Form 406

U.S. DEPARTMENT OF AGRICULTURE

FOREST SERVICE

U. S. GOVERNMENT PRINTING OFFICE: 1934

VEGETATIVE READINESS STUDY

Bitterroot National Forest

1938

Approved:

E. D. Sandvig

Assistant Regional Forester.

Range Survey
Copy

R M De Nio

G
STUDIES
Range Readiness
Bitterroot

SUMMARY OF STUDY

From May 1 to June 3, 1938, a period study to determine the dates of vegetative readiness and the best methods of management of spring and summer ranges was conducted in the Bitterroot Valley. The area studied is the most intensively used of any of the Bitterroot ranges. The spring range area is very limited and consists mainly of small grassland areas cut off from each other by timber. Owing to their limited size, these areas have been subjected to extreme use. The use of these ranges has been too early in the past. The study indicates that it will be necessary to set opening dates from 15 to 30 days later than the present opening dates.

Conclusions

General

1. Approximately 85% of the cattle ranges are within timbered types, the remainder being grass, browse, and meadow types.

2. The bulk of the cattle range lies between 4000' and 6000' in elevation, the lower limits of which are steep and difficult for cattle to use, while those at the heads of side drainages and on intermediate and spur ridges are more rolling and accessible.

3. True creek bottom ranges are limited and do not play an important part.

4. The cut-over yellow pine type is the most important part of the spring and summer range.

5. All exposures were found on the ranges studied, but south and west exposures are by far the most important from a grazing standpoint, since at least 80% of the usable range occurs on these.

6. Range management is made difficult by the large percentage of privately owned land found within the cattle ranges.

SUMMARY OF STUDY

From May 1 to June 3, 1938 a period study to determine the dates of vegetative readiness and the best method of management of spring and summer ranges was conducted in the Bitterroot Valley. This area studied is the most intensively used of any of the Bitterroot ranges. The spring range area is very limited and consists mainly of small grassland areas cut off from each other by timber. Owing to their limited size, these areas have been subjected to extreme use. The use of these ranges has been too early in the past. The study indicates that it will be necessary to set opening dates from 15 to 30 days later than the present opening dates.

Conclusions

General

1. Approximately 85% of the cattle ranges are within timbered types, the remainder being grass, browse, and meadow types.

2. The bulk of the cattle range lies between 4000' and 6000' in elevation, the lower limits of which are steep and difficult for cattle to use, while those at the heads of side drainages and on intermediate and spur ridges are more rolling and accessible.

3. True creek bottom ranges are limited and do not play an important part.

4. The cut-over yellow pine type is the most important part of the spring and summer range.

5. All exposures were found on the ranges studied, but south and west exposures are by far the most important from a grazing standpoint, since at least 80% of the usable range occurs on these.

6. Range management is made difficult by the large percentage of privately owned land found within the cattle ranges.

7. Past use over the entire area has left the range in approximately the following condition: 5% depleted, 15% overused, 50% properly used, 30% lightly used.

8. Disturbance caused by logging and slash burning have brought about the introduction of poa, cheat grass and weeds in many places.

9. Recent and current heavy fall of bug-killed lodgepole on the high cattle ranges has and will cause reduction in grazing capacity and difficulty in distribution of stock for some years on these areas.

Stockmen

1. All of the ranches comprising true economic units are capable of meeting new and later opening dates (2 to 4 weeks) as shown this spring (1938) on the East Fork Division, when the opening date was advanced to May 15 and stock were fed during this period.

2. Several of the ranchers interviewed expressed their belief that the opening date should be later (Frank Cash, and Wakeham and Richardson), but small permittees without sufficient hay will protest any set-back in the opening date.

3. Alfalfa and native hays are the chief feed supply during the 4 to 5 month feeding season. During the additional 1 to 1-1/2 months while off the Forest, stock are turned on cut meadow hayland and other pasture.

Range Management

1. A salting plan designed to utilize the lower bunchgrass slopes is urged. These low areas reach readiness early in the season and are seldom used by the cattle which pass through to salted areas on intermediate and high ridges. Early salting on low areas should be followed by progressively salting toward higher ranges as the season advances.

2. Salt should be placed on spur ridges rather than on main ridges. Heavy utilization along main ridges is the rule over the entire area studied.

3. Herding will be instituted this year by the Three Mile Stock Association. This should be closely supervised by the ranger on the Stevensville District until the correct herding practices have been instituted.

7. Rest may overrun entire area, left the range in approximately the following conditions: 6% depleted, 10% overgrazed, 60% moderately used, 30% lightly used.

8. Disturbance caused by logging and slash burning have brought about the introduction of poa, cheat grass and weeds in many places.

9. Adjacent and portant heavy fall & log-killed lodgepole on the high mesa tracts and will cause mechanical grazing casualty and difficulty in distribution of stock for area years on those areas.

[illegible]

1. All of the remedies covering the economic units are capable of meeting new and later opening dates (2 to 4 weeks) as about 20th spring (1936) on the east York Division, when the opening date was advanced to May 15 and stock were let coming into control.

2. Several of the remedies interviewed expressed belief that the opening date should be later (June 15th, 20th Malheur and Klamath), but practically all agreed that Forest Day will prevent any set-back in the opening date.

3. Alfalfa and meadow hays are the chief feed supply during the 4 to 6 month feeding season. During the winter[illegible] to 1-1/2 months while off the Forest, stock are turned on cut meadow hayland and other pasture.

[illegible]

1. A salting plan designed to retain the lower grazing areas in use. Where low areas receive early in the season are relieved by the cattle which go through to salted areas on intermediate and high ridges. Early salting on low areas should be followed by progressive salting toward higher ranges as the season advances.

2. Salt should be placed on open ridge tops back from on main ridges. Heavy utilization along main ridges is the rule over the entire area studied.

3. Grazing will be instituted late year by the Ochoco Stock Association. This should be closely supervised by a ranger or [illegible] watched until the correct grazing practices have been instituted.

4. Water developments are needed on several of the divisions to eliminate trailing and secure better distribution. As a rule, the Bitterroot ranges are well watered.

5. Close attention should be paid to distribution of stock on the range. Cattle should be pushed up the various side draws in small groups in conformity with the grazing capacity of each and dropped at the salt ground, rather than dumping them at the forest boundary. Much of the range is lightly used simply because cattle have never been placed upon it and the rough character of the range prohibits their finding it themselves.

6. It was observed that hillsides over 50 percent in steepness receive little, if any, use by cattle. Effort should be made to obtain utilization of these through better management of stock. If this is not possible, their capacity should be deducted from the total of the allotment.

Dates of Readiness, 1938

1. Range readiness for 1938, within the main Bitterroot Valley, occurred on May 20 on all of the spring ranges.

2. The Meadow-Tolan Creek Management Unit was found to be ready at least two weeks later than areas of similar altitudinal range. This is due to its north and northwest exposure. A June 1 opening date is recommended for this area.

3. The Wales Flat range on the West Fork Division presents a problem in that the small parks are badly overused. Either this range should be stocked to the capacity of these small parks, or they should be fenced. Salt should be placed in the timber, never in the parks. Eventual removal of cattle from this area is recommended.

4. South exposures were first to reach range readiness, followed by west, east, and north exposures in the order named. The spread between dates of range readiness as between south and north exposures is as much as three weeks in some cases.

Average Date of Readiness

The long-time average was determined by Lommasson's method "Air Temperatures as an Index for Vegetative Readiness". This showed the average date of vegetative readiness on the Bitterroot spring ranges to be May 15. The years 1899 to 1938, inclusive, were used in computation of this date. (In 1939 the date of readiness was May 4. This effected the average date of readiness less than one-half day and did not change the average).

G
STUDIES
Range Readiness
Bitterroot, 1938

G E N E R A L

1. Object

The object of this study was to determine the opening dates for grazing on all of the low ranges within the Bitterroot drainage, using vegetative readiness as an indicator; the separation of these ranges into areas by elevational zones having different dates of vegetative readiness, and the harmonization of these elevational zones into units suitable for the practical handling of stock during the spring and summer grazing periods, together with recommendations on management problems and range improvements that will aid in obtaining proper seasonal use.

2. Divisions Upon Which Conducted

The ranges covered on this study are all contained within the Bitterroot drainage. The ranger districts included were Stevensville, Darby, East Fork and West Fork.

For the purpose of this study, and since no divisions have been set on this Forest as yet, the examiner has named them as follows:

Stevensville Ranger District - North End Division
Darby Ranger District - Darby Division
East Fork Ranger District - East Fork Division
West Fork Ranger District - West Fork Division.

Due to the differences between the ranges on the east and west sides of the main Bitterroot Valley, and to the broad strip of private land lying between them, it will probably be necessary, when setting up final management plans, to separate the ranges on the west side from those on the east side by divisions or subdivisions.

Primarily, the low ranges examined are used by cattle and horses since this class of stock has been assigned to the spring and summer ranges.

GENERAL

1. Object

The object of this study was to determine the operating characteristics on all of the low ranges within the Stevens, using vegetative conditions as an indicator of the potential of these ranges after proper control of grazing by domestic animals. Having adequate areas of vegetative readiness, and the maximization of these elevational zones into multiple-use for the present and handling of it during the spring and summer grazing periods, together with recommendations on seasonal problems and range improvements that will aid in obtaining proper seasonal use.

2. Divisions Upon Which Conducted

The ranges covered in this study are all contained within the Entiat and Chelan districts. The ranger districts included were Stevensville, Darby, East Fork and Trout Creek.

For the purpose of this study, and since no divisions have been set on this forest as yet, the examiner has named as follows:

Stevensville Ranger District - North Fork Division
Darby Ranger District - Darby Division
East Fork Ranger District - East Fork Division
West Fork Ranger District - West Fork Division

Due to the difference between the ranges on the east and west sides of the Bitterroot Valley, and to the broad strip of private land lying between them, it will probably be necessary, when setting up Land Management plans, to separate the ranges on the east side from those on the west side by divisions or subdivisions.

Primarily, the low ranges examined are used by cattle and horses since this class of stock can best be assigned to the spring and summer ranges.

3. Dates of Study

The study began on May 1 and continued until June 4.

June 13 to June 16 was spent in compiling data gathered during the field studies. August 3 to August 6 was spent in determining the average date of vegetative readiness, using the "Air Temperatures as an Index for Vegetative Readiness" method.

4. General Character of the Country Examined

In general the range areas examined on the Bitterroot were steep and mountainous in character. Approximately 85% of the area used by cattle as spring and summer range is within timbered types; grass types, and a small amount of browse type, make up the remainder. On the east side, the west and south exposures are predominant as forage producers. On the west side, east and south exposures carry the greater portion of usable range. All of the creeks flow toward the Bitterroot drainage. They are deep and bounded by cliffs and steep side walls which sometimes act as barriers. Non-usable range is found on the north and east slopes.

5. 1938 Season - Variation from Normal

According to information gathered from Forest officers and local ranchers, the 1938 season was at least 10 days later than normal although some informants declared the season to be from two to three weeks later than normal. From observations and information gathered, the writer believes the season to be not more than 10 days behind normal over the greater portion of the area covered.

6. Feeding Conditions Around Area Concerned

The permittees using national forest range on the Bitterroot vary in their ability to meet changes in opening dates. Within the Sula Basin, the ranchers are chiefly dependent upon native grass meadows for their hay supply. From 1-1/2 to 2-1/2 tons of hay per animal unit is fed during the 4 to 4-1/2 month feeding season.

Within the main Bitterroot Valley the ranchers feed alfalfa hay raised on irrigated meadows. From 3/4 to 1 ton of hay is fed during the 4 month feeding season.

The Frank Cash ranch, located near the Forest boundary on Skalkaho Creek, may be considered as a representative ranching unit. (See picture No. 33.) The ranch contains 1800 acres of land, of which 100 acres are meadow land and

1700 acres pasture land. Three hundred fifty tons of hay are put up each year. The ranch supports 200 head of Shorthorn cattle and 18 head of horses. The feeding season is from November 1 to April 15. Mr. Cash usually keeps a reserve supply of 100 tons of hay. He does not sell excess hay. He is willing to be quoted that "May 1 is too early for grazing in the average year". He suggests a May 10 or May 16 opening date. The Cash ranch is operating at a modest profit and is a marked contrast to many shoestring outfits operating up and down the valley. All of the small outfits with from 10 to 30 head of cattle run short of hay about April 1 and turn cattle out at or before that time onto the range available. This type of permittee would have difficulty in meeting a later opening date.

The Wakeham & Richardson ranch, located near the mouth of Harlan Creek, is another ranch representative of the permittees in that area. It has 500 acres of land, of which 100 acres are bottom lands. They run 60 cattle and 10 horses. The owners informed me that they could feed until May 15th without difficulty.

In the East Fork area the May 15 season was put into effect this year. All of the ranchers succeeded in meeting the new opening date. However, some difficulty was encountered with those who did not sell off excess stock during the fall of 1937 because of poor prices. All of the ranchers who were commensurate for the number of stock carried were able to feed until the last week in May.

The users of forest range on the Bitterroot vary greatly in their ability to meet emergencies. All of the ranches on the East Fork District are economic units capable of surviving and prospering under ordinary circumstances. Such ranches as the Frank Cash and the Wakeham & Richardson in the Hamilton-Darby vicinity are also economically on a sound footing and can meet any reasonable change in grazing season. However, there are a number of shoestring outfits which cannot produce feed enough to feed until the present opening date and will protest any later date. The basic trouble lies in the size and resource of their units and an open season the year around would not remedy their ills.

Further study of these small units will be necessary before definite recommendations can be made regarding the small ranchers. Land use planning by the county, with the active aid of the Bitterroot Forest personnel, is leading toward a better economic arrangement in the Bitterroot Valley.

Principal Forage Species for Seasonal Units

Spring and summer range; Ponderosa pine, grass, and transition lodgepole types.

Grasses and Grasslike Plants

Blue wheatgrass	- Agropyron spicatum
Bluebunch fescue	- Festuca idahoensis
Bluegrass	- Poa secunda
Downy chess	- Bromus tectorum
Junegrass	- Koleria cristata
Alpine timothy	- Phleum alpinum
Pinegrass	- Calamagrostis rubescens
Rough fescue	- Festuca scabrella
Sedge	- Carex geyeri

Weeds

Yarrow	- Achillea lanulosa
Sandwort	- Arenaria sp.
Balsamroot	- Balsamorrhiza sagittata
Low larkspur	- Delphinium bicolor
Shooting star	- Dodecatheon cusickii
Drymocallis	- Drymocallis sp.
Daisy	- Erigeron sp.
Dog-tooth violet	- Erythonium parviflorum
Strawberry	- Fragaria sp.
Geranium	- Geranium sp.
Alum root	- Heuchera sp.
Wooly weed	- Hieracium sp.
Wake-robin	- Trillium ovatum
Mountain lily	- Leucocrinum montanum
Lupine	- Lupinus sp.
Horse mint	- Monarda sp.
Beard tongue	- Pentstemon sp.
Dwarf phlox	- Phlox douglasii
Cinquefoil	- Potentilla sp.
Wind flower	- Anemone sp.
Buttercup	- Ranunculus sp.
Golden rag wort	- Senecio aureus
Wooly groundsel	- Senecio canus
Old-man's whiskers	- Sieversia ciliata
Dandelion	- Leontodon taraxacum

Browse

Mountain maple	- Acer glabrum
Service berry	- Amelanchier alnifolia
Kinnikinnick	- Arctostaphylos uva-ursi
Silver sage	- Artemisia frigida
Big sage	- Artemisia tridentata
Ceanothus	- Ceanothus sanguineus
Snowbush	- Ceanothus velutinus
Mt. Mahogany	- Cercocarpus montanus
Rabbit brush	- Chrysothamnus lanceolatus
Dogwood	- Cornus sp.
Oregon grape	- Odostemon acquifolium
Chokecherry	- Prunus demissa
Bitterbrush	- Purshia tridentata
Rose	- Rosa sp.
Willow	- Salix
Snowberry	- Symphoricarpos sp.

NORTH END DIVISION - WEST SIDE

1. Names of Units Falling Into the Same Seasonal Area

Spring and summer ranges:

(a) McClain Creek C&H
(b) Bear-Big Creek C&H
(c) Blodgett-Pred Burr C&H

2. General Topography of Each Seasonal Unit

These spring and summer ranges lie within elevations ranging from 4000' to 5000' on the Bear-Big Creek C&H and the Blodgett-Pred Burr C&H. The McClain Creek C&H, which is small and rather unimportant, has an elevation of 6000' at its highest point. These ranges are located on the toe-like formations which face east toward the Bitterroot Valley, and are connected with the main wall of the mountains which rise abruptly to elevations of over 9000' in five miles. All of the west side ranges are limited to a strip not exceeding three miles in depth and narrowing in places to one-half mile or less.

3. General Types and Their Relation as Regards Elevation and Exposure

Practically all of the ranges within the Bear-Big Creek and Blodgett-Pred Burr Units are 6YP cut-over type with .25 to .35 densities. Since most of the area has an east exposure there is no appreciable difference in types due to exposure although the north slopes carry less feed than the south and east slopes. The upper fringe of this range extends into 6DF type at the highest altitudes. A small area of 1 Bte-Fid-ART type is found on the McClain Creek C&H; exposure, SW.

4. Direction and Degree of Slope

These ranges slope in an easterly direction, varying in degrees from 5% to 60%. North slopes are, as a rule, steeper and less usable than south and east slopes. Within its confines, these ranges are more easily negotiable by domestic stock than most of the other ranges on the Bitterroot, average slope being 35%.

5. Water - Abundance and Character

All of the west side ranges are well supplied with water, the greatest distance to water not being over one-half mile. Creeks such as Big, Bear, Bass and Blodgett run the year around; the smaller drainages have water in them until

late summer. In addition there are several springs. Irrigation ditches, running from the larger creeks to the valley ranches, make the water situation very favorable.

6. Examination of Forage Conditions Within the West Side Range, North End Division

Plot 1. McClain Creek

NE¼SE¼ Sec. 17, T. 11 N., R. 20 W. Elevation 5500'. Slope SW, 30%. Rocky granite loam soil. 1 Sto-Fid-ART type, overused on open grass types. Located lower limits Zone 2. This area is small and high; estimated readiness June 1.

Date of Examination	5-4-38	5-21-38	% of
Condition of Soil	Wet	Damp	Cover
Common Name -			
Bluegrass	2"	4½"; forming heads	10
Idaho fescue	1-3/4"	3"	25
Wheatgrass	1-3/4"	4-3/4"	10
Shooting Star	Beginning growth	Mature and dying	
Blue bell	" "	Full flower	
Dandelion	" "	" "	
Camas	" "	4"	
Wooly weed	" "	2½"	
Aster	" "	Full flower	

Plot 2. Bear-Big Creek C&H

SE¼SW¼ Sec. 22, T. 8 N., R. 21 W. Elevation 3800'. Slope SW, 10%. Disintegrated granite loam soil. 6YP cut-over with reproduction. Utilization 5%, 1938. This plot located in range disturbed by logging.

Date of Examination	5-4-38	5-21-38	% of
Condition of Soil	Moist	Damp	Cover
Common Name -			
Bluegrass	2½"	3"; seed stalks formed; in head	5
Junegrass	1"	3½"	5
Downy chess	1/2"	3"; forming heads	25
Sedge	5"; flower in boot	6"; heads formed	20
Arnica	2/3 leaf	Full leaf; flower inbud	
Lupine	2/3 leaf	Full leaf; flower in bud	
Balsamroot	20% in flower	90% in flower	
Yarrow	1/2 leaf	Full leaf; forming seed stalks	
Wooly weed	1/2 leaf	Full leaf; forming flower stalks	
Camas	3"	4½"; flower in boot	

Plot 3. Blodgett-Fred Burr C&H

NW¼NE¼ Sec. 5, T. 6 N., R. 21 W. Elevation 4400'. Slope East, 15%. Disintegrated granite rocky loam. 6YP cut-over with reproduction. Utilization 1938, none. Located in lower half of Zone 1.

Date of Examination Condition of Soil	5-7-38 Moist	5-20-38 Moist	% of Cover
Common Name -			
Wheatgrass	6"	9"	40
Idaho fescue	1½"	3-3/4"	5
Bluegrass	4"	6"; in head	5
Downy chess	1-3/4"	3"; beginning to head	5
Sedge	3"	4½"; in head	20
Lupine	3/4 leaf	Full leaf; flowers in bud	
Dog-tooth violet	Dying	Seeds forming	
Yarrow	3/4 leaf	Full leaf; forming flower stalks	
Service berry	1/2 leaf	Full leaf	
Snowberry	1/2 leaf	Full leaf	
Balsamroot	20% in bloom	95% in bloom	

Plot 4. Blodgett-Fred Burr C&H

SW¼SE¼ Sec. 20, T. 7 N., R. 21 W. Elevation 4500'. Slope East, 30%. Disintegrated granite soil. 6 YP-Pid-Cre type. Utilization 5%, 1938.

Date of Examination Condition of Soil	5-7-38 Wet	5-20-38 Moist	% of Cover
Common Name -			
Wheatgrass	3-1/2"	6-1/2"	10
Idaho fescue	1-1/2"	3"	25
Junegrass	3-1/2"	4-1/2"	5
Downy chess	1-1/2"	2"; forming seed heads	5
Sedge	3"; flowers in boot	4"; forming seed heads	
Balsamroot	Beginning growth	50% in flower	
Wild onion	Full leaf	Dying at tips	
Lupine	3/4 leaf	Full leaf; flower in bud	
Buttercup	Full flower	Gone	
Yarrow	3/4 leaf	Full leaf; forming seed stalks	

7. Condition of Range as Result of Former Use

As a whole the west side ranges on this division were in good condition. The presence of downy chess (Bromus tectorum), Poa secunda and weeds indicates that the range has been disturbed in places. Brush disposal fires and concentration of cattle along ridges and around watering places have caused some areas to be depleted. Of these west side ranges on the North End Division, 60% may be considered as being properly used, 20% lightly used, 15% overused and 5% depleted.

8. Soil Moisture Conditions

The soil moisture conditions on these ranges during the spring of 1938 were good due to the snows which fell on May 1 and again on May 16, 17 and 18. The soils examined ranged from damp to wet. No serious trampling of the soil was observed.

9. Conclusions as to Vegetative Readiness

Vegetative readiness arrived on the west side ranges during the period May 17 to 22. May 20 may be considered the date of range readiness on the McClain Creek, Bear-Big Creek, and Blodgett-Fred Burr CAN ranges for 1938.

10. Principal Forage Species for Spring and Summer Ranges, West Side Range, North End Division

Cut-over yellow pine types -

Grasses, 80%		Weeds, 15%	
Agropyron spicatum	25	Achillea sp.	2
Calamagrostis rubescens	15	Arnica sp.	2
Festuca idahoensis	10	Balsamorrhiza	2
Koeleria cristata	5	Drymocallis	1
Poa sp.	5	Geranium	1
Carex geyeri	15	Hieracium	1
Bromus tectorum	5	Lupinus	3
		Pentstemon	1
Shrubs, 5%		Leontodon taraxacum	2
Ceanothus sanguineus	1		
Prunus demissa	1		
Rosa	1		
Salix sp.	1		
Symphoricarpos	1		

CONCLUSIONS ON SEASONAL UNIT

Since the average date of vegetative readiness for the period 1899-1938 was May 15, this date is recommended as an opening date for the west side ranges of the North End Division. Administrative leeway in opening dates will take care of yearly fluctuations.

1. Seasonal Zones

Only one seasonal zone was found to be important. This lies between 4000' and 5000'. Since these ranges extend above this level only in isolated cases, any further breakdown of the area into zones would be useless. However, all range above 5500' in elevation lies within a second seasonal zone. Range readiness within this second zone arrived about May 25, 1938, or five days later than the lower seasonal zone.

2. Water Conditions in Seasonal Unit

Water conditions are excellent in both seasonal units except for the McClain Creek area which is dependent upon one source of water close to the McClain Creek-Lolo divide.

3. Soil Moisture Conditions

Soil moisture conditions were good during the 1938 season in both seasonal zones. Ground moisture varied from wet to moist.

4. Stocking on Unit

McClain Creek C&H - 10 head horses permitted; season, May 1 to October 31. None observed on area during studies.

Bear-Big Creek C&H - 35 head of cattle permitted for 6 months, season May 1 to October 31. Twenty cattle and four horses observed on area.

Blodgett-Fred Burr C&H - 9 head permitted for season May 1 to October 31. None observed on area.

5. Estimated Carrying Capacity

McClain Creek C&H	- 10 head for 60 A. M.
Bear-Big Creek C&H	- 30 head for 180 A. M.
Blodgett-Fred Burr C&H	- 10 head for 60 A. M.

6. Range Improvements Necessary to Obtain Seasonal Control

No range improvements are necessary to obtain seasonal control since the greater portion (90%) of the ranges lies

within one seasonal area. However, several range improvements are necessary in order to prevent trespass and gain better distribution.

McClain Creek C&H

The only available water on this range lies on Forest land at the head of the North Fork of McClain Creek. Stock from Lolo Creek on the Lolo National Forest drift up to the divide and into the McClain Creek range. An interforest allotment should be set up, or a drift fence approximately 1/2 mile long should be constructed on the Lolo-McClain Creek divide. This area should be put under a C-3 permit as the greater portion of the McClain Creek range is under private ownership but is dependent upon the water controlled by the Forest Service. This range is essentially a horse range as it is rugged and cattle have to travel too far to water.

Bear-Big Creek C&H

Development of spring at head of Faulkerson Creek.

Completion of boundary fence on ridge between Sweathouse and Smith Creeks to prevent trespass.

Blodgett-Fred Burr C&H

Construction of boundary fence to prevent trespass. Location of fence, SE corner Section 33, T. 7 N., R. 21 W., west to quarter corner, then north 1-1/2 miles. This fence will hook up existing fences.

7. General Recommendations for Obtaining Proper Use of Range

Salting

Salting should be done on the ridges, moving the salt higher as the season progresses to obtain better utilization of the higher portion of the ranges and stop overuse near the boundary.

Herding

None necessary, as range is too small and the number of cattle limited.

Fencing

Completion of existing boundary fences will prevent in drift of unpermitted stock.

Water Development

Development of spring at head of Faulkerson Creek will give better utilization in this area on the Bear-Big Creek range.

SUMMARY

1. Seasonal Units

Division or Allotment, or Parts of,	Present Season	Recommended Season
McClain Creek	5-1 to 10-31	5-15 to 10-31
Bear-Big Creek	5-1 to 10-31	5-15 to 10-31
Blodgett-Fred Burr	5-1 to 10-31	5-15 to 10-31

2. Seasonal Zones

Zone 1, 4000' to 5500'; vegetative readiness, May 20, 1938.

Zone 2, 5500' to 6000'; vegetative readiness, May 25, 1938.

3. Recommendations

a. Check observations recommended.

b. Work out interforest permit for McClain Creek area, or fence the divide. The area is too small to warrant costly drift fence on the divide.

c. Complete construction of boundary fences on Bear-Big Creek and Blodgett-Fred Burr ranges.

d. Range survey of the area recommended.

e. Determine whether use by game on the Blodgett-Fred Burr range - part of which is incorporated in a newly established primitive area - will cause conflict with domestic stock on the area.

f. Acquire control of privately owned lands dependent upon McClain Creek water supply.

Early Childhood

Investigation of Speech of Preschool Deaf and Hearing Children in Pairs and on the Basketball Court

Albert

1. Personal Data

Relation or Place- ment of Parents	Years	Number of Children
Mother's Home	1-1 to 10-11	6-12 to 10-11
Foster Home	7 to 11-11	6-10 to 10-11
Step-father's Home	1-1 to 10-3	6-10 to 10-11

2. Personal Data

Chas. A. Adair to Gude; interesting pamphlets, Feb 10, 1930.

Same B. Adair to Gude; marketing problems, 22, 1930.

3. Interpretation

4. Short observations.

5. Short run summarized result for Notable Cases and Case Look-Alike. Did only 1a for Adair in several ways: Early Form on Gas Stove.

6. Develop construction of Secondary Equity on Short-Leg Area and Subject-to-Rent Rights.

7. Table Summary of Case Evaluations.

8. Describe Chicago by some of its distinctive ways - part of Chapter 1: Underscored in a Study - Educational Practices area - with some Important Implications stated on the area.

9. Develop Control of Privately Owned Lands Restrictions with Restrictions ratio supply.

NORTH END DIVISION - EAST SIDE

1. Names of Units Falling Into the Same Seasonal Area

Spring and summer ranges:

(a) Ambrose-Eight Mile C&H
(b) Burnt Fork C&H

2. General Topography of Each Seasonal Unit

Both the Ambrose-Eight Mile and the Burnt Fork C&H Units are divided into two seasonal units. Although the division line between the spring and summer range and the strictly summer range is not definite, it can be roughly set at the 5000' contour interval.

Ranges in elevation:

Spring and summer, 4000' to 5000'
Summer (strictly), 5000' to 7000'

These ranges lie on the east side of the Bitterroot Valley, between the Bitterroot-Rock Creek divide and the private lands in the Bitterroot valley. All drainages flow in a westerly direction. The country is rough and broken by many streams and side draws. The area is characterized by long ridges commencing near the Forest boundary and extending eastward for an average distance of four miles to the Bitterroot-Rock Creek divide. The rise in elevation from the boundary to the divide is three thousand feet on the average. The larger portion of the grazable area lies within the spring-summer seasonal area which extends eastward from the forest boundary for a distance of about 1-1/2 miles. The rise in elevation is greatest near the forest boundary. After attaining an elevation of 6000', the ridges level out and gradually rise to around 7000' in elevation, the average height of the divide.

3. General Types and Their Relation as Regards Elevation and Exposure

On the Ambrose-Eight Mile range, at least 95% of the area is covered with tree growth, the remainder being grassland. Up to an elevation of 6000', the 6YP type is by far the most important as it covers all of the south and west exposures. On the north slopes, a Douglas fir-larch-yellow pine type prevails. Above 6000' and up to 6500', a transition type of Douglas fir-yellow pine-lodgepole occupies most of the exposures. Between 6500' and 7000' the area is occupied by a lodgepole type.

On the Burnt Fork C&H Unit, which lies within the Sawmill Creek drainage, grass types occupy at least 20% of the area. These grass types are found exclusively on south and west exposures between elevations of 4000' and 6000'. The north slopes are covered by Douglas fir-larch-yellow pine types up to 6500'. Above 6500' the lodgepole type becomes predominant.

Grass types within the Ambrose-Eight Mile and Burnt Fork C&H Units have an average density of .30. Within the cut-over yellow pine types on the Ambrose-Eight Mile Unit, the average density is .25.

Very little feed is available to cattle within the Douglas fir-larch type on the north slopes.

4. Direction and Degree of Slope

The entire Ambrose-Eight Mile and Burnt Fork C&H areas slope in a westerly direction. Slopes vary from 5% to 60%, with an average of 30%. South and west slopes contain the greater portion of usable range. North slopes are uniformly steeper than the others and are often cliff-like in nature close to the creeks.

5. Water - Abundance and Character

Water is plentiful except in isolated instances. All of the usable range is within from 1/2 to 3/4 mile to water. In some cases the water is hard to get at due to the fall in elevation from the ranges to water. All of the principal creeks - Woodchuck, Eight Mile, Three Mile, Ambrose and Slocum - run some water throughout the grazing season. The higher ranges are watered by springs starting close to the divide.

6. Examination of Forage Conditions Within the East Side Range, North End Division

Ambrose-Eight Mile C&H Unit:

Plot 1. Woodchuck Creek

NW¼NW¼ Sec. 30, T. 11 N., R. 18 W. Elevation 5000'. Slope South, 20%. Gravelly granite loam soil. 6YP cut-over type. Not utilized 1938.

Date of Examination	5-2-38	5-23-38	% of
Condition of Soil	Very wet	Wet	Cover
Common Name -			
Bluegrass	4-1/2"	5-3/4"; forming heads	5
Idaho fescue	3"	3-3/4"	10
Sedge	2"	6½"; seed stalks formed	25
Ninebark	1/4 leaf	Full leaf	
Rose	Beginning growth	3/4 leaf	
Dog-tooth violet	Full flower	Gone	

Plot 2. Eight Mile Creek

SE¼SW¼ Sec. 4, T. 10 N., R. 18 W. Elevation 5000'. Slope South, 45%. Rocky granite loam soil. 6YP mature, Douglas fir and yellow pine reproduction. Unutilized 1938.

Date of Examination	5-2-38	5-23-38	% of
Condition of Soil	Wet	Moist	Cover
Common Name -			
Wheatgrass	5"	7½"	25
Sedge	5"	6½"; in head	15
Balsamroot	4"; flower in bud	95% flowered	
Snowberry	1/2 leaf	Full leaf	
Lupine	1/2 leaf	Full leaf; flower in bud	
Ninebark	1/4 leaf	Full leaf	
Blue bell	10% in flower	Full flower	

Plot 3. Eight Mile Creek

SW¼SW¼ Sec. 32, T. 11 N., R. 18 W. Elevation 5400'. Slope SW, 15%. Rocky disintegrated granite loam soil. 6YP cut-over with reproduction. No utilization 1938.

Date of Examination	5-23-38	% of
Condition of Soil	Moist	Cover
Common Name -		
Bluegrass	4-1/2"; in head	5
Sedge	6-1/2"; in head	20
Arnica	Full leaf; 40% flowered	
Kinnikinnick	20% in flower	
Snowberry	Full leaf	
Strawberry	Full leaf; 10% flowered	
Yarrow	Full leaf; forming seed stalks	
Lupine	Full leaf; flowers in bud	

Plot 4. Three Mile Creek

NW¼SE¼ Sec. 17, T. 10 N., R. 18 W. Elevation 5200'. Slope, ridge top, south, 10%. Sandy loam. 6YP cut-over, Douglas fir and yellow pine reproduction. No utilization 1938.

Date of Examination			% of
Condition of Soil	5-2-38	5-25-38	Cover
Common Name -			
Bluegrass	2-3/4"	4⅛"; forming heads	5
Wheatgrass	3⅜"	6½"	50
Junegrass	1-3/4"	4"	5
Lupine	1/2 leaf	Full leaf; 20% in flower	
Arnica	1/2 leaf	Full leaf	
Strawberry	1/2 leaf	Full leaf	
Shooting Star	Full flower	Disappearing	

Plot 5. Ambrose Creek

SW¼SW¼ Sec. 8, T. 9 N., R. 18 W. Elevation 4900'. Slope S, 4%, ridge top. Sandy loam soil. 6YP cut-over with Douglas fir and yellow pine reproduction. Utilization 5%, 1938. Past heavy utilization of this plot near boundary has weakened vitality of plants. Similar areas ready June 20.

Date of Examination	5-3-38	5-25-38	% of
Condition of Soil	Wet	Damp	Cover
Common Name -			
Bluegrass	2-1/4"	3"; in head	5
Idaho fescue	1-1/4"	2"	15
Downy chess	1"	2½"; heading	15
Wind flower	Full flower	Gone	
Yarrow	1/2 leaf	Full leaf; forming seed stalks	
Dandelion	Beginning growth	50% in flower	
Lupine	1/2 leaf	Full leaf	
Larkspur	Beginning growth	50% in flower	
Strawberry	" "	Full leaf	

Plot 6. Ambrose Creek

NE¼SW¼ Sec. 16, T. 9 N., R. 18 W. Elevation 5400'. Slope SW, 25%. Sandy loam soil. 6YP cut-over, yellow pine and Douglas fir reproduction. Utilization 5%, 1938. Representative of lower elevations, Zone 2.

Date of Examination	5-3-38	5-25-38	% of
Condition of Soil	Wet	Damp	Cover
Common Name -			
Bluegrass	1-1/2"	3-1/2"	5
Sedge	1-1/4"	3"; in head	20
Buttercup	Full flower	Full flower	
Arnica	1/2 leaf	Full leaf; flower in bud.	
Yarrow	1/2 leaf	Full leaf; flower in bud	5
Strawberry	1/4 leaf	Full leaf; flowering	
Dog-tooth violet	Flower in bud	Matured and dying	
Blue bell	Flower in bud	Full flower	

Burnt Fork C&H Unit:

Plot 1.

NE¼NW¼ Sec. 18, T. 8 N., R. 18 W. Elevation 4700'. Slope South, 30%. Decomposed granite loam soil. Type, 1 Asp-Fid-Pan. Utilization 1938, 25%. Heavy utilization in past has impaired vitality of this plot. Indicators in similar areas show readiness May 20.

Date of Examination	5-5-38	5-24-38	% of
Condition of Soil	Wet	Moist	Cover
Common Name -			
Wheatgrass	4"	4½"	40
Idaho fescue	3/4"	1½"	10
Bluegrass	1/2"	2"	Trace
Downy chess	1/2"	2"	10
Wild onion	3-1/2"	3½"; disappearing	
Balsamroot	Beginning growth	50% in flower	
Shooting star	" "	Disappearing	
Yarrow	1/4 leaf	2/3 leaf	
Arenaria	Beginning growth	1"	

Plot 2.

NW¼NE¼ Sec. 17, T. 8 N., R. 18 W. Elevation 6400'. Slope, South, near ridge top, 5%. Soil, rocky humus. Douglas fir, mature and reproduction. Actual use 1938, none. This plot representative of Zone 2. Estimated readiness, June 10.

Date of Examination	5-5-38	5-24-38	% of
Condition of Soil	Wet	Wet	Cover
Common Name -			
Idaho fescue	3/4"	1-1/2"	10
Sedge	1"	3½"; in flower	30
Camas	3"	4"	
Yarrow	1/4 leaf	3/4 leaf	
Snowberry	Beginning growth	1/2 leaf	
Mt. Maple	" "	Leaves in bud	
Strawberry	1/2 leaf	Full leaf	

The following plots are representative of the upper limits of Zone 1 and the lower limit of Zone 2 within the Ambrose-Eight Mile C&H Unit.

Plot 1. Cleveland Mt. Ridge

NE¼SE¼ Sec. 8, T. 10 N., R. 18 W. Elevation 5500'. Slope 10%, SW; rocky humus soil. 6YP cut-over type. Upper limits of Zone 1; will be ready about June 1. This plot in area disturbed by recent logging.

Date of Examination	5-23-38	% of
Condition of Soil	Moist	Cover
Common Name -		
Bluegrass	4"; in head	5
Sedge	3"; in head	20
Lupine	3/4 leaf	
Dog-tooth violet	Mature	
Yarrow	1/2 leaf	
Shooting star	Full flower	
Arnica	3/4 leaf; flower in bud	
Larkspur	3/4 leaf; flower in bud	

Plot 2. Cleveland Mt. Ridge

NE¼ Sec. 16, T. 10 N., R. 18 W. Elevation 6500'. Slope West, 5%. Soil, rocky humus. Type, 6LP. Within Zone 2. Estimated readiness, June 10 - 15.

Date of Examination	5-23-38	% of
Condition of Soil	Wet	Cover
Common Name -		
Sedge	2"	10
Dog-tooth violet	Full flower	
Wooly weed	Beginning growth	
Strawberry	1/2 leaf	
Arnica	Beginning growth	
Low huckleberry	" "	

7. Condition of Range as Result of Former Use

The ranges studied on the east side of the North End Division were extremely varied in condition as a result of former use. Portions of the Burnt Fork C&H Unit were depleted as well as were areas on Three Mile and Ambrose Creeks. The Eight Mile Creek range showed little former use. The ranges were generally in a properly used condition. Those areas in Three Mile, Woodchuck, and Eight Mile Creeks that have been recently logged over are in a disturbed condition due to the

logging itself and subsequent slash burning which was in progress at the time of inspection. This disturbance will be temporary, however, if old cut-over areas can be used as guides. Of the area, 30% is judged to be lightly used, 50% properly used, 15% overused, and 5% depleted. The lightly used areas lie mainly within the Eight Mile Creek drainage. Depleted areas are confined to the grassy types on the Burnt Fork C&H and areas close to the boundary on Ambrose and Three Mile Creeks.

8. Soil Moisture Conditions

Due to the repeated heavy snows during May, the soil moisture conditions were excellent on the East Side ranges. Soil conditions ranged from extremely wet to moist, the higher elevations being in general the most heavily saturated. Penetration of moisture was good as the precipitation came in the form of snow and in every case the snows took several days in melting. Snow fell on the area on May 1, 16, 17 and 18. The area also enjoyed several hard rainfalls. Washing was evident where logging operations had recently disturbed the cover. Cattle were confined to lower elevations during most of May, and trampling of the soil was not serious.

9. Conclusions as to Vegetative Readiness

Vegetative readiness for the two seasonal zones was found to be as follows on the Ambrose-Eight Mile and Burnt Fork C&H ranges.

Zone 1, 4000' to 5000', May 25.
Zone 2, 5000' and higher, probably June 10.

10. Principal Forage Species for Spring and Summer Ranges, East Side, North End Division

Grasses, 80%

Agropyron spicatum	25
Festuca idahoensis	15
Calamagrostis rubescens	20
Bromus tectorum	10
Koeleria cristata	T
Poa sp.	T
Carex geyeri	10

Weeds, 15%

Achillea sp.	2
Arnica	2
Balsamorrhiza	2
Erigeron	1
Hieracium	2
Lupinus	5
Pentstemon	1
Leontondon taraxacum	2

Shrubs, 5%

Artemisia frigida	1
Chrysothamnus lanceolatus	T
Arctostaphylos	T
Symphoricarpos	3
Opulaster	1

CONCLUSIONS ON SEASONAL UNIT

The ranges on the Ambrose-Eight Mile and Burnt Fork Units were estimated to be from 10 days to 2 weeks later than normal this year. Since the ranges in Zone 1 - 4000' to 5000' elevation - were ready in the period May 20 to 25, the proper opening date for this zone would be May 15 in normal years. This conforms with the average opening date. All ranges above 5000' were not ready until June 10 to 15. These ranges are not ordinarily used until middle June and the May 15 opening date may therefore be applied to the entire area.

1. Seasonal Zones

The seasonal zones on these two units are -

Zone 1, 4000'-5000', ready May 25, 1938
Zone 2, 5000' and up, ready June 10 to 15, 1938.

2. Water Conditions in Seasonal Unit

Water is plentiful except at the upper limits of Sluice Creek in the Ambrose-Eight Mile Unit, and in the vicinity of Slocum Creek in the extreme southern portion of the same unit. Water developments in these two areas will give better utilization of these portions of the range during the season of their use.

3. Soil Moisture Conditions

The areas in Zone 1 were drier than Zone 2 due to their exposure and elevation. Soil moisture conditions were very satisfactory during May, 1938.

4. Stocking on Unit

Ambrose-Eight Mile Unit - 350 head, 93% of total. Stock came on May 1 to May 15, 1938.

Burnt Fork Unit - 34 head. Stock came on May 1, 1938.

5. Estimated Carrying Capacity

Ambrose-Eight Mile - 2100 animal months. Estimated 2/3 carrying capacity in Zone 1, 1/3 in Zone 2.

Burnt Fork - 10 head for 60 animal months. Estimated 3/4 carrying capacity in Zone 1, 1/4 in Zone 2.

6. Range Improvements Necessary to Obtain Seasonal Control

No range improvements are judged to be necessary to obtain seasonal control as the natural drift of cattle does not take them into Zone 2 until middle June.

7. General Recommendations for Obtaining Proper Use of Range

Salting

Take salt grounds out of the creek bottoms, as in Sawmill Creek. Salt on ridges, especially open side ridges.

Herding

The Three Mile Stock Association is employing a rider this year. This should accomplish better distribution and salting practices. Special attention should be given to getting better utilization in Eight Mile Creek. There is some tendency for cattle to congregate in Ambrose Creek due to lack of water in Slocum. Rider should prevent this.

Fencing

Two miles of fence along Forest boundary on Slocum Creek will prevent use of national forest range by local stock which come up for water in Slocum Creek. Probable cost, $300 per mile. Water on Slocum Creek is the only available water in the vicinity.

Water Developments

Development of water on upper limits of Sluice Creek, Sec. 28, T. 11 N., R. 18 W. Probable cost, $100. This will effect better distribution in this area as the range is good, but not usable during the latter part of the season due to lack of water.

Water development in the form of a dam on Slocum Creek. The water in Slocum Creek gets so low that cattle are forced to trail to Ambrose Creek for water. A dam 100 feet long, 8 feet high and 6 feet wide at the top will furnish water for the Slocum Creek area. Estimated cost, $330.

8. General Information

Ned Wood's use of the Burnt Fork C&H Unit by horses should be eliminated by instituting trespass proceedings.

Maintenance of some of the more advantageously located logging roads in the area is desirable. The roads are rapidly deteriorating due to lack of open culverts and ditches. These

roads penetrate and transverse the greater portion of usable range on the Ambrose-Eight Mile Unit and if maintained could be used advantageously for administrative work of all kinds.

Logging by the A. C. M. Company on the Eight Mile, Three Mile, Woodchuck and Ambrose drainages will be finished this year. All effort should be made to get these logged-over lands under Reg. G-4 permit, and to effect exchanges wherever possible in order that the grazing administration may be simplified.

SUMMARY

1. Seasonal Units

Division or Allotment, or Parts of,	Present Season	Recommended Season
Ambrose-Eight Mile	5-1 to 10-31	5-15 to 10-31
Burnt Fork	5-1 to 10-31	5-15 to 10-31

2. Seasonal Zones

Zone 1, 4000' to 5000', May 15 to October 31.
Zone 2, 5000' to 7000', June 10 to October 31.

3. Recommendations

a. Range survey of the area should be made.

b. All of the area should be kept under Forest Service administration through Regulation G-4.

c. Make opening date over entire area May 15. Further studies should determine if season should be put on sliding scale 10 days either way from that date.

d. Trespass upon N.P. and A.C.M. lands should be discouraged as this leads to trespass of forest ranges.

e. Salting on ridges and spurs will aid in distribution.

f. Supervision of and cooperation with the Three Mile Stock Association rider by the ranger will result in better distribution.

g. Cattle should be counted onto the Forest as it is believed more cattle are being put on the Forest than are permitted in some cases.

h. Trespass upon national forest ranges should be promptly taken care of as there has been a general feeling that all the ranges were for use if the stockmen could get away with it. This feeling has been built up because of the large amount of alienated lands within the boundaries, especially on the Ambrose-Eight Mile Unit.

i. Placement of cattle on the Forest should be in small bunches up the individual side draws from the main creeks as much of the range is never used due to cattle being dumped at the Forest boundary.

1. Names of Units Falling Into the Same Seasonal Area

Lost Horse-Trapper Creek is the only C&H Unit on the West Side within the Darby Division.

2. General Topography of Each Seasonal Unit

The Lost Horse-Trapper Creek Unit falls entirely within the spring-summer seasonal unit. The area ranges in elevation from 4000' in the newly acquired lands along the original Forest boundary to slightly over 6000' in the vicinity of Como Lake and Trapper Creeks. The area is confined to the foothills and ridges running east from the main Bitterroot range toward the Bitterroot valley. It varies in depth from one to three miles, having its greatest depth in the Chaffin-Trapper Creek area. All of the drainages flow east toward the Bitterroot River. The ridges rise gradually from the valley floor for a distance of from two to three miles, then connect with the main body of the Bitterroot Mountains, which rise abruptly and form the western boundary of the cattle ranges. Since most of the range in this unit lies between 4000' and 5000' in elevation, the area cannot be split into spring and summer range. The area between 5000' and 6000' in elevation is confined to a rather narrow belt along the upper limits of the cattle range and is not used as heavily as the lower zone.

3. General Types and Their Relation as Regards Elevation and Exposure

The Lost Horse-Trapper Creek Unit is almost entirely covered with a yellow pine type. Much of this has been cut over, especially at the lower elevations. Over 95% of the entire area is covered with some sort of tree growth. Small parks and meadows along the streams occupy a small percent of the unit. Douglas fir types are found at the extreme upper limits of the range, as well as on the north slopes. Lodgepole, larch, and spruce are also present but do not dominate the types. Approximately 80% of the area is YP type, 15% DF, and the remainder is taken up by unimportant meadow and miscellaneous types. Yellow pine types are found on south and east exposures, as well as north exposures on the lower elevations. Douglas fir types are confined to north slopes at slightly higher elevations. Forage density within the yellow pine type averages .25.

4. Direction and Degree of Slope

This unit has a general east exposure, sloping toward the Bitterroot River. Degree of slope varies from level on the creek bottom to 60% and over on the upper limits, the average slope on the usable range being 35% to 40%. North slopes are slightly steeper than south or east slopes.

5. Water - Abundance and Character

Average distance to water is one-half mile or less. The range is well watered, not only by creeks but by irrigation ditches leading to the farming district around Darby. The larger creeks are yearlong and the smaller ones contain water during the greater part of the grazing season.

6. Examination of Forage Conditions Within the West Side Range, Darby Division

Plot 1. Como Lake Ridge

SE¼SW¼ Sec. 30, T. 4 N., R. 21 W. Elevation 4500'. Slope 5%, NE. Gravelly loam soil. 6YP mature type, with reproduction. Utilization 5%, 1938. Range at this elevation on south and west exposures ready May 20.

Date of Examination	5-9-38	6-22-38	% of
Condition of Soil	Wet	Wet	Cover
Common Name -			
Bluegrass	2½"	4"; in head	6
Junegrass	3"	4-1/4"	T
Sedge	2"	5"; in head	20
Lupine	1/2 leaf	Full leaf;flowers in bud	
Yarrow	1/2 leaf	Full leaf;forming seed stalks	
Arnica	1/2 leaf	Full leaf;flowers in bud	
Dog-tooth violet	Full flower	Disappearing	
Wooly weed	1/2 leaf	Full leaf	
Shooting star	Full flower	Disappearing	

Plot 2. Tin Cup Creek

NW¼NE¼ Sec. 18, T. 3 N., R. 21 W. Elevation 4300'. Slope none, exposure SE. Soil, gravelly humus loam. 6YP type with reproduction. Utilization 1938, none. Plot taken on creek bottom. Ready about June 1; Zone 2.

Date of Examination	5-9-38	5-22-38	:% of
Condition of Soil	Wet	Moist	:Cover
Common Name -	:	:	:
Idaho fescue	:1-1/4"	:2-1/2"	: 15
Junegrass	:2"	:3-1/2"	: 5
Sedge	:2"	:3-3/4"; forming	:
	:	: heads	: 20
Arnica	:1/2 leaf	:Full leaf;flower	:
	:	: in heads	:
Yarrow	:1/2 leaf	:3/4 leaf	:
Lupine	:Beginning growth	:Full leaf	:
Snowberry	: " "	: " "	:
Woolly weed	: " "	:3/4 leaf	:
Pentstemon	: " "	:1/2 leaf	:

Plot 3. Trapper Creek

NW¼NE¼ Sec. 27, T. 2 N., R. 21 W. Elevation 4500'. Slope SW, 10%. Soil, disintegrated granite. 6YP cut-over with reproduction. Utilization 1938, 20%. Ready May 18.

Date of Examination	5-9-38	5-22-38	:% of
Condition of Soil	Damp	Moist	:Cover
Common Name -	:	:	:
Wheatgrass	:5-1/2"	:7-1/2"	: 30
Junegrass	:1-3/4"	:2-3/4"	: 5
Idaho fescue	:1-1/2"	:3"	: 15
Bluegrass	:3"; flower in boot	:3"; in head	: T
Lupine	:1/4 leaf	:Full leaf;flower	:
	:	: in bud	:
Arenaria	:--	:60% full flower	:
Indian paint-brush	:Beginning growth	:Full leaf; 20%	:
	:	: full flower	:
Balsamroot	:Flower in bud	:Full flower, 80%	:
Old-man's whiskers	: 3/4 leaf;flower	:Full leaf; 50%	:
	: in bud	: full flower	:

Plot 4. Tin Cup Creek

NE¼SW¼ Sec. 16, T. 3 N., R. 21 W. Elevation 4800'. Slope SW, 20%. Soil, gravelly loam. Type, cut-over YP with reproduction. Utilization 1938, 20%. Ready May 18.

Date of Examination	5-22-38	% of
Condition of Soil	Moist	Cover
Common Name -		
Wheatgrass	7"	35
Bluegrass	4"; in head	5
Sedge	6"; forming heads	10
Lupine	Full leaf; 20% in flower	2
Balsamroot	Full flower	
Dog-tooth violet	Flowers gone	
Blue-eyed Mary	Full flower	
Wooly weed	3/4 leaf	
Yarrow	Full leaf; forming flower stalk	
Indian paint-brush	40% full flower	

7. Condition of Range as Result of Former Use

This range unit includes land that was recently acquired by the Forest Service. Since the acquired land was formerly used by the local stockmen without management, it is overused in many places and large areas are infested with downy chess. However, the ranges within the original forest boundary are in a properly grazed condition except along the ridge tops, which are slightly overused. Approximately 60% of the area now included in the unit is properly used, 35% slightly overused, and 5% depleted.

8. Soil Moisture Conditions

The soil moisture conditions on the range varied from wet to moist. The area enjoyed heavy snows and rain during May, and the soil moisture conditions were excellent. No damage to the soil from trampling was observed. The nature of the soil does not lead to excessive damage to the range by trampling on any of the ranges in the Bitterroot.

9. Conclusions as to Vegetative Readiness

Vegetative readiness within Zone 1 was reached during the period May 15 to 23. I estimate a ten-day spread in readiness between the extreme lower and upper limits of this range. Protected creek bottoms were behind the ridges in date of readiness. The range as a whole was ready May 20, 1938.

10. Principal Forage Species for Spring and Summer Ranges, West Side, Darby Division

Grasses, 75%

Agropyron spicatum	20
Bromus tectorum	10
Calamagrostis rubescens	15
Festuca idahoensis	15
Koeleria cristata	T
Carex geyeri	15
Juncus sp.	T
Carex atrata	T

Weeds, 15%

Achillea sp.	2
Arnica	2
Balsamorrhiza	5
Drymocallis	1
Fragaria	1
Hieracium	2
Lupinus	3
Leontondon taraxacum	1

Shrubs, 10%

Amelanchier	1
Arctostaphylos	1
Ceanothus	3
Odostemon	1
Rosa	2
Salix sp.	2
Symphoricarpos	1

CONCLUSIONS ON SEASONAL UNIT

The Lost Horse-Trapper Creek Unit was found to be five days later than normal this year. The proper opening date for this unit is May 15 in normal years.

1. Seasonal Zones

Zone 1, 4000' to 5000', ready May 20, 1938
Zone 2, 5000' to 6000', estimated May 25 to June 1.

2. Water Conditions in Seasonal Unit

Water is plentiful for the entire area for its season of use.

3. Soil Moisture Conditions

Soil moisture conditions were satisfactory during 1938 over the entire unit.

4. Stocking on Unit

200 head, 80% on. Stock entered the Forest between May 1 and May 15, 1938.

5. Estimated Carrying Capacity

Estimated carrying capacity is 200 head for 1135 A.M.

6. Range Improvements Necessary to Obtain Seasonal Control

No range improvements are necessary to obtain seasonal control on this unit.

7. General Recommendations for Obtaining Proper Use of Range

Salting

Salting should be on ridges at intermediate elevations during first part of season; on higher elevations during latter part of season. Do not salt on overused portions on ridge tops.

Herding

Not necessary if cattle are distributed properly at beginning of season.

Fencing

After area has been blocked out by exchange, the boundary should be fenced to prevent trespass from nearby ranch stock. The boundary is in such an unsettled condition at present that no fences are recommended except where the boundary has been permanently established.

Water Developments

None believed necessary. Recommend further study to determine if any areas are not being properly used due to lack of water.

SUMMARY

1. Seasonal Units

Division or Allotment, or Parts of,	Present Season	Recommended Season
Lost Horse-Trapper	5-1 to 10-31	5-15 to 10-31

2. Seasonal Zones

Zone 1, 4000' to 5000', May 15 of average year.
Zone 2, 5000' to 6000', estimated May 25 of average year.

3. Recommendations

a. Range survey of the area should be made.

b. The unit should be blocked out through exchange as rapidly as possible.

c. Boundaries should be fenced when they become permanently established.

d. Opening date of May 15 should be established.

e. Salting should be done on ridges at intermediate and higher elevations, advancing with the season.

f. Strict observance of trespass laws by nearby ranchers will have to be gained. The local ranchers have been in the habit of using the lands formerly owned by the N. P. and A. C. M. much as they pleased.

g. The area is unwieldly in that it extends along the valley for a distance of over 14 miles. To be properly administered it should be divided into two units, extending from Lost Horse to Bunkhouse Creek, and from Bunkhouse Creek to Trapper Creek.

h. Further study should be made to determine if the October 31 closing date is too late. Overuse in certain areas results from fall use.

DARBY DIVISION - EAST SIDE

1. Names of Units Falling Into the Same Seasonal Area

Spring and summer ranges:

(a) Skalkaho C&H
(b) Little Sleeping Child C&H
(c) Harlan Creek C&H

2. General Topography of Each Seasonal Unit

Skalkaho C&H Unit

All cattle units on the east side of the Darby Division may be placed in the spring-summer classification. Elevation varies from 3800' on the outside lands used in conjunction with forest ranges to over 6000' on the Sleeping Child-Skalkaho divide. Most of the usable range (approximately 80%) lies between 4000' and 5500'. This range embraces land within the Skalkaho Creek drainage. Skalkaho Creek flows in a general westerly direction toward the main Bitterroot. The cattle ranges on this unit are found on west, south and, to a slight extent, east exposures. Ridge tops and spurs with west and south exposures carry most of the available feed. Along the course of the main Skalkaho Creek the drainage is often canyon-like, being bounded by high cliff-like formations and extremely steep slopes. The side drainages are similar in nature, climbing rapidly to the cattle range located at their upper limits. The side drainages are negotiable by domestic stock and are used as means of access to the range. (See picture No. 31.) Elevational climbs are steepest near the creeks. The ridges adjacent to the main divides are fairly level and easy to travel.

Little Sleeping Child C&H
Harlan Creek C&H

These two cattle units may be described as one since they are similar in most respects. The Harlan Creek unit includes ten sections of outside land within its confines. All of the outside land has been cut over and is covered with yellow pine and Douglas fir reproduction. Within the forest boundary the land on both units is practically all privately owned. These private lands are managed on a 0-4 basis by the Forest Service. Within the forest boundary all merchantable timber has been cut over although more recently than the lands outside. Dates of cutting ranged from 1920 to the time of inspection. Cutting and burning operations have disturbed the ground cover to some extent. Downy chess and weeds are prevalent where brush disposal was carried on. The range in

elevation runs from 4000' to 6000'. The Little Sleeping Child Creek flows toward the northwest. Harlan Creek drains toward the west. Available cattle feed is found chiefly on west and southwest exposures, and along ridge tops.

3. General Types and Their Relation as Regards Elevation and Exposure

All of the outside lands used with the Skalkaho C&H Unit are covered by a grass-browse type. Bitterbrush is the predominant browse species. These lands have been badly overused in the past and are heavily infested with downy chess and weeds. The original wheatgrass stand has been almost entirely wiped out. Within the forest boundary the predominant type is yellow pine. Beginning at about 4500' the yellow pine extends upward to approximately 6000', merging at that elevation with the usual transition type of yellow pine, Douglas fir and lodgepole. Above 6500' the lodgepole type predominates. Purely grass types are scarce and unimportant. Stream bottom types are limited and do not receive any but casual use. Average density, within the yellow pine type on this unit, is .25. Including outside ranges used with the forest ranges, the percentage of each type is roughly as follows: grass-browse types, 20%; yellow pine, 60%; Douglas fir, 20%. The grass-browse type is found chiefly on the open bald country north of Skalkaho Creek outside of the Forest. Exposure is south and west. Yellow pine types are found on south, west and east slopes. North slopes carry Douglas fir types with intermixed yellow pine.

4. Direction and Degree of Slope

The general slope on the Skalkaho, Little Sleeping Child and Harlan Creek C&H Units is toward the west. Slopes vary from 10% to 60%. Ridge tops are often level or only slightly sloping. North slopes along creeks are cliff-like in the Skalkaho drainage.

5. Water - Abundance and Character

Water is found in most of the numerous side drainages as well as in the main creeks. The greatest distance to water is not over 3/4 of a mile. Water remains adequate until the latter part of the season with the exception of a part of the Little Sleeping Child and Harlan Creek units where several springs are in need of development in order to effect better distribution and utilization.

6. Examination of Forage Conditions Within the East Side Range, Darby Division

Plot 1. Skalkaho C&H Unit

NW¼NW¼ Sec. 21, T. 5 N., R. 19 W. Elevation 6000'. Slope SE, 30%. Sandy loam soil. 6YP type. Utilization 5% by game (elk) 1938. Ready June 1. Lower limits of Zone 2.

Date of Examination Condition of Soil	5-6-38 Wet	5-28-38 Wet	% of Cover
Common Name -			
Junegrass	2½"	3"	5
Sedge (geyeri)	1⅝"	2⅝"; flowers in boot	25
Lupine	1/2 leaf	Full leaf; flowers in bud	
Yarrow	1/2 leaf	Full leaf; forming flower stalks	
Indian paint-brush	--	Full flower, 10%	
Snowberry	Beginning growth	Full leaf	

Plot 2. Little Sleeping Child C&H Unit

SE¼NW¼ Sec. 10, T. 4 N., R. 20 W. Elevation 5900'. Slope SW, 25%. Soil, disintegrated granite. Type, 6YP cut-over. Utilization 1938, 20%. Within Zone 2.

Date of Examination Condition of Soil	5-10-38 Moist	5-26-38 Damp	% of Cover
Common Name -			
Bluegrass	2½"	3½"; in head	5
Downy chess	3"; heading	3½"; in head	15
Buttercup	Mature	Flowers gone	
Yarrow	1/2 leaf	Forming seed stalks; full leaf	
Arnica	3/4 leaf	Full leaf; 25% full flower	
Larkspur	Leaf; flowers in bud	Full flower	
Lupine	1/2 leaf	3/4 leaf; flowers in bud	
Dog-tooth violet	Full flower	Flowers disappearing	

Plot 3. Harlan Creek C&H Unit

SW¼NW¼ Sec. 17, T. 4 N., R. 20 W. Elevation 5300'. Slope SW, 10%. Sandy loam soil. 6YP cut-over with reproduction. Ready May 20.

Date of Examination	5-10-38	5-26-38	% of
Condition of Soil	Damp	Moist	Cover
Common Name -			
Wheatgrass	4"	7"	20
Bluegrass	3"	3½"; in head	10
Idaho fescue	2"	2½"	10
Downy chess	3/4"	3-3/4"; in head	25
Service berry	Beginning growth	Full leaf; full flower	
Lupine	1/2 leaf	Leaf; forming seed stalks	
Balsamroot	1/2 leaf	Full leaf; full flower	
Bitterbrush	Beginning growth	1/2 leaf	
Snowberry	" "	Full leaf	

The following two plots were taken in the vicinity of the Little Sleeping Child range and are representative of the conditions found on the areas being discussed.

Little Sleeping Child S&O Unit

SE¼NW¼ Sec. 12, T. 4 N., R. 20 W. Elevation 5000'. Slope South, 5%. Rocky granite loam soil. Type, 6YP cut-over. Utilization 1938, none. In Zone 2; ready June 5 to 10.

Date of Examination	5-10-38	% of
Condition of Soil	Moist	Cover
Common Name -		
Idaho fescue	2-1/4"	15
Downy chess	1/2"	25
Bluegrass	3"	10
Yarrow	1/2 leaf	
Buttercup	Mature	
Shooting star	Full flower	
Dog-tooth violet	Full flower	
Arnica	1/2 leaf	
Balsamroot	1/2 leaf	
Snowberry	Beginning growth	

Rye Creek C&H

NE¼SE¼ Sec. 24, T. 3 N., R. 20 W. Elevation 5300'. Slope SW, 20%. Soil, disintegrated granite. Type, GYP. Exposed site, ready May 15, 1936.

Date of Examination	5-13-36	% of
Condition of Soil	Damp	Cover
Common Name -		
Wheatgrass	6"	25
Idaho fescue	2-3/4"	10
Yarrow	Full leaf; forming head stalks	
Shooting star	Mature	
Snowberry	1/2 leaf	
Bitterbrush	1/2 leaf	
Rabbitbrush	1/2 leaf	

7. Condition of Range as Result of Former Use

Skalkaho C&H Unit

The outside ranges on this unit are 40% depleted. The remainder, except for local areas, is overused. Within the forest boundary the range is in a much better condition. Overuse is noticeable along ridges. The steeper side hills are lightly used. Areas found at the heads of the side drainages are as a rule properly used. Over the entire area, 20% is slightly overused, 20% lightly used, and 60% properly used. Winter use by elk aggravates the condition of outside ranges.

Little Sleeping Child C&H Unit
Harlan Creek C&H Unit

The outside ranges used with the Harlan Creek unit are in a much better condition than those found on the Skalkaho Unit. Within the forest boundaries the condition is much the same as that found on the Skalkaho with the exception of the areas where old slash burning has disturbed the ground cover. The area as a whole is slightly overused. The writer estimates that about 5% of these units have been depleted, 25% overused, 50% properly used, and 20% lightly used. Ridge tops receive the most usage by stock and are in the worst condition.

8. Soil Moisture Conditions

Moisture conditions at the time of examination varied from wet to damp. Soil moisture was considered very favorable at the time of examination. Due to the nature of the soil, which is chiefly disintegrated granite, the use of these ranges while wet does not result in any serious trampling.

9. Conclusions as to Vegetative Readiness

Vegetative readiness for the spring and summer seasonal zone covering most of the units being discussed came during the period May 20 to June 1, 1938. Average date of range readiness was attained May 25 in Zone 1. Zone 2 estimated to be ready June 10 to 15.

10. Principal Forage Species for Spring and Summer Ranges, East Side, Darby Division

Grasses 85%		Weeds, 10%	
Agropyron spicatum	30	Achillea sp.	1
Bromus tectorum	20	Arnica	2
Festuca idahoensis	10	Arenaria	T
Koeleria cristata	5	Balsamorrhiza	2
Poa sp.	5	Drymocallis	T
Carex geyeri	10	Hieracium	2
Others	5	Lupinus	2
		Leontondon taraxacum	1
Shrubs, 5%		Others	T
Purshia tridentata	1		
Ceanothus	2		
Odostemon	T		
Salix	T		
Symphoricarpos	2		
Others	T		

CONCLUSIONS ON SEASONAL UNIT

Since the season was judged to be ten days later than normal during 1938, the proper opening date is set at May 15 for normal years.

1. Seasonal Zones

Because the area developing later than June 1 is relatively small, and since the cattle do not reach the ranges on the higher elevations until later than June 1, all of the Skalkaho, Little Sleeping Child and Harlan Creek C&E Units have been included in the spring-summer range units and only the primary zone between 3800' and 5000' considered. It was estimated that range readiness arrived on May 25 over the entire zone.

2. Water Conditions in Seasonal Unit

Water is adequate during the season of use except on the north slope of Little Sleeping Child Creek and portions of Harlan Creek and Skalkaho ranges. Ten springs should be developed in order to secure proper use.

3. Soil Moisture Conditions

Soil moisture conditions were similar throughout the three units. Exposed west slopes were the driest areas. Soil moisture conditions were satisfactory during the spring of 1938.

4. Stocking on Unit

Skalkaho C&H Unit - 100 head of cattle, 55% on, 45% off. Date entering Forest, May 1.

Little Sleeping Child C&H Unit - 50 head of cattle, 35% on. Enter forest May 1.

Harlan Creek C&H Unit - 50 head of cattle, 35% on. Enter forest May 1.

5. Estimated Carrying Capacity

Skalkaho C&H Unit	- 594 animal months
Little Sleeping Child C&H Unit	- 462 animal months
Harlan Creek C&H Unit	- 318 animal months

6. Range Improvements Necessary to Obtain Seasonal Control

Since the area has been placed within one seasonal zone, no range improvements are necessary to obtain seasonal control. However, several range improvements are necessary to obtain better utilization and distribution, as well as to confine the cattle to their respective units.

Water Developments

Skalkaho C&H Unit

Coffee Gulch: NE¼NE¼ Sec. 21, T. 5 N., R. 19 W. Estimated cost $75.

NE¼NW¼ Sec. 21, T. 5 N., R. 19 W. Estimated cost $75.

Brennen Gulch: NE¼SE¼ Sec. 20, T. 5 N., R. 19 W. Estimated cost, $75.

McCartney Gulch: SE¼SE¼ Sec. 22, T. 5 N., R. 19 W. Estimated cost $75.

The drainages in which these springs are found dry up late in the season and springs should be developed in order to better utilize the areas.

Little Sleeping Child C&H Unit

NW¼SE¼ Sec. 15, T. 4 N., R. 20 W.
NE¼NE¼ Sec. 22, T. 4 N., R. 20 W.
SE¼SW¼ Sec. 20, T. 4 N., R. 20 W.

Harlan Creek C&H Unit

NE¼SE¼ Sec. 8, T. 4 N., R. 20 W.
SE¼NW¼ Sec. 17, T. 4 N., R. 20 W.
SE¼NW¼ Sec. 19, T. 4 N., R. 20 W.

Drift Fences

Harlan Creek C&H Unit

Commencing on ridge between Mike and Burke Creeks in Sec. 1, T. 3 N., R. 21 W., and extending eastward to the forest boundary; thence running in a northeasterly direction along the ridge to the Little Sleeping Child divide. Purpose: to prevent drift out of or in to the unit. Length, 3-1/2 miles.

Little Sleeping Child C&H Unit

A drift fence commencing at the southwest corner of Sec. 35, T. 4 N., R. 20 W., and extending northeast to the Sleeping Child-Rye Creek divide. Purpose: to prevent drift out of the Sleeping Child C&H Unit into the Deer Mt. area. Length, 3 miles.

Estimated cost of drift fences is $150 per mile.

7. Areas Which Cannot be Used During Proper Season Due to Lack of Water

Small areas at the head of Coffee Gulch, Brennen Gulch and McCartney Gulch on the Skalkaho C&H Unit cannot be utilized during the latter part of the season due to lack of water. The same is true of areas on both the Harlan Creek and Little Sleeping Child C&H Units.

8. General Recommendations for Obtaining Proper Use of Range

Salting

Take salt grounds off main ridges and place on spur ridges. Main ridges are overused already and will receive their share of use without salt.

Herding

None necessary if salt is placed properly. Number of cattle too small to hire herder.

Water Development

Described under "Range Improvements Necessary to Obtain Seasonal Control."

SUMMARY

1. Seasonal Units

Division or Allotment, or Parts of,	Present Season	Recommended Season
Skalkaho C&H Unit Little Sleeping Child C&H Unit Harlan Creek C&H Unit	5-1 to 10-31	5-15 to 10-31

2. Seasonal Zones

Seasonal Zone 1, 3800' to 5000', vegetative readiness May 25, 1938.

Zone 2, above 5000', vegetative readiness June 10 to 15, 1938.

3. Recommendations

a. Acquire all lands possible through exchange.

b. Stop trespass immediately. Small trespass has done much to tear down this range.

c. Construct necessary fences to keep cattle within their units and prevent trespass.

d. Conduct range survey over this entire area.

1. Names of Units Falling Into the Same Seasonal Area

Spring and summer ranges:

(a) Fales Flat C&H Unit
(b) Lower Blue Joint C&H Unit

2. General Topography of Each Seasonal Unit

Fales Flat C&H Unit

This unit is confined to the river bottom and the lower hills on the Nezperce Fork of the Bitterroot River in the vicinity of Fales Flat. The bottom is flat or slightly rolling. The range is entirely on the north side of the river and takes in a portion of the foothills in the vicinity of Watch Tower Creek. Elevations range from 5000' to 6000'. The rise in elevation is rapid after leaving the flat area along the river.

Lower Blue Joint C&H Unit

This unit extends along the West Fork of the Bitterroot from the Slate Creek Ranger Station to Johnson Creek. It includes a strip of private land along the river and extends both east and west from the river bottom for an average distance of one mile. The greater part of the range lies between 5000' and 6000' in elevation. Rise in elevation from the river is rather rapid for the first 500 feet.

3. General Types and Their Relation as Regards Elevation and Exposure

Fales Flat C&H Unit

Most of the unit is covered with a lodgepole type on the river bottom. South and west sidehills are covered with yellow pine type. Average density in the Fales Flat area is .25 in the lodgepole type. Small areas of open grass or meadow type are also found on the flat.

Lower Blue Joint C&H Unit

The lower hills and bottom lands are covered with a yellow pine type with an average density of .3. At higher elevations, both on the creek bottom and ridges, the range is occupied by a lodgepole type similar to that found on Fales Flat. All the meadow lands along the river are privately owned and are producing hay.

4. Direction and Degree of Slope

Pales Flat C&H Unit

The flat area along the creek bottom is flat or gently rolling. The hill range is steep with from 20% to 65% slopes. General exposure is south and southwest.

Blue Joint C&H Unit

Level areas are found in a fringe along the river bottom. The foothill range varies from 5% to 60% in degree of slope. The exposure is both east and west as the range skirts both sides of the river which flows directly north in this vicinity.

5. Water - Abundance and Character

Pales Flat C&H Unit

Water is obtained from the Nezperce Fork of the Bitterroot and such streams as Watch Tower Creek. No part of this range is more than one-half mile from water.

Lower Blue Joint C&H Unit

Water can be obtained from the river or any of the numerous side drainages. Some of the higher ridges are rather dry but the distance to water is not over three-fourths of a mile in any case.

6. Examination of Forage Conditions Within the West Fork Division

Plot 1. Pales Flat C&H

SW¼NE¼ Sec. 15, T. 1 S., R. 23 W. Elevation 5100'. Slope none, exposure SW. Disintegrated granite humus soil. Type, lodgepole. Utilization 1938, 10%.

Date of Examination	5-13-38	6-30-38	% of
Condition of Soil	Moist	Moist	Cover
Common Name -			
Sedge (geyeri)	2½"; in head	3½"; in head	20
Bluegrass	1-3/4"	3"	15
Idaho fescue	1½"	2½"	T
Arnica	1/2 leaf	Full leaf; 10% in flower	
Yarrow	1/2 leaf	Leaf	
Clover	3/4"	3"	5
Dog-tooth violet	Flower in bud	Flowers drying	

Plot 2. Blue Joint C&H

SW¼NW¼ Sec. 11, T. 2 S., R. 22 W. Elevation 5500'. Slope 40%, SW. Disintegrated granite loam soil. GYP type. Utilization 1938, none. Wheat grass in this vicinity 8" to 10" on May 30, 1938.

Date of Examination Condition of Soil	5-8-38 Moist	5-30-38 Wet	% of Cover
Common Name -			
Bluegrass	3½"	5"; in head	5
Idaho fescue	3"	4½"	20
Arenaria	1/2 leaf	Leaf; flowers in bud	
Phlox	--	Full flower	
Balsamroot	Flowers in bud	90% full flower	
Shooting star	Full flower	Disappeared	
Buttercup	" "	Flowers gone	
Old-man's whisker	Flower in bud	Full flower	
Lupine	3/4 leaf	60% in flower	

Plot 3.

SW¼ Sec. 3, T. 3 S., R. 22 W. Elevation 5200'. Slope 10%, SW. Rocky loam soil. Lodgepole type. Within Zone 2, ready about June 6, 1938.

Date of Examination Condition of Soil	5-30-38 Wet	% of Cover
Common Name -		
Bluegrass	4½"	10
Sedge (geyeri)	3½"; in head	15
Arnica	Full leaf; 20% in flower	
Rose	Full leaf	
Yarrow	" "	
Strawberry	Full leaf; 20% in flower	
Violet	Full flower	

7. Condition of Range as Result of Former Use

Pales Flat C&H Unit

The timbered types on this area are in good condition as a result of former use. The grass or meadow types which make up about 10% of the total area are depleted. (See picture #17.) Small areas along the road, and the creek bottom along Watch Tower Creek, are overused. Of the area, 80% is properly used, 10% depleted, and 10% overused.

Lower Blue Joint C&H Unit

This unit appeared to be in a good condition except in a limited area along the road and creek bottoms. Some ridge tops were also overused.

8. Soil Moisture Conditions

Soil moisture varied from wet to moist. Conditions were very satisfactory during the spring of 1938.

9. Conclusions as to Vegetative Readiness

Pales Flat C&H Unit

Vegetative readiness arrived on the Pales Flat Area during the period June 1 to 5. Most of the area was ready according to observations on June 1.

Lower Blue Joint C&H Unit

On all of the exposed portions of this range, vegetative readiness arrived May 20 to 25. Along the river bottom and at its upper limits the range was not ready until June 1.

10. Principal Forage Species for Spring and Summer Ranges, West Fork Division

Grasses, 80%

Agropyron spicatum	30
Bromus tectorum	5
Calamagrostis rubescens	10
Festuca idahoensis	15
Festuca scabrella	T
Koeleria cristata	T
Poa sp.	5
Carex geyeri	15
Others	T

Weeds, 10%

Achillea sp.	1
Arnica	2
Arenaria	T
Balsamorrhiza	2
Lupinus	2
Pentstemon	2
Hieracium	2
Leontondon taraxacum	1
Others	T

Shrubs, 10%

Arctostaphylos	T
Odostemon	T
Vaccinium caespitosum	7
Symphoricarpos	3
Others	T

CONCLUSIONS ON SEASONAL UNIT

Fales Flat C&H Unit

This range lies along a well traveled road into the Deep Creek country. It is protected from the sun and the small parks along the road receive heavy early use. Vegetative readiness never completely arrives on this range until June 1 because of the depleted condition of the small parks and the probable increased public use of the road through this area. It is recommended that the opening date on this area be set at June 1 rather than May 1 as in the past.

Lower Blue Joint C&H Unit

The entire area reached vegetative readiness during the period May 25 to 30. It is believed that this is at least ten days later than in ordinary years and the recommended date for opening the range is set at May 15. Considerable variation is found between the extremes in plant development on this range but the writer estimates that May 15 is a fair average date of range readiness. No attempt can be made to divide the area into spring and summer pasture as the nature of the range makes it necessary that it be used as one unit.

1. Seasonal Zones

The entire area lies within one seasonal zone. The elevation is 5000' to 6000' plus.

2. Water Conditions in Seasonal Unit

Water on the area is adequate for the season of use.

3. Soil Moisture Conditions

Soil moisture conditions were excellent during the spring of 1938.

4. Present Opening Date

Dates on: Fales Flat, May 1; Lower Blue Joint, May 1.

5. Estimated Carrying Capacity

Fales Flat C&H Unit - 588 animal months.
Lower Blue Joint C&H Unit- 1325 animal months.

5. Range Improvements Necessary

No range improvements needed for seasonal control.

6. General Recommendations

Salting

Salt on spur ridges and away from creeks and roads.

SUMMARY

Seasonal Units

Division or Allotment, or parts of	Present Season	Recommended Season
Fales Flat	5-1 to 10-31	6-1 to 10-31
Lower Blue Joint	5-1 to 10-31	5-15 to 10-31

Seasonal Zones

Spring-Summer Ranges

Fales Flat, elevation 5000'-6000', 6-1 to 10-31

Lower Blue Joint, elevation 5000'-6000', 5-15 to 10-31

Recommendations

1. Range surveys should be conducted on cattle ranges on the West Fork.

2. Further study should be made on closing dates on the Fales Flat Area.

3. Either fence small parks in Fales Flat, or stock entire area to capacity of the park areas.

EAST FORK DIVISION

1. Names of Units Falling Into the Same Seasonal Area

Spring-Summer ranges:

(a) Medicine Tree C&H
(b) Camp-Reimel C&H
(c) East Fork C&H, 5000' to 6000',
(d) Meadow-Tolan, 5000' to 6000',

Summer ranges:

(a) East Fork C&H, above 6000',
(b) Meadow-Tolan, above 6000',

2. General Topography of Each Seasonal Unit

Medicine Tree C&H

Part of this range lies within the main Bitterroot drainage. The eastern part lies within the East Fork drainage. The area is rough and open with deeply cut drainages. Altitudes vary from 4600' to 6500'.

Camp-Reimel C&H

This area is similar to the Medicine Tree C&H Unit but is not so deeply cut by drainages. Elevations range from 4500' to 6500'.

East Fork C&H

Lying on the north side of the East Fork of the Bitterroot River, this area rises from about 5000' on the river bottom to over 7000' on the highest cattle range. It is cut by deep drainages flowing south to the East Fork.

Meadow-Tolan C&H

This area is similar to the East Fork C&H but has a north exposure. All creeks flow north to the East Fork.

3. General Types and Their Relation as Regards Elevation and Exposure

Medicine Tree C&H

The open bald hills on the west and south exposures on this range occupy about 40% of the area. They are covered by a grass type, 1 Asp-Fid-Pan, with an average density of .35.

Grass and grass-browse types occupy the range of south and west exposures up to an elevation of 5500'. Above 5500' and extending up to the highest elevation of south and west exposures, the yellow pine type predominates. On east and north slopes, Douglas fir types occupy the range.

Camp-Reimel C&H

Grass types occupy south and west exposures to the highest limits of this range. Yellow pine types are found on most areas not occupied by grass. The upper limits of this range are occupied by bug-killed lodgepole types.

East Fork C&H

Extending up to 6200', this area is covered by yellow pine type on west and south exposures. East slopes are covered by Douglas fir type. Above 6200' the area is occupied by a lodgepole pine type, 80% bug-killed.

Meadow-Tolan C&H

The Meadow-Tolan area contains the largest percentage of lodgepole pine types of any of the ranges on the Bitterroot. Practically all of the area above 6000' is covered with this type. Between 5000' and 6000', the yellow pine and mixed types occupy the area. This unit also contains a number of meadows along the creek bottoms and at high elevations. The area of these meadow types is not extensive.

4. Direction and Degree of Slope

Medicine Tree C&H

Two-thirds of this unit slopes west and south. The degree of slope varies from 10% to 60%. The remainder of this unit slopes east into Cameron and Doran Creeks, with the degree of slope about the same.

Camp-Reimel C&H

The general slope in this unit is west and south, the degree of slope varying from 10% to 60%.

East Fork C&H

This area has a general slope to the south, degree of slope varying from 10% to 60%.

Meadow-Tolan C&H

Most of this unit has a north exposure. Some areas slope to the northwest in the Tolan Creek area. Average slope is 35%.

5. Water - Abundance and Character

Medicine Tree C&H

This area is not as well watered as the other units on the East Fork Division. Water is sufficient for most of the season. Cattle water in such streams as Elk Gulch, Medicine Tree Creek and Doran Creek. Most of the range is within three-fourths mile of water.

Camp Reiwel C&H

This area is well watered by springs and permanent streams. The drop from high points on open ridges to water sometimes interferes with good utilization but as a rule water is sufficient for the grazing period. Distance to water is not over three-fourths of a mile.

East Fork C&H

This range is well watered by permanent water courses such as Bertie Lord, Tepee and Guidy Creeks. Distance to water is not over three-fourths of a mile.

Meadow-Tolan C&H

The Meadow-Tolan area is well watered by springs, seeps, and creeks. Some of the high lodgepole ridges are without water but the distance to water is not great. The greatest difficulty encountered by cattle using this range is being able to get to water through fallen and down lodgepole timber.

6. Examination of Forage Conditions Within the East Fork Division

Plot 1. Medicine Tree C&H

NE¼SW¼ Sec. 6, T. 1 N., R. 19 W. Elevation 4900'. Slope SW, 40%. Disintegrated granite soil. Type 1 Asp-Pan. Utilization 1938, 20%.

Date of Examination Condition of Soil	5-16-38 Damp	5-31-38 Damp	:% of :Cover
Common Name -	:	:	:
Wheatgrass	:6"	:8½"	: 15
Bluegrass	:5½";flower in boot	6"; in head	: 5
Downy chess	:2½"	:3½"; in head	: 15
Bitterbrush	:1/4 leaf	:3/4 leaf	:
Balsamroot	:Full leaf; 20% in flower	:Full flower	:
Lupine	:Full leaf	:Full flower, 80%	:
Phlox	:Full leaf	:Full flower	:
Larkspur	:Full flower	:Disappearing	:
Arenaria	:Flower in bud	:70% full flower	:

5. [illegible] Measures and Structures

[illegible] Treatment

[illegible] may be used as soil mulches, as for [illegible] or else [illegible] should be sufficient [illegible] of the season. Cobble mulch is used primarily on fine [illegible] Planting Trees Cereal and Forage Crops, start at the middle [illegible] Harvest-Maintain with Mower.

[illegible] Cost

Time costs is well covered by cropping and [illegible] systems. The only [illegible] stone ridges by taking [illegible] [illegible] by quantity [illegible]. Changing to water [illegible] of a day.

[illegible] Cost

[illegible] is well covered by preparing [illegible] and Dairy Farms. Change to [illegible] of a day.

[illegible]-Tuition Cost

The [illegible] is well covered by [illegible] and [illegible] Some of the [illegible] the mulch [illegible] the [illegible] by water is not [illegible]. The [illegible] directly accompanied by [illegible] [illegible] to [illegible] by water [illegible] [illegible]

6. [illegible] of Labour Possibility Within the Next Two [illegible]

[illegible]

Plate 1- [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

This plot was ready at time of first examination. Is representative of lower one-third of Zone 1.

Plot 2. Medicine Tree C&H

NE¼NW¼ Sec. 31, T. 2 N., R. 19 W. Elevation 6200'. Slope 40%, SW. Disintegrated granite soil. Type 1 Fid-Pan-Ker. Ready June 5 to 10. This plot representative of lower limits of Zone 2.

Date of Examination Condition of Soil	5-16-38 Moist	5-31-38 Damp	% of Cover
Common Name -			
Idaho fescue	2"	3½"	20
Junegrass	1½"	3½"	5
Balsamroot	Beginning growth	20% in flower	
Blue bell	---	Full flower	
Wheatgrass	4"	6"	
Bluegrass	2½"	3½"	10
Buttercup	Full flower	Disappeared	
Old-man's whiskers	Beginning growth	Full flower	
Lupine	1/2 leaf	Full leaf; flower in bud	

Plot 3. Camp-Reimel C&H

NW¼SE¼ Sec. 22, T. 1 N., R. 19 W. Elevation 3800'. Slope 5%, South. Disintegrated granite loam soil. Grass type. Not ready May 17; estimated to be ready about May 25.

Date of Examination Condition of Soil	4-29-38 Moist	5-17-38 Moist	% of Cover
Common Name -			
Bluegrass	1-2/3"	2½"	5
Idaho fescue	1½"	2"	15
Rough fescue	3"	3-3/4"	5
Daisy	---	Full flower	
Larkspur	---	" "	
Lupine	1/2 leaf	3/4 leaf; flower in bud	
Snowberry	Beginning growth	1/2 leaf	
Balsamroot	---	1/2 leaf; flower in bud	

Plot 4. Camp-Reinel C&H (Series, 500' intervals)

NW¼ Sec. 3, T. 1 S., R. 19 W. Elevation 5400'. Slope SW, 40%. Disintegrated granite soil. Type, 1 Asp-Fid. Utilization 1938, none. Ready about May 25, 1938. Intermediate elevation, Zone 1.

Date of Examination	5-31-38	:% of
Condition of Soil	Damp	:Cover
Common Name -	:	:
Wheatgrass	:8"	: 35
Idaho fescue	:4"	: 20
Lupine	:60% full flower	:
Phlox	:Full flower	:
All spring flowers gone		:

NW¼ Sec. 10, T. 1 S., R. 19 W. Elevation 5900'. Slope 40%, SW. Soil, disintegrated granite. Type, 1 Asp-Fid. This plot shows range readiness at upper limits of Zone 1.

Date of Examination	5-31-38	:% of
Condition of Soil	Moist	:Cover
Common Name -	:	:
Wheatgrass	:6½"	: 30
Lupine	:Full leaf	:
Daisy	:Full flower	:
Yarrow	:Full leaf; forming heads	:
Idaho fescue	:4"	:

NW¼SW¼ Sec. 3, T. 1 S., R. 19 W. Elevation 6400'. Slope 18%, SW. Soil, disintegrated granite loam. Grass type. Within Zone 2; ready June 5 to 10.

Date of Examination	5-12-38	5-31-38	:% of
Condition of Soil	Wet	Moist	:Cover
Common Name -	:	:	:
Bluegrass	:1½"	:2½"	: 5
Lupine	:---	:Full leaf	:
Wheatgrass	:2½"	:4"	: 20
Yarrow	:Beginning growth	:1/4 leaf	:
Idaho fescue	:1"	:2"	:
Penny cress	:---	:Full flower	:
Junegrass	:1/2"	:2"	:
Buttercups	:Full flower	:Disappearing	:
Blue bells	:Beginning growth	:Full flower	:
Shooting star	: " "	: " "	:

Plot 5. East Fork - Tepee Creek

SE¼NW¼ Sec. 18, T. 2 N., R. 17 W. Elevation 5800'. Slope 40%, SE. Disintegrated granite soil. Type, 6YP mature. Utilization 1938, 10%. Within three days of readiness.

Date of Examination	5-11-38	6-3-38	% of
Condition of Soil	Wet	Moist	Cover
Common Name -			
Wheatgrass	3½"	6½"	15
Sedge (geyeri)	2	3½"	5
Junegrass	2½"	---	5
Idaho fescue	---	2½"	10
Arenaria	Beginning growth	3/4 leaf	
Balsamroot	" "	80% full flower	
Lupine	1/4 leaf	Full leaf; 10% flowered	
Snowberry	Beginning growth	Full leaf	
Bitterbrush	" "	3/4 leaf	

Plot 6. East Fork - Bertie Lord Creek

S½ Sec. 11, T. 2 N., R. 18 W. Elevation 5600'. Slope 10%, SW. Soil, rocky sandy loam. Type, lodgepole. Utilization 1938, 10%. Arnica indicates readiness.

Date of Examination	5-17-38	6-3-38	% of
Condition of Soil	Wet	Moist	Cover
Common Name -			
Bluegrass	1½"	3"	
Sedge (geyeri)	2½"; in boot	2½"; in head	20
Arnica	1/2 leaf	Full leaf; 20% in flower	
Lupine	1/2 leaf	Full leaf; flower in bud	
Arenaria	Beginning growth	Full leaf	
Yarrow	1/2 leaf	Full leaf; forming seed stalks	

East Fork Series - Jennings Camp Ridge (500' intervals)

SE¼ Sec. 34, T. 1 N., R. 19 W. Elevation 4900'. Slope 30% SW. Disintegrated granite soil. Type, 1 Asp-Fid-Pan.

Date of Examination	6-2-38	% of
Condition of Soil	Moist	Cover
Common Name -		
Wheatgrass	8" to 10"	25
Bluegrass	4"; in head	5
Idaho fescue	4"	15
Junegrass	In head	5
Yarrow	Full leaf; forming head stalks	
Puccoon	Flowers in bud	
Balsamroot	Full flower	
Phlox	Full flower	
Lupine	Full flower, 50%	

SW¼ Sec. 22, T. 2 N., R. 18 W. Elevation 5200'. Slope SW, 40%. Soil, disintegrated granite. Type, 6YP. Utilization 1938, 5%.

Date of Examination	6-2-38	% of
Condition of Soil	Moist	Cover
Common Name -		
Wheatgrass	6½"	20
Lupine	60% full flower	
Service berry	Full leaf	
Puccoon	Flowers in bud	
Blue-eyed Mary	Full flower	
Yarrow	Full leaf; forming seed stalks	
Bitterbrush	3/4 leaf	
Phlox	Full flower	

NW¼ Sec. 22, T. 2 N., R. 18 W. Elevation 5700'. Slope 20% SW. Soil, humus loam. Type, 6YP. Utilization 1938, 5%. Range readiness June 2, 1938; upper limit Zone 1.

Date of Examination	6-2-38	% of
Condition of Soil	Moist	Cover
Common Name -		
Wheatgrass	6"	15
Sedge (geyeri)	4½"; in head	10
Lupine	Full leaf; flower in bud	
Arnica	Full leaf; 10% full flower	
Shooting star	Mature to disappearing	
Yarrow	Full leaf; forming seed stalks	
Strawberry	Full leaf; 20% in flower	

SW¼ Sec. 15, T. 2 N., R. 18 W. Elevation 6200'. Slope SW, 25%. Soil, sandy loam. Type, 6YP mature. Utilization 5%, 1938. Lower limit Zone 2.

Date of Examination	6-2-38	% of
Condition of Soil	Moist	Cover
Common Name -		
Sedge (geyeri)	3½"	20
Wheatgrass	5"	10
Lupine	3/4 leaf; flowers in bud	
Arnica	3/4 leaf	
Wooly weed	2/3 leaf	
Snowberry	Full leaf	
Yarrow	Full leaf	

SW¼ Sec. 9, T. 2 N., R. 18 W. Elevation 6700'. Slope SW, 20%. Soil, humus loam. Type, lodgepole. Utilization 1938, none.

Date of Examination	6-2-38	% of
Condition of Soil	Moist	Cover
Common Name -		
Sedge (geyeri)	2"; in flower	20
Pinegrass	2¼"	15
Arnica	1/4 leaf	
Low huckleberry	1/2 leaf; flowers in bud	
Dog-tooth violet	40% full flower	

SE¼ Sec. 8, T. 2 N., R. 18 W. Elevation 7000'. Slope SW, 5%. Soil, sandy humus loam. Type, lodgepole. Within upper half Zone 2.

Date of Examination	6-2-38	% of
Condition of Soil	Moist	Cover
Common Name -		
Dog-tooth violet	20% full flower	
Pinegrass	2"	40
Sedge (geyeri)	1½"	20
Small huckleberry	Beginning growth	
Arnica	1/4 leaf	

Meadow-Tolan Series (500' intervals)

SW¼ Sec. 27, T. 2 N., R. 18 W. Elevation 5000'. Slope N, 15%. Soil, rocky loam. Type, DF mature. This plot shows condition on north exposures common with range.

Date of Examination	6-1-38	% of
Condition of Soil	Wet	Cover
Common Name -		
Arnica	Full leaf	
Pinegrass	5"	40
Kinnikinnick	Flowers in bud	
Rose	3/4 leaf	
Strawberry	Full leaf	
Snowberry	Full leaf	
Dog-tooth violet	Full flower	

SW¼ Sec. 26, T. 2 N., R. 18 W. Elevation 5500'. Slope NW, 45%. Soil, disintegrated granite. Type, grass-browse. Within Zone 2; estimated ready June 5, 1938.

Date of Examination	6-1-38	% of
Condition of Soil	Moist	Cover
Common Name -		
Bluegrass	3½"	
Balsamroot	60% full flower	
Larkspur	Full flower	
Lupine	80% full flower	
Phlox	Full flower	
Ninebark	Full leaf	
Snowberry	Full leaf	5
Bitterbrush	1/2 leaf	

NW¼ Sec. 35, T. 2 N., R. 18 W. Elevation 6000'. Slope NW, 25%. Soil, rocky humus. Type, 6DF. Within Zone 2; estimated readiness June 10, 1938.

Date of Examination	6-1-38	% of
Condition of Soil	Moist	Cover
Common Name -		
Pinegrass	4"	40
Dog-tooth violet	Full flower; mature	
Arnica	Full leaf	
Lupine	1/2 leaf	
Snowberry	Full leaf	

NE¼ Sec. 3, T. 1 N., R. 18 W. Elevation 6500'. Slope NW, 40%. Soil, rocky disintegrated granite. Type, 6YP, bug-killed. Within Zone 2; estimated readiness June 15, 1938.

Date of Examination	6-1-38	% of
Condition of Soil	Moist	Cover
Common Name -		
Pinegrass	2½"	40
Buttercup	Full flower	
Rose	1/2 leaf	
Arnica	1/4 leaf	
Dog-tooth violet	Full flower	
Alder	Beginning growth	

7. Condition of Range as Result of Former Use

Medicine Tree C&H

Portions of the exposed grass types on south and west exposures are overused, also around salt grounds and along ridges. The area as a whole is estimated to be 20% overused, 20% lightly used, 60% properly used.

The steeper side hills are lightly used at lower elevations. Side hills over 55% in slope receive little if any use. Downy chess occupies much of the area on the grass types.

Camp-Reimel C&H

This area is much the same as the Medicine Tree Unit. Areas along Reimel Creek have been overused in the past. Reimel Creek contains some of the most overused areas on the division.

East Fork C&H

This unit is properly used over most of its area. Around salt grounds and on ridges the range is slightly overused. Not more than 10% is overused over the entire area.

Meadow-Tolan C&H

This unit presents approximately the same appearance as the East Fork Unit.

8. Soil Moisture Conditions

Soil moisture conditions varied from damp to wet over the entire East Fork Division. Very satisfactory soil conditions were found on all the ranges examined.

9. Conclusions as to Vegetative Readiness

The division was found to contain two zones; Zone 1, 4800' to 6200', with the upper limits roughly paralleling the lower limits of the lodgepole pine type, and Zone 2, 6200' to the highest elevation of over 7000'. Vegetative readiness was determined as -

Zone 1, May 20 to 31; average May 25, 1938.
Zone 2, estimated to be ready June 10 to 15, 1938.

10. Principal Forage Species for Spring and Summer Ranges, East Park Division

Grasses, 75%		Weeds, 15%	
Agropyron spicatum	20	Achillea lanulosa	1
Festuca idahoensis	10	Arenaria hookeri	T
Calamagrostis rubescens	15	Arnica cordifolia	3
Koeleria cristata	3	Balsamorrhiza sagittata	5
Poa secunda	5	Frasera discolor	T
Carex geyeri	10	Lupinus sp.	3
Phleum alpinum	T	Pentstemon sp.	1
Bromus tectorum	10	Leontodon taraxacum	1
Festuca scabrella	2	Quamasia esculenta	T
Carex atrata	T	Zerophyllum tenax	T
		Aster	T
Shrubs, 10%		Fragaria	1
Alnus	T		
Arctostaphylos	1		
Cornus sp.	T		
Odostemon	1		
Rosa sp.	T		
Symphoricarpos	5		
Vaccinium scoparium	4		
Artemisia tridentata	T		
Cercocarpus montanus	T		
Chrysothamnus	T		
Purshia	1		
Pentstemon	T		
Ceanothus sanguineus	T		

CONCLUSIONS ON SEASONAL UNIT

Medicine Tree C&H

Zone 1, proper opening date is May 15. Zone 2 reached readiness about June 10, 1938. Ready June 1 of average year. The movement of cattle to Zone 2 can be controlled by salting the lower elevations of Zone 1 early in season.

Camp-Reimel C&H

Zone 1 is estimated to be ready May 15 of the average year. Zone 2 is about the same as Zone 2 of the Medicine Tree Unit. May 15 is recommended as the proper opening date. Cattle should be kept in the lower zone until the upper zone is ready.

East Fork C&H

Since the greater portion of this range lies within Zone 1, the opening date is set at May 15 with the further recommendation that the range be studied each year by the ranger before allowing cattle to graze on it. A sliding opening date as late as June 1 would be preferable on this range.

Meadow-Tolan C&H

This range is later in development than the other ranges on the East Fork Division, due to its north exposure. The greater portion of this range was not ready for grazing this year until the June 10-15 period. Since this year was considered to be from ten days to two weeks late, the opening date recommended for the Meadow-Tolan Unit is June 1.

2. Seasonal Zones

Unit	Zone 1	Zone 2
Medicine Tree	4800' to 6200'	6200' plus
Camp-Reimel	4800' to 6200'	6200' plus
East Fork	5000' to 6200'	6200' plus
Meadow Tolan	5000' to 6000'	6000' plus

3. Water Conditions in Seasonal Unit

Water conditions were similar in all zones found. Water was sufficient for all zones during their season of use.

4. Soil Moisture Conditions

Soil moisture was less in the lower and more exposed situations, such as the grass types on the Medicine Tree and Camp-Reimel Units, than in the higher timbered areas. Soil moisture conditions were satisfactory in all zones in 1938.

5. Stocking on Unit

As range survey was conducted on the East Fork Division during 1937, the management units have been subdivided into distribution units.

Item 4 Heading [illegible]

[illegible] is scheduled to be heavy duty to be de-rigg
pers. From 2 to 4 should use Item X of the pending
This work, may be is recommended as the proper operating [illegible]
Station should be kept to give lower more visual for right-turn
in work.

Item Item Again.

Given the driveway position of [illegible] Drive within
Road B, the crossing date is one of the site for Parking
recommendation that the notice be obtained until [illegible] the
ridges before right-[illegible] to stay on the [illegible]
Corporate as late as Park I would be particularly in this [illegible].

Item Lighting [illegible]

This period is later as detailed given the river
[illegible] on the last four Devices, due to the [illegible]
The result [illegible] built Fridge was not ready for crossing
Rita Terminal the Rose [illegible] pretty. Since Main [illegible]
[illegible] to be from the days to the small Inn, old [illegible]
data [illegible] or bus [illegible] [illegible] to [illegible].

[illegible] Study

[illegible]	[illegible]	[illegible]
[illegible] Trip	[illegible] be with	[illegible] plus
[illegible]	[illegible] is also	[illegible] the Idea
Each [illegible]	[illegible] to [illegible]	[illegible] plus
[illegible] Indoor Trains	[illegible] to with	[illegible] plus

[illegible] Investigations [illegible] Unsigned Units

Under conditions were already in all areas found.
Valley was until time for all route Swamp Liberty station at per.

Civil Policy Questions

Civil mechanic pay Item is Item 3 and more exposed
[illegible] open on the years system on the Dedicated Drug Rec
Corporation Title, Union to the Higher Licensed Areas. Civil
Training eight Items were satisfactory in all given in 1960.

Engineer at Site

As train Survey was received on the Heat Fire Division
April 1977. The management until Item Long Valuation Inte
Civil/Fish Sales.

Actual stocking for 1938 by distribution units is given. All stock entered the ranges during the period May 15 to June 1, 1938

Medicine Tree Unit

Robbins Gulch D. U.	75 head	(62 on, 13 off)
Medicine Tree D. U.	141 head	(135 on, 6 off)
Franklin Gulch D. U.	83 head	(all on)
Elk Gulch D. U.	136 head	(130 on, 6 off)
Doran Gulch D. U.	94 head	(all on)
Fox D. U.	33 head	(15 on, 18 off)

Camp-Reimel Unit

Wallace D. U.	33 head	(25 on, 8 off)
Dick D. U.	49 head	(45 on, 4 off)
Waugh D. U.	76 head	(74 on, 2 off)
Andrews D. U.	61 head	(31 on, 30 off)

East Fork Unit

Hard Creek D. U.	125 head
Cameron D. U.	44 head
Lyman D. U.	68 head
Bertie Lord D. U.	131 head
Guidy D. U.	81 head
Jennings Camp D. U.	68 head
Tepee Creek D. U.	69 head
Cub Creek D. U.	37 head

Meadow-Tolan Unit

Sage Brush D. U.	54 head
Dowling D. U.	34 head
Springer Creek D. U.	71 head
Tolan Creek D. U.	84 head

6. Estimated Carrying Capacity

Medicine Tree Unit

Robbins Gulch D. U.	85 head
Medicine Tree D. U.	142 head
Franklin Gulch D. U.	75 head
Elk Gulch D. U.	270 head
Doran Gulch D. U.	94 head
Fox D. U.	33 head

Upon a mooring for time by electrodynamics vortex in
Lewis. All flour suppress the pain in a relay the period hay
to or June 1, 1964.

Insulate Cave Drip

Optimize Orbit St. ... 74 Seed (64 mi, 14 dry)
Emulsion Term v. ... 171 Semi (138 deg i sell)
Transfer Index fn. ... 42 Heat (11 ago)
Fix Valve n. ... 157 Acid (150 cm, 6 dry)
Power Plant pl. ... 14 Steel (41) de
... 74 Seed (15 cm, 32 dry)

Pre-Market Grip

Valve v. ... 93 Lead (20 in, 3 dry)
Jury n. ... 40 Send (69 yr, 3 dry)
Tough n. ... 76 Lend (74 da, 0 lay)
Airport n. ... 61 Meal (21 yr, 36 wet)

Last Term Data

... 186 Send
... 64 Test
... 73 Lend
... 211 Lend
... 73 Lend
... 20 Lend
... 87 Lend
... 87 Lend

Coalition Data

... 93 Lend
... 34 Send
... 71 Lend
... 64 Lend

Be ... Milk Clear Chemical Wealth

Monday Time Debt

... 18 Test
... 142 Lend
... 74 Lend
... 170 Lend
... 87 Lend
... 42 Lend
... 180 Lend

Camp-Reimel Unit

Wallace D. U.	33 head
Dick D. U.	61 head
Waugh D. U.	76 head
Andrews D. U.	61 head

East Fork Unit

Hard Creek D. U.	125 head
Cameron D. U. 44	44 head
Lyman D. U.	68 head
Guidy D. U.	81 head
Bertie Lord D. U.	131 head
Jennings Camp D. U.	68 head
Tepee Creek D. U.	69 head
Cub Creek D. U.	37 head

Meadow-Tolan Unit

Sage Brush D. U.	68 head
Springer Creek D. U.	88 head
Tolan Creek D. U.	121 head

7. Range Improvements Necessary to Obtain Seasonal Control

Medicine Tree Unit

1. Construction of drift fence along Cameron-Rye Creek divide, 7 miles in length. Estimated cost per mile, $250; buck-and-pole fence. Purpose: to keep cattle from drifting into Rye Creek area from Cameron Creek area.

2. Spring development at head of Elk Gulch Trail. Purpose: to get better utilization during latter part of season at head of Elk Gulch. Location, NW¼SW¼ Sec. 6, T. 1 N., R. 19 W.

3. Water development at head of Spring Gulch. Location, NW¼NE¼ Sec. 7, T. 1 N., R. 19 W.

East Fork Unit

1. Development of spring in NW¼NW¼ Sec. 6, T. 1 N., R. 18 W.

2. Development of spring in SE¼SE¼ Sec. 31, T. 2 N., R. 18 W.

3. Water development in Guide Creek, SW¼NE¼ Sec. 20, T. 2 N., R. 18 W.

Meadow-Tolan Unit

1. Grade trail into water on Springer Creek; Sec. 4, T. 1 N., R. 18 W.

2. Grade trail into water on unnamed creek across East Fork from Jennings Camp. Location,-Sec. 35, T. 2 N., R. 18 W.

3. Construct 3/8 mile of drift fence on Tolan Creek; cost $220; buck-and-pole fence, on South Fork of Tolan Creek. Purpose - to keep cattle on Tolan Creek range.

8. Recommendations for Obtaining Proper Use of Range

Salting

Place salt low down during first part of season. Cattle do not utilize open sidehills at low elevations. These areas reach readiness first and contain much good feed. Move salt to higher elevations as season advances. Salt on spur ridges, not on main ridges.

Herding

None necessary if cattle are properly salted.

9. Areas Which Cannot be Used Due to Lack of Water

The only areas which cannot be used correctly during proper season due to lack of water are found in the vicinity of Sula Peak. Water development will adjust this difficulty.

10. Information to Assist in Administration

Watch for effect of fallen bug-killed lodgepole pine on cattle distribution. Large amounts of bug-killed timber have fallen during the past winter and will have a bad effect on cattle distribution.

SUMMARY

1. Seasonal Units

Division or Allotment, or Parts of,	Present Season	Recommended Season
Medicine Tree	5-15 to 10-31	5-15 to 10-31
Camp-Reimel	5-15 to 10-31	5-15 to 10-31
East Fork	5-15 to 10-31	5-15 to 10-31
Meadow-Tolan	5-15 to 10-31	6- 1 to 10-31

Seasonal Zones

1938 adjusted to average year, considering 10 days late.

Medicine Tree	4800'-6200',	May 15 to Oct. 31
	6200' plus,	May 25 to Oct. 31
Camp-Reimel	4800'-6200',	May 15 to Oct. 31
	6200' plus,	May 25 to Oct. 31
East Fork	5000'-6200',	May 15 to Oct. 31
	6200' plus,	May 25 to Oct. 31
Meadow-Tolan	5000'-6000',	May 20 to Oct. 31
	6000' plus,	June 1 to Oct. 31

Note: Since cattle do not arrive on the ranges above 6000' until after June 1, and since the separation of these zones is impossible except by costly drift fences, they are given as information only. The opening date should be controlled by the complete readiness of the lower zone. Cattle can be kept in the lower zone during the first two weeks by the proper use of salt.

General Recommendations

Further study of feeding conditions in the fall to determine whether the October 31 closing date is too late.

Further examination of the cattle movement on the range to determine whether the range could be more properly used if water were developed and drift fences built.

An attempt should be made, by salting at low elevations early in the spring, to utilize the good feed on the lower side hills. This would prevent too early use of ridges at higher elevations, many of which show heavy use in the past.

RESULTS OF THE APPLICATION OF THE AIR TEMPERATURE METHOD TO THE DATE OF READINESS DETERMINED IN 1938.

Since the compilation of the original report, the average date of vegetative readiness for the Bitterroot spring ranges has been determined, using Lommasson's "Air Temperature as an Index for Vegetative Readiness" method. The average date of vegetative readiness on the Bitterroot spring ranges was found to be May 15. This date was within five days of the date set by the author during field work.

Since the average height of the spring ranges studied was 5000', the vegetative growth during the winter months was considered to be negligible. The computations, therefore, commence on March 1, and continue through to the date of readiness. Hamilton weather records were used as a basis in determination of the dates of readiness. Victor and Corvallis records were used where Hamilton records were incomplete or missing. Since the distance from Hamilton to these towns is relatively short, there should be no great difference in the long-time average. The years 1899 to 1938 were used in determining the average date of vegetative readiness. The year 1902 is not used in the average as no complete climatological records are available for this year at any of the Bitterroot stations.

The earliest date of vegetative readiness for the years studied was April 20, 1910; the latest date was June 13, 1922. The number of plus degrees necessary to bring the ranges studied to vegetative readiness was determined to be 1577. The accompanying graph shows vegetative readiness by years, 1899 to 1939, administrative leeway limits and the trend of early and late seasons.

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1892 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 29, 1892

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					6	16	14							6	3	--		
2					10	17	16							4	--	--		
3					9	24	18							--	3	--		
4					14	18	28							10	--	--		
5					10	25	38							14	7	--		
6					16	25	38							4	--	--		
7					19	29	37							--	7	--		
8					20	40	37							2	--	--		
9					11	42	29							2	--	--		
10					13	25	39							7	--	--		
11					10	26	36							10	--	--		
12					8	20	25							13	--	4		
13					5	15	29							5	--	4		
14					--	26	22							21	--	--		
15					--	41	17							19	--	--		
16					4	38	28							18	--	--		
17					10	23	29							23	--	--		
18					19	21	19							20	2	--		
19					24	20	26							4	--	--		
20					15	30	22							--	2	--		
21					6	28	25							11	--	--		
22					6	11	38							12	12	--		
23					26	16	44							10	2	--		
24					17	28	48							--	--	--		
25					17	28	40							6	7	--		
26					5	17	27							14	7	--		
27					10	16	32							12	12	--		
28					17	17	33							--	7	--		
29					19	24	27							--	2	--		
30					9	18	28							10	7	--		
31					10	X	41							14	X	--		
Total					365	722	928							271	80	8		

(1) Total, Plus,

365
722
9[illegible]
2015

(3) Difference

+ 2015 + 1656
- 359 + 1577
+ 1656 + 79

(2) Total, Minus,

271
80
8
359

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1930 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 5, 1930

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					22	27	42							--	2			
2					27	25	45							6	1			
3					15	28	46							1	3			
4					8	28	46							13	5			
5					--	35	38							15	1			
6					13	42	36							13	--			
7					15	29	41							--	--			
8					17	14	47							--	2			
9					28	8	48							--	3			
10					38	13	49							--	1			
11					42	18	18							--	--			
12					37	32	52							--	--			
13					26	21	32							7	2			
14					25	8	35							8	3			
15					27	28	37							10	--			
16					28	27	38							7	--			
17					33	37	24							8	1			
18					31	38	32							7	--			
19					24	42	37							8	--			
20					18	28	38							8	--			
21					24	35	37							7	--			
22					34	26	38							6	2			
23					27	24	37							--	2			
24					26	10	38							--	--			
25					37	27	40							--	--			
26					29	23	28							--	2			
27					11	22	23							6	--			
28					15	27	29							3	2			
29					18	38	32							2	--			
30					17	41	37							10	--			
31					35	X	35							6	X			
Total					747	801	1175							161	32			

(1) Total, Plus,

747
801
1548
2723

(3) Difference

+2723 - 2640
- 183 + 1577
+2540 + 983

(2) Total, Minus,

161
32
183

Year of Examination on Ground 1930

G
STUDIES
Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1901 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 16, 1901

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					18	17	27							--	2	--		
2					24	18	18							--	--	8		
3					17	16	28							--	8	2		
4					4	15	29							6	12	--		
5					8	17	47							3	9	--		
6					15	19	49							16	--	--		
7					16	18	52							3	12	--		
8					10	24	57							--	8	--		
9					13	28	54							6	5	2		
10					13	30	48							--	5	6		
11					9	27	55							9	2	--		
12					17	17	36							3	2	--		
13					19	17	32							2	1	--		
14					18	29	50							1	--	--		
15					20	27	45							2	--	--		
16					17	28	53							--	--	--		
17					15	29	48							2	--	--		
18					17	26	56							4	2	--		
19					21	27	40							6	--	--		
20					18	26	47							2	--	--		
21					17	28	53							3	--	--		
22					25	30	51							12	7	--		
23					13	18	54							7	--	--		
24					17	23	44							5	--	--		
25					16	28	44							2	--	--		
26					21	30	51							8	--	--		
27					20	35	55							3	--	--		
28					16	18	48							12	7	--		
29					15	33	54							9	8	--		
30					2	35	57							12	12	--		
31					4	X	53							8	X	--		
Total					475	722	1432							146	100	18		

(1) Total, Plus,

475
722
1432
2629

(3) Difference

+ 2629
- 264
+ 2365

+ 2367
+ 1577
+ 790

(2) Total, Minus,

146
100
18
264

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1903 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 19, 1903

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					6	22	28							19	--	2		
2					8	18	33							6	1	7		
3					--	24	56							16	--	--		
4					--	26	38							21	4	--		
5					--	11	39							24	4	--		
6					5	15	50							26	4	14		
7					14	21	35							10	--	--		
8					12	22	26							1	--	--		
9					11	33	28							11	--	--		
10					10	7	22							2	1	--		
11					18	10	38							--	10	--		
12					25	11	51							1	10	--		
13					3	28	55							12	8	--		
14					6	31	46							8	3	--		
15					8	19	30							5	1	--		
16					6	18	27							--	--	--		
17					9	34	27							--	2	--		
18					6	28	14							9	--	1		
19					4	31	17							14	2	--		
20					16	33	28							10	1	2		
21					22	41	26							4	--	--		
22					14	31	40							8	--	2		
23					19	33	28							6	--	--		
24					25	35	29							3	2	--		
25					34	45	31							--	2	--		
26					23	40	42							--	1	--		
27					29	42	40							--	2	--		
28					31	36	30							--	3	--		
29					23	25	36							--	12	--		
30					27	24	52							--	--	--		
31					22	X	56							--	X	--		
Total					441	794	1098							216	73	28		

(1) Total, Plus,

441
794
1[illegible]
2[illegible]

(3) Difference

2333 + 2016
317 + 1577
2016 439

(2) Total, Minus,

216
73
28
317

Year of Examination on Ground 1938

G
STUDIES
Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1904 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 17, 1904

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					5	22	31							5	6	--		
2					2	32	24							18	6	--		
3					8	30	32							22	1	--		
4					15	28	29							12	--	--		
5					15	28	31							7	--	2		
6					23	19	28							--	2	--		
7					24	19	28							--	3	--		
8					18	29	28							--	5	2		
9					11	40	41							3	--	--		
10					16	39	33							7	--	--		
11					16	40	31							1	--	--		
12					18	43	29							8	--	4		
13					18	40	30							5	--	--		
14					23	43	38							6	--	--		
15					9	31	43							8	4	--		
16					13	28	44							13	3	--		
17					17	38	40							5	--	--		
18					11	40	39							1	--	--		
19					9	31	30							2	--	--		
20					11	22	44							--	--	--		
21					11	18	47							7	--	--		
22					11	24	38							8	--	--		
23					2	20	43							7	--	--		
24					--	27	26							25	--	--		
25					3	37	26							31	--	4		
26					8	43	37							26	--	--		
27					13	43	43							16	--	--		
28					18	36	42							2	--	--		
29					3	29	39							2	--	--		
30					16	29	36							17	2	--		
31					18	X	36							5	X	--		
Total					385	955	1095							275	32	12		

(1) Total, Plus,

385
955
1340
2295

(3) Difference

+ 2435 + 2116
- 319 + 1577
+ 2116 + 539

(2) Total, Minus,

275
32
12
319

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1936 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 6, 1936

Day of Month	Maximum + Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Minimum - Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1																		
2					38	23	27							--	--	--		
3					36	25	22							--	--	--		
4					30	28	16							1	6	--		
5					27	30	53							3	6	--		
6					30	42	51							1	--	--		
7					25	42	53							--	--	--		
8					22	31	40							6	--	--		
9					28	24	45							1	--	--		
10					26	16	41							--	--	1		
11					14	25	44							4	--	--		
12					--	28	41							13	--	--		
13					1	30	46							16	--	--		
14					18	27	26							17	7	2		
15					20	23	28							--	--	--		
16					27	25	35							1	--	--		
17					31	18	47							1	--	--		
18					26	28	43							1	--	--		
19					23	34	28							--	--	2		
20					22	26	42							--	--	--		
21					22	28	34							--	--	--		
22					17	30	26							--	--	--		
23					20	34	29							4	--	--		
24					24	40	28							5	--	--		
25					16	42	25							--	--	--		
26					17	40	36							--	--	--		
27					14	31	35							--	--	--		
28					14	20	20							5	1	--		
29					13	27	33							7	--	--		
30					9	29	38							6	--	--		
31					12	25	51							4	--	--		
Total					23	X	50							6	X	--		
					642	673	1142							102	20	5		

(1) Total, Plus,

642
673
11[illegible]
2656

(3) Difference

+ 2656 + 2529
- 127 + 1577
+ 2529 + 952

(2) Total, Minus,

102
20
5
127

Year of Examination on Ground 1936

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1906 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 19, 1906

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					8	16	28							14	--	--		
2					5	9	33							18	--	--		
3					3	14	33							19	5	--		
4					15	24	35							7	4	--		
5					22	36	27							5	--	8		
6					27	40	30							--	--	2		
7					28	33	36							2	--	--		
8					21	31	45							--	--	--		
9					11	31	51							2	2	--		
10					--	31	51							12	2	--		
11					--	30	32							32	5	--		
12					--	21	32							32	7	--		
13					--	29	31							30	3	--		
14					--	36	30							33	--	--		
15					--	42	30							45	--	--		
16					--	30	22							36	--	--		
17					--	29	32							36	2	--		
18					--	32	45							27	--	--		
19					--	40	40°							34	--	--		
20					9	46	36							25	--	--		
21					15	51	35							4	--	--		
22					21	48	29							1	--	--		
23					21	36	22							2	--	--		
24					27	25	28							--	--	--		
25					26	21	33							--	--	--		
26					25	30	28							--	--	--		
27					23	33	30							--	--	--		
28					28	32	28							--	--	--		
29					31	33	16							3	--	--		
30					38	35	24							--	--	--		
31					32	X	30							--	--	--		
Total					434	954	1010							427	30	10		

(1) Total, Plus,

434
954
107
2395

(3) Difference

+ 2395
- 467
+ 1931

+ 1931
+ 1577
+ 354

(2) Total, Minus,

427
30
10
467

Year of Examination on Ground 1936

STUDIES
Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1907 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 17, 1907

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					8	38	30							9	5	3		
2					13	24	28							7	--	6		
3					12	23	27							14	--	7		
4					4	24	28							15	--	5		
5					8	26	30							11	--	1		
6					10	28	35							2	--	--		
7					19	34	34							5	--	--		
8					17	38	28							8	--	6		
9					13	41	27							6	2	7		
10					15	31	35							--	--	--		
11					16	24	28							4	8	--		
12					18	32	35							5	3	--		
13					9	40	36							4	--	--		
14					13	35	38							--	--	--		
15					19	29	45							--	3	--		
16					20	25	47							2	--	--		
17					14	14	43*							7	2	--		
18					17	18	40							--	4	--		
19					22	18	45							--	11	--		
20					32	8	26							--	--	--		
21					31	35	34							--	--	--		
22					17	36	28							1	--	--		
23					17	28	17							--	--	--		
24					17	20	24							2	7	--		
25					16	18	23							8	9	--		
26					1	17	30							12	--	--		
27					8	18	33							14	6	--		
28					12	20	36							1	15	--		
29					16	21	41							5	9	--		
30					24	31	42							1	3	--		
31					28	X	51							2	X	--		
Total					495	794	1039							144	67	35		

(1) Total, Plus,

495
794
10[illegible]
2[illegible]

(3) Difference

+ 2328 + 2062
- 266 + 1577
+ 2062 + 485

(2) Total, Minus,

144
67
35
246

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1908 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readines May 13, 1908

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					17	9	45							12	7			
2					17	25	38							7	8			
3					6	40	17							12	4			
4					5	29	30							8	6			
5					--	25	35							11	9			
6					11	12	48							23	5			
7					8	19	44							7	7			
8					15	32	23							--	7			
9					28	31	22							--	--			
10					34	33	19							10	--			
11					31	44	22							7	--			
12					21	42	23							2	--			
13					18	40	28							--	--			
14					25	32	31							--	--			
15					33	29	29							--	--			
16					34	30	23							--	--			
17					19	34	30							4	--			
18					8	40	32							8	--			
19					12	47	23							10	--			
20					22	38	29							5	--			
21					17	29	29							8	--			
22					20	30	21							2	--			
23					25	31	32							--	--			
24					29	26	38							--	--			
25					28	19	37							5	1			
26					13	24	21							7	6			
27					9	28	19							7	--			
28					8	23	34							10	--			
29					8	30	32							12	4			
30					24	36	21							11	--			
31					8	X	14							8	X			
Total					555	905	889							196	64			

(1) Total, Plus,

553
905
88
2347

(3) Difference

+ 2347 + 2087
- 260 + 1577
+ 2087 + 510

(2) Total, Minus,

196
64
260

Year of Examination on Ground 1908

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1909 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 19, 1909

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					9	28	26							4	--	--		
2					19	24	38							--	4	--		
3					24	19	46							7	10	--		
4					20	25	48							--	8	--		
5					14	16	38							7	4	--		
6					9	12	21							12	17	2		
7					13	24	21							12	6	4		
8					12	33	20							7	--	7		
9					12	28	37							11	--	--		
10					10	14	32							10	1	--		
11					1	11	23							22	2	--		
12					8	21	22							6	1	--		
13					23	20	31							9	--	--		
14					29	19	32							6	--	--		
15					30	20	33							4	--	--		
16					32	28	28							4	2	--		
17					31	26	29							--	--	--		
18					26	21	30							5	8	--		
19					25	23	37*							5	6	--		
20					25	25	40							5	--	--		
21					26	16	42							8	11	--		
22					24	24	18							6	--	--		
23					24	26	23							4	--	--		
24					25	30	41							3	--	--		
25					23	28	37							--	--	--		
26					28	33	30							--	--	--		
27					20	25	36							--	--	--		
28					9	21	34							--	--	--		
29					19	19	28							3	--	--		
30					20	15	32							1	7	--		
31					28	X	42							1	12	--		
Total					623	675	1000							162	99	13		

(1) Total, Plus,

623
675
1000
2[illegible]

(3) Difference

+ 2298 + 2024
- 274 + 1577
+ 2024 + 447

(2) Total, Minus,

162
99
13
274

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1910 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness April 20, 1910

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					14	35	44							--	2	--		
2					27	31	33							--	--	--		
3					22	33	37							--	2	2		
4					22	27	36							--	--	--		
5					26	46	30							--	--	--		
6					13	36	39							2	--	--		
7					26	40	44							6	1	--		
8					25	38	46							3	--	--		
9					26	33	42							5	--	--		
10					25	42	33							--	--	--		
11					32	33	36							1	--	--		
12					36	33	38							--	--	--		
13					36	30	40							--	--	--		
14					36	18	37							1	4	--		
15					35	27	27							1	6	--		
16					34	38	32							--	--	2		
17					36	50	44							--	--	--		
18					40	51	45							--	--	--		
19					39	50	41							--	--	--		
20					41	42	30							--	--	--		
21					39	34	40							--	--	--		
22					38	39	49							--	--	--		
23					35	48	51							--	--	--		
24					24	57	49							3	--	--		
25					21	56	40							9	--	--		
26					26	54	39							6	--	--		
27					28	43	36							1	--	--		
28					24	39	34							2	--	--		
29					22	26	38							8	--	--		
30					33	25	53							2	--	--		
31					38	X	53							--	2	--		
Total					918	1160	1236							49	17	4		

(1) Total, Plus,

918
1160
1236
3314

(3) Difference

+ 3314 + 3244
- 70 + 1577
+ 3244 + 1667

(2) Total, Minus,

49
17
4
70

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1911 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 10, 1911

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					--	32	35							30	--	--		
2					9	29	32							25	--	--		
3					8	18	33							14	4	--		
4					4	15	44							11	2	--		
5					13	12	51							3	8	--		
6					23	18	38							--	7	--		
7					23	21	34							--	3	--		
8					18	34	34							--	4	--		
9					18	32	28							--	--	--		
10					20	22	22							4	--	--		
11					19	21	32							--	4	--		
12					21	7	38							5	9	--		
13					29	12	34							3	9	--		
14					27	19	24							--	8	--		
15					27	31	19							3	3	--		
16					26	30	27							2	--	--		
17					25	26	28							3	5	--		
18					28	24	24							4	4	--		
19					32	13	22							--	2	--		
20					34	34	30							--	--	--		
21					32	34	38							--	--	2		
22					31	28	41							1	--	--		
23					30	27	36							--	--	--		
24					19	36	28							--	--	--		
25					14	39	25							5	--	--		
26					17	33	22							10	--	--		
27					15	32	23							1	--	--		
28					28	15	27							2	--	1		
29					32	19	34							--	--	--		
30					32	24	43							--	--	--		
31					37	X	46							--	2	--		
Total					691	737	990							126	74	3		

(1) Total, Plus,

691
737
990
24

(3) Difference

+ 2418 + 2215
- 203 + 1577
+ 2215 + 638

(2) Total, Minus,

126
74
3
203

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1912 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 26, 1912

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					--	30	23							16	--	--		
2					--	38	16							27	--	--		
3					--	33	23							23	--	1		
4					--	32	24							27	--			
5					4	13	24							16	--			
6					3	29	31							14	7			
7					--	40	36							16	2			
8					--	43	42							28	--			
9					7	43	39							22	--			
10					8	36	36							19	--			
11					6	30	51							10	--			
12					5	23	35							7	3			
13					1	16	37							15	--			
14					10	21	34							17	--			
15					9	21	47							--	--			
16					12	21	42							4	--			
17					11	22	42							5	--			
18					5	15	41							4	--			
19					--	18	45							13	--			
20					3	21	39							16	--			
21					15	25	23							15	2			
22					17	24	20							11	--			
23					23	28	27							7	--			
24					24	21	38							2	--			
25					18	20	35							1	--			
26					21	24	32							5	4			
27					28	26	27							--	--			
28					29	28	33							--	--			
29					15	26	34							--	--			
30					16	23	27							10	--			
31					28	X	39							5	X			
Total					318	790	1024							355	18	1		

(1) Total, Plus,

318
790
1024
2[illegible]

(3) Difference

+ 2132 + 1758
- 374 + 1577
+ 1758 + 181

(2) Total, Minus,

355
18
1
374

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1913 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 25, 1913

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					11	11	19							6	1	6		
2					13	12	18							8	5	--		
3					18	18	16							--	5	--		
4					19	18	17							1	1	2		
5					19	23	24							2	--	--		
6					17	15	42							2	1	--		
7					23	20	45							5	8	--		
8					27	22	40							2	7	--		
9					24	29	36							2	4	--		
10					11	36	33							7	--	--		
11					16	44	30							1	--	--		
12					10	46	30							4	--	--		
13					1	44	22							14	--	--		
14					4	47	27							19	--	--		
15					12	41	30							7	--	--		
16					15	34	24							--	--	--		
17					16	33	22							--	2	2		
18					19	39	17							--	1	--		
19					9	36	24							20	--	--		
20					--	34	31							32	--	--		
21					--	35	39							33	--	--		
22					5	15	47							19	3	--		
23					8	16	38							9	2	--		
24					1	23	45							12	--	--		
25					--	36	47							25	--	--		
26					10	40	54							23	--	--		
27					18	34	51							3	--	--		
28					15	26	49							--	4	--		
29					16	15	40							--	--	--		
30					16	15	46							--	4	--		
31					12	X	60							1	X	--		
Total					382	857	1051							257	48	10		

(1) Total, Plus,

382
857
1051
2290

(3) Difference

+ 2290 + 1975
- 315 + 1577
+ 1975 + 398

(2) Total, Minus,

257
48
10
315

Year of Examination on Ground 1936

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1914 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 3, 1914

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					16	23	41							1	2			
2					12	33	48							--	--			
3					19	28	44							3	1			
4					16	35	36							--	--			
5					18	32	27							3	--			
6					23	33	30							5	--			
7					30	27	41							--	--			
8					31	29	47							--	--			
9					30	34	37							2	--			
10					15	36	40							10	--			
11					13	37	30							6	--			
12					33	37	35							8	--			
13					34	37	39							--	--			
14					32	38	47							--	--			
15					21	40	50							--	--			
16					24	33	40							--	--			
17					29	23	43							--	5			
18					24	32	46							--	4			
19					11	28	41							7	--			
20					10	28	45							5	--			
21					15	34	43							15	--			
22					27	35	46							8	--			
23					16	36	46							2	--			
24					18	30	39							--	--			
25					10	29	40							8	--			
26					15	32	41							4	3			
27					15	29	47							3	2			
28					22	17	35							9	--			
29					24	23	42							6	5			
30					25	34	49							2	3			
31					39	X	57							--	X			
Total					667	942	1292							107	25			

(1) Total, Plus,

667
942
1292
2901

(3) Difference

+ 2901 + 2769
- 132 + 1577
+ 2769 + 1192

(2) Total, Minus,

107
25
132

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1915 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness April 29, 1915

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					23	31	20							9	--	--		
2					18	35	27							9	--	2		
3					20	37	30							11	--	3		
4					18	29	31							10	--	5		
5					15	28	31							11	4	2		
6					17	32	32							12	--	4		
7					19	23	38							13	--	--		
8					19	24	46							8	3	--		
9					20	31	42							8	3	--		
10					20	37	28							8	--	--		
11					24	35	33							8	--	--		
12					20	40	35							4	--	--		
13					24	29	42							2	--	--		
14					25	17	33							--	--	--		
15					22	27	32							--	--	--		
16					28	38	30							3	--	--		
17					32	39	36							2	--	3		
18					27	44	40							--	--	--		
19					20	45	32							4	--	--		
20					27	46	29							--	--	--		
21					32	40	43							--	--	--		
22					38	25	38							--	--	--		
23					34	28	37							--	2	--		
24					39	35	36							10	12	--		
25					27	45	28							13	6	--		
26					14	41	29							--	3	--		
27					21	42	37							1	--	--		
28					23	50	41							--	--	--		
29					25	43	50							--	2	--		
30					26	40	46							--	5	--		
31					27	X	44							--	X	1		
Total					744	1061	1097							146	40	20		

(1) Total, Plus,

744
1061
1097
29

(3) Difference

+ 2902 + 2696
- 206 + 1577
+ 2696 + 1119

(2) Total, Minus,

146
40
20
206

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1916 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 6, 1916

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					--	23	31							19	9	--		
2					4	21	38							26	--	--		
3					12	27	42							17	4	--		
4					16	22	42							4	2	--		
5					11	26	42							--	1	--		
6					8	24	47							6	--	--		
7					10	32	42							3	1	2		
8					16	26	37							--	--	5		
9					23	27	36							--	--	--		
10					33	30	23							--	--	--		
11					35	23	16							--	--	2		
12					38	18	18							--	--	5		
13					33	30	26							3	1	5		
14					22	39	26							8	--	4		
15					30	36	28							--	--	3		
16					33	28	34							5	3	3		
17					26	23	38							4	--	--		
18					40	22	34							--	2	--		
19					33	18	28							--	2	--		
20					28	28	32							--	1	--		
21						25	26							--	--	--		
22						22	18								--	--		
23						33	19								7	2		
24						39	18							--	--	--		
25						47	17								--	--		
26						45	26								--	--		
27						43	34								--	--		
28						32	34								--	--		
29						23	30								--	--		
30						25	28								5	--		
31						X	30								X	--		
Total					665	853	939							152	37	31		

(1) Total, Plus,

665
853
939
2457

(3) Difference

+ 2476 + 2256
- 220 + 1577
+ 2256 + 679

(2) Total, Minus,

152
37
31
220

Year of Examination on Ground 1638

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1917 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness June 6, 1917

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					--	8	28	38						40	11	1		
2					--	7	28	38						38	7	2		
3					--	14	23	24						35	7	3		
4					7	21	23	27						24	--	3		
5					8	27	29	33						10	2	7		
6					6	18	37	38						12	--	2		
7					4	22	33							27	1	2		
8					8	24	34							12	1	2		
9					4	24	37							14	1	--		
10					4	31	38							20	--	--		
11					5	27	46							27	--	--		
12					--	24	47							25	--	--		
13					4	20	49							24	5	--		
14					5	17	39							20	1	--		
15					7	10	36							10	9	--		
16					9	17	38							24	5	--		
17					6	18	48							20	5	--		
18					16	18	39							27	3	--		
19					15	23	43							5	3	--		
20					15	31	49							8	1	--		
21					12	26	43							7	--	--		
22					9	28	49							11	--	--		
23					13	23	38							4	--	--		
24					9	28	33							3	3	--		
25					12	26	28							11	--	--		
26					12	20	46							31	--	--		
27					21	17	40							7	--	--		
28					16	12	39							4	--	--		
29					10	18	29							7	12	--		
30					4	15	34							13	--	--		
31					6	X	33							12	2	7		
Total					247	614	1165	198						532	79	29		

(1) Total, Plus,

247
614
1165
198
2224

(3) Difference

+ 2224
- 640
+ 1584

+ 1584
+ 1577
+ 7

(2) Total, Minus,

532
79
29
640

Year of Examination on Ground 1938

G
STUDIES
Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1918 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 6, 1918

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					23	8	40							--	6	--		
2					22	5	49							--	12	--		
3					30	13	45							--	3	--		
4					30	9	46							--	7	--		
5					11	27	53							14	--	--		
6					7	25	53							18	--	--		
7					20	33	53							--	--	--		
8					22	30	23							--	5	--		
9					11	13	16							4	--	--		
10					20	23	23							--	--	--		
11					22	30	34							--	2	--		
12					29	36	38							--	--	--		
13					17	33	45							--	--	--		
14					17	11	42							10	6	--		
15					20	17	36							--	4	--		
16					31	16	27							--	3	--		
17					33	16	35							--	2	--		
18					31	18	32							--	4	--		
19					19	25	31							--	--	--		
20					25	38	15							--	--	--		
21					36	20	23							--	--	--		
22					40	20	38							--	--	--		
23					23	20	27							--	--	--		
24					33	20	30							--	--	--		
25					41	35	20							--	--	--		
26					28	18	22							--	1	--		
27					25	23	24							--	2	--		
28					22	33	31							2	--	1		
29					33	30	45							--	--	--		
30					33	30	41							--	--	--		
31					18	X	42							2	X	--		
Total					704	685	1038							50	66	1		

(1) Total, Plus,

704
685
1038
24

(3) Difference

+ 2427 + 2390
- 107 + 1577
+ 2385 + 803

(2) Total, Minus,

50
66
1
107

Year of Examination on Ground 1938

G
STUDIES
Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1919 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 19, 1919

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					6	23	27							5	7	--		
2					10	29	17							2	3	--		
3					10	30	19							8	--	2		
4					10	20	21							3	--	9		
5					5	12	17							7	--	1		
6					3	15	24							13	--	5		
7					6	19	20							12	3	6		
8					--	16	38							12	--	3		
9					6	26	28							10	11	--		
10					13	19	21							7	--	--		
11					18	12	29							3	3	8		
12					18	18	24							10	11	--		
13					21	22	32							2	2	5		
14					13	14	48							4	--	1		
15					12	20	47							6	12	--		
16					9	36	27							6	10	--		
17					22	37	31							1	--	3		
18					22	19	50							--	--	--		
19					16	33	53							11	4	--		
20					16	27	51							11	--	--		
21					21	34	54							10	5	--		
22					21	35	55							7	1	--		
23					26	40	44							7	3	--		
24					18	47	46							4	--	--		
25					17	31	50							12	--	--		
26					22	30	44							8	--	--		
27					33	30	52							5	--	--		
28					33	36	59							2	--	--		
29					34	29	33							3	--	--		
30					35	36	17							--	--	--		
31					26	X	19							--	X	--		
Total					512	803	1096							181	75	43		

(1) Total, Plus,

512
803
1096
2411

(3) Difference

+ 2411 + 2112
- 299 + 1577
+ 2112 + 535

(2) Total, Minus,

181
75
43
299

Year of Examination on Ground 1938

G
STUDIES
Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1920 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 29, 1920

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					5	7	26							17	18	1		
2					11	1	28							14	24	--		
3					8	6	27							18	13	--		
4					8	3	29							10	7	--		
5					--	17	33							18	--	--		
6					--	23	39							40	2	--		
7					--	25	44							22	--	--		
8					6	24	41							10	--	--		
9					8	27	28							4	--	--		
10					17	25	18							2	--	--		
11					13	23	22							1	--	--		
12					10	30	21							4	--	--		
13					17	25	30							1	--	--		
14					8	21	32							5	--	--		
15					7	20	36							7	1	--		
16					2	21	40							16	--	--		
17					2	17	38							16	1	--		
18					9	18	36							9	3	--		
19					12	36	41							5	--	--		
20					23	18	33							4	--	1		
21					25	12	28							1	1	3		
22					26	14	29							--	--	1		
23					29	17	30							--	4	2		
24					24	19	28							--	2	--		
25					23	26	37							--	--	--		
26					12	28	34							12	--	--		
27					10	32	42							6	--	--		
28					10	27	38							4	--	--		
29					17	30	40							--	--	--		
30					21	28	37							--	--	--		
31					6	X	37							12	X	--		
Total					369	618	1022							258	76	8		

(1) Total, Plus,

369
618
1022
2009

(3) Difference

+ 2009 + 1667
- 342 + 1577
+ 1667 + 90

(2) Total, Minus,

258
76
8
342

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1921 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 12, 1921

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					20	38	37							--	--	--		
2					22	40	35							3	--	--		
3					31	38	29							--	--	6		
4					28	8	39							--	5			
5					15	6	35							2	3			
6					13	7	35							3	9			
7					12	14	32							1	11			
8					16	19	26							11	9			
9					23	31	36							--	6			
10					20	34	35							--	1			
11					12	34	33							12	--			
12					--	34	36							18	--			
13					1	31	42							15	--			
14					9	37	42							5	--			
15					13	25	41							7	--			
16					16	31	38							11	--			
17					23	30	37							--	--			
18					20	27	37							--	--			
19					16	23	35							1	--			
20					15	22	37							7	--			
21					20	27	35							5	--			
22					27	26	32							3	--			
23					26	23	36							--	5			
24					20	27	43							--	3			
25					18	12	47							2	3			
26					16	18	44							5	--			
27					23	17	43							2	--			
28					31	25	37							1	--			
29					30	21	33							--	--			
30					25	29	35							4	--			
31					33	X	37							--	--			
Total					594	752	1139							118	55	6		

(1) Total, Plus,

594

752

1139

2485

(3) Difference

+ 2485 + 2306

- 179 + 1577

+ 2306 + 729

(2) Total, Minus,

118

55

6

179

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1922 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness June 15, 1922

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					--	17	27	36						41	2	--		
2					--	21	26	41						34	--	--		
3					2	19	19	38						25	--	--		
4					7	12	19	40						11	--	--		
5					6	16	23	37						17	1	--		
6					7	26	27	32						22	7	4		
7					8	25	22	31						7	--	--		
8					6	21	16	30						9	4	--		
9					12	9	18	19						14	6	7		
10					8	16	19	27						6	4	--		
11					5	9	19	30						10	4	--		
12					9	11	17	39						12	12	--		
13					8	16	24	41						5	12	1		
14					10	5	32	25						6	4	--		
15					7	9	33	32						12	6	1		
16					8	10	33							1	5	--		
17					7	11	29							2	14	--		
18					11	11	29							15	--	--		
19					14	30	25							1	2	--		
20					6	24	28							8	2	--		
21					27	30	24							6	2	--		
22					25	25	24							--	--	--		
23					7	29	31							3	6	2		
24					6	19	30							6	4	--		
25					8	10	43							12	1	--		
26					10	18	22							14	--	--		
27					12	34	9							11	4	1		
28					8	19	22							7	1	--		
29					15	20	24							7	3	--		
30					15	24	29							1	--	--		
31					12	X	31							--	X	--		
Total					283	545	780	497						322	109	16		

(1) Total, Plus,

285

545

780

2195

(3) Difference

+ 2105 + 1689

- 446 + 1577

+ 1659 + 82

(2) Total, Minus,

322

109

16

446

Year of Examination on Ground 1922

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1923 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 26, 1923

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					18	30	18							8	--	--		
2					24	10	21							6	3	6		
3					--	16	34							21	--	7		
4					3	20	43							22	--	--		
5					5	20	32							8	1	--		
6					8	13	36							8	11	--		
7					11	13	40							4	8	--		
8					9	20	43							8	3	--		
9					9	23	33							14	--	--		
10					9	28	25							21	6	--		
11					12	30	27							5	1	--		
12					4	18	26							10	--	--		
13					3	21	28							9	3	--		
14					3	28	22							27	7	--		
15					11	38	25							27	4	3		
16					13	47	30							--	1	--		
17					3	44	36							17	--	--		
18					--	31	30							33	--	--		
19					21	19	33							14	3	--		
20					13	8	30							4	5	--		
21					4	15	40							9	5	--		
22					18	12	41							8	--	--		
23					13	21	31							6	--	--		
24					18	20	44							6	8	--		
25					13	30	46							5	7	--		
26					26	37	38							6	4	--		
27					31	35	25							6	1	--		
28					33	35	31							6	--	1		
29					34	21	34							6	--	--		
30					34	17	22							5	--	--		
31					37	X	21							4	X	--		
Total					440	720	987							333	81	17		

(1) Total, Plus,

440
720
987
21

(3) Difference

+2147
- 431
+1716

+1716
+1577
+ 139

(2) Total, Minus,

333
81
17
431

Year of Examination on Ground 1938

G
STUDIES
Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1924 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 16, 1924

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					19	7	34							--	4			
2					7	8	46							12	2			
3					18	10	44							--	--			
4					10	8	40							--	--			
5					11	10	36							--	--			
6					14	12	28							--	--			
7					15	14	38							--	--			
8					12	16	43							--	--			
9					14	17	46							--	--			
10					16	14	47							--	--			
11					12	16	47							--	--			
12					14	17	48							--	--			
13					16	11	49							--	--			
14					17	13	50							--	--			
15					16	16	51							--	--			
16					17	17	61							--	--			
17					16	21	53							--	7			
18					15	23	53							--	--			
19					16	24	53							--	--			
20					15	16	50							--	--			
21					17	13	51							2	--			
22					10	12	48							--	--			
23					10	10	50							--	--			
24					12	12	53							--	--			
25					14	13	54							--	--			
26					16	18	53							--	--			
27					16	20	52							--	--			
28					17	24	53							--	--			
29					16	26	54							--	--			
30					10	27	50							--	--			
31					21	X	53							--	--			
Total					458	465	1478							14	13			

(1) Total, Plus,

458
465
1478
2401

(3) Difference

+ 2401 + 2374
- 27 + 1577
+ 2374 + 797

(2) Total, Minus,

14
13
27

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1925 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 11, 1925

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					25	27	20							8	--	--		
2					21	32	26							2	--	--		
3					13	34	30							--	1	--		
4					30	33	25							--	--	3		
5					24	24	37							--	--	--		
6					14	27	29							4	--	--		
7					10	35	31							6	--	--		
8					6	38	38							7	--	7		
9					6	42	34							7	--	--		
10					1	42	35							19	--	--		
11					5	36	35*							7	--	--		
12					8	27	35							4	--	--		
13					2	31	38							24	--	--		
14					16	33	34							8	--	--		
15					18	30	31							2	--	--		
16					14	35	37							--	--	--		
17					12	25	38							6	--	--		
18					16	22	46							3	1	--		
19					21	22	46							2	--	--		
20					22	16	51							--	--	--		
21					29	24	37							3	2	--		
22					29	17	36							--	--	--		
23					21	16	44							1	--	--		
24					30	17	41							4	--	--		
25					24	19	34							--	--	--		
26					22	25	40							9	--	--		
27					37	26	46							5	--	--		
28					30	19	42							--	3	--		
29					21	28	43							--	5	--		
30					23	28	39							--	--	--		
31					28	32	31							3	3	--		
Total					570	859	1129							134	15	10		

(1) Total, Plus,

570
859
1129
2558

(3) Difference

+ 2558 + 2399
- 159 + 1577
+ 2399 + 822

(2) Total, Minus,

134
15
10
159

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1936 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 11, 1936

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					22	3	38							10	12	--		
2					25	1	44							10	15	--		
3					26	8	41							12	7	--		
4					20	12	35							4	1	--		
5					9	8	24							12	3	2		
6					16	14	20							9	4	--		
7					22	25	25							10	9	3		
8					19	20	15							7	1	--		
9					16	36	13							5	4	--		
10					22	39	24							8	3	--		
11					15	38	31							5	--	--		
12					18	31	34							3	--	--		
13					25	34	42							--	3	--		
14					26	44	40							6	1	--		
15					32	49	37							7	--	--		
16					25	47	33							3	--	--		
17					17	44	32							3	--	--		
18					21	47	38							1	--	--		
19					26	39	43							6	3	--		
20					25	33	29							9	--	--		
21					29	20	36							--	5	--		
22					28	29	38							--	7	--		
23					25	35	35							--	2	--		
24					15	46	33							3	--	--		
25					15	42	30							12	--	3		
26					8	47	39							12	--	--		
27					3	50	34							12	--	--		
28					3	53	36							20	--	--		
29					9	40	39							10	--	--		
30					8	42	29							6		--		
31					4	X	37							6	X	--		
Total					584	976	1032							211	80	8		

(1) Total, Plus,

584
976
1032
2[illegible]

(3) Difference

+ 2592 + 2293
- 299 + 1577
+ 2293 + 716

(2) Total, Minus,

211
80
8
299

Year of Examination on Ground 1938

G
STUDIES
Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1927 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 31, 1927

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					14	23	32							5	3	--		
2					22	13	19							3	3	--		
3					22	16	13							6	1	5		
4					16	16	20							8	3	1		
5					18	25	20							10	--	9		
6					13	24	14							2	2	--		
7					20	23	12							11	--	--		
8					16	18	16							10	2	--		
9					8	5	27							11	1	--		
10					10	15	31							12	13	--		
11					13	8	31							10	8	--		
12					27	12	30							6	8	--		
13					14	25	40							--	2	--		
14					7	35	48							2	8	--		
15					2	28	49							7	3	--		
16					7	12	53							8	--	--		
17					8	14	22							7	--	--		
18					7	0	26							7	6	--		
19					6	2	21							10	15	--		
20					10	12	16							8	18	--		
21					19	26	13							--	16	--		
22					16	25	13							--	--	--		
23					25	32	23							9	--	--		
24					21	44	25							--	--	--		
25					15	48	23							13	--	--		
26					15	48	29							7	--	--		
27					13	37	19							14	--	--		
28					19	36	15							5	--	--		
29					27	29	13							7	--	--		
30					29	39	22							8	--	--		
31					19	X	29							1	7	--		
Total					478	697	766							207	117	15		

(1) Total, Plus,

478
697
766
1941

(3) Difference

+ 1941
- 339
+ 1602

+ 1602
+ 1577
+ 25

(2) Total, Minus,

207
117
15
339

Year of Examination on Ground 1930

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1928 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 15, 1928

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					--	17	34							26	--	--		
2					5	15	21							25	6	7		
3					6	12	26							24	--	6		
4					8	13	38							24	3	--		
5					17	12	49							6	1	--		
6					21	8	51							--	13	--		
7					23	6	46							--	11	--		
8					27	20	50							--	13	--		
9					24	27	48							--	4	--		
10					17	21	47							--	4	--		
11					15	14	47							--	2	--		
12					9	16	53							4	--	--		
13					11	19	30							9	5	--		
14					9	20	27							8	--	--		
15					15	21	40							12	2	--		
16					23	28	43							--	--	--		
17					22	21	44							7	--	--		
18					27	16	47							2	1	--		
19					31	16	46							3	3	--		
20					35	19	51							1	8	--		
21					37	22	57							--	4	--		
22					36	31	55							--	--	--		
23					23	40	49							--	--	--		
24					19	41	50							--	--	--		
25					16	33	59							7	--	--		
26					11	44	56							10	--	--		
27					9	45	46							5	--	--		
28					12	38	48							2	--	--		
29					15	22	47							2	--	--		
30					21	35	31							--	--	--		
31					22	X	37							--	X	1		
Total					565	694	1353							176	80	14		

(1) Total, Plus,

565
694
1353
2612

(3) Difference

+ 2612 + 2342
- 270 + 1577
+ 2342 + 765

(2) Total, Minus,

176
80
14
270

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1929 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 20, 1929

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					13	23	29							1	10	4		
2					18	29	30							--	6	--		
3					16	32	23							--	--	--		
4					24	26	20							--	--	5		
5					22	16	19							--	5	--		
6					19	1	23							3	12	5		
7					23	10	27							7	5	--		
8					20	12	30							11	5	1		
9					31	12	28							6	10	--		
10					25	14	29							--	8	5		
11					6	15	38							1	6	--		
12					3	17	47							4	8	--		
13					11	24	46							4	5	--		
14					11	21	30							10	--	--		
15					15	23	38							9	4	3		
16					19	32	46							8	--	--		
17					18	29	36							7	--	--		
18					20	27	41							8	10	--		
19					24	26	46							4	4	--		
20					23	24	50							--	--	--		
21					18	28	53							--	--	--		
22					9	32	54							9	6	--		
23					4	32	55							3	--	--		
24					10	23	45							16	--	--		
25					11	30	22							4	7	--		
26					22	37	22							--	3	2		
27					32	37	26							--	--	--		
28					26	36	29							--	--	--		
29					9	21	36							7	--	--		
30					7	20	44							13	2	--		
31					10	X	51							8	X	--		
Total					517	708	1113							143	116	25		

(1) Total, Plus,

517
708
1113
2338

(3) Difference

+ 2338
- 284
+ 2054

+ 2054
+ 1577
+ 477

(2) Total, Minus,

143
116
25
284

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1930 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 10, 1930

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					--	30	41							14	3	--		
2					--	34	50							28	--	--		
3					3	35	47							26	3	--		
4					14	32	28							9	--	--		
5					14	41	36							6	--	--		
6					10	44	30							2	--	--		
7					16	45	24							11	--	--		
8					12	41	22							2	--	--		
9					11	32	23							6	--	--		
10					18	35	29							3	--	--		
11					29	40	36							4	--	--		
12					28	42	35							--	--	--		
13					13	41	39							10	--	--		
14					4	30	41							4	--	--		
15					6	28	39							13		--		
16					12	26	40							10		--		
17					9	29	41							21		--		
18					17	31	39							12	6	--		
19					21	30	38							--	--	--		
20					17	37	45							--	--	--		
21					13	43	39							--	--	--		
22					12	41	22							--	--	--		
23					10	44	28							5	--	--		
24					13	42	50							3	--	5		
25					21	31	33							--	--	--		
26					19	30	41							--	--	--		
27					14	31	51							2	--	--		
28					27	26	52							--	--	--		
29					29	25	48							--	--	--		
30					17	35	43							7	--	--		
31					19	X	28							13	--	--		
Total					448	1052	1158							211	12	5		

(1) Total, Plus,

448
1052
1158
2658

(3) Difference

2658 + 2430
- 228 + 1577
2430 + 853

(2) Total, Minus,

211
12
5
228

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1931 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 11, 1931

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					23	16	44							4	--	--		
2					29	13	42							--	5	--		
3					32	21	33							--	11	--		
4					28	33	37							8	6	--		
5					4	31	41							15	--	--		
6					5	31	51							21	--	--		
7					9	40	48							16	--	--		
8					23	17	22							15	4	--		
9					20	29	28							--	1	6		
10					23	25	37							--	--	--		
11					16	38	48°							--	--	--		
12					21	35	53							--	3	--		
13					23	33	60							--	--	--		
14					28	21	58							10	--	--		
15					35	27	49							--	2	--		
16					33	37	47							3	3	--		
17					25	37	22							6	--	--		
18					22	21	20							--	7	--		
19					22	20	24							--	1	--		
20					22	22	24							--	13	--		
21					23	21	33							--	2	4		
22					15	4	48							--	5	--		
23					17	22	47							3	12	--		
24					23	28	53							8	8	--		
25					19	33	49							6	--	--		
26					--	36	48							26	2	--		
27					--	39	40							27	--	--		
28					14	38	41							9	--	--		
29					16	39	46							9	--	--		
30					18	42	55							4	--	--		
31					19	X	52							--	X	--		
Total					607	848	1310							190	85	10		

(1) Total, Plus,

607
848
1310
2[redacted]

(3) Difference

+ 2765 + 2480
- 285 + 1577
+ 2480 + 903

(2) Total, Minus,

190
85
10
285

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year **1932** Forest **Bitterroot** Range Unit **Spring Range** Climatological Station Used **Hamilton** Date of Vegetative Readiness **May 18, 1932**

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					8	31	31							2	--	--		
2					9	24	31							5	2	--		
3					--	22	29							17	--	--		
4					--	25	22							21	4	--		
5					8	16	33							11	3	--		
6					9	23	37							3	5	--		
7					4	29	41							14	--	--		
8					--	23	45							26	--	--		
9					--	24	47							29	10	--		
10					--	37	47							26	4	--		
11					--	40	47							27	--	--		
12					4	45	54							26	--	--		
13					9	46	51							22	--	--		
14					23	42	46							4	--	--		
15					18	32	32							1	7	3		
16					17	32	38							16	--	--		
17					15	27	51							--	3	--		
18					21	25	48°							--	--	--		
19					18	23	47							--	--	--		
20					19	13	44							1	2	--		
21					13	9	38							4	4	--		
22					14	17	26							4	--	--		
23					15	26	27							1	--	--		
24					20	28	29							--	--	--		
25					11	32	24							1	3	--		
26					12	28	19							2	--	1		
27					20	30	25							--	11	--		
28					19	28	26							--	--	--		
29					16	24	33							1	--	--		
30					22	31	25							--	5	--		
31					34	X	33							--	X	--		
Total					378	832	1126							264	63	4		

(1) Total, Plus,

378
832
1126
23

(3) Difference

+ 2336 − 331 = + 2005
+ 2005 − 1577 = + 428

(2) Total, Minus,

264
63
4
331

Year of Examination on Ground **1938**

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year **1933** Forest **Bitterroot** Range Unit **Spring Range** Climatological Station Used **Hamilton** Date of Vegetative Readiness **May 23, 1933**

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					14	23	29							6	8	4		
2					21	33	24							12	2	3		
3					15	28	18							4	--	--		
4					12	17	20							8	12	2		
5					11	28	19							4	9	--		
6					13	27	21							9	1	--		
7					14	18	24							3	1	1		
8					8	12	25							9	7	5		
9					8	9	20							18	14	8		
10					17	13	17							14	11	--		
11					29	16	22							10	7	--		
12					28	13	30							--	5	7		
13					14	20	36							--	13	--		
14					19	37	41							5	3	--		
15					20	37	35							11	1	--		
16					18	22	24							6	--	--		
17					16	14	33							2	2	--		
18					16	19	28							5	1	--		
19					21	20	31							5	7	4		
20					19	19	38							5	--	2		
21					10	37	37							6	5	--		
22					12	39	24							10	--	--		
23					13	39	29°							11	--	--		
24					13	41	35							9	--	--		
25					19	42	47							7	--	--		
26					21	39	48							5	--	--		
27					23	40	26							3	--	--		
28					25	39	38							--	--	--		
29					24	29	53							2	--	--		
30					23	18	53							5	--	--		
31					17	X	45							3	X	--		
Total					533	788	970							197	109	36		

(1) Total, Plus,

533
788
970
22[redacted]

(3) Difference

+2291
- 342
+1949

+1949
+1577
+ 372

(2) Total, Minus,

197
109
36
342

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1934 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness April 24, 1934

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					22	19	25							--	1	--		
2					27	10	31							--	7	2		
3					22	19	38							1	11	3		
4					25	27	47							--	6	--		
5					18	35	48							2	1	--		
6					14	40	50							--	--	--		
7					18	40	50							4	2	--		
8					24	43	51							4	--	--		
9					27	35	33							6	--	--		
10					29	35	42							8	--	--		
11					38	38	43							7	--	--		
12					40	43	36							--	--	--		
13					41	45	42							3	--	3		
14					36	36	53							4	2	--		
15					36	30	67							--	9	--		
16					35	26	52							--	--	--		
17					22	36	48							14	--	--		
18					37	40	42							11	--	--		
19					35	42	45							6	--	--		
20					33	47	43							--	--	--		
21					24	49	40							--	--	3		
22					24	48	49							--	--	--		
23					24	48	50							6	--	--		
24					24	49°	68							17	--	--		
25					33	36	69							9	--	--		
26					30	38	67							6	--	--		
27					31	46	60							--	--	--		
28					28	46	55							1	--	--		
29					28	32	52							--	--	--		
30					27	29	43							--	--	--		
31					20	X	44							--	X	--		
Total					872	1107	1483							109	39	11		

(1) Total, Plus,

872
1107
1483
3462

(3) Difference

+3462
- 159
+3303

+3303
+1577
+1726

(2) Total, Minus,

109
39
11
159

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1934-35 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 21, 1935

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					23	8	24							12	20	--		
2					19	7	23							12	23	6		
3					16	14	29							9	11	6		
4					8	16	38							4	8	--		
5					--	15	29							16	3	--		
6					10	18	28							19	1	--		
7					18	21	29							10	7	--		
8					18	22	30							4	--	7		
9					8	13	38							3	3	3		
10					8	22	38							6	4	--		
11					17	31	28							2	--	--		
12					18	36	26							--	--	--		
13					34	36	27							--	8	--		
14					33	30	33							1	--	--		
15					22	28	36							3	--	--		
16					17	27	37							6	4	--		
17					15	28	33							8	--	--		
18					12	31	28							10	--	--		
19					17	36	42							9	--	--		
20					14	35	44							10	--	--		
21					11	29	50°							9	2	--		
22					11	18	50							10	--	--		
23					19	18	36							9	1	--		
24					24	28	37							3	--	--		
25					20	36	38							1	--	--		
26					3	38	39							10	1	--		
27					6	30	40							12	9	--		
28					21	23	42							7	5	--		
29					18	40	45							--	--	--		
30					10	39	47							13	--	--		
31					10	X	46							16	--	--		
Total					480	773	1110							234	110	22		

(1) Total, Plus,

480
773
1110
2363

(3) Difference

+2363
- 366
+1997

+1997
+1577
+ 420

(2) Total, Minus,

234
110
22
366

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1935-36 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 10, 1936

Day of Month	Maximum + Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Minimum - Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					23	--	38							--	31			
2					29	7	59							--	26			
3					33	8	56							--	17			
4					23	8	47							4	8			
5					26	11	42							7	13			
6					23	20	17							6	--			
7					25	26	34							7	--			
8					19	25	39							4	--			
9					20	30	49							3	1			
10					10	39	56*							9	--			
11					17	40	53							6	--			
12					17	47	53							--	--			
13					11	48	57							1	--			
14					7	50	58							6	--			
15					11	47	55							5	--			
16					26	52	36							8	--			
17					27	56	37							--	--			
18					19	58	58							--	--			
19					29	56	55							4	--			
20					33	43	26							3	--			
21					33	46	30							--	--			
22					7	47	36							14	--			
23					7	40	43							13	--			
24					10	30	55							13	--			
25					9	32	59							16	--			
26					7	38	62							8	--			
27					8	29	65							2	1			
28					6	30	58							11	2			
29					--	37	61							12	2			
30					--	39	70							16	--			
31					--	X	56							25	X			
Total					516	1029	1490							239	101			

(1) Total, Plus,

516
1029
1490
3035

(3) Difference

+3035
- 339
+2696

+2696
+1577
-1119

(2) Total, Minus,

239
101
339

Year of Examination on Ground 1936

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1936-37 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 14, 1937

Day of Month	Maximum + Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Minimum - Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					8	19	40							13	--	--		
2					12	19	43							7	1	--		
3					19	14	47							6	8	--		
4					18	23	49							8	6	--		
5					20	17	51							12	3	--		
6					23	16	36							5	7	4		
7					13	18	39							13	2	--		
8					18	30	33							11	8	--		
9					19	35	40							12	8	--		
10					27	35	47							--	6	--		
11					27	22	32							2	1	--		
12					21	32	36							7	7	--		
13					2	34	38							6	--	--		
14					6	34	38°							11	--	--		
15					18	37	36							6	--	--		
16					46	21	49							1	1	--		
17					20	28	42							2	3	--		
18					20	28	44							6	--	--		
19					11	29	44							12	--	--		
20					13	25	28							13	--	--		
21					10	21	40							11	--	2		
22					8	13	44							14	6	--		
23					11	16	38							2	5	--		
24					15	28	47							10	4	--		
25					19	41	47							4	2	--		
26					17	47	40							13	--	--		
27					16	48	48							15	--	--		
28					18	24	46							6	--	--		
29					20	18	27							3	--	--		
30					18	34	29							--	3	--		
31					17	x	39							--	X	1		
Total					530	806	1257							231	81	7		

(1) Total, Plus,

530
806
1257
2593

(3) Difference

+2593
- 319
+2274

+2274
+1577
+ 697

(2) Total, Minus,

231
81
7
319

Year of Examination on Ground 1938

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1937-38 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 30, 1938

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					4	14	42							14	19	--		
2					11	22	21							7	8	--		
3					10	25	25							--	4	--		
4					9	18	30							5	--	--		
5					15	22	16							4	4	--		
6					4	18	24							6	--	--		
7					5	26	21							15	5	5		
8					5	30	31							17	3	--		
9					7	36	29							10	--	--		
10					18	24	30							1	--	--		
11					20	33	20							2	--	--		
12					20	21	35							--	--	--		
13					27	22	35							--	--	--		
14					20	27	39							--	--	--		
15					20	33	40							--	--	--		
16					19	20	39							--	--	--		
17					10	32	37							5	--	--		
18					4	39	18							5	--	--		
19					5	23	14							4	1	--		
20					2	23	28*							8	4	--		
21					4	25	37							12	4			
22					9	26	43							14	--			
23					17	29	43							2	--			
24					8	33								1	--			
25					17	34								5	--			
26					22	23								6	--			
27					31	31								1	--			
28					30	42								1	--			
29					3	44								6	--			
30					6	46								9	--			
31					7	X								8	X			
Total					307	655	693							168	58	5		

(1) Total, Plus,

307
655
693
1655

(3) Difference

+1655
- 225
+1710

+1710
+1577
+ 133

(2) Total, Minus,

168
58
5
231

Year of Examination on Ground 1938.

G

STUDIES

Vegetative Readiness

DATE OF VEGETATIVE READINESS BY AIR TEMPERATURE METHOD

Year 1939 Forest Bitterroot Range Unit Spring Range Climatological Station Used Hamilton Date of Vegetative Readiness May 4, 1939

Day of Month	Maximum +									Minimum -								
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1					10	30	39							11	--	--		
2					9	34	46							4	--	--		
3					8	38	48							10	--	--		
4					3	30	45*							15	--	--		
5					6	15	38							23	--			
6					5	30	30							9	9			
7					5	34	30							17	5			
8					7	32	42							12	--			
9					8	26	42							8	--			
10					16	19	40							3	--			
11					16	24	38							1	7			
12					14	23	43							2	7			
13					12	23	48							1	7			
14					8	27	54							5	9			
15					5	28	55							4	--			
16					13	23	52							2	8			
17					24	34	39							2	6			
18					33	46	35							3	--			
19					33	36	35							--	--			
20					37	42	34							--	--			
21					39	48	32							--	--			
22					36	45	24							--	--			
23					35	35	29							--	--			
24					38	32								--	--			
25					35	26								--	--			
26					30	36								--	--			
27					18	48								--	--			
28					22	55								7	--			
29					27	53								9	--			
30					27	29								--	--			
31					29	X								--	X			
Total					606	991	918							148	58			

(1) Total, Plus,

606
991
918
2515

(3) Difference

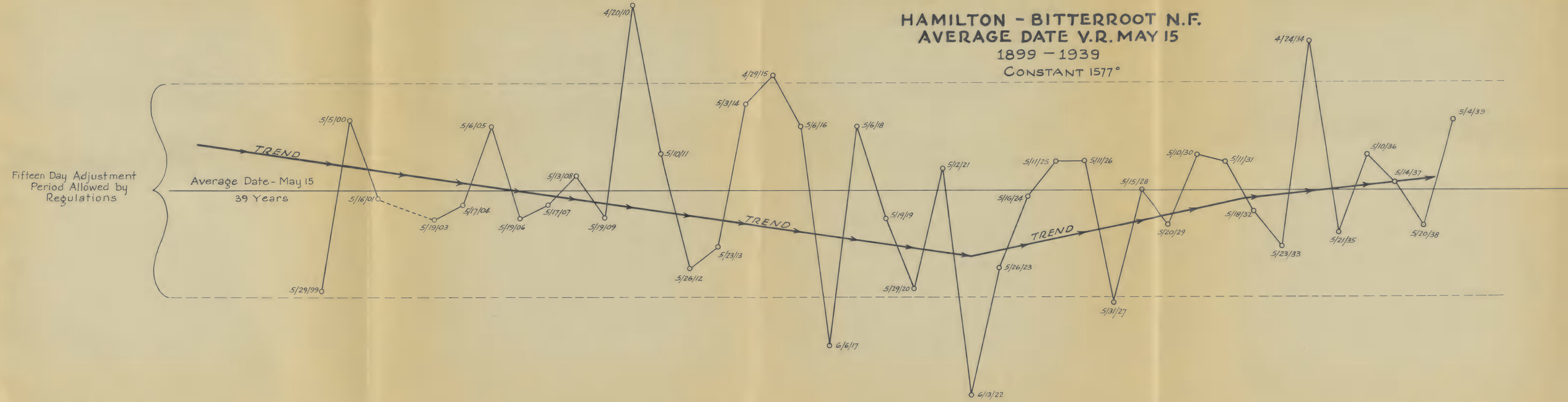
+2517 +2311
- 206 +1577
+2311 + 734

(2) Total, Minus,

148
58
206

Year of Examination on Ground 1938

HAMILTON - BITTERROOT N.F.
AVERAGE DATE V.R. MAY 15
1899 – 1939
CONSTANT 1577°



View of range country east of Darby showing forest boundary at about tree line. 5/22/38. (#1)

General view of range on East Fork district. Sula Basin in foreground. 5/31/38. (#2)

View showing character of range on Meadow Creek. 6/3/38. (#3)

Typical spur ridge range (Skalkaho C&H, Darby Division). Elevation 5700'. Mature yellow pine, Idaho fescue, wheatgrass and carex found in these types. 5/28/38. (#4)

Grassy area within mature yellow pine type ridge top, elevation 5500'. Wheatgrass, fescue and bluegrass chief forage plants. (Blue Joint C&H, West Fork Division). 5/30/38.

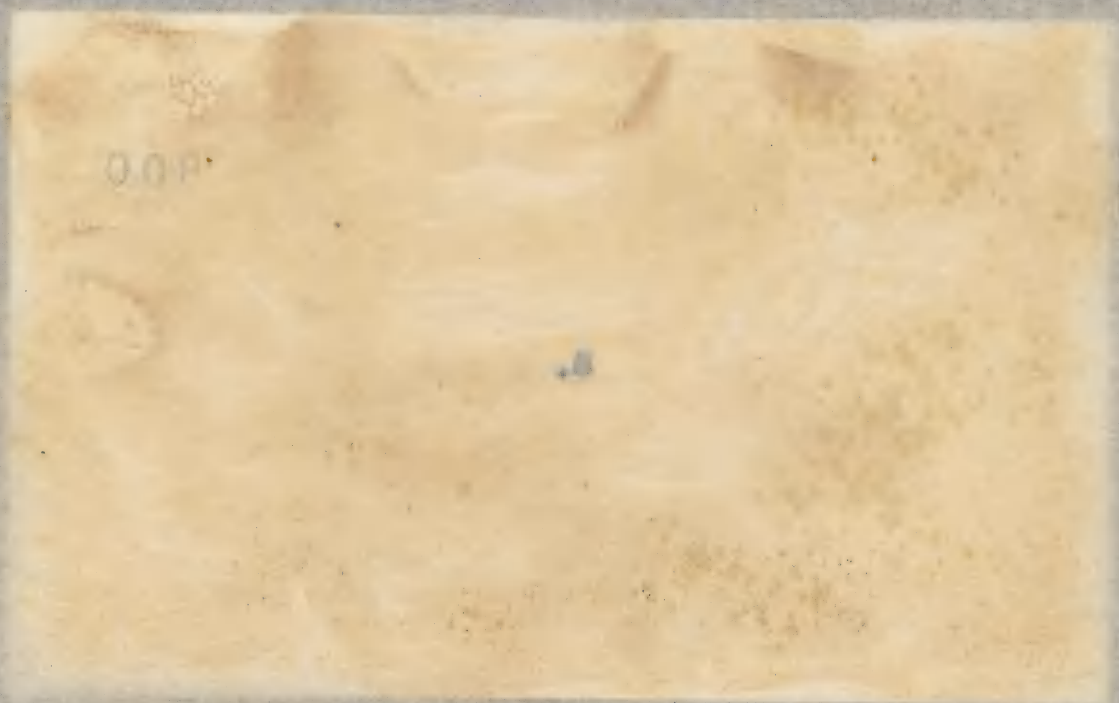
5

Cut-over yellow pine range on Three Mile Creek, North End Division. 5/25/38.

6

Cut-over yellow pine range on Little Sleeping Child Creek, Darby Division. 5/26/38.

Range readiness in cut-over yellow pine type, SW exposure, Three Mile Creek 5/25/38. Elevation 5400'. Wheatgrass, balsamroot indicators. Area unused.



Range readiness in cut-over yellow pine type, 5/21/38. Elevation 4300', balsamroot, lupine indicators.

Grass type on Camp-Reinel range near Big Hole road. 5/31/38. Elevation 6150'. Exposure SW, showing bug-killed lodgepole type in background. Salt ground in foreground.

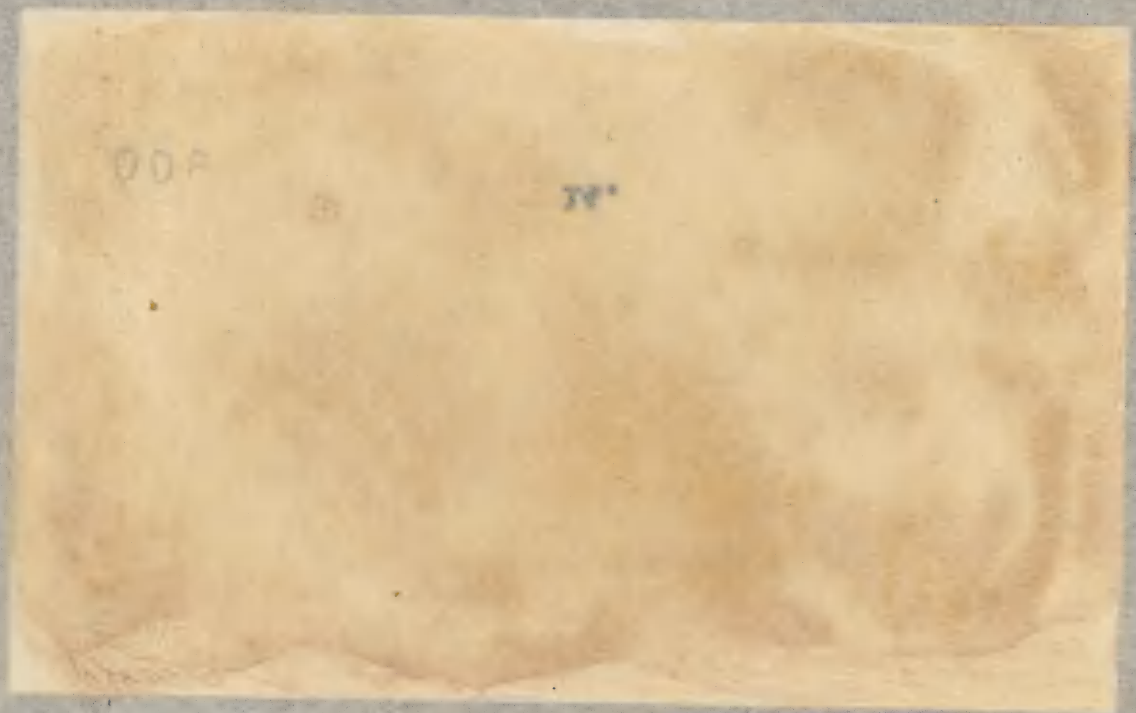
One week past range readiness, ungrazed grass type, Blue Joint C&H Unit. Elevation 5350'. 5/30/38. Wheatgrass 8" to 10", balsamroot in full bloom.

Lodgepole range, Pales Flat C&H Unit. Elevation 5100'. 5/31/58.

Lodgepole range, Meadow-Tolan C&H Unit. Elevation 6800'. Beargrass - low huckelberry type. 6/1/58.

Range readiness Lodgepole type, Bertie Lord Creek. Elevation 5600', SW exposure. Bluegrass and lupine indicators. 6/3/38.

Range readiness 5/30/38; Lodgepole type, Pales Flat Unit, elevation 5100'.

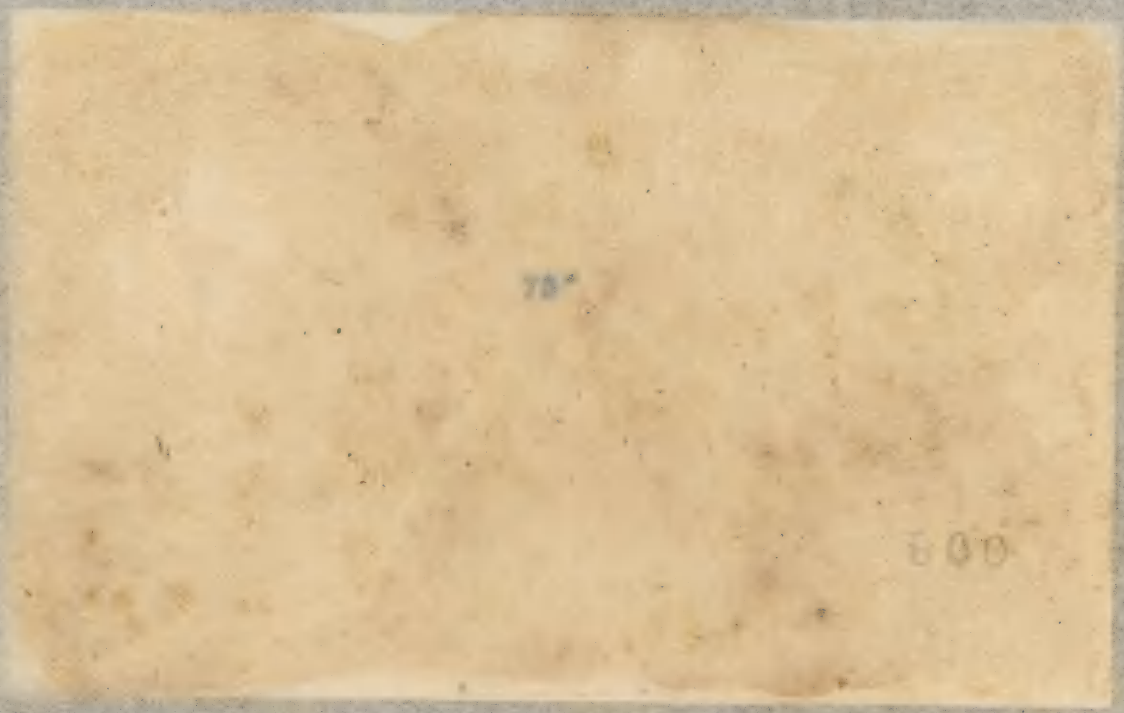


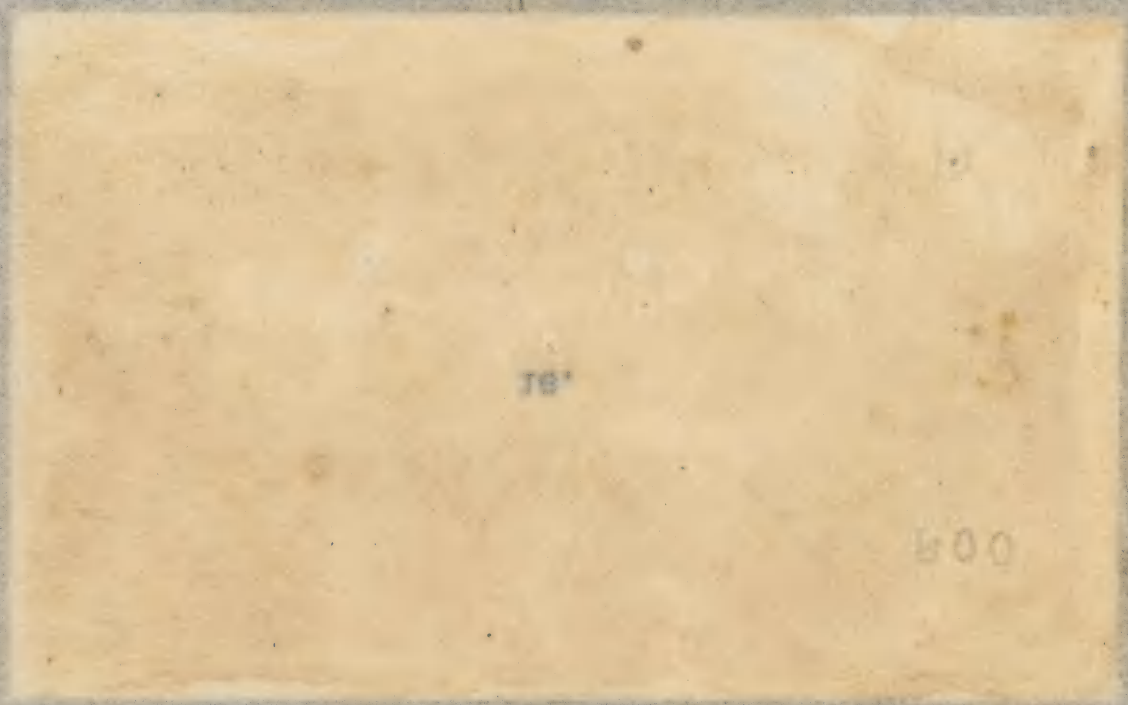
Range readiness, 5/31/38. Sagebrush type, Medicine Tree Range. Elevation 8000', exposure SW. Wheatgrass, balsamroot indicators.

Cattle on overutilized open area, Pales Flat. 5/30/38.

Cattle on cut-over yellow pine range; Bear-Big Creek C&H Unit. 5/21/38.

Cattle on Medicine Tree Unit, ridge-top range. Elevation 5750'. 5/31/38.





Cattle on Burnt Fork C&H Unit, upper limits of grass type. 5/24/38.

Cattle on ridge top near salt ground on Little Sleeping Child C&H. Salted ridge tops receive heavy use. 5/26/38.


87.


88.

Salt ground location on Medicine Tree C&H Unit.
Elevation 5450'. Intermediate elevation for this unit.
5/31/38.

Salt ground on spur ridge, East Fork C&H Unit.
Elevation 5500'. This salt ground is properly located.
6/3/38.

Spring in need of development on Little Sleeping Child C&H Unit. 5/26/38.

24

Snow conditions 5800' elevation, McClain Creek C&H. NW exposure. 5/21/38.

25

Snow conditions, Lost Horse-Trapper Creek C&H, in vicinity of Como Lake. Snow line marks upper limits of cattle range. Elevation of snow 5000'. 5/22/36.

North slope Eight Mile Creek, showing steepness and unusability of north slopes. 5/23/36.

Creek bottom, Sawmill Creek. No grazing in this tangle. This is representative of many of the creek bottoms on the Bitterroot. 5/24/38.

National forest boundary. The area inside the forest is depleted. Burnt Fork C&H. 5/24/38.

Overutilized ridge top, Little Sleeping Child C&H. 5/28/38.

Typical side draw on yellow pine range. Cattle gain access to the ridge ranges through these draws. Also used for water. 5/28/38.


007
23°


20°
008

Typical yellow pine range land, Skalkaho C&H, located at head of side drainage. This area is heavily used by elk in spring and fall. 5/28/38.

Frank Cash ranch, Skalkaho Creek. A successful ranch unit. 5/28/38.


22'
009


007
25'

Fred Wetzsteon ranch, East Fork of the Bitterroot. This ranch is dependent upon forest range for summer pasture. 6/3/38.

Typical ranch on West Fork of Bitterroot. All available bottom lands are used for hay. 5/30/38.

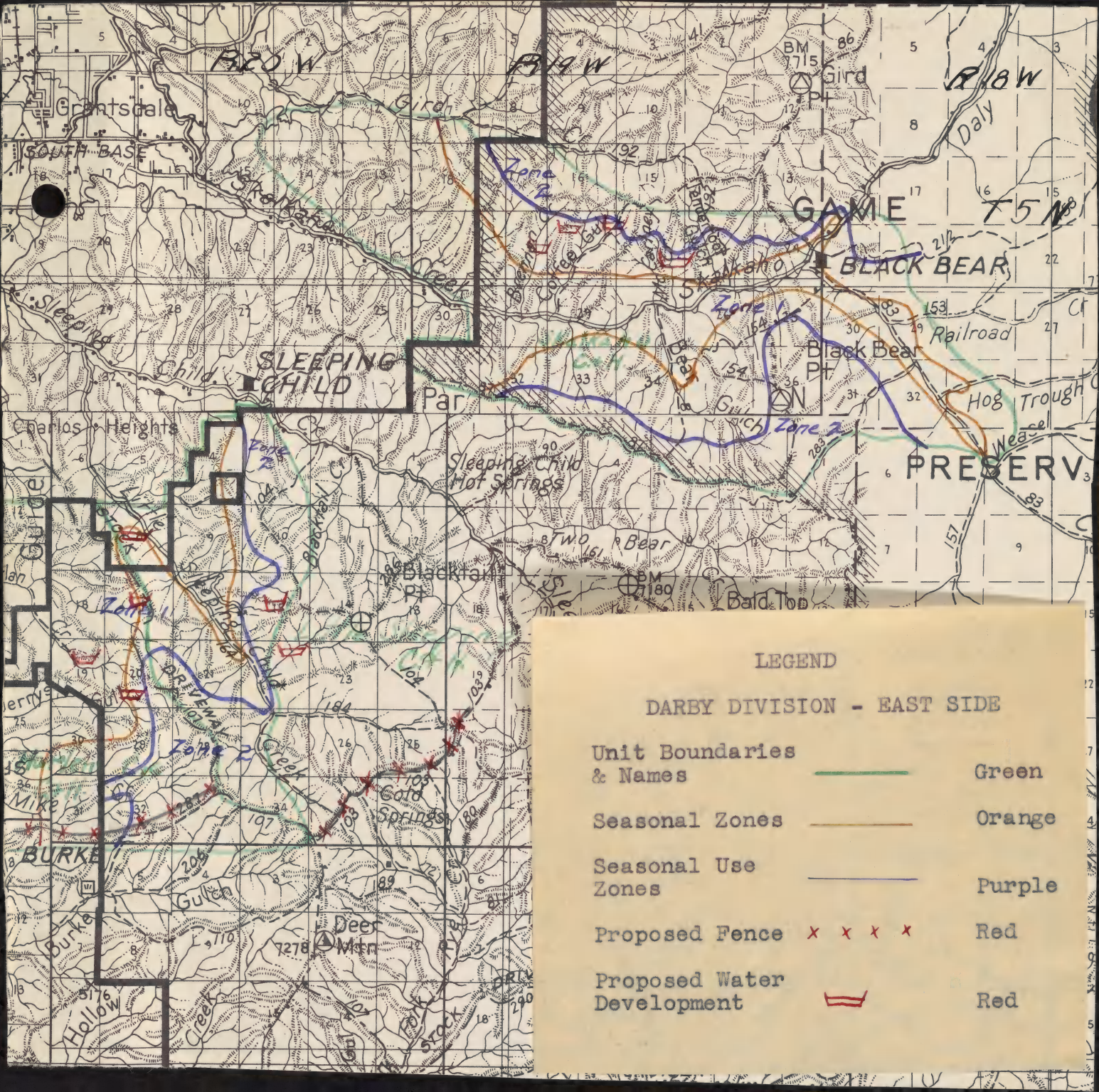
LEGEND

NORTH END DIVISION
WEST SIDE

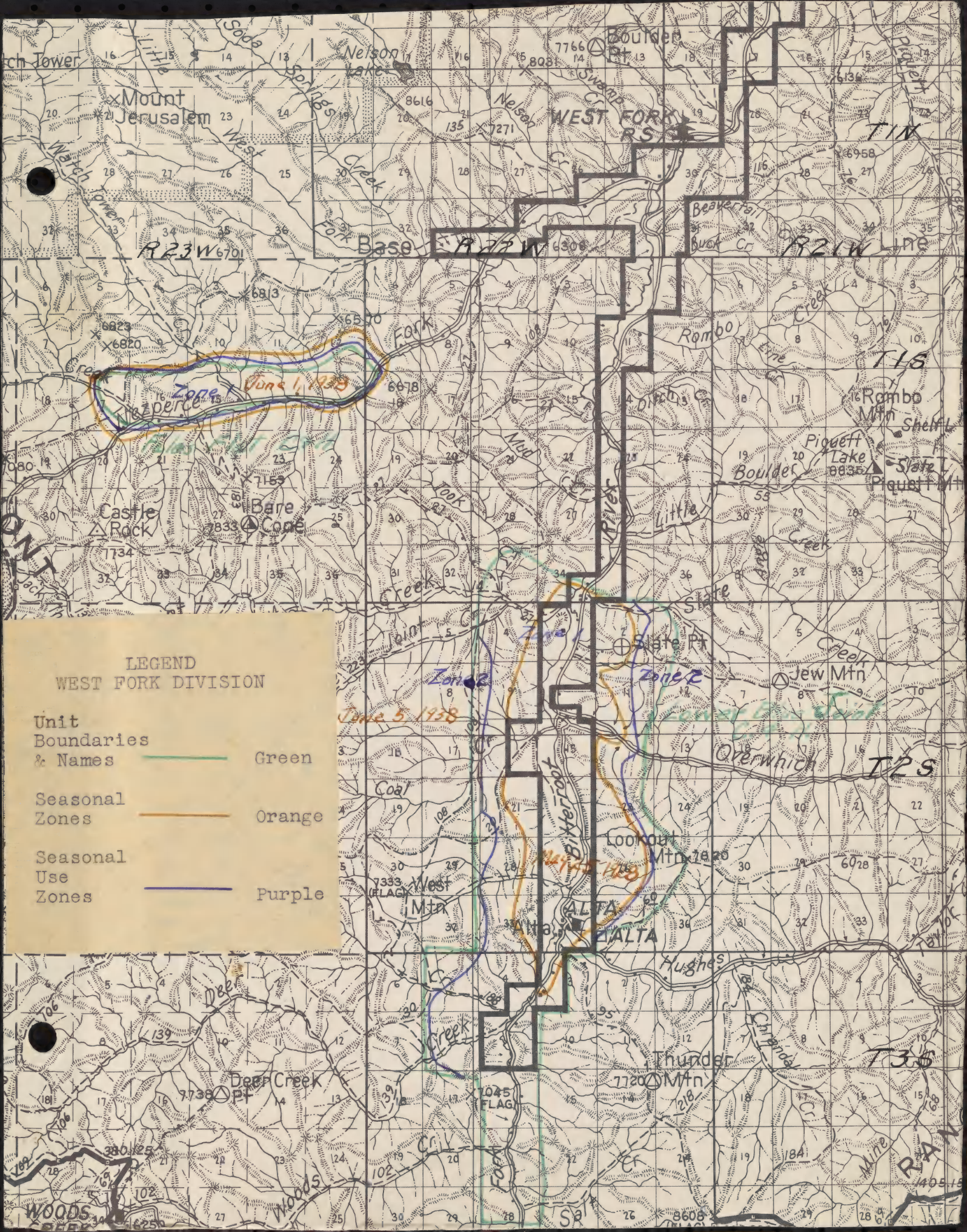
Unit Boundaries & Names		Green
Seasonal Zones		Orange
Seasonal Use Zones		Purple
Proposed Fences	x x x x	Red
Proposed Water Development		Red

R22W R21W R20W
T13N T12N T11N T10N T9N
MISSOULA RAVALLI CO
Lolo Pk
Carlton L
Carlton
Lantern Cr
Middle Cr
Falls Cr
Johnny Cr
Meadow Cr
Anderson Cr
Rocky Pt
Elk Meadows
Skookum Lake
Lily Creek
South Fk Lakes
Fork Storm L
South Kootenai Lake
Beaver Cr
Big Creek Lakes
Pearl Lake
South Fork Lake
Hidden L
Glen L
Bear L
Bear Creek Pass
Bryan L
Gash Pt
Sweathouse Creek
Onehorse Cr
Sweeney Cr
Larry Creek Cr
Florence
Wemple
Lower Threemile
Bass
Stevensville
Mc Calla Cr
Indian Prairie
Curlew Mines
Bitterroot River
Bitterroot Branch
Mc Clain Cr
Carlton
Pleasant View Mine
Bluebird Mine
Sullivan Hill
Poverty Flat
Tucker
Burr
Sheafman
Mill
Huff L
Tag Alder L
Mill Pt
Dutch Hill
Woodside
Corvallis
Northern Chief
Little Willow
North Base Riverside
Kress Pt
Blodgett
Canyon Pk
Canyon Lakes
Ward No. 1
Ward Mtn
Victor
Poverty Flat
Gird
Hamilton
Ham. Astro. Sta.
BM 3524
Pacific Irrigation
Zone 2
Zone 1
May 25, 1938
May 20, 1938


LEGEND
NORTH END DIVISION
EAST SIDE
Unit Boundaries & Names — Green
Seasonal Zones — Orange
Seasonal Use Zones — Purple
Proposed Fences — Red
Proposed Dam — Red
Proposed Water Development — Red
R19W
R18W
T11N
T10N
T9N
LAST DRINK
COONEY RIDGE
THREE MILE
THREE MILE POINT
ANTRIM
LONE ROCK
AMBROSE
BUTTE CABIN
HARRYS FLAT
CINNAMON BEAR
IRIS POINT
WELCOME
FINLEN
MISSOULA CO
GRANITE CO
SAPPHIRE MOUNTAINS
RAVALLI CO
GRANITE CO
BITTERROOT FLAT
COUGAR CR
HUTSINPILAR
BURNT FORK
STATION #68
Cleveland Mtn
Quigg Pk 8450
Squaw Pk 6655
BM 3912
BM 4653
BM 4067
BM 4196
BM 4325
BM 4437
North Woodchuck Cr
Woodchuck Cr
Eightmile Cr
Granite Cr
Ditch Cr
Spring Gulch
Wheelbarrow Creek
Grayhorse Creek
Sluice Cr
N Fork
South Fork
Gilbert Cr
Sawmill Cr
Carron Cr
Welcome Cr
Cinnabar Cr
Cinnamon Bear Cr
Pawnee Gul
Harrys Gulch
Butte Cabin Cr
Pat Wahlquist Cr
Owl Cr
Rock Cr
Maddock Cr
Lavina Cr
Alder Creek
Chelan Cr
Tekoa Gul
Selma Gul
Hutsinpilar Cr
Little Hogback Cr
Green Cr
Zone 2 May 25, 1938
Zone 2 June 15, 1938
Zone 1 May 25, 1938
Zone 2 June 10, 1938
Burnt Fork C.G.A.


R20W
R19W
R18W
T5N
Grantsdale
SOUTH BASE
Gird
Zone 2
Skalkaho
GAME
BLACK BEAR
Daly
Railroad
Black Bear Pt
Hog Trough
PRESERV
SLEEPING CHILD
Sleeping Child Hot Springs
Charlos Heights
Blacktail Pt
Bald Top
Two Bear
Cold Springs
Deer Mtn
BURKE
Burke Hollow
Mike
Gulch
Creek
LEGEND
DARBY DIVISION - EAST SIDE
Unit Boundaries & Names — Green
Seasonal Zones — Orange
Seasonal Use Zones — Purple
Proposed Fence — Red
Proposed Water Development — Red


LEGEND
DARBY DIVISION
WEST SIDE
Unit Boundaries & Names — Green
Seasonal Zones — Orange
Seasonal Use Zones — Purple
Proposed Divisional Boundary — Red
R23W
R22N
R21W
T4N
T3N
Fish Lake
South Lost Horse Creek
Lost Horse Lake
Coquina Lake
Lookout Lake
Elk Lake
Rock Creek
Como Lake
LICK CR
Little Rock Cr.
Cup
Goat Lake
Como Pk
Chaffin
Sugarloaf Pk
Trapper
Trapper Pk
TRAPPER CREEK
DARBY R.S.
Bunkhouse
Wadell
Pierce
Baker L.
Baker Creek
Christisen C.
Bare Pk
Zone 1
Zone 2
Zone 2
Zone 2
Zone 2
May 20, 1938


LEGEND
WEST FORK DIVISION
Unit Boundaries & Names — Green
Seasonal Zones — Orange
Seasonal Use Zones — Purple
Zone 1, 1939
Zone 2
Zone 3, 1938
Zone 1
Zone 2
Zone 3, 1939
Boulder Pt
Nelson Lake
Mount Jerusalem
WEST FORK RS
Swamp Cr
Nelson Cr
Soda Springs
West Fork
Base
R23W
R22W
R21W
T17N
T16S
T15S
T13S
Rombo Mtn
Piquett Lake
Slate Pt
Jew Mtn
Overwhich
Lookout Mtn
West Mtn
ALTA
Thunder Mtn
Deep Creek Pt
Castle Rock
Bare Cone
Mud Creek
Rombo Creek
Little Boulder Creek
Slate Creek
Coal Creek
Hughes Creek
Deep Creek
Woods Creek
Fork
Mine
Ranch

LEGEND

EAST FORK DIVISION

Unit Boundaries & Names	———	Green
Seasonal Zones	———	Orange
Seasonal Use Zones	———	Purple
Proposed Drift Fences	x x x x	Red
Proposed Water Developments	⊏⊐	Red
Proposed Water Trails	- - - -	Red