

MONTHLY REPORT

Arrowwood Migratory Waterfowl Refuge

April, 1937

Arrowwood

GENERAL DISCUSSION

April -- cloudy, cool, but not much moisture. Ideal planting conditions for trees and shrubs and an added snap in the crews.

Best of all the birds are coming back from their long southern visit. Swans, ducks, geese and a few shorebirds, gulls, pelicans and hawks are again on the Refuge. We are giving banquets of grain for them thrice weekly.

Despite the loss of some sixty odd men, our camp has concluded a very successful months operations. Small crews, in some cases skeleton crews, managed to accomplish a prodigious amount of work in various lines; trails, fencing, Headquarter landscaping and painting, construction, ditching and many other jobs were rolled under day by day.

Our WPA forces are also a matter of pride with us for their fine efforts on the various projects. Tree planting, carpentry work at both Headquarters, seeding of marsh plants, bulrush transplanting, painting, ditching and various other projects were taken in stride insofar as the working hours permitted.

All honors to the two organizations.

Little fencing remains to be done on the Refuge except on areas not as yet under title. The north end, or the Arrowwood Lake unit, is enclosed as is the Jim Lake unit. Three miles of the Mud Lake unit and two miles of the DePuy marsh road are unfinished as yet, but we expect to close it out in a few days time. After that a trip around will be made to repair any damage suffered during the past winter.

Three miles of trail have been completed at this time. This work offers some strong obstacles because of the rocks that must be removed. Boulders, the size of wheelbarrows down to twelve inch rocks are encountered over the greater part of the road and can be removed only by hand labor with occasional aid from the "cat". Because of the broken terrain many fills are necessary as well, all of which slows up the mileage progress.

Landscaping work at Headquarters should be completed within a week except for the planting of two or three species of evergreens which we are having trouble in securing. Grass seeding and transplanting of trees and shrubs native to the Refuge are practically finished now and only odds and ends of planting and straightening up remains to be done. In addition to the landscaping the buildings are being repainted and all have been cement painted excepting the Residence which will be started as soon as the other buildings are completed.

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Our machine shed at long last is complete up to the point of applying a final coat of paint. However it will be necessary to exchange the door tracks and hangers as the present fittings will not support the weight of the doors. These have been ordered and will be put in place immediately they are received.

The ditch across Pelican Point was completed this month and as much of the dirt graded down as was possible. Because of the extremely mucky condition of the soil a small bank was left until a later date at which time the banks of the cut will be flattened to a more gradual slope as well.

Some mucker work in the Riebe marsh was carried on this month in addition to the Pelican Point work. Working with the WPA mucker outfit the dirt crews cut approximately two thousand feet of ditch which will create approximately 90 acres of islands.

The flag pole was erected this month and the National Flag flies over the Refuge Headquarters much to the admiration of the crews and Refuge personell who have made many remarks as to their feelings concerning it.

A roadway across the dyke south of Headquarters was regravelled and a new fill put in at the edge of the hills where the run-off was threatening to cut it. A couple of hours work was sufficient to control the water and divert it in to the pool above the dyke.

Spring plowing and planting was started this month and to date some sixty acres of wheat and sudan grass has been seeded. Fifteen small tree plots were plowed in connection with this work and additional plowing was done on some existing fields to round them out to the size desired.

The relaying of the Headquarter sewer lines has been completed and the drains from the pumphouse and barn relayed into the main drains. Excavation for enlarging the Residence coal cellar also completed and all is in readiness for setting the concrete forms.

Our WPA forces were concentrated on tree and shrub planting whenever we were able to get the stock. Some forty thousand trees and shrubs were planted, most of them in plots prepared last fall and the excellent planting conditions give promise of a good percentage of survival. Because of lack of time last fall it was impossible to prepare as many plots as we desired to plant, so a small camp "cat" and plow went into action this spring and prepared an additional fifteen plots for a total of thirty two around the Refuge. Some natural growths were rounded out with the planting of shrubs and a few trees to improve their usefulness for wildlife.

The WPA carpenters after completing several odd jobs around the Headquarters moved to the Secondary Residence and began the rehabilitation of the farm buildings unfinished from last fall. This work included the moving of three buildings and will include the erection of a garage

and renovation of the house. The crew made good progress and should have this job well in hand within a short time. Three men from the crew were recalled to Headquarters for painting of the machine shed and the repainting of the rest of the buildings.

In times between receipt of trees and shrubs one WPA crew was kept busy with the transplanting of bulrush rootstalks and seeding of marsh plant seeds. Transplanting was confined to the west shore of Arrowwood Lake this month and some seeding of millet and a small amount of smartweed was carried on there as well. Bulrush, millet and smartweed were sowed above the dyke south of Headquarters and along the Jim River in the Mud Lake and Riebe marsh areas. With planting conditions as they are, we anticipate a good stand in these areas.

Our contract equipment of mucker and "cat" were able to finish up the ditch work and slope blading in Riebe marsh except for a short distance where the depth of the cut made mucker work impossible for an outfit of this size and where a certain tract, as yet unacquired, halted the work. This unit has now moved to the DePuy marsh area to complete a short ditch and will then island construction in the marsh.

Besides the major projects listed above the WPA forces have spent some time in nursery work under the direction of a WPA nurseryman, put in two miles of wire on the boundary fence, regravelled spillways on two coulee check dams, cleared rocks from a mile of trail and cleaned up two of the old farm sites.

MAMMAL OBSERVATIONS

Coon tracks are observed frequently of late and a rat was killed in the excavation for the Residence coal cellar. Rabbits very numerous. No skunks, weasels or coyotes observed this month.

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FENCE CONSTRUCTION

Ten miles of wire was strung on the boundary fence and forty wooden posts set in concrete where the contour was such as to require it while twenty H braces were set in the fence line. The boundary markers are being reset on the posts and in the fence line to conform with regulations. Gates are being placed as quickly as they can be constructed and the project should be completed early in May, although the DePuy marsh road may delay it to some extent because of necessary dirt work in the valley and along the new roadway.

TRAIL CONSTRUCTION

A twelve foot trail is under construction along the east side of Arrowwood and Mud Lakes. The tons of rock that must be removed seriously hamper the progress on this project. A flat slope ditch is graded out along the trail and the trail itself is graded up to a foot or more above the ground level to reduce the chances of blocking by snow. Many fills, some of them requiring hundreds of yards of fill will be necessary before this work is completed as there are a few deep, steep coulees that must be crossed.

HEADQUARTER LANDSCAPING

Much work has been done on this project this past month. Forty five Ash and Elm have been transplanted from different parts of the Refuge, eighty six pines and over five hundred shrubs planted and approximately three thousand square yards fine graded and most of it seeded to crested wheat and blue grass with a nurse crop of rye. Many yards of topsoil was hauled in and spread, on this particular job.

A twelve foot trail has been gravelled to the dry cellar from the Service Building court and gravelling of the machine shed court partly completed. Some gravel fill has been dumped in the Service court and the whole court releveled and sloped.

Other work at Headquarters consists of the repainting the cinder blocks with cement paint and the wooden sections are being trimmed up with a new coat of blue, water lines set out from the walls to avoid freezing, work of relaying the drains and sewers completed and the excavation for enlarging the coal cellar finished as well.

HEADQUARTER MACHINE SHED

A four inch thick concrete floor was poured in sections and refinished by the Camp concrete crew. Composition, rolled, roofing was nailed in place and the sliding doors hung on the tracks. Two coats of paint have been applied by a WPA crew and the third and final coat will go on, the first of the week. There remains only the replacement of the door hangers and track and a little "touching up" on the cement work and the job is done.

DITCHING

The Pelican Point project was finished well ahead of the nesting season and a mighty fine island is the result. This ditch ranges from two to ten feet at the highest point, but once the frost was out the drag line made short work of it. Nearly one thousand feet of ditch was dug out although most of it was a two foot cut down a small creek bed to bring the channel to the right elevation. The dirt from this channel will be levelled later as it is too soggy to spread at this time.

PLOWING AND PLANTING

Forty seven acres of wheat and twelve acres of sudan grass have been planted. Nearly fifty acres more was plowed along side of existing fields and in small plots for tree planting. Soft wheat is being used and twenty-five acres more will finish the planting of this particular grain.

TREE AND SHRUB PLANTING

Our concentrated WPA forces were very successful in the tree planting project. A total of forty thousand trees and shrubs of all species were planted during the month. Of this amount two thousand five hundred Caragana and two hundred and seventy-five Ponderosa Pine were planted in the nursery, approximately five hundred shrubs at Headquarters and the balance consisting of nine thousand one hundred and seventy-five evergreens, eight thousand green ash, ten thousand caragana and ten thousand shrubs of various kinds, such as Buffaloberry, Sand Cherry, Russian Olive, Chokecherry, Spirea Honeysuckle, Red Osier and Plum, were planted in the field. The largest amount for one days planting was eight thousand five hundred of both trees and shrubs. This by a crew of 22 men actually planting.

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PAINTING AND CARPENTRY

Carpentry work at the Secondary Residence occupied the time for the five men of the WPA carpentry crew. These men set the forms for the machine shed, granary and chicken house and poured $6\frac{1}{2}$ yards of cement. The machine shed was then moved from its old location, set in place and rebraced and the same job done on the chicken house. Besides these jobs the supporting truss in the barn and hangers for the barn doors were completed. Graveling of the machine shed floor was also completed and all is in readiness for placing the forms for the garage floor, which was excavated by another of the WPA crews.

The painting crew has been assisting the carpentry crew between jobs and has painted the Headquarter machine shed, the Pumphouse ceiling and the interior of the Service Building shop, storage space woodwork and office walls.

PLANTING AND TRANSPLANTING

Between days of tree planting one WPA crew has been planting seed of marsh plants and transplanting bulrush rootstalks in the lake and marsh areas. A total of one thousand two hundred pounds of rootstalks were transplanted along the west shore of Arrowwood Lake and eighty pounds of bulrush seed, two hundred pounds wild millet seed and fifty pounds of smartweed were planted in the Riebe marsh above Mud Lake. Sixty-five pounds of wild rice was planted in spring fed sloughs near Jim Lake as well.

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GENERAL CLEANUP

One truck with one man has been busy hauling all salvage wire and steel posts to the storage shed annex near the Secondary Residence. After finishing this pickup they started hauling salvage lumber and scrap from the Simondsen place at the north end of Arrowwood Lake, into Camp where it was stockpiled.

One day was spent cleaning up at the Hugh Smith place near Camp and dismantling the WPA horse barn at the DePuy ranch. The material from this barn was hauled to the Secondary Residence for use there as needed.

CHANNELLING

The two thousand feet of cuts in Riebe marsh are complete except

for a day or two of dragline work in a part of the channel where the elevation made an approximate seven foot cut necessary. The average cut was around four foot and this has been finished even to the leveling of the spoil banks. Another small cut will join one of these cuts as soon as our right of entry can be established, thereby completely encircling an area of higher ground with a 20' ditch and the river channel. These cuts give our waterfowl especially, a fine, large, nearly inviolate nesting area.

ARRIVAL DATES FOR MIGRATORY BIRDS

<u>Number</u>	<u>Species</u>	<u>Date</u>
51	Herring Gull * <i>Larus argentatus smithsonianus</i> *	4/6/37
59	Franklin Gull * <i>Larus pipixcan</i> *	4/19/37
125	White Pelican * <i>Pelicanus erythrorhynchos</i> *	4/17/37
132	Mallard * <i>Anas platyrhynchos</i> *	4/8/37
135	Gadwall * <i>Channeleasmus streperus</i> *	4/19/37
137	Baldpate * <i>Mareca americana</i> *	4/19/37
140	Blue-winged Teal * <i>Querquedula discors</i> *	4/16/37
142	Shoveller * <i>Spatula clypeata</i> *	4/16/37
143	Pintail * <i>Dafila acuta tzilzihoa</i> *	3/28/37
146	Redhead * <i>Nyroca americana</i> *	4/10/37
147	Canvasback * <i>Nyroca valisineria</i> *	4/9/37
149	Lesser Scaup * <i>Nyroca affinis</i> *	4/14/37
169	Snow Goose * <i>Chen hyperborea</i> *	4/9/37
169.1	Blue Goose * <i>Chen caerulescens</i> *	4/10/37
172	Canada Goose * <i>Branta canadensis</i> *	4/9/37
180	Whistling Swan * <i>Cygnus columbianus</i> *	4/9/37
221	Coot * <i>Fulica americana</i> *	4/23/37
249	Marbled Godwit * <i>Linosa fedoa</i> *	4/28/37
273	Killdeer * <i>Oxyechus vociferous</i> *	4/10/37
331	Marsh Hawk * <i>Circus hudsonius</i> *	5/11/37
348	Ferruginous Rough-leg * <i>Buteo regalis</i> *	4/7/37
360	Sparrow Hawk * <i>Falco sparverius</i> *	4/22/37
375	Great Horned Owl * <i>Bubo virginianus</i> *	3/28/37
378	Barrowing Owl * <i>Speotyto cunicularia hypogaea</i> *	4/16/37
412.A	Northern Flicker * <i>Colaptes auratus luteus</i> *	4/20/37
474	Prairie Horned Lark * <i>Otocoris alpestris praticola</i> *	3/28/37
488	American Crow * <i>Corvus brachyrhynchos</i> *	3/4/37
498	Red Winged Blackbird * <i>Agelaius phoeniceus</i> *	4/13/37
501.1	Meadowlark * <i>Sturnella neglecta</i> *	4/6/37
536	Lapland Longspur * <i>Calcarius lapponicus</i> *	3/20/37
567	Slate-colored Junco * <i>Junco hyemalis</i> *	4/10/37
761	Robin * <i>Planesticus megratorius</i> *	4/13/37
768	Mountain Bluebird * <i>Sialia arctica</i> *	4/6/37

Largest concentration of ducks during the month 20,000 birds.
Diving ducks comprised an approximate forty percent of the total.
Hundreds of geese are reported feeding on both sides of the Refuge but
the Refuge population has been light. We estimate between 750 and
1,000 swans concentrated on Arrowwood Lake around the late middle of
the month.

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BIRD CONCENTRATION



Baiting in the Waterfowl.
(Canvasbacks, Redheads, Scaups, Pintails, Shovellers, and Mallards
in this picture.)



MARSH AND ISLAND WORK



Ditching on Pelican Point and in the Riebe marsh.



TREE PLANTING



Field and nursery.



FENCE AND TRAIL CONSTRUCTION



Stringing wire and grading a trail.



PLANTING AND TRANSPLANTING



Millet behind the dyke and Bulrush in the lake.



SECONDARY RESIDENCE REHABILITATION



Moving the machine shed into place.

DAM CONSTRUCTION



Regravelling a spillway.