	(R)
Horned Grebe	(C)
Pied-billed Grebe	(O)
Sora Rail	(O)
American bittern	(O)
Avocet	(A)
Willet	(A)
Marbled godwit	(C)
Upland plover	(R)
Lesser yellow-legs	(C)
Wilson phalarope	(C)
Black tern	(C)
Prairie hen	(R)
Sharp-tailed grouse	(C)
Hungarian partridge	(O)
Ring-necked pheasant	(R)
Mourning dove	(C)

#### Migration Use By Waterfowl

Fall migration 1936.--Native redheads left Medicine Lake during last week of September. Northern mallards began coming into the refuge about September 15. At end of September migrating, widgeon and gadwall were predominant species present on refuge. First migratory Canada geese observed on September 26. This was

band of 60 birds. Several small bands of sandhill cranes were observed during the latter half of the month. Widgeon and gadwall had all left the refuge by October 15. On October 25, estimated 25,000 mallards on the refuge. A snow storm on October 31 drove all birds south. All water areas were frozen over by November 1. A thirty-acre corn field planted adjacent to Dam No. 11 fed from 4,000 to 7,000 mallards for over a week. This field was literally stripped by the ducks.

Spring Migration 1937.--Small bunches of pintails were observed in flight prior to April 1, but there was no concentration on the refuge until after the ice started going out of the lakes in early April. On April 9, it was estimated that approximately 2,500 ducks were resting on the only open water on the refuge. These were mostly pintails and mallards with scattered widgeon, gadwall, and lesser scaup. On April 11, a band of approximately 2,000 snow geese were observed resting and feeding on "8-square" grass at the mouth of Lake Creek. Three blue geese were noted in the band. The entire band remained in the vicinity for over a week and 200 of the band remained until early in May.

On April 12, sixteen whistling swan were observed on No. 11 water area. Five of these birds remained for several weeks and were seen for the last time on May 21.

The first coots and ruddy ducks were observed on April 25.

The first avocets and marbled-gadwits were observed on the Homestead Area on April 28.

At the peak of the 1937 spring migration, there were probably about 40,000 ducks on the refuge.

#### Use of Artificial Facilities by Birds

Four small artificial islands were constructed during the fall of 1936. There was not sufficient rise in water this spring to surround these islands.

A large number of upland game shelters were constructed during the fall and early winter of 1936. Feeders were set out at some of these shelters in February, approximately 20 bushels of wheat being fed. Light snowfall during the winter permitted fairly easy access to natural foods and cover, and the artificial shelters and feeders were not heavily used.



### Use of Refuge Under Special Use Permits

Grazing.--No permits were issued during the year for grazing privileges, however, cattle were grazing over much of the refuge until a majority of the fencing was completed during the winter.

Haying.--Approximately 200 tons of hay were cut on the refuge during the 1936 season under Special Use Permits. Permits were issued only to adjacent land owners who were in need of additional winter feed. A fee of \$1.00 per ton was charged. All hay was removed from the refuge when cut.

Ice.--Approximately 360 tons of ice were taken from a pond on the Borley Tract under a Special Use Permit. A fee of twenty cents (20¢) per ton was charged. The pond from which this ice was taken furnishes the only clean ice in the vicinity and the Bureau paid a premium in purchasing the tract because of the annual revenue which the former owner obtained from the sale of ice. It is only fair therefore that the government should obtain some return on this additional investment.

Recreational Use.--The refuge area is not used to a great extent for recreational purposes. The pond on the Borley Tract is used extensively in summer for swimming by the people of Medicine Lake. A pond on the Homestead Area is also used to some extent for swimming by the residents of Homestead and vicinity. The refuge headquarters buildings have drawn many local visitors during the year. Many Sundays would see at least 50 carloads of visitors at the headquarters site. Estimated man-days of recreational use for the year is 5,000.

### Plantings

Field Crops.--During the 1936 season, 218 acres of wheat, barley, corn, millet, and sweet clover were planted. Drouth and grasshoppers accounted for most of this. A 30-acre corn field located near Dam No. 11 did very well and furnished food for several thousand mallards during the fall flight.

During the 1937 season, 264 acres were planted to wheat, barley, corn, sweet clover, kaffir corn and wheatland milo. A sixteen-acre patch of the last two types was planted as an experimental plot to determine the possibilities of these crops as food producers in this region. By the end of June, the drouth was playing havoc with the wheat and barley plantings but the corn and milo were still in good condition.

Shrubs.--Approximately 6,000 plants of chokecherry, buffalo berry, June berry and hawthorn were planted in the headquarters windbreak during the spring of 1937. Several islands on the No. 10, 11, and 12 water areas were partially planted with several thousand chokecherry and snowberry plants to furnish cover and to act as natural snow fences. One hundred caragana plants were set out around the lookout tower and the service buildings at refuge headquarters.

Trees.--At headquarters site 38 aspen 8 to 16 feet in height and 90 aspen 4 to 8 feet in height were planted in March 1937. In May 1937 12,000 jack pine seedlings were planted in the headquarters windbreak.

Marsh and Aquatics.--In the fall of 1936 considerable planting of marginal food cover plants was undertaken. Bullrush (*S. occidentalis*) was transplanted along approximately 10 miles of the shore line of No. 10 water area. Scattered patches of bullrush were also transplanted over most of the area to be flooded on the Homestead Unit.

Approximately 20 bushels of prairie bullrush seed (*S. camp-estris*) was planted on areas that will be flooded later.

Approximately 8 bushels of smartweed seed has been planted.

Several experimental plantings of wild rice were scattered about the refuge.

Seed Harvest.--During the late fall, 80 bushels of prairie bullrush seed was harvested and is now in storage at the refuge headquarters.

#### Refuge Improvement During The Year

Telephone Line.--Approximately three miles of ground line was constructed from City of Medicine Lake to refuge headquarters. This was a WPA project.

Sub-Headquarters.--A five-room frame dwelling with full basement, wired for electricity and with modern heating, water, and disposal systems. This building was remodeled from an old farm dwelling but because of its condition it was necessary to almost completely rebuild. A well, cased with concrete tile, was dug in the basement. This building was practically complete on June 30.

Roads.--A two-lane graveled highway 2-1/4 miles in length was constructed from refuge headquarters to State Highway No. 15. This road was raised several feet to keep it clear of drifting snow during the winter.

Eighteen miles of truck trail have been completed during the year. Low water rip-rapped rock crossings were used to carry truck trail across intermittent stream courses. Thirty-one of these crossings, 16 feet in width and varying in length from 20 to 150 feet, have been completed.

Bridges.--Two bridges have been completed during the year. These are plank bridges with wood stringers and concrete piers, all wood parts creosote-treated, and floor of bridge covered with tar and gravel. Size of bridges: 16 x 28 and 16 x 31.

Machine Shed.--Built almost entirely of salvaged materials --size 80 x 28. Has room at one end completely ceiled inside with repair pit and overhead joist trolley to be used as repair shop and heated winter storage.

Fence, Boundary.--During the year, 59-5/8 miles of regular boundary fence has been completed. This is a four-wire, steel post fence with corner and extra brace posts set in concrete.

Boat Canal.--This canal was constructed from Medicine Lake proper to the refuge headquarters to give low water access to the boat house. The canal is 1-1/3 miles long, averages 20 feet in width and varies from 2 to 6 feet in depth.

Well at Headquarters.--This new well cased with concrete was dug at refuge headquarters to augment the old supply. The well is 14 feet in depth with a reservoir size of four feet four inches by eight feet. This well is piped directly into the regular water system so that water can be pumped from either the old or new well as desired.

Headquarters Dwelling Improvement.--Storm windows and frames were constructed for this building. A take-down storm vestibule for north doors was constructed. A heating tunnel to prevent overhead water pipes from freezing was constructed in attic.

Headquarters Landscaping.--A flagstone walk constructed from dwelling to lookout tower and pumphouse. A rock wall varying from 1 to 5 feet in height and 200 feet long was built on the slope in front of the headquarters dwelling. Roadways and service building courts were graveled and bordered with large stones.

Lookout Tower.--A 100-foot steel lookout tower was erected near the sub-headquarters building on the east end of Medicine Lake.

Artificial Islands.--Four small islands were constructed on the Homestead Unit. These islands, when water area is full, will be from 250 to 350 feet long and from 25 to 40 feet wide.

Upland Game Bird Shelter.--Sixteen of these shelters were constructed from salvaged materials and covered with marsh cane and were placed at strategic locations over the refuge.

Water Control Structure Repair and Improvement.--Dam No. 12 was refaced with rip-rap and gravel, and the main diversion ditch from Muddy Creek was deepened and some of the danger spots rip-rapped. A flash board control structure was constructed at the lower end of this ditch to control the flow of water. Steel I-beam ice breakers were placed at the inlet to the diversion ditch.

State Highway Rip-rapped.--Approximately 1600 feet of State Highway No. 16 where it crosses Medicine Lake has been rip-rapped on both sides, 3500 square yards of Class A rip-rap being necessary for the job.

Miscellaneous Work.--Five sets of old ranch buildings on the refuge have been razed and the salvagable materials used in other construction work. Approximately 20 miles of old fence has been taken up and about as much more has been repaired. Considerable effort has been expended during the fall and spring cleaning thistles and weeds from the new boundary fence to prevent it drifting full of sand and snow.

#### Research

Nesting and Brood Studies.--A nesting and brood study was started during the 1936 season but lack of personnel and the absence of the refuge manager during the time when the broods were coming off the nests nullified the results.

A nesting and brood study started during the 1937 season with adequate personnel to carry out the work will undoubtedly furnish excellent results.

Law Enforcement

Fine cooperation has been received from local residents in the matter of law enforcement. Most of the people have "leaned over backwards" in their efforts to live up to the regulations. No violations have been observed during the year. There was some trouble in the spring of 1937 from stockmen who turned cattle into the fenced areas on the refuge, but this was for the most part ironed out.

C.C.C. Assigned to Medicine Lake Refuge

A Civilian Conservation Corps camp was assigned to the refuge and arrived May 21, 1937. Work on the ECW program started in May. The construction of the permanent camp was practically complete by the end of June.

Respectfully submitted,

*William T. Krummes*

William T. Krummes,  
Associate Refuge Manager.

July 29, 1937.