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Woodland Management Plan
Western Shoshone Indian Reser.

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#1

A WOODLAND MANAGEMENT AND PLANTING PLAN FOR THE WESTERN SHOSHONE INDIAN RESERVATION

NEVADA-IDAHO

1939

Fieldwork--Aug. 30 to Sept. 12, 1939

Submitted by--Jack L. Reveal,
Junior Forester

Soil Conservation Service

Department of Agriculture

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(2). Supplement native woodlands and insure their conservation by:

(a). Planting farm woodlots for the production of posts and small material.

(b). Establishing a tribal woodlot for the production of fuel wood.

A WOODLAND MANAGEMENT AND PLANTING PLAN FOR THE WESTERN SHOSHONE INDIAN RESERVATION

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INTRODUCTION

The woodlands of the Western Shoshone Indian Reservation are largely those aspen (Populus tremuloides) stands of the low mountains rising on the east side of the reservation. They contribute about fifty percent of all fuel consumed by the one hundred and fifty Indian families and have supplied many thousand posts and poles annually. They also provide excellent watershed protection and cover for wild life.

These aspen stands have been in use since the reservation was established in 1877. The cutting has been practically uncontrolled and has resulted in depleted stands and poorly distributed age-classes. The Indians are confronted, therefore, with an increasing shortage of fuel wood, posts and poles.

THE DESIRES OF THE INDIAN SERVICE IN REGARD TO THE MANAGEMENT OF ASPEN WOODLANDS

The Indian Agency feels that a management plan which would necessitate rigid supervision of cutting would be difficult to put into effect for the following reasons:

1. The Indians feel that the woods are their own and would probably discourage any plan which infringed on the free

An Indian's wood pile of aspen poles. When piled in the tepee fashion, the wood stays dry during the winter months.

use of the products. The Tribal Council, however, welcomes suggestions which would improve the condition of their timber resources.

2. The Indian Service lacks funds and personnel to put a cutting plan into effect and to carry out its purpose.

The agency suggests, therefore, that it would be desirable to--

1. Set up rules and perscribe policies which could be discussed with the Tribal Council in an effort to bring about better cutting practices, and

2. Formulate plans for growing wood and posts on Indian farms and tribal lands so as to relieve the aspen stands of excess cut.

This approach is, under present conditions, probably the most workable one. The poor distribution of age and density classes of the aspen stands would make straight-forward management difficult. An effort, however, which would (1) improve cutting practices and (2) relieve the aspen stands of carrying the brunt of all demands for wood products, is a most practical way of solving the wood problem on the reservation. It is the aim of this report to suggest methods of attaining these ends.

PRESENT DEMANDS FOR WOODLAND PRODUCTS

Fuel Wood Demands

It is estimated that the aspen timber supplies about one thousand cords of wood annually--about seven cords per family.

Green aspen fuel wood cut and ready for hauling. in photo: De Abbott

Sage brush supplies a large portion of the Indians' fuel. Dead shrubs are pulled by hand and hauled by wagon.

The aspen fuel is supplemented with sage brush, willows and waste wood. Probably less than one half of the Indians' firewood comes from the aspen stands.

Many Indians who own trucks and pick-ups haul dead wood out of the Humboldt National Forest. The use of coal seems to be increasing but will probably not become widely used for some time because of economic reasons.

Post and Pole Demands

The reservation now carries approximately 384 miles of aspen-post fence,* i.e., about 123,000 posts. The majority of these posts have been cut in the aspen stands on the reservation. By cutting long posts and replanting them as they rot off at the ground line, a single aspen post can be made to last ten years. The present replacement of new posts, therefore, must be nearly 12,500 posts annually. Since the Soil Conservation Service has supplied 25,000 split cedar posts to replace the 84 miles of boundary fence, now of aspen posts, the annual demand for replacements for the next ten years should drop about 2,500 posts. But this decline in demand will be more than offset when lands now being subjugated will eventually necessitate the construction and maintenance of about 200 miles of new private fence.

There are also 74 miles of new interior range fences of split cedar posts which must be maintained. Analysis of details

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* 300 miles of private fences on Indian farms
84 miles of boundary fence on the reservation

Aspen posts cut from Indian lands. The posts are cut only so they may be reset after once rotting off at the ground line. Immature ("Potential") aspen is in the background.

indicate that for the next ten years the average annual demand for replacements will approach the present demand of 12,500 posts. After ten years, however, when there will be 200 more miles of fence, the yearly demand for replacements may be expected to gradually increase to approximately 16,000 posts by 1960.

Aspen poles for the construction of shelters and corrals are in demand and probably approximate 3000 pieces annually. Broken or partially decayed poles are converted into fire-wood.

PRESENT CONDITION OF ASPEN STANDS

To attain a better picture of stand conditions and to determine the extent to which they have been depleted, the majority of the woodlands were extensively examined and divided into three groups:*

1. Brush stands
2. Potential aspen stands
3. Producing aspen stands

Brush Stands

Brush stands comprise an area of 9755 acres, 64.2 percent of the total area typed "broad-leaf" by the range survey, and are useless from the standpoint of wood production. They lie on ridge tops and beneath rim-rock and are chiefly a dense mixture of stunted aspen, ceanothus (Ceanothus velutinus),

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* See woodland type map in appendix.

Areas of aspen brush similar to the one shown above are of no present or future value as a producing woodland. They supply, however, a dense watershed cover.

snowberry (Symphoricarpos oreophilus), and dwarfed black chokecherry (Prunus melanocarpa). They produce little forage and are valuable only as watershed protection.

Potential Aspen Stands

The potential aspen stands comprise 3251 acres or 21.4 percent of the total broad-leaf type. They are mostly young stands and can be expected to be producing usable timber in two or three decades. The majority of these potential stands are those which have been completely cut over in the past and are now re-establishing themselves in a promising manner. If silvicultural treatment were possible, they could be benefited by thinnings which in most cases would require the removal of fifty percent to seventy-five percent of the stems per acre. The growth of at least fifty percent of these potential stands is inhibited by overcrowding, and about twenty percent of the remainder are in danger of complete stagnation of growth.

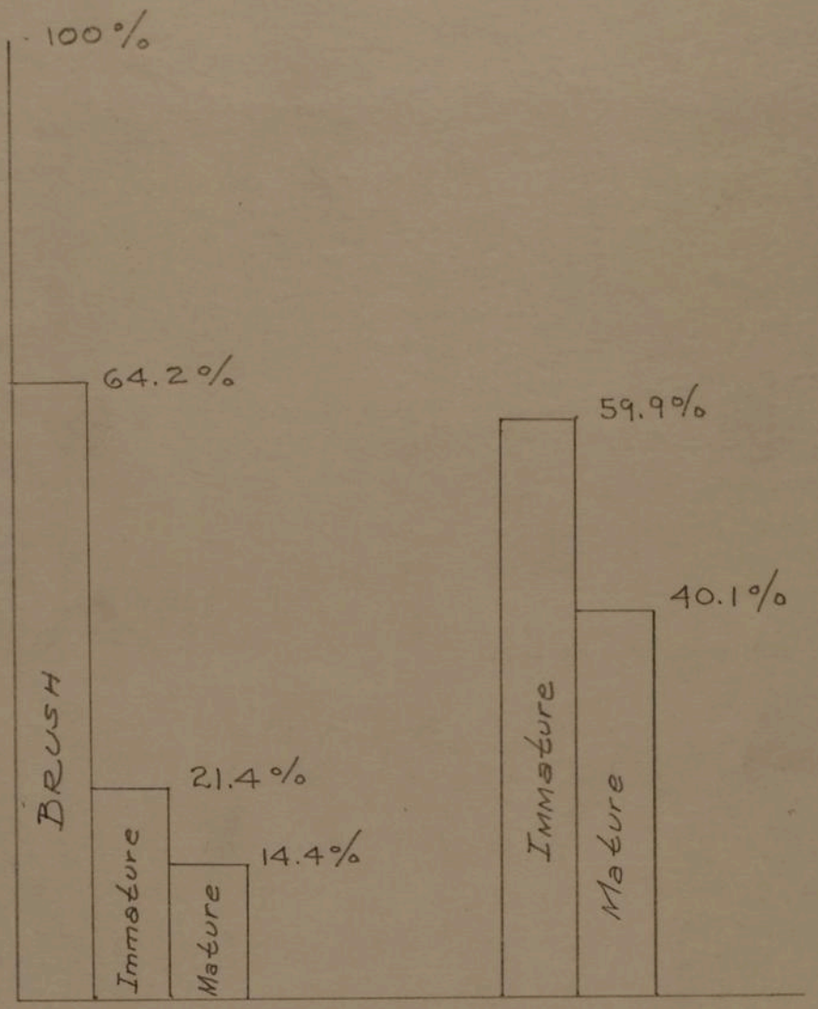
Producing Aspen Stands

The producing stands of aspen are about 2174 acres in area and constitute 14.4 percent of the total broad-leaf type. They are confined to good sites in stream bottoms, in areas adjacent to mountain meadows and in the heads of major drainages.

Native cottonwood make up less than one percent of the density of these stands.

Potential aspen timber. These young stands may be expected to produce useable fuel wood and posts in the future.

Mature aspen stands which now produce the majority of the aspen fuel and posts for the reservation.



COMPARATIVE AREAS OF ASPEN STANDS

Western Shoshone Indian Reservation

These producing stands have borne the majority of the cut for many years. As a result of uncontrolled cutting as to location, and of heavy cutting of intermediate age-classes, the present stands are very patchy and hence would be difficult to cruise and to manage.

The majority of these stands are quite accessible. Fair truck trails of recent construction (C.C.C.-I.D.) have improved the ease of logging.

RECOMMENDED PLAN OF WOODLAND MANAGEMENT

Suggested Cutting Practices

Throughout the examination of the producing stands, one is impressed with four practices which are out of line with proper woodland conservation and management.

1. The heavy cutting of intermediate diameter classes.
2. Excessive stump heights.
3. The waste of branches, tops and broken pieces.
4. The non-use of large and crooked trees which do not handle easily.

In an effort to improve cutting practices, the following policy is suggested:

1. Remove all material down to a five inch breast-height diameter in each area selected for cutting. Discourage high-grading a stand of its young, vigorous trees.

2. Cut stumps no higher than twelve inches and preferably lower. Low stumps increase the volume production; low stumps produce good sprouts, whereas high stumps produce poor sprouts.

Excessive stump heights and waste of small material lowers the volume production of the woodlands.

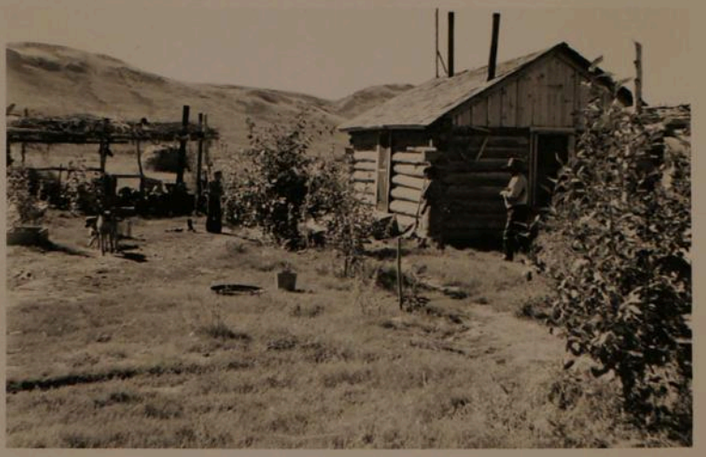
3. Whenever possible, utilize all of the tree. Tops may often be used as posts. Branches and tops should be utilized down to a two inch diameter. In this regard, it is recommended that Indians be encouraged to buck their wood into four foot pieces in the woods, utilizing everything to a two inch diameter. Such a practice, even though more economical, will be difficult to establish since the Indians at present do not have wagon boxes big enough to haul a reasonable load of four foot pieces. But their small wagon boxes could be used if equipped with six or more eight foot stays set upright inside the box and the four foot pieces laid lengthwise between them. Such a load, properly bound, will haul well.

4. Encourage the cutting of dead wood on national forest lands.

PROPOSED PLANTING PLANS

Introduction

The basin lands, now under irrigation, were once treeless sage brush flats and river bottoms. The only tree growth prior to settlement consisted of river willows (*Salix* species), an occasional native cottonwood (*Populus angustifolia*) and the tree-like buck-berry (*Shepherdia argentea*). Many Indian ranchers in past years--wearied of the treeless aspect of their lands--have made decided efforts to grow trees on their property. They employed mainly native species, either cuttings or wildlings. But due to lack of water in the past, the majority of the early plantings failed. Only a few well-tended, hand-watered cottonwood and poplar remain as monuments to their



Young trees growing on the farm of George Hull. These are two year old narrow leaf cottonwood (Populus angustifolia) grown from long cuttings. They are watered by hand.

efforts.

Since the construction of the Wild Horse Reservoir in 1937 by the Indian Irrigation Service, tree planting has been increasingly successful because of an abundant water supply. Various native species as well as black locust (Robinia pseudo-acacia) and Siberian elm (Ulmus pumila) furnished by the Indian Agency in the spring of 1939 are now to be found planted and prospering on many Indian farms. The owners of the dozen or so farms examined were proud of their growing stock of trees and were anxious to obtain more.

Quite naturally, these initial plantings are confined to sites adjacent to houses or gardens for aesthetic and windbreak purposes only. So far no Indian has planted a woodlot.

DESIRES OF THE INDIAN SERVICE WITH REGARD TO WOODLOT PLANTINGS

That the Indian Service is interested in woodlot planting is shown by the fact that they have already experimented with black locust and Siberian elm on the reservation, and have distributed some planting stock to the Indians. Superintendent Carl W. Beck now has $1500.00 ear-marked for tree planting on private and tribal lands. The agency is ready to go ahead with any woodlot plantings which they feel will suit their needs and which they can finance and supervise.

Limiting Factors in Woodlot Planting

Although the Indian Service desires a complete planting

plan in all respects, the execution of such a plan is limited by three factors: funds, supervision and labor.

1. Funds: Although $1500.00 is now available for woodlot planting, any long-time planting program on the reservation may collapse any year through lack of funds appropriated for each fiscal year.

2. Supervision: At present the agency has insufficient personnel to supervise woodlot plantings or to properly administer a community woodlot. Indian Farm Agent Charles S. Spencer pointed out that supervision is desirable--not only to insure technical excellence but to inspire the iniative of the Indian farmers as well.

3. Labor: A small Indian C.C.C.crew constitutes the labor force and is no doubt sufficient to carry on a community woodlot program. The labor for private woodlot plantings should be furnished by the owner.

NEEDS AND OBJECTIVE OF WOODLOT PLANTING

At present it appears that the objective on farms should be woodlots which will provide posts and poles. It is questionable that the waste area of the forty acre Indian farms could grow sufficient fuel wood to make such an aim advisable. Supplemental fuel wood production should be handled on a community scale as a tribal woodlot.

Farm woodlots are needed to conserve the aspen woodlands and to relieve the drain imposed upon them by the present cutting

of poles and posts. The annual demand for posts on private Indian farms amounts to an estimated 11,000 per year, and lands now being subjugated will add an additional 200 miles of fence to be constructed and maintained. A reduction of annual cut in the aspen stands, which could be offset by private woodlots, would be for the best interests of the tribes by insuring a more reliable source of fuel and a substantial watershed cover.

Another need is exemplified by a demand for more durable posts which would reduce the costs of fence maintenance.

The purpose of Indian woodlots, from a soil erosion standpoint, is not to correct a dangerous condition on the farm lands but to relieve mountain slopes and high valleys of heavy cuts where resulting erosion may become a problem.

LANDS AVAILABLE FOR WOODLOT PLANTING

On most irrigated farms there seems to be an abundance of lands available for an economically balanced woodlot. Only on some farms immediately adjacent to the Owyhee River where willows take up much of the waste land, and on occasional farms where waste lands are innundated by spring floods are there any shortage of planting sites. In most cases, favorable planting sites of about one acre are at present under irrigation or may be irrigated at small cost. In general it may be said that planting sites are unlimited on Indian farms.

An eighty acre tract for a tribal woodlot has been set

New irrigation developments have made possible a large farm and Tribal woodlot program hitherto restricted by lack of water. This lateral supplies water to the site of the proposed Tribal woodlot.

aside by the agency.* This area is now covered with sage brush, but plans call for its subjugation in the near future.

PLANTING PLANS FOR INDIAN FARMS

As proposed above, the main objective of farm woodlots should be to provide durable posts and poles and thus relieve the aspen stands of the demand for these products, thereby insuring a better supply of fuel wood, improved stand conditions, and better watershed protection.

Woodlots may often be planted in such a manner as to provide windbreaks for fields and buildings, but their advantages from a wildlife standpoint are questionable.

In general, planting sites are good, capable of producing fair growth and could hardly be considered sub-marginal in nature. A study of the soils map should be made before planting sites are selected for all farms to insure proper soil conditions. It is urged that questionable sites be avoided and that plantings be made only on good, well-drained, irrigated soils so as to insure maximum growth at the high altitudes.

Species for Farm Woodlot Planting

Black locust and Siberian elm have been grown on the reservation successfully. It is reasonable to assume that four other easily procured species will grow under local

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* See map of tribal woodlot in appendix.

conditions, namely: green ash (Fraxinus pennsylvanica var. lanceolata), thornless honey locust (Gleditsia triacanthos var. inermis), Siberian pea tree (Caragana arborescens), and Russian olive(Elaeagnus angustifolia). Both black locust and thornless honey locust are very durable post material and make favorable growth. Russian olive and green ash fall in the intermediate durability classes but are nevertheless desirable. Siberian elm and the Siberian pea tree should be planted for windbreak purposes only.

New species should be experimented with whenever possible in an effort to determine which species do best under local conditions.

Source of Planting Material

The Clark-McNary Forest Nursery at Logan, Utah furnishes low cost nursery stock for woodlot and windbreak planting. Large orders should be anticipated a year in advance so that the Logan nursery can grow the stock.

Planting Methods

Spring planting should be the rule on the reservation since Clark-McNary stock is then available.

Where the native vegetation will not compete seriously with young trees no site preparation is recommended. Where there is danger of erosion, vegetation should be left intact, but fortunately the flat topography and controlled water reduces erosion to a minor problem on most planting sites. Weedy sites may be burned over and disked the fall previous to the

planting. Sites now bearing stands of alfalfa, rye grass, or very bushy sites, should be scalped in the spring so as to reduce rank vegetation which retards tree growth.

Ditches and drains should be installed previous to plantings.

Provisions must be made in advance for properly caring for planting stock upon its arrival. Stock could best be heeled-in near the agency prior to distribution.

For all practical purposes on Indian farms, tree planting may be done with a long handled shovel after the methods outlined by the Logan nursery as these methods are adapted to local farm conditions and require no special equipment. Since no supervision of each woodlot planting is possible, it is suggested that the Indian Service stage a tree planting demonstration the first day of the planting season and in this way endeavor to acquaint each farmer with the technique.

Farm Agent C. Spencer says that the difficulty of getting all Indian farmers to prepare and fence their planting sites prior to the planting season is a limiting factor to the success of planting operations.

Spacing: Suggested spacing for woodlot species is 5' x 5'. When windbreak species are planted on the windward side, an 8' x 8' spacing is considered desirable. All rows should be staggered.

Fencing: All woodlots should be fenced and the fences maintained to protect trees and reproduction from livestock.

Rodent and Cricket Control: Two instances were noticed where plantings had been destroyed by ground squirrels or Mormon crickets. This damage occurs on those areas adjacent to sage brush range lands. Hence it appears advisable that when plantings are made in these more dangerous sites that rodents be poisoned and cricket fences installed to prevent destruction of the planting stock.

After-care of Woodlot Plantings: Proper care of plantings after they have been established in Duck Valley cannot be over-emphasized.

All planting should be irrigated early in life to further insure survival of stock and even throughout the life of the tree to obtain maximum growth. Occasional good wettings three or four weeks apart is considered more beneficial than frequent light wettings.

Rank growth of weeds which may smother the young trees s should be hoed down or "cultivated".

Rotation on Woodlots

Although the actual rotation for fence posts under local conditions is not known, well cared for black locust and honey locust should produce good fence posts in ten years.

It is most desirable that Indian woodlots be designed to encourage the planting of blocks of one hundred and fifty or more trees each spring on a ten year rotation. This system would permit the cutting of an even age block of trees each

year to supply posts and poles. Clear cutting these small even-aged blocks should not encourage erosion nor deterioration of the site.

Four or five year old blocks should be thinned to provide lighter material.

The ten year increment on one hundred and fifty trees should be more than enough to maintain fences on most Indian farms. A market could no doubt be found for surplus material.

Financing Farm Woodlots

Since the large majority of Indian farmers lack money in the spring with which to buy their own planting stock, it appears that the only solution to the problem of long-time woodlot planting is for the Indian Service to encourage competent farmers by supplying them with young trees each spring. All indications are that the planting stock would be appreciated and would receive good acre. Such a plan would cost about $350.00 each year, but would bring high returns if funds can be made available annually.

Demonstrative Woodlot Planting Plans

For the purpose of demonstration, planting plans were made for ten Indian farms. These plans should serve as a guide for future farm planting. The appendix shows these plans in detail and indicate the probable cross-section of local conditions with regard to planting.

Economic Considerations--Financial Valuation of Farm Woodlots.

If a farmer establishes an acre of woodlot by planting 170 trees a year for 10 years, he may, after 10 years, cut for his use or sale the increment on the 170 trees he planted 10 years back. The monetary value of this cut -- minus the cost of planting material, labor and maintenance, and minus the interest charges on his investment, -- is the net value of the cut and represents the annual income on an acre of woodlot.*

This annual return may be summarized as follows:

ANNUAL COSTS

Planting stock (170 trees) and planting labor.....	$6.55
Interest at 6% compounded annually for ten years....	5.17
Planting costs at end of rotation.....	11.72
Maintenance costs for 170 trees at 50¢ per year for 10 years compounded annually.....	6.58
Total planting and carrying costs after 10 years....	$18.30

ANNUAL RETURNS

	Survival average Growth "	Survival good Growth "
Number of trees to be cut at 10 years (rotation) age	115	145
Number of posts per tree	2	3
Number of posts per cut	230	435
Value at 20¢ per post	$46.00	$87.00
Discounting costs	- 18.30	18.30
	$27.70	$68.70
Cost of cutting @ 5¢ per post	- 11.50	21.75
Net return per acre per year (i.e. increment on 1/10 acre after 10 years)	$16.20	$46.95

* These figures disregard land rent charges.

The annual net returns, therefore, on an acre of woodlot cut for posts and carrying a growing stock of 1700 trees on a 10 year rotation, will be somewhere between $15.00 and $45.00 per year depending upon the success of the operation. After 20 years, when the cutting will begin in second-growth trees, the yearly returns will be greater since there will have been no investment made in planting stock and labor.

Thus an acre planted to trees may be more valuable than the same acre planted in hay providing the supply does not too greatly exceed the demand.

Amount of Planting Stock Required for Indian Farm Woodlots

It is suggested that in 1940 only twenty-five farms be selected to initiate the planting program and that fifty more be added in 1941 and the remaining seventy-five farms be brought under the program in 1942.

The amount of planting stock required to establish farm woodlots on a ten year program for the one hundred and fifty Indian families now residing on the reservation is estimated as follows:

For each farm unit:

90	Black locust seedlings
30	Honey locust seedlings
15	Green ash or Siberian elm seedlings
15	Russian olive or Siberian pea tree seedlings
150	Seedlings per farm for ten years

Seedlings needed per year, 1940 to 1951, inclusively.

Year	Farms to be Planted	Number of Seedlings
1940	25	3,750
1941	75	11,250
1942 to 1949, inclusively	150	22,500
1950	125	18,750
1951	75	11,250

These figures are probably representative of the maximum

demands for planting stock for the one hundred and fifty farms. All the Indians cannot be expected to establish woodlots, but the majority probably will. Most Indians will require only one hundred and thirty seedlings per year instead of one hundred and fifty, but the excess can be used to replant failed stock.

These estimates do not consider the demands of farms to be established in the new subjugation area.

TRIBAL WOODLOT PLANTING PLANS

A tribal woodlot is considered desirable from the standpoint of fuel and post production. An eighty acre planting site was therefore selected in the new subjugation area and plans for its planting and management suggested.* Here again it is thought desirable to plant and cut on a rotation. A twenty year rotation was selected for the production of fuel which makes possible the planting of a four acre tract yearly for twenty years and the harvesting of four acres each year thereafter.

For the first ten years an additional four acres of fence posts may be planted yearly to increase production and to reduce the amount of idle land through the early part of the rotation. Though this will give an over-production of posts after about 1950, the surplus may be stored for later use without danger of decay.

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* See planting plan for a tribal woodlot in appendix.

The site of the proposed Tribal Woodlot is now a dry sagebrush range.

The tribal woodlot should be fenced, ditches constructed and a road through the center built prior to planting. It will be necessary to remove the sage brush, plow deeply and irrigate each four acre tract the fall previous to planting in order to loosen the hard desert soil and to increase its moisture content.

Detailed Planting System for the Tribal Woodlot

The suggested plan is detailed as follows:

Spring 1940	Plant tract #1 for wood	
	Spacing 6' x 6'	1613 Black locust
		1613 Honey locust
		1613 Green ash
	Plant tract #20 for posts	
	Spacing 5' x 5'	4840 Black locust
Spring 1941	Plant tract #2 for wood as in tract #1	
	Plant tract #19 for posts as in tract #20	
Spring 1942	Plant tract #3 for wood as in tract #2	
	Plant tract #18 for posts as in tract #19	
Spring 1943	Plant tract #4 for wood as in tract #3	
	Plant tract #17 for posts as in tract #18	
Spring 1944	Plant tract #5 for wood as in tract #4	
	Plant tract #16 for posts as in tract #17	
Spring 1945	Plant tract #6 for wood as in tract #5	
	Plant tract #15 for posts as in tract #16	
	Thin tract #20	

Spring 1946	Plant tract #7 for wood as in tract #6
	Plant tract #14 for posts as in tract #15
	Thin tract #19
Spring 1947	Plant tract #8 for wood as in tract #7
	Plant tract #13 for posts as in tract #14
	Thin tract #18
Spring 1948	Plant tract #9 for wood as in tract #8
	Plant tract #12 for posts as in tract #13
	Thin tract #17
Spring 1949	Plant tract #10 for wood as in tract #9
	Plant tract #11 for posts as in tract #12
	Thin tract #16
Spring 1950	Cut tract #20 of posts
	Plant tract #20 for wood
	Thin tracts #15 and #1 for posts and small poles
Spring 1951	Cut tract #19 of posts
	Plant tract #19 for wood
	Thin tracts #14 and #2 for posts and small poles
Spring 1952	Cut tract #18 of posts
	Plant tract #18 for wood
	Thin tracts #13 and #3 for posts and small poles
Spring 1953	Cut tract #17 of posts
	Plant tract #17 for wood
	Thin tracts #12 and #4 for posts and small poles

Spring 1954	Cut tract #16 of posts
	Plant tract #16 for wood
	Thin tracts #11 and #5 for posts and small poles
Spring 1955	Cut tract #15 of posts
	Plant tract #15 for wood
	Thin tract #6 for posts and small poles
Spring 1956	Cut tract #14 of posts
	Plant tract #14 for wood
	Thin tract #7 for posts and small poles
Spring 1957	Cut tract #13 of posts
	Plant tract #13 for wood
	Thin tract #8 for posts and small poles
Spring 1958	Cut tract #12 of posts
	Plant tract #12 for wood
	Thin tract #9 for posts and small poles
Spring 1959	Cut tract #11 of posts
	Plant tract #11 for wood
	Thin tract #10 for posts and small poles
Fall 1959	Cut tract #1 of wood
Spring 1960	Plant tract #1 for wood
	Thin tract #20 for posts and small poles
Fall 1960	Cut tract #2 of wood
Spring 1961	Plant tract #2 for wood
	Thin tract #19 for posts and small poles
Fall 1961	Cut tract #3 for wood (et cetra)

After 1950, the tribal woodlot should begin producing posts at a rate of approximately 6,000 annually. Since their total value should be about $1800.00, it is logical to assume that the woodlot may pay for itself by the time it reaches the rotation age in 1960.

It is suggested that cutting privileges may be regulated by the use of work-tickets issued to family heads in return for services performed on reservation projects or on the woodlot itself; i.e. thinning, irrigating, planting or fence maintenance.

Future experiments may indicate several desirable wood-producing species to supplement those suggested here.

Number of Seedlings Necessary to carry out Tribal Woodlot Planting Plan

Seedlings needed annually from 1940 to 1949, inclusively

4,840 ~~4,840~~ Black locust

2420 ~~2,240~~ Honey locust

2420 ~~2,240~~ Green ash

9680 ——

9,680 Seedlings per year for ten years

Seedlings needed from 1950 to 1959, inclusively

2,420 ~~2,240~~ Black locust or equivalent

2,420 ~~2,240~~ Honey locust or equivalent

4,840 ——

4,840 Seedlings per year for ten years

TREE PLANTING FOR WILDLIFE PURPOSES

The tribal lands now support an abundance of game species: sage-hen, ducks, geese, deer, antelope and fur bearers. Of these species wild ducks and geese in particular need consideration. Recent development of six year long livestock water reservoirs have provided excellent potential resting and feeding grounds for waterfoul. At present, however, these ponds are barren of sheltering tree cover along the banks and likewise support no important wildfoul foods.

Several of these ponds were investigated and demonstrative plans for the development of two of them were formulated to guide possible development of others in the future.*

The greatest danger to the success of tree plantings on reservoirs are the hordes of Mormon crickets which may move down from the dry hills in mid-summer. Crickets this summer completely destroyed a spring planting of black locust at one reservoir. Therefore, any planting on these sites must be protected by cricket fences for two or three years after planting.

A cattle fence which will protect the young trees from trampling is also considered necessary. Openings may be left every one hundred yards to permit free use of water.

In view of these difficulties it is, nevertheless, recommended that an effort be made to plant these ponds with desirable trees and grasses. Grass species for wildlife food

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* See sppendix for woodland-wildlife planting plans.

Sheep Creek Reservoir, now almost barren of game foods and cover, needs to be planted to increase its value to wildlife.

should be selected by the interested sections of the Soil Conservation Service. The Biological Survey may be willing to cooperate. Though tree species are necessary for cover and protection on these ponds, such trees as Russian olive, native wild plum, Russian mulberry and hawthorne will produce food as well, and an attempt should be made to establish these species.

CONCLUSION

It should take ten years for postlots to begin producing and twenty years for the proposed tribal woodlot to come into use. In the intervening interval, the present producing stands of aspen and dead material from the Humboldt National Forest should be able to supply the necessary demands for wood products. It appears that they are capable of doing so providing no excessive cuts are made in the aspen to supply seventy or seventy-five thousand posts for the fencing of the new lands now being subjugated. It is suggested that the Indian Service attempt to secure posts for the new lands from some other source than tribal timber stands if possible.

If woodlots are established and the cut for the next twenty years can be made in the present producing stands, four favorable things should result:

1. The present potential stands will begin to mature and permit wood cutting within the limits of proper conservation practices.

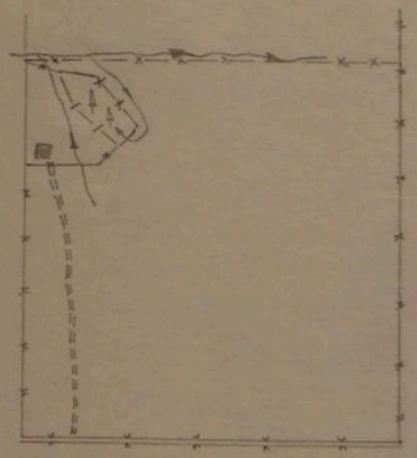
2. The tribal woodlot will have begun producing fuel wood, thereby decreasing the demands on the aspen timber.

3. There should be a better distribution of age-classes in mature and immature aspen stands since farm postlots will have been producing ten years.

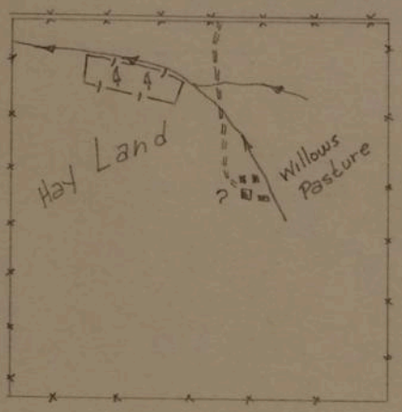
4. Improved cutting practices should be demonstrating their effectiveness.

After 1960 or 1965, tribal and private timber should be producing a fair portion of the annual demand and an equilibrium should be reached in the annual cut of the aspen.

APPENDIX



Farm of: Guy Manning
Location: SW¼ SE¼ Sec 34
Area of Planting Site: Approx .75 Acre
Present Condition: Old garden; now in weeds.
Site Preparation: Disk weeds in fall prior to planting.
Irrigation: Water abundant; ditches constructed
Fencing: About 10 rods of new fence required; old fence must be repaired.
After-care: Minimum required to keep down weeds for two years after each planting.
Planting: Plant 130 trees yearly for 10 years.



Farm of: Fitz Smith
Location: NW¼ NE¼ Sec. 33
Area of Planting Site: Approximately .75 Acre
Present Condition: Waste area at end of hay field.
Site Preparation: Level to permit waste water from hay field to cross planting site.
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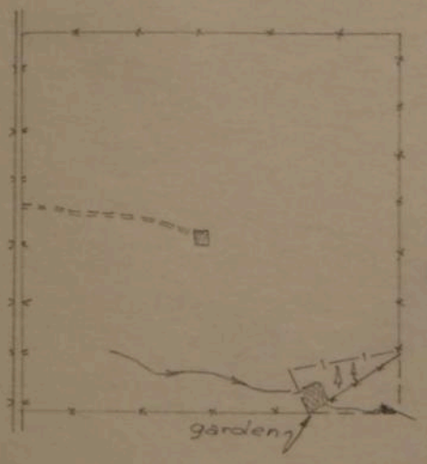
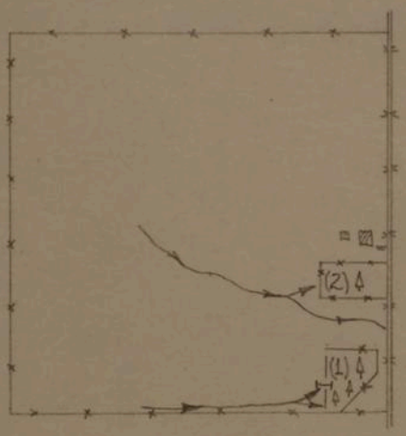


Farm of: John Whiterock
Location: SW¼ NW¼ Sec 34
Area of Planting Site: Approximately .75 Acre
Present condition: Decadent alfalfa and some weeds
Site Preparation: Disk well in fall prior to planting.
Irrigation: Water abundant; ditches developed
Fencing: 36 rods of fence required.
After-care: Minimum required.
Planting: Plant 150 trees each year for 10 years.



Farm of: Thomas Premo
Location: SE¼ NE¼ Sec. 33
Area of Planting Site: Site #1 - Approx. ½ A. Available
Site #2 - Approx. ⅓A.
Present Condition: Site #1, old garden
Site #2, old grain field.
Site Preparation: Disk well fall prior to planting.
Irrigation: Water abundant.
Fencing: 12 rods of fence required.
After-care: Site #1 - Ground squirrels must be controlled by poison.
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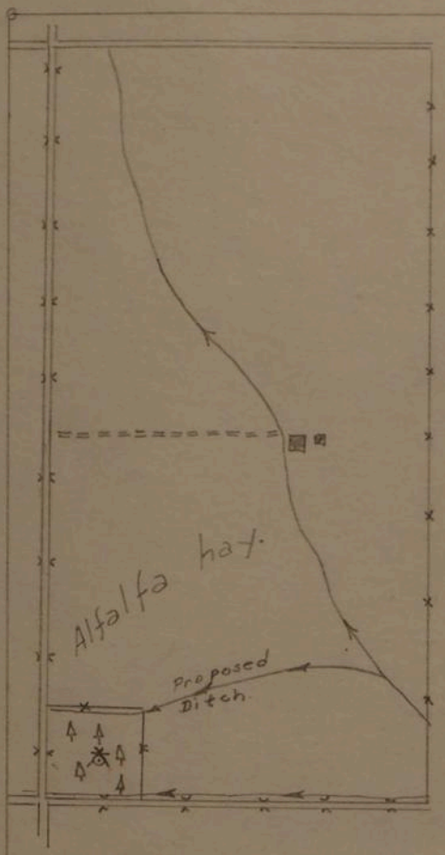
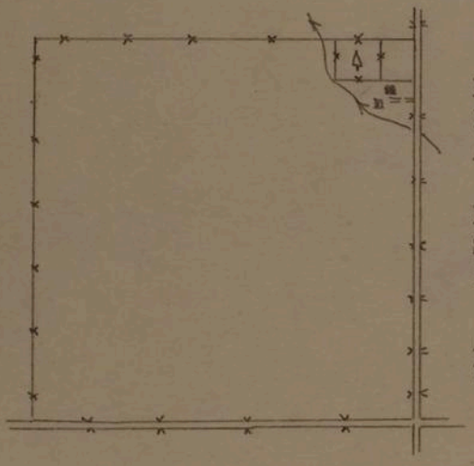
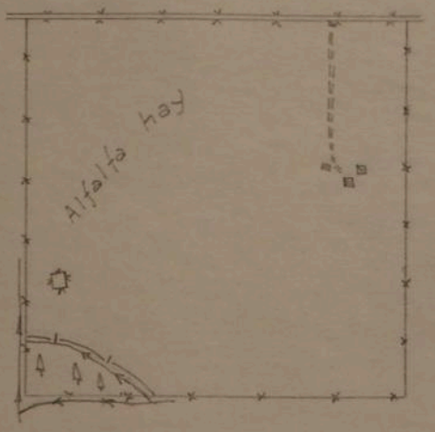
Planting: Plant (Site #2 first) with 150 trees per year for 10 years.



Farm of: John Atkins
Location: E½ NE¼ Sec. 34, T47N, R52E
Area of Planting Site: 2½ Acres fenced.
Present condition: In weeds and sage-brush
Site preparation: Rake and burn weeds fall before planting. Plow and disk.
Irrigation: Must be leveled and (1) a ditch built (See proposed ditch) or (2) the present windmill put in working order.
After-care: The weediness of the site will necessitate annual cultivation to keep down competition until stand is three years old.
Planting: Plant 150 to 300 trees yearly for 10 years.



Farm of: John Dick
Location: SE¼ NW¼ Sec. 34 T47N, R52E
Area of Planting Site: Approx. 1¼ A. fenced.
Present Condition: In thin sod-grasses
Site Preparation: None required.
Irrigation: Water abundant; ditches may be installed at a small cost.
After-care: Minimum required
Planting: Plant 150 to 175 trees yearly for 10 years



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Location: NE¼ NE¼ Sec. 33
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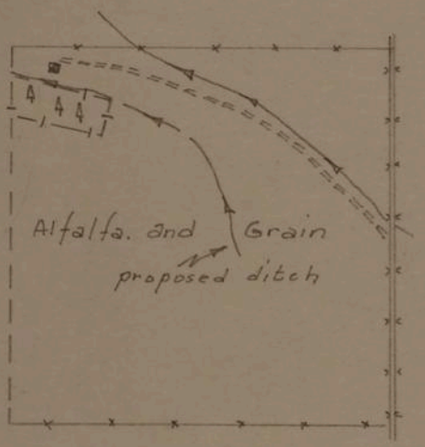
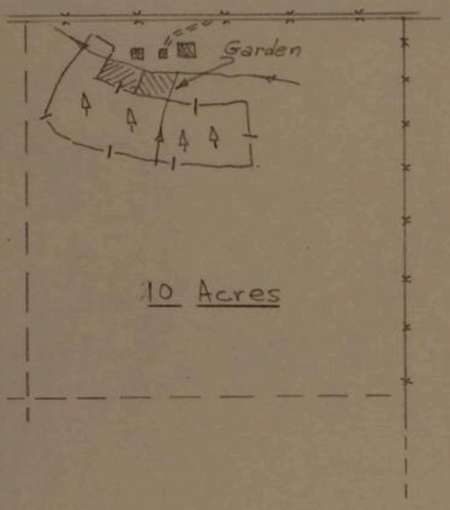
Present condition: Plowed ground now in cheat grass
Site Preparation: Disk well in fall prior to planting.
Irrigation: Water abundant but ditches must be repaired prior to planting.
Fencing: About 24 rods of fence required.
After-care: Minimum amount required.
Planting: Plant 120 trees per year for ten years.



Farm of: Sam Hooper
Location: NW¼ NE¼ Sec. 28
Area of Planting Site: Approximately 1 Acre
Present condition: Now in weeds
Site Preparation: Disk well in fall previous to planting
Irrigation: Proposed ditch to be constructed in Spring of 1940 will provide abundant water.
Fencing: 56 rods of fence required.
After-care: Minimum required.
Planting: Plant 150 trees per year for 10 years.

Farm of: George Hull
Location: NW¼ NE¼ Sec 35
Area of Planting Site: Approximately .75 Acre
Present Condition: Dense rye grass; waste area.
Site Preparation: Plow and level to permit proper irrigation.
Irrigation: Proposed ditch to be constructed in 1940 will give abundant water.
Fencing: About 48 rods of new fence required.
Aftercare: Hoe down weeds for two seasons after each planting.
Planting: Plant 130 trees yearly for 10 years.



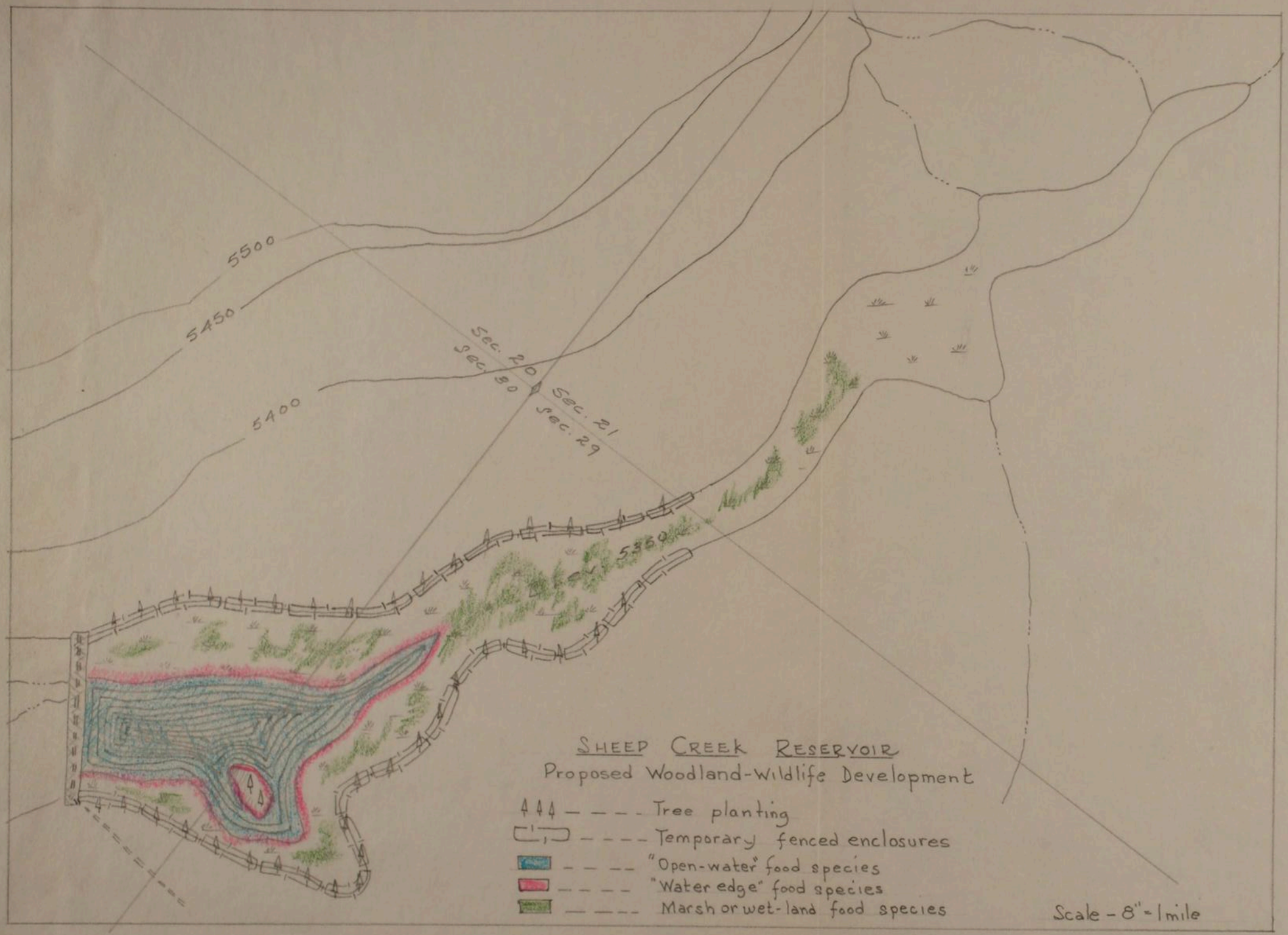
Farm of: Frank Keefe
Location: SW¼ NE¼ Sec 28
Area of Planting Site: Approximately .90 Acre
Present Condition: Decadent grain and alfalfa
Site Preparation: Disk well in fall previous to planting.
Irrigation: Water abundant; ditches in place.
Fencing: About 60 rods of new fence required.
Aftercare: Minimum required.
Planting: Plant 150 trees per year for 10 years.

WOODLOT • PLANTING • PLAN

fraction SE 1/4 Sec 17 - T47N, R51E.

Scale = 10" = 1 mile

Contour Interval - 2.0ft.



SHEEP CREEK RESERVOIR

PROPOSED WOODLAND-WILDLIFE DEVELOPMENT

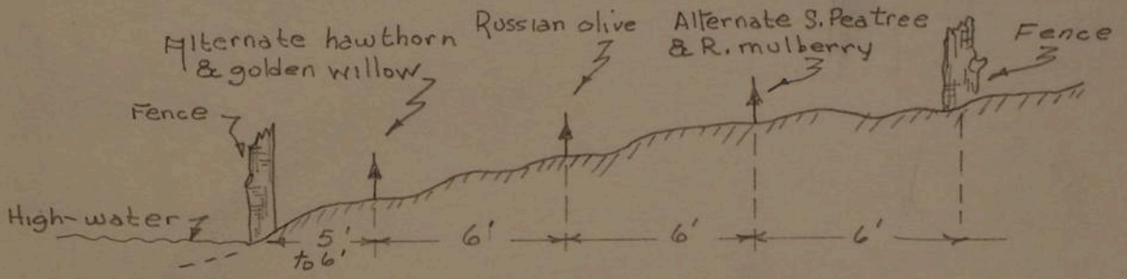
Location. NE¼ Sec 30, SW¼ Sec 21, NW¼ Sec 29, T 46 N, R 51 E, M D M.

Tree Planting for Wildlife Food and Cover.

Planting stock required:

720	Native river hawthorn
720	Golden willow
1440	Russian olive
720	Siberian pea tree
720	Russian mulberry
4320	seedlings.

Planting System. Plant along bank of reservoir just above high water line, six feet apart as shown below--



Food Plantings for Water Birds.

(1) Open Water: Area approximately 20 acres. Plant Sago pondweed (Potamegeton natans) or native equivalent.

(2) Water Edge: Approximately 80 chains to be planted. Establish species of Polygonum (P. amphibium or P. acre)

(3) Marsh and Wet land Flooded in Spring: Approximately 20 acres. Plant wild-rice, Japanese millet or similar species.

Fence Required. The planting will require 682 rods of fence to be built in the form of 45 rectangular enclosures each 200 ft. by 25 ft. This fence may be considered temporary and may be removed after ten years.

GROUND HOG RESERVOIR

PROPOSED WOODLAND-WILDLIFE DEVELOPMENT

Location. S½ Sec 35, T 47 N, R 50 E, M D M.

Tree Planting for Wildlife Food and Cover.

Planting stock required:

130	Golden willow
130	Native river hawthorn
260	Russian olive
130	Russian mulberry
130	Siberian pea tree
780	seedlings

Plant in fenced rectangles 200 ft. by 25 ft. (see map) in a similar manner as proposed for Sheep Creek reservoir.

Permit establishment of native willow cover on south side of reservoir.

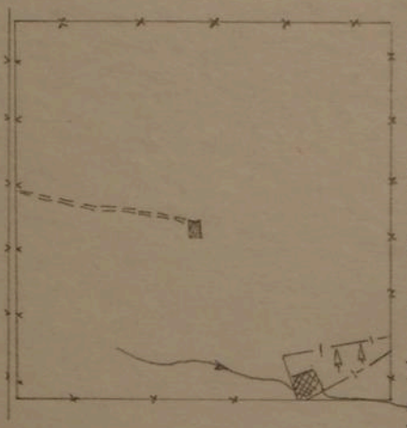
Food Plantings for Water Birds.

(1) Open water: Approximately 3 acres to be planted. Use same species as suggested for Sheep Creek reservoir.

(2) Water edge: Approximately 1400 feet to be planted. Use same species as suggested for Sheep Creek reservoir.

(3) Marsh or wet land flooded in spring: Approximately four acres to be planted. Plant same species as suggested for Sheep Creek reservoir.

Fencing. The planting requires the construction of 220 rods of fence built in 8 rectangles 200 ft. by 25 ft. for the protection of the growing trees. This fence may be removed after ten years.



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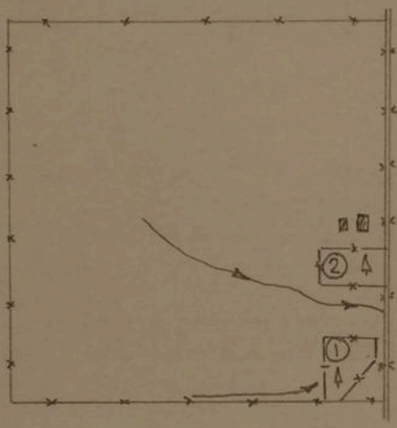

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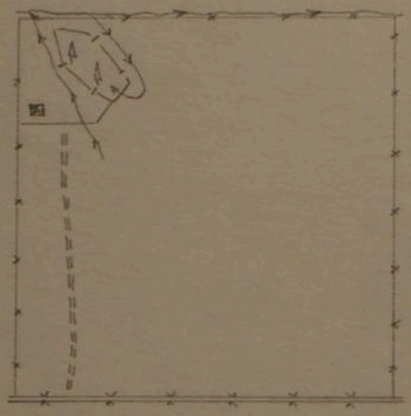

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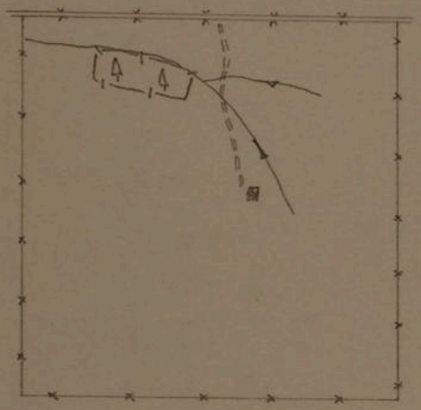

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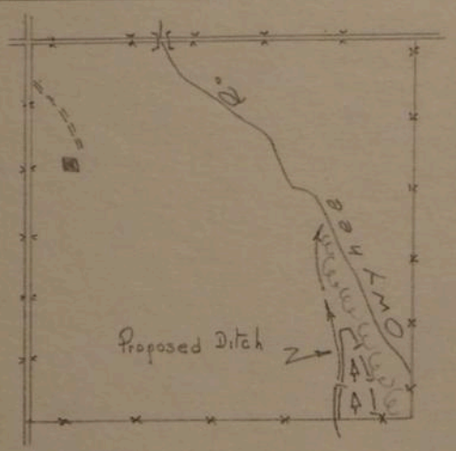

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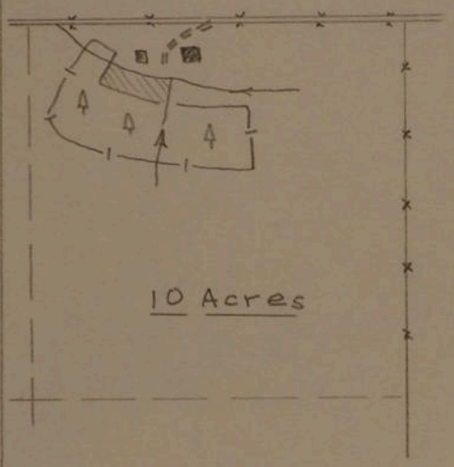

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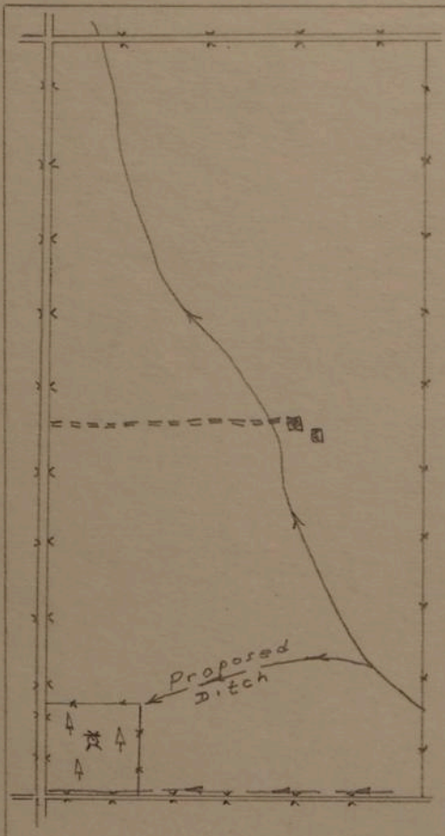

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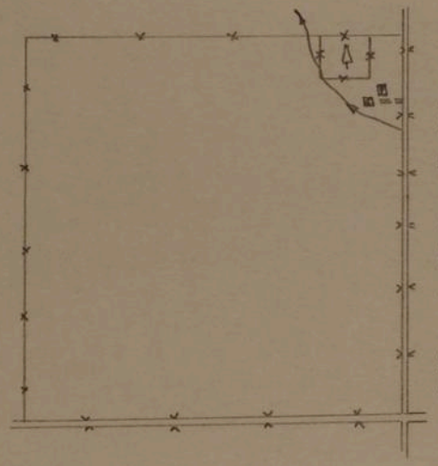

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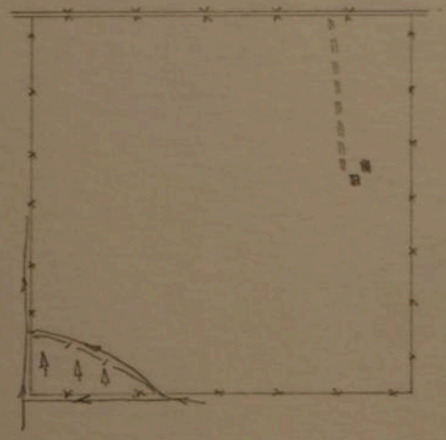

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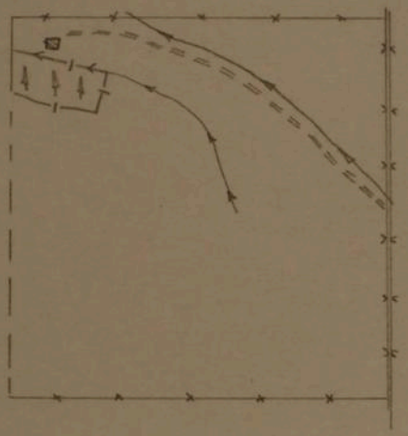

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