JAN 14 1971

Date of writing 12/1/70

EMIS Form 4

REPORT OF PLANNED WORK ACCOMPLISHED*

NAME(S) S. W. Thurber LOCATION I8

Period covered by this report: From 1/1/70 To 12/31/70

PROJECT PLAN TITLE Dryland Range Improvement

Project Number 5 | Primary Subject A-61 | Secondary Subject A-43 | Commodity F-12

State Project Reference 211 | Audience Type 10 | Research Involved x (Yes / No) | Status: Continuing x / Terminated

Copies to S. Carlson, Les Berry

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Dryland range trials were planted in the spring of 1969, were evaluated again in 1970, with the following results:

Dustman Ranch - trial planted May 6, 1969. Located 16 miles east of Ravendale in the Madeline Plains.

This was a 5-replication trial. Each individual plot was evaluated on a 1 to 10 scale, with 0 representing no stand and 10 representing a perfect stand. Following is the average of each of the 5 replications in the trial:

1. Nordan Crested Wheatgrass - - - - - - - - - - - 0
2. Siberian Wheatgrass - - - - - - - - - - - - - - 0
3. Greenar Intermediate Wheatgrass - - - - - - - - 2
4. Amur Intermediate Wheatgrass - - - - - - - - - 8
5. Oahe Intermediate Wheatgrass - - - - - - - - - -8
6. Alkar Tall Wheatgrass - - - - - - - - - - - - - 4.5
7. Largo Tall Wheatgrass - - - - - - - - - - - - - 7.7
8. Topar Pubescent Wheatgrass - - - - - - - - - - -3
9. Luna Pubescent Wheatgrass - - - - - - - - - - - 6.5
10. Trigo Pubescent Wheatgrass - - - - - - - - - - -7
11. Whitmar Beardless Wheatgrass - - - - - - - - - 6.5
12. Western Wheatgrass - - - - - - - - - - - - - - 5.3
13. Sherman Big Bluegrass - - - - - - - - - - - - - 3.3
14. Manchar Smooth Brome - - - - - - - - - - - - - 5.3
15. Regar Brome - - - - - - - - - - - - - - - - - - 6.3

The field containing several acres, surrounding the plot, was also planted on May 6, 1969, with a press wheel drill. The north 1/3 of the plot was planted to Oahe Intermediate Wheatgrass, and in 1970 this was determined to be an excellent stand of Oahe.

The center portion of the field was planted to Nordan Crested Wheatgrass, and this stand was rated as good.

The south portion of the field surrounding the plot was planted to Amur Intermediate Wheatgrass, and this stand was rated as excellent.

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U. S. Department of Agriculture and University of California cooperating

25m-12,'69(N3495L)

Portions of the field on the west side contained a wet area, in which the stand was very poor. This wet area showed signs of high salt.

Some Creeping Alfalfa was broadcast and cultipacked in this wet area, and extending east to the north corner of the plot. A fair stand of Creeping Alfalfa was observed. However, the weed competition from pepper weed and poverty weed was extreme.

One row of Sanfoin was planted at the south end of the replicated plot area. Very few plants of Sanfoin were evident in 1970.

In September of 1970, much of the seed was combined from this plot by Mr. Dustman, and planted in other areas.

The Howard Crabtree trial, on the Madeline Plains, showed very little progress. Some work had been done reconstructing a fence line adjacent to the plot. Part of the plot was lost because of this. It would be wise to re-evaluate what is left of this plot in 1971.

The 3-replication trial=was re-established on the Tom Garate ranch in the Madeline Plains area, east of Ravendale. Because of the late season, it was very hard to evaluate this trial. However, this should be observed closely in 1971.

The Forrest Jones trial, east of Termo, was re-established and a fairly good stand was observed from the 1970 plantings. Some horses and cattle got into this trial after it became established, but did not seem to damage it greatly. On a 1 to 10 scale, the following was the rating for 1970. This trial was established on April 16, and evaluated in July. Following are the evaluations:

1. Greenar Intermediate Wheatgrass - - - - - - - - - 8
2. Amur Intermediate Wheatgrass - - - - - - - - - - 5
3. Topar Intermediate Wheatgrass - - - - - - - - - - 7
4. Trigo Pubescent Wheatgrass - - - - - - - - - - - -6
5. Luna Pubescent Wheatgrass - - - - - - - - - - - - 6
6. Alkar Tall Wheatgrass - - - - - - - - - - - - - - 4
7. Largo Tall Wheatgrass - - - - - - - - - - - - - - 7
8. Whitmar Beardless Wheatgrass - - - - - - - - - - 2
9. Siberian Wheatgrass- - - - - - - - - - - - - - - 1
10. Nordan Crested Wheatgrass - - - - - - - - - - - - 4
11. Oahe Intermediate Wheatgrass - - - - - - - - - - 9
12. Manchar Smooth Brome - - - - - - - - - - - - - - -3
13. Regar Smooth Brome - - - - - - - - - - - - - - - 6
14. Sherman Big Blue Grass - - - - - - - - - - - - - -1
15. Western Wheatgrass - - - - - - - - - - - - - - - 5
16. Triticale (not in replication - 15 inches high - fairly vigorous)

Susanville Airport Trial - This trial was established in May of 1969, in a very coarse blow sand area. Evaluations in May of 1970 showed the following results on a 1 to 10 scale:

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REPORT OF PLANNED WORK ACCOMPLISHED*

NAME(S) ..... LOCATION .....

Period covered by this report:
From .....
To .....

PROJECT PLAN TITLE Dryland Range Improvement, Cont'd.

Project Number .....
Primary Subject .....
Secondary Subject .....
Commodity .....

State Project Reference .....
Audience Type .....
Research Involved ..... Yes No
Status: Continuing ..... Terminated .....

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Susanville Airport, Cont'd.

1.	Siberian Wheatgrass	0
2.	Slender Wheatgrass	0
3.	Nordan Crested Wheatgrass	0
4.	Whitmar Beardless Wheatgrass	5
5.	Manchar Smooth Brome	1
6.	Topar Pubescent Wheatgrass	1
7.	Luna Pubescent Wheatgrass	8
8.	Trigo Pubescent Wheatgrass	8
9.	Alkar Tall Wheatgrass	0
10.	Oahe Intermediate Wheatgrass	9
11.	Greenar Intermediate Wheatgrass	1
12.	Amur Intermediate Wheatgrass	6

In areas surrounding the trial, and in between taxiways and runways, Topar Pubescent Wheatgrass and Oahe Intermediate Wheatgrass was filled in and cultipacked. A very good stand of Topar Pubescent Wheatgrass was found in the areas immediately around the trial, and a fair stand of Oahe Wheatgrass down on the south end, where deeper cuts were made. It was apparent that Topar was doing an excellent job of holding the sand from blowing and drifting too far. This was the purpose of the trial. The City of Susanville was very happy that we were able to get a stand as good as this to become established in the area.

Trials were established in the Doyle area on the Phil Hall ranch. The area was scalped to obtain fill for a highway overpass, and very dry conditions in the spring of 1970, immediately after the plot was established, made for a poor stand the first year. I am sure that there will be a fair stand, provided we have adequate moisture in the winter of 1970 and the spring of 1971.

The trial on the Manuel Ellison ranch at Milford was planted on March 20, in an extremely dry location. The plot germinated fairly well. However, a terrific invasion of sweet clover, dodder, and many other weeds severely hampered the seedlings from obtaining adequate moisture. This trial, as well as the Phil Hall trial, will be re-evaluated in the spring of 1971.

Wheatgrass can be grown successfully in most all the Lassen County area, if attention is paid to adequate seedbed preparation, planting into moisture, and cultipacking

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immediately after planting. Weed control should be mandatory, fencing livestock from the new plantings is a must, and certainly adequate moisture is needed. I am continually surprised how little moisture is needed, if moisture comes at the right time.

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NAME(S) S. W. Thurber LOCATION 18

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Project Number 5 | Primary Subject A-61 | Secondary Subject A-43 | Commodity F-12

State Project Reference 211 | Audience Type 10 | Research Involved x (Yes / No) | Status: Continuing x / Terminated

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3. Nordan Crested Wheatgrass - - - - - - - - - - - - - 0
4. Whitmar Beardless Wheatgrass - - - - - - - - - - - 5
5. Manchar Smooth Brome - - - - - - - - - - - - - - - 1
6. Topar Pubescent Wheatgrass - - - - - - - - - - - - 1
7. Luna Pubescent Wheatgrass - - - - - - - - - - - - - 8
8. Trigo Pubescent Wheatgrass - - - - - - - - - - - - 8
9. Alkar Tall Wheatgrass - - - - - - - - - - - - - - - 0
10. Oahe Intermediate Wheatgrass - - - - - - - - - - - -9
11. Greenar Intermediate Wheatgrass - - - - - - - - - - 1
12. Amur Intermediate Wheatgrass - - - - - - - - - - - 6

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Dryland range replicated trials were placed on the Rowland ranch at Doyle; the Dow ranch at Janesville; the Van Dorn ranch at Standish; the Crabtree, Garate, Dustman, Jones and Williams ranches in the Madeline Plains area. A replicated trial was also placed on the Susanville airport.

Almost complete failure was observed on the Dow and Van Dorn trials, the Dow trial because of lack of moisture. The plants germinated fairly well, but a long dry spell prevented them growing, and they blew out. The Van Dorn trial was lost primarily from lack of moisture and a terrific invasion of Russian Thistle. The other trials were successful in a range from poor to excellent. An evaluation of the replications are as follows:

Howard Crabtree Trial - Planted May 6, 1969 - sandy soil. At the time of planting the soil was dry and hard. In rating the plants from 1 to 10, only four of the varieties planted received a rating. The rest received a 0 rating. Of the four, the ratings are as follows:

Oahe Intermediate Wheatgrass - 8
Amur Intermediate Wheatgrass - 8
Trigo Pubescent Wheatgrass - - 8
Luna Pubescent Wheatgrass - - 6

Dustman Ranch Trial - Planted May 6, 1969. The area was summer fallowed for two seasons prior to planting, seedbed chiseled and rod weeded, and rolled before planting. Most of the area had an ideal seedbed, and most seed was planted in moisture. All seed planted with Planet Jr. Each plot contained 10 rows of a single variety, each variety replicated 5 times.

The field surrounding the plot area was planted 1/3 on the north end with Crested Wheatgrass; the center third to Oahe Intermediate Wheatgrass, and the south third to Amur Intermediate Wheatgrass. All varieties planted outside the plot were planted with a press wheel drill, and planted into moisture. Plots were ring rolled after planting.

Plots were sprayed on June 6, 1969, using 2,4-D Amine at the rate of 1 pound per acre. Immediately after being sprayed, a large thunder storm came up and rain, in the amount of 1/2 an inch, fell on the plot. The rain continued for several days thereafter.

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Dryland Range Improvement, Cont'd.

All varieties were evaluated from 1 to 10, and all of the 5 replications were averaged, giving a numerical figure, as follows:

Nordan Crested Wheatgrass - - - 1
Siberian Wheatgrass - - - - - - 0.5
Greenar Intermediate Wheatgrass-1
Amur Intermediate Wheatgrass - 7
Oahe Intermediate Wheatgrass -- 8
Alcar Tall Wheatgrass - - - - - 5
Largo Tall Wheatgrass - - - - - 7
Topar Pubescent Wheatgrass - - -3
Luna Pubescent Wheatgrass - - 6
Trigo Pubescent Wheatgrass - 8
Whitmar Beardless Wheatgrass- 5
Western Wheatgrass - - - - - 7
Sherman Big Blue Grass - - - 4
Manchar Smooth Brome - - - - 7
Regar Brome - - - - - - - - - 7
Triticale - - - - - - - - - -10

A row of Sanfoin was planted south of the plot, and became very well established. Creeping Alfalfa was broadcast in a small strip across the field. Creeping Alfalfa was rated at 4.

Garate Trial - The Garate trial was planted April 22, 1969, in the same manner as the Dustman trial. It was apparent that Tordon, sprayed to control Poverty Weed during the 1968 year, held over in the soil and, therefore, destroyed much of the benefits of the trial. Of those varieties that were not in Tordon areas, they were ranked in the following order:

Oahe, Amur, Western Wheatgrass, Largo Tall Wheatgrass. These showed an average of germination for plant growth of 4 on a 1 to 10 basis. Oahe, planted around the plot, using a drill, not in a Tordon area, showed an average plant vigor of 8.

Forrest Jones Trial - Planted May 28, 1969. Seedbed well worked. Planted in very dry soil. We received 0.5 inches of rain after planting. Of those plants showing survival at all in August, the following numbers, using a 1 to 10 scale, shows the vigor of the plant:

Amur Intermediate Wheatgrass - 4
Oahe Intermediate Wheatgrass - 4
Largo Tall Wheatgrass - - - -5
Luna Pubescent Wheatgrass - - -4
Trigo Pubescent Wheatgrass - 4
Regar Brome - - - - - - - - 2
Triticale Elske - - - - - - 8
Triticale Rosner - - - - - -10

It was apparent that the best varieties were the bigger seeded varieties. It was planted too late, and the seedbed was too loose. Amur Wheatgrass, planted outside the trial area, rated about 4.

Elmer Williams Trial - Planted May 20, 1969. Seedbed was disced up in established stand of Intermediate Wheatgrass. Seedbed was dry. Planting was done with Planet Jr., approximately 10 rows per individual plot, cultipacked after planting, rated as follows on a 1 to 10 scale:

Nordan Crested Wheatgrass - - - 1
Siberian Wheatgrass - - - - - - 1
Greenar - - - - - - - - - - - - - 0.5
Amur Intermediate Wheatgrass - -8
Oahe Intermediate Wheatgrass - -8
Alcar Tall Wheatgrass - - - - - 3
Largo Tall Wheatgrass - - - - - 7
Topar Pubescent Wheatgrass - - -5
Luna Pubescent Wheatgrass - - - 6
Trigo Pubescent Wheatgrass - - 7
Whitmar Beardless Wheatgrass - 3
Western Wheatgrass - - - - - - 4
Sherman Big Blue Grass - - - - 0
Manchar Smooth Brome - - - - - 7
Regar Brome - - - - - - - - - - 7
Triticale - - - - - - - - - - -10

Dryland Range Improvement, Cont'd.

In the Doyle area, on the Rowland ranch, 3 rows of each variety were planted. The seedbed was raked, it was moist from rain. Planting date - April 18, 1969. Planted one inch deep, firmed with a rake. All varieties responded very well to planting. However, it was apparent that Oahe Intermediate Wheatgrass, Amur Intermediate Wheatgrass, and Trigo Pubescent Wheatgrass were again the varieties to be reckoned with in this area, all of them averaging 8 on a 1 to 10 scale. Most of the plantings averaged from 4 to 6.

Susanville Airport Trial - This was an interesting trial. This was planted in very coarse, dry, and blow sand, that had been scalped by equipment in extending the runway. A 3-replication trial was planted on May 1, 1969. Topar Pubescent Wheatgrass and Oahe Intermediate Wheatgrass were planted outside the plot, to try to hold down the sand on a lot of the scalped areas outside the plot.

The seed came up and germinated outside the plot, then the area turned very dry, until the latter part of June. The Oahe Intermediate Wheatgrass germinated readily, and many of the plants were lost because of the extreme dryness. Topar Pubescent Wheatgrass was slow to germinate and had a good survival rate - about 6 on the scale from 1 to 10, in most of the area around the plot.

Within the trial area of the 3-replication plot, the following are the scores given on August 11 to varieties planted:

Siberian Wheatgrass - - - - - 0	Luna Pubescent Wheatgrass - - - 4.3
Davis Slender Wheatgrass - - 0	Trigo Pubescent Wheatgrass - - -6.33
Nordan Crested Wheatgrass - - 0	Alcar Tall Wheatgrass - - - - - 0.3
Whitmar Beardless Wheatgrass- 6.6	Oahe Intermediate Wheatgrass - -7.6
Manchar Smooth Brome - - - - 2.6	Greenar Intermediate Wheatgrass-1.0
Topar Pubescent Wheatgrass -- 1.0	Amur Intermediate Wheatgrass - -6.6

It was evident that the Dow, Van Dorn, and Garate and Jones trials should be repeated in 1970. Also, work should be done to see what we can do in the way of wheatgrasses in the Westwood area. Possibly, more work should be done in the Honey Lake Valley area.