MONTHLY REPORT FOR

NOVEMBER 1937

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P. S. M. F. May 5-1938

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NARRATIVE REPORT FOR

NOVEMBER

1937

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WEATHER AND WATER CONDITIONS FOR NOVEMBER

Weather:

The first thirteen days of November remained above freezing. Twelve of the thirteen days were clear and warm. The seventh day was partly cloudy, on which a trace of rain fell. A cold wave on the 12th and 13th sealed the lakes over on Saturday night of the 13th. The latter half of the month remained around freezing or below for the most part. Snow flurries occurred between the 15th and 19th of the month. On the 19th the mercury plunged to -8 degrees. The coldest for November since 1919, according to the U. S. Weather Bureau in Valentine. Only one clear day was recorded. The moisture for the month was low; only .18 of an inch fell during the entire month.

Water:

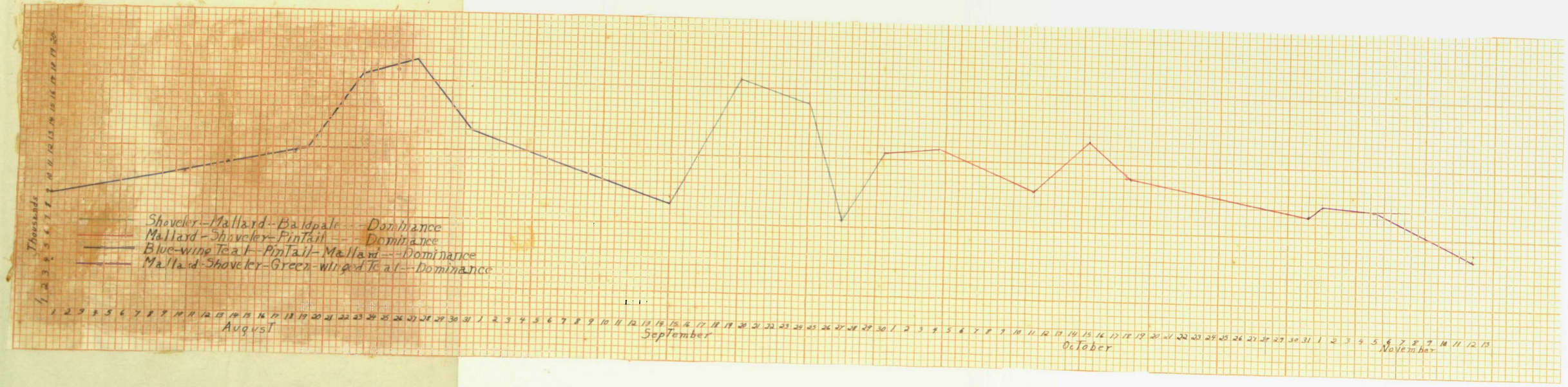
The first thirteen days of November remained above freezing. The weather was warm and pleasant. The lakes remained open until November 13, when on the night of the above date, the majority of the open water froze over. Open water holes remained on Hackberry, Pelican and Dads Lakes. These were loaded with ducks. The lakes never opened or thawed out again during the month. The open water holes sealed over on the 19th of November, when the mercury took a sub-zero plunge. The lakes will now remain sealed until spring, except Dads Lake which still had an open water hole on the west end.

WILDLIFE REPORT FOR NOVEMBER

Ducks:

The mild, clear, warm weather for the first thirteen days of November kept the lakes open, and the ducks in the area after the season had closed. This delay in sending the ducks further south was no doubt a great saving of the lives of thousands of birds that would otherwise have been shot.

DUCK FLIGET GRAPH



Mallards--Shovelers--Green-winged Teal species were the dominants for the month. Shoveler and Teal were of about equal numbers with Mallard leading, Pintails fourth, and Goldeneyes fifth. Other species represented were Redheads, Canvasbacks and Lesser Scaup. The Goldeneye flight was most pronounced on the twelfth of the month when about 1,700 were present on the area, inhabiting Hackberry, Pelican and Dad's Lakes. Buffle Heads were represented in relatively few numbers. The fish culture ponds on Schlegel Creek had several with about five females to one male. The included graph gives the duck flight curve from August to the close of the season on November 12, 1937. Dominant species, approximate numbers and dates throughout the period are given.

Geese: Approximately fifty Canadian Geese remained in the vicinity of Dads Lake during the first five days of November. After that date they left the area.

Grouse: The mild weather during the early part of the month caused the grouse to remain back in the sandhills. Their visits to the hay-meadows were irregular. No accurate estimate as to possible numbers could be made. We believe, however, that no great increase above the winter of 1936-37 will be noted. In fact, a decrease over last winters numbers might be the case. The December census studies will clarify this question as sufficient cold weather should have sent them in from the hills.

Pheasants: Pheasants, like the grouse, indicate no apparent

increase over last year. These birds feed on native foods found in the marshes, and nearby hillsides. The past dry summer aborted the fruit crops before they had fully matured. The centers of greatest concentration are in the vicinity of Hackberry, Dewey, Pelican, Marsh and Pony Lake marshes. They seek the marshy areas for roosting and cover during the winter months. During summer they scatter into the hills and apparently do not return to the marshes at nightfall.

Hawks and Eagles: The Hawk species seen on the refuge or its vicinity were American Rough-legged, Marsh, Prairie Falcon and the Ferruginous Rough-legged Hawks. The American Rough-legged Hawk was quite common during the month. Both the light and dark phase of this species were present. A Ferruginous Rough-leg was shot by hunters while perched on a telephone pole near Kennedy, Nebraska on November 7, 1937. The bird allowed the car to drive up opposite it and to be shot off its perch at close range. The writer was following the car and observed the tragedy. The hawk was picked up and carried along until the hunters stopped. I then proceeded to call their attention to the fact that they had killed a valuable bird of prey. I believe the men will think of the hawks value next time before they shoot. The crop of this bird was examined in the refuge laboratory. It contained one Thirteen-lined Spermophile. The creature had been swallowed in large pieces. Golden Eagles were frequent during the month. One

Bald Eagle was seen on the West Twin Valley on November 5, during a duck survey. This species is less common during fall and winter.

Cardinal
3/10/58
Brown

RODENT AND PREDATOR CONTROL

Pocket Gophers:

Area worked closely by trapping and the use of poison grain lays between Hackberry and Dewey Lakes in the following described tracts: E½ of SE¼, Section 23; S½ of Section 24, south of wet ground of Hackberry Lake; parts of N½ of Section 25, north of wet or marshy ground of Dewey Marsh and Lake all in Township 30 North, Range 29 West; Also SW¼ of SW¼, Section 19; NW¼ of NW¼, Section 30, Township 30 North, Range 29 West. All of the above lands were treated that lay above wet or marshy grounds. A strip one and one half miles long lying between these two lakes has been worked for gopher eradication. The only point of invasion of this area will be either from the east or west ends which are each about one half a mile wide on either end. The lakes form natural barriers on the north and south sides. This ground will be checked again next spring to clean up any that were missed. The main object of the program is for Bullsnake control measures and besides this rodent was becoming over abundant. A few Sandhill Moles* were taken in gopher traps.

Furbearers:

Skunks, Coyotes, Weasels, Mink, Badger, Raccoon, Spotted Skunk and House Cats are the so-called "Vermin" by Rod and Gun clubs that inhabit our area. The Muskrat is another furbearer that is fairly plentiful considering the scarcity of water on the areas. The following animals were taken during the Month of November:

* See Photograph following Narrative

Skunks.....28

Raccoon..... 1

Weasels..... 3

House Cats..... 4

Mink..... 1

Spotted Skunks..... 2

All furbearers are now more common in the marshlands according to Marvin West, Enrollee Assistant Leader. Fewer skunks are to be found in the uplands than in the marshes. A greater abundance of mice and other foods and a better cover, no doubt, is the cause of this preference in habitat.

REPORT OF SURVIVALS OF 1937 PLANTINGS OF JUNIPER, PINE AND DECIDUOUS TREES

Introduction:

Mr. Andrew Dygard, Senior Gardener, supervised the planting of our trees and shrubs. The results of these plantings are presented according to his figures of count and percentage of survival. CCC and WPA labor set out this stock. Junipers and Pines were purchased from the Forest Service Nursery at Halsey, Nebraska by WPA funds:

Coniferous Plantings:

Junipers:

Junipers by far were the greatest success of our coniferous plantings. The entire crop seemed to be a failure by August, since the weather had been hot and parching since late June. Many of the Cedars appeared to be dead. Rains of late August and early September worked marvels on the Junipers. They seemed to take on new life and remarkable revival was noted. The enclosed map shows approximate locations of the 26 planting plots of Pines, Junipers, and Hardwoods. Pines, Junipers and Hardwoods were mixed up somewhat for sake of variety.

Plots 1 and 2:

Plot one and two located in Middle Marsh Valley, Section 36, SW¼, Township 30 North, Range 28 West had the ground broken by plow, with furrows 6--8 feet apart. The nursery stock was planted in the furrows approximately five feet apart. These plots were located on a gentle slope facing the North with high

hills in the background breaking the South winds. Plots No. one and two had 280 Junipers with a 23% survival.

Plots 3 and 4:

Planted in cultivated soil on high hay meadow along the north side of South Marsh Lake in the NE¼ of Section 8, Township 29 North, Range 27 West, Millet and Milo were planted between the rows of planting-out stock. Plot No. three with 235 Junipers was a survival of 71%. Plot No. 4 with 520 Junipers was a survival of 74%.

Plot No. 5:

Stock planted in plow furrows at the base of sandhills in S½ of NW¼ of Section 8, Township 29 North, Range 27 West, southwest side of South Marsh Lake. Only 60 Junipers, a survival of 2%.

Plots 6 and 7:

Stock planted in plow furrows north side of Pony Lake in low sandy ground located in NW¼ of Section 17, Township 29 North, Range 27 West. Plot No. six with 234 Junipers had a 29% survival. Plot seven with 385 Junipers had a 31% survival.

Plots 8, 9, and 10:

Planted in plow furrows on ground gently sloping towards the south on the northeast side of Pony Lake in N½ of SE¼ of Section 17, NW¼ of SW¼, Section 16, all in Township 29 North, Range 27 West. These plantings were put out by WPA labor as well as the previous plots. These three plantings comprised about sixty acres. The survival was only 10% or 2990 Junipers.

29,900

Plots 11, 12 and 13:

Plot eleven was planted in cultivated soil in early April. Junipers 243 or 49% survival. Plots twelve and thirteen were planted in plow furrows on gentle sandy slopes southeast of Pony Lake in S½ of SE¼ of Section 17, Township 29 North, Range 27 West. A 5% survival of Junipers in furrows.

Plot 14:

Planted south side of Sweetwater Valley in furrows on sandy slope facing the North. Survival 5%. Located in S½ of NW¼ of Section 25, Township 29 North, Range 28 West.

Plot 15:

Toms Valley, high meadow valley, planted in furrows. Located in S½ of SE¼, Section 13, Township 29 North, Range 28 North. Junipers 187, survival about 9%.

Plots 16, 17, and 18:

Located on medium, north-facing slopes south of Glory Hole in S½ of NE¼, Section 26, Township 30 North, Range 29 West. Planted in furrows, area apparently ideal for native shrubs and trees as many chokecherry, plums, etc., were growing in this vicinity. Juniper plants 2345, a survival of 44%.

Plot 19:

Planted in furrows on medium sloping sandy ground facing Hackberry Lake and the North in S½ of NW¼, Section 23, Township 30 North, Range 29 West. Junipers 87, about 8% survival.

Plot 20:

Planted in cultivated ground on a gentle slope

facing north located south side Hackberry Lake. Soil rich sandy loam. In S½ of NW¼ of Section 23, Township 30 North, Range 29 North. Junipers 263 with an 86% survival.

Plot 21:

Located in sandy loam at the foothills of the southwest side of Hackberry Lake in S½ of NW¼, Section 23, Township 30 North, Range 29 West. Junipers planted in plow furrows on south side of trail. Junipers 869, survival 60%. Plot 19 was in similar ground but further east. We cannot account for the difference in survival of the plots.

Plot 22:

Planted on sandy slopes north of the refuge headquarters. Pine and hardwood plantings. SW¼ of Section 14, Township 30 North, Range 29 West. No Junipers planted.

Plot 23:

Low, relatively moist, sandy soil in draw on low ground between Hackberry and Watts Lakes. W½ of SE¼, Section 14, Township 30 North, Range 29 West. Cultivated sandy soil. Plot planted to Sumac and Junipers. Junipers 82 or 78% survival.

Plot 24:

Cultivated sandy loam soil south side of Watts Lake in S½ of NW¼, Section 14, Township 30 North, Range 29 North. Plot planted to Mulberries and Junipers. Junipers 248, survival 71%.

Plot 25:

Cultivated sandy loam soil south side of Watts

Lake. Planted chiefly to Sumac (Rhus trilobata). Located in S½ of NW¼, Section 14, Township 30 North, Range 29 West. Junipers 21, or about 80% survival.

Plot 26:

North side of West Twin Valley. Junipers survival estimated at 4% on October 12, 1937. Pines all dead.

Pines:

Pines planted in plots 1--26, in most part were almost a total failure. Those that were not killed by the hot dry winds had their needles chewed by grasshoppers; while Junipers were not eaten. No living plants were recorded in a majority of the plots.

Hardwoods:

No estimate of Mulberries, Locust, etc., could be made this fall. Many roots are green below the surface. In fact, many sent up shoots after the fall rains but were later killed by freezing. A 20% survival is predicted. A survey next June will clarify the survival percentage of hardwoods. Sumac (Rhus trilobata*) grown from seed in 1936 were transplanted to plots 23 and 25. A 90% survival was the result. This plant is apparently very hardy and resistent to hot dry winds. Its fruits make good winter feed as they remain on plants during the fall and winter.

Surplus Stock for Other Refuges:

Nursery stock received at this refuge from the Shelterbelt has grown in our refuge nurseries for one year.

* See Photograph following Narrative

Stock surplus is approximately as follows: Catalpa 4,000; Ash 10,000; Honey Locust 30,000; American Elm 40,000. No doubt LaCreek Refuge could use this stock.

REFUGE MAINTENANCE AND DEVELOPMENT

CCC Projects were under the supervision of E. L. Doeling. For a detailed report, see his narrative for November. This report only summarizes the projects.

Wild Life Feeding:

No grain was fed because of relative mild open weather. Work on this project comprised the repairing or relocating of shelters constructed during 1936. One shelter was moved at Pony Lake from west of lake south about 300 yards to the south side of the grove at Pony Lake. Other shelters recovered with hay and then securely bound down with wire were as follows: (1) One in valley east of Pony Lake near Center Lake. (2) One located in valley southwest side of Watts Lake Marsh. (3) One on North side of Dewey Lake Marsh east of Glory Hole. (4) One located at north side of Sweetwater Valley Marsh. (5) Three shelters in Marsh Valley, one at South Marsh, one at Middle Marsh and one at North Marsh. (6) One on south side of Hackberry Lake. (7) One on Pelican Lake Marsh. (8) One on Dewey Lake Marsh, southwest part of valley. (9) Began work on reconstructing shelter in grove at Pony Lake Headquarters grove. * Salvaged wire was used to tie down the hay-covered shelter by weaving strands of barbed wire closely over the top. This method hopes to be more successful than willows which allowed the hay to blow off in previous years.

Fences:

Fence construction on winter grazing area, known as Area

* See Photograph following Narrative

No. 2, located in the hills west of Whitewater and north of Pelican Lake in hilly parts of Sections 25, 26, 27, 34 and 35, Township 30 North, Range 29 West. Work was not completed around the entire area for lack of posts. Old existing fences were repaired along these sides to hold cattle now grazing the area. Cross fence along the north side of winter grazing Area No. 3 was begun. This fence extends along the hills south of Pelican Lake and extending southeast to the Sawyer Residence. The project was not completed and will be continued into December. The feed lot fence at Middle Marsh Valley was repaired and 180 rods of new fence constructed along the south side of this feed lot in order to keep cattle from crossing the marsh. All old existing fence about this feed lot and corrals were repaired.

Food and Cover Planting:

Plowing:

Plots for spring planting were plowed and disced in the deeper pockets of the sandhills and in meadows south of Hackberry Lake, north and south of Dewey Lake, and the meadow in Middle Marsh Valley. Fall plowing will permit us to get an early start at spring planting of such planting-out stock as Elm, Mulberry, etc. Frozen ground does not permit spring plowing before April 10th, as a rule.

Fall Planting:

Trees of various species of nursery stock grown in our nurseries this summer were planted out in plots that had

been previously plowed and disced. Sufficient moisture from fall rains is available in the soil. Eight thousand plants of Chinese Elm, Mulberry, Caragana, Ash, etc., were reset after being lifted from the nurseries. Fall planting is an experiment on our part. Our reasons were as follows: (1) To reset roots in soil again as soon as possible after being lifted from the nursery. (2) Soil will settle firmly about roots before bad weather sets in and, (3) the plant will start the spring out without having the transplanting shock so close at hand.

Nurseries:

Most of the work in the nurseries during November consisted of lifting or digging the trees* and heeling them in. The Whitewater nursery was seeded to Chokecherry*, Wild Plums, Canadian Sumac, and Russian Olives. A total of 286 rows were seeded to the above varieties. The exact number of rows seeded to each variety are as follows:

142 rows to Chokecherry
40 rows to Wild Plums
55 rows to Canadian Sumac
49 rows to Russian Olives

The trees which were lifted and heeled in consisted of Black Locust, American Elm, Honey Locust, Osage Orange, Chinese Elm, and Ash. After digging the trees, they were graded, counted, and tied in bundles of 25, 50, and 100 depending on the size and grade of the trees, and then heeled in. The counting of the trees and placing of a certain number in each bundle will make it easy for the trees to be counted accurately at any time in the future without being moved or disturbed.

* See Photograph following Narrative

Wells:

Considerable attention was given to wells during the month of November, putting them in shape for the winter months and cold weather. The wells were banked and the vents opened to protect them against freezing. Other work during the month consisted of repairing and constructing wood water tanks, building and painting of towers, moving of towers, pulling of several old wells, and the erection of windmills. One 35-foot tower was taken down at "21" ranch which was beyond repair. Three wells were pulled at the Clark place. The pipe and material was found to be in very poor condition and will be of little value as far as using again is concerned. Wells were also pulled one each at the "21" ranch and McChiel place. Pipe in both of these wells was found to be in very bad condition from rusting. A tower was set and head put on at the well west of the Newman place. A tank was also placed at this well, and two loads of clay hauled in to the tank. Two other windmills were erected during the month, one in West Whitewater Valley and the other at the Potnole at the McChiel place. The tanks at both the McChiel and Whitewater locations when full overflow into the potholes.

Telephone Line:

Final touches were made on the refuge telephone line. Now communication can be made with the secondary residence at Pony Lake, Newman or Sawyer property or the two towers. Such a system of communication will save dollars on auto repairs and besides is indespensible in refuge administration, fire control and law enforcement.

Truck Trails:

Reference is made to Mr. Doeling's CCC report for November.

Russian Thistle Menace:

Two areas on the refuge has caused trouble by blowing and piling Russian Thistles on the fences. These areas are the North and Middle Marsh Lakes and vicinity and the "21" Lake vicinity. Dry borders or arms of lakes or potholes in the above mentioned areas grow the thistles in profusion. The wind then has the fun of rolling them against the fence. Several man-days have been used in removing this vegetation and burning it before the fence is sagged or the wires broken. See CCC Report for more detail.

ADMINISTRATION AND INVESTIGATION

A Summary of Research Work Carried on at the Valentine Lakes Refuge During 1936 and 1937 Field Seasons

By W. L. Tolstead

During the summers of 1936 and 1937 a research program was carried on at the Valentine Lakes Refuge by the Conservation and Survey Division of the University of Nebraska. During this time a study was made of the vegetation and environment of the various plant communities. While much of the work is yet incomplete and some of the data is not compiled, certain general statements may be made concerning the results and nature of the work.

There are a number of plant communities in the Sandhill region. It is entirely a grassland country climaxed by the mixed prairie association but the high water table, sandy soils, irregular topography, variable temperatures and winds influence water available for plant growth, permitting much of the land to support a post climax vegetation of tall grasses and in a few places small groves of shrubs and hackberry trees.

For the most part, the region is overgrazed, but here and there relicts indicate the nature of primary succession and the climax vegetation of the region. The influences of prolonged grazing are everywhere evident and secondary succession as initiated by plowing, trampling, or severe overgrazing presents a study of importance and interest.

To study the environmental factors two weather stations were established to record extremes of environment. Instruments

recorded wind velocity, air and soil temperatures, evaporation in the tall grass--Carex meadow, and on the south facing dune. The water table was measured and weekly records of soil moisture to a depth of five feet were taken. Generally speaking, conditions for plant growth are more severe on a south facing dune than in the tall grass-Carex meadows. In the former, wind velocities and evaporation are greater, soil and air temperatures five to ten degrees higher, nor is there as much moisture available for plant growth. The existence of the tall grass-Carex meadow is afforded by the high water table to which the grasses penetrate their roots and draw upon this source of moisture. Thus, the water table was found to fluctuate as much as 4.5 inches during the hot days of July though it was less during the fall months.

Root studies were made in dunes where it was found that the roots of the short shrubby species, as the Wild Rose, Sandhill Cherry and Poison Ivy penetrated as much as twelve feet into the sands; Sand-reed grass and the Sandhill blue stem go to eight feet, but the majority of the grasses--those which bloom in early spring and late fall--go only four to five feet beneath the surface.

Permanent quadrats have been mapped for studies of composition, density, and basal cover through the several years. While little can be said as yet, it is obvious that certain species have suffered from the drouth, especially little blue-stem and Sandhill blue-stem.

Plant specimens have been collected in the region but as yet most of them are unidentified.

Four men employed by the Agronomy Department of the University of Nebraska, finished a vegetation map covering 50,000 acres on the eastern two-thirds of the Valentine Lakes Refuge. This completed a project begun in the summer of 1936 in cooperation with the Biological Survey. Messrs. Ward Henderson, Weldon Shepherd, John Bengsten and LeRoy Hansen carried on this work. Mr. Bengsten made a small study of the vegetation along the shores of several lakes where the water table is rapidly lowering.

Photograph of sumac (Rhus trilobata) growing in plot #25 in low ground south side of Dewey Lake. Survival of sumac in planting cut plots is 90%.

Sandhill mole (Scalopus aquaticus caryi). Note silver gray appearance of back and sides when contrasted with white background.

Winter feed shelter under construction at south side of grove west of Pony Lake headquarters.

Same shelter as shown in above photograph but it has been completed by covering with hay and binding down with salvaged wire.

Tree digger in action. Cutting blade underneath the ground. Nursery at south side of Dewey Lake.

Enrollees following up and pulling nursery stock after tree digger has loosened the roots.

Chinese elm nursery stock temporarily heeled in after digging.

Caragana stock temporarily heeled in after putting.

Temporarily heeled in stock is later graded and tied into bundles of 25 to 50 or a hundred each, depending upon the size, and later heeled in for the winter.

Enrollees heeling in nursery stock for the winter. Each bundle is heeled in so that soil surrounds it on all sides thus preventing drying by eliminating air-pockets.

Enrollees planting Chokecherry seed in Nursery bed in Whitewater Nursery.