

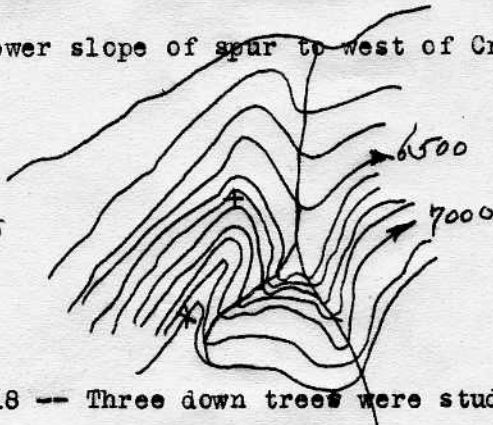
Yellowstone
Petrioid

NOTES ON YD SPECIMENS

(Taken from C. B. Read's Field Book)

June 17, 1930 -- Specimen Ridge -- One float
picked up on lower slope of spur to west of Crystal
Creek.

Cliffs with
type stamps
here



June 17-18 -- Three down trees were studied.

These are located at approximately 7200 feet
elevation on east spur of Specimen Ridge. This
spur forms one side of the canyon of Crystal Creek.
The trees are located on the west slope of this
spur and are in place in the coarse breccia which
outcrops and forms a comparatively flat sub-summit
area of some slight extent. The breccia here
weathers into a bouldery cover, and where weathered
material is absent, as around the edges of the hill,
it forms a cliff-like feature, but less than 15
feet in thickness. Three trees are located along
the western face of this hill. Two of these,
designated YD 8 and YD 9, were regarded as desir-
able for collecting and were studied. YD 8 had
one long sequence and one shorter sequence re-
moved from it. YD9 had a single sequence re-
moved. A description of these trees is given
further on.

Section from YD 3, marker, up to trees Nos. YD 8 and 9:

5:54
plus
4' 4"
10' 2"

Fine textured, poorly bedded, tuff (Nebb) bearing trees at base of section (this set at bottom of tree YD 3 and not at base of tuff). Tuff a buff color and contains ferromagnesian together with a slight amount of quartz and what appears as weathered feldspar. The tuff is suggestive of an andesitic type. It contains fragments of previously consolidated tuffaceous material and likewise ~~the~~ *extrusive (?)* material, most of which appears to be basic in character and may come from near the base of the section. This tuff gradually fades into a phase of the material described below.

18"
plus
5:54
plus
5:54
3
16' 2"

Tuff similar to that above described, massive, little ~~evidences~~ evidences of bedding, containing abundance of volcanic boulders and showing veins of quartz (banded chalcedony) occasionally. Contains a few fragments of plants.

5:54
plus
5:54
plus
18"

Outcrop of a few trees in silicious matrix-- this layer predominantly tuffaceous. There is no discernable break in the rocks or any evidence of an old soil. Trees at base.

5:54
5:54
5:54
2'

Outcrop of layer of trees in coarse, andesitic tuff, poorly bedded, but appears to be less massive than finer tuff below. Above is tuffaceous material covered by scree.

5:54

Series of stumps outcrops here, some of which are upright and others prone. Contact obscured by scree but lithology changes into breccia containing many fragments less than 1" in diameter. Transition into heavy massive breccia contains many large fragments. This is at a few feet below top of section. Contact here between lower breccia and upper massive breccia outcropping in ledges near sub-summit flat. Roots extending below contact.

5:54

2' 6"

3' 4"

Heavy breccia composed of angular tuffaceous and ~~extrusive~~ ^{extrusive(?)} fragments cemented together and with a minimum of interstitial tuff or ash.

5:54

At approximately 5 feet below top is series of trees being prone and recorded YD 8 and 9.

5:54

5:54

These lie with trunk oriented to N 60 - 65 E, and roots pointing S 60 - 65 W. This suggests


5:54

5:54

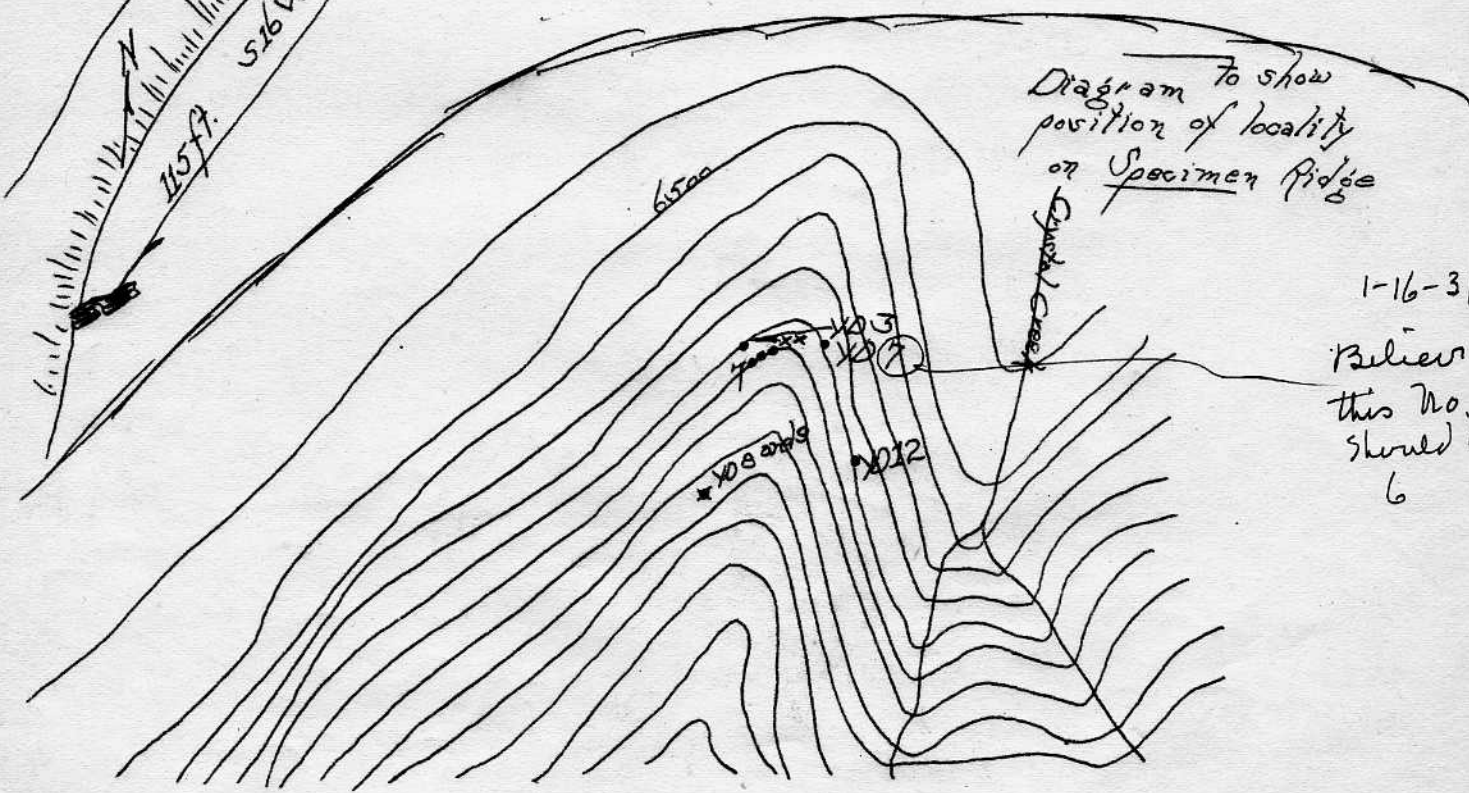
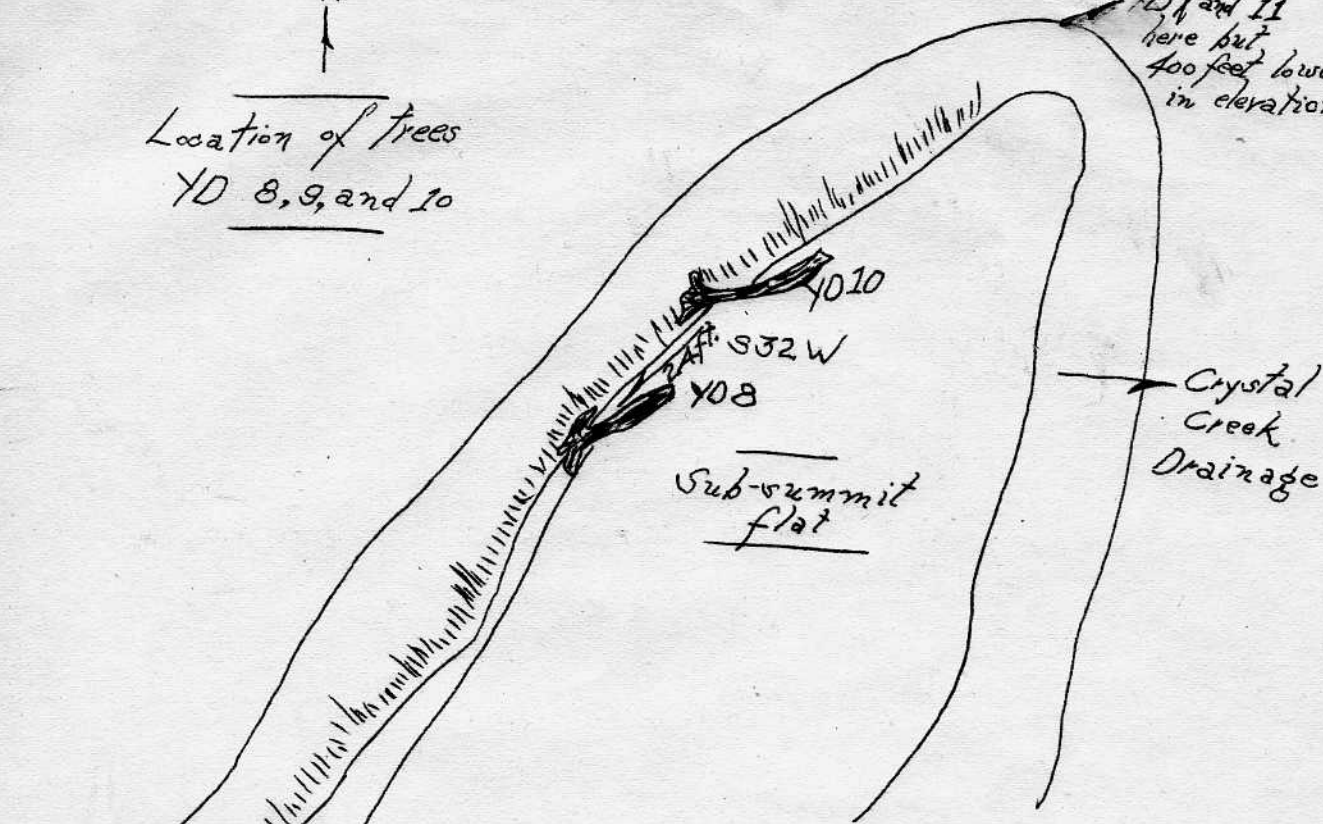
possible source of breccia from Washburn volcanic center. These trees are Sequoia. A

5:54

third exists and is designated YD 10 but is too poorly preserved to remove ring sequences from. These are plotted in location on the following page.


 Location of trees
 YD 8, 9, and 10

YD 11
 here but
 400 feet lower
 in elevation



1-16-31
 Believe
 this No.
 should be
 6

YD 11 -- Stump in group with YD 6 - 7 - approximately 50 feet N30W of YD 7 and on point of hill -- is a small Sequoia with the top of stump a few feet lower than YD 7.

} Should this
7 be 6?

YD 12 -- Sequoia - #1 goes on inside. #2 fits on side rather low but tight. #2 fits tight on #3 which laps on side of #4. #1 fits loose but approximately on #4. #5 fits on #3 tight and group of fragments fits on outside of #3 and #4. YD 12 is an upright stump of Sequoia about 100 yards S16E of YD (7)^{6?}. It stands, almost surrounded by sagebrush, on the east face of the spur of Specimen Ridge above Crystal Creek and appears to be in the same level as the YD 1-7 group. The tree is approximately S83W of Druid Peak.

YD 13 -- Pinus -- This is a down log in place in the breccia. It lies in about the same orientation as YD 8-9 (N66E). The log is on an open hillside above and to the west of Crystal Creek above the "Y" in the Specimen Ridge horseback trail. Its position from the "Y" is N47W and it is approximately 100 paces and 150 feet above. Two specimens were removed--a long ~~sequoia~~^{sequence} and a short sequence from the outside for cross-dating.

Pine

YD 14 -- Sequoia. This tree is in place on the point of the hill on the N side of the creek draining Lost Lake. It is approximately 100 feet above the creek bed and slightly to the right and above the large standing and badly shattered stump plainly visible from the

trail between Lost Lake and the Petrified Tree just after the trail passes out of sight of Lost Lake. It is a down log with the orientation of N71E.

147
YD 15 -- This is a large standing Sequoia S75E of YD 15(?) and about 88 paces. It is sheathed in well-indurated Nebb on the uphill side but the downhill side is exposed and the surface shattered. It is in plain sight of the lower end of Lost Lake and is visible from the trail running to the Petrified Tree from the Lake. It is approximately 10 feet lower than YD 14.

YD 16 -- "Good Pine" of Douglass. This is a piece of float in the notch to the right of the fenced-in Petrified Tree where the Howard Eaton Trail passes between Roosevelt Lodge and the Petrified Tree. Is on slope near top and to left of trail about 100 feet.

Pine

YD 17 -- This is a down log, apparently float, (Sequoia), on the summit of hill above Ranger Station. Two short but characteristic sequences were collected from it.

YD 18 -- Large Sequoia stump at first pinnacle reached going along hill from Petrified Tree to Lost Lake. These pinnacles are in the timbered area just south of the notch or saddle above the Petrified Tree where the Howard Eaton Trail leads to Tower Falls Ranger Station. This Sequoia is at the first pinnacle reached and is almost above the loop in the road. It is badly fractured and only one side is preserved. Two sequences were collected. One of these is from the center out and and the other is a possible overlap on the

outside.

*This is the
No. 7 collected
in 1929, on
Type Tree Slide*

YD 7 -- Sequoia. Just above (approximately 50 feet) lowermost ledge of breccia which is outcropping in wall on slope below type Sequoia. It is encountered when ascending this slope following the ravine which bounds it on the NE. This stump is only a short distance (120 feet) from the ravine and directly above the precipitous outcrop of breccia. It is 2-3 feet above ground and split so that one side is $1\frac{1}{2}$ feet higher than the other.

YD 19 -- Sequoia S3W and 16 paces from YD 7. Is just to right of Douglass Fir tree and slightly above. It is almost flush with surface of slope.

YD 20 -- Float from same horizon as YD 19.

YD 21 -- Float from below YD 19.

YD 22 -- S14W of YD 7 and 38 paces. This is a large standing Sequoia.

YD 23 -- Pinus. This is a piece of float tho obviously from summit of hill and in same horizon as YD 24. It was collected about 50 paces from YD 24 (50N).

YD 24 -- Sequoia. Large stump in position containing many small rings. Two sequences were collected of which the longer has two minor breaks but the great

Crescent Hill

Pine

number of rings seemed to justify this collecting even with the breaks. Its position is N84W of the Elk Creek turn on the Mammoth-Tower Falls road and N12W of the conspicuous basalt-covered butte on Crescent Hill. It is just below the summit of the hill and on the NW side.

YD 25 -- Sequoia. This is only a foot or two from YD 24 and is above. It is a prone log which may possibly belong to YD 24 but that is not clear from field relations. One short sequence was collected from it.

~~X~~ YD 26 -- Sequoia. This is one of the largest stumps I have seen in the park. The top only is exposed and two sequences were collected from the outside. One of these does not show good sutures but the sequence is without break (between 3 and 4). This stump is about 51 paces S of YD 25-6).

YD 27 -- Sequoia. S 16 E and 25 paces from YD 26. This is a large standing stump but badly fractured. A sequence was collected from the outside for some distance in but not to the center. No bark was observed so it was impossible to judge whether the outermost rings were obtained.

YD 28 -- This is a small Sequoia S16E and 4 paces from YD 27. An excellent sequence was obtained from this stump. No bark.

YD 29 -- Sequoia S40E and 33 paces from YD 27.

Another Sequoia stump from which good sequences were obtained but no bark. Standing.

YD 30 -- Sequoia S33E and 26 paces. A fragment in place from which one very good sequence was collected. No bark.

YD 31-33 -- These are badly shattered standing stumps of Sequoia magnifica located on the map but judged unsatisfactory to collect from due to the broken condition.

YD 34 -- This is a large Sequoia which has dropped down out of place from a short distance above. The location is on the slope to the E of the YD 20 group below the types of Sequoia magnifica and across the ravine. This tree is ~~lying~~ lying on a steeply inclined slope in the position plotted below. No bark is present and only a mediocre sequence was collected.

YD 35 -- Large Sequoia stump to right and W of YD 34 (below) from which two good sequences were collected. No bark was observed. This stump is in place and standing with its surface only a few inches above the ground.

YD 36 -- 5 paces and S4E of YD 35. Is a small ~~fr~~ fractured Sequoia.

YD 37 -- A large standing Sequoia 46 paces and S9E of YD 36. Two sequences were collected.

YD 38 -- A down pine just above the leaf locality which lies about 200 feet down slope from Sequoia type. The log is large and lies flat on the ground. It is broken into several segments. One sequence was collected from it.

Pine

YD 39 -- N18E of end of loop road to Petrified Tree and just below crest of spur on hill opposite Petrified Tree and approximately 100 feet above creek. Is a down log below which is a great deal of wood scree, chiefly flat fragments.

Further Notes on Ring Sequences

It may be said that the horizon marked by YD 13 is the highest horizon collected from on Specimen Ridge. Below this comes the group to which YD 8-9 belong and a short distance below, probably the next forest layer, contains YD 3, YD 1-6, YD 11-YD 12. It is this horizon to which the trees from YD 40 on up belong. These were collected in the horizon mentioned on the sparsely wooded slope containing the type Sequoia on Specimen Ridge. Above this layer (probably) lies the horizon of YD 7 and above this only a few feet the horizon of YD 19, 20, 22. Below YD 7 is the horizon of YD 21.

Regarding the Lost Creek localities the trees YD 16, YD 14, 15, and Y^u 18 all belong to the same horizon as near as can be told. YD 17 lies about 200 feet above.

Regarding the stratigraphic position of the whole of these trees it may be said that YD 24-33 lie the lowest. They are well within the Early Acid Breccia and cannot be correlated with any other horizon. I incline to the opinion that in this group the most satisfactory cross-dating in a single horizon will be done. The records are all fairly long and all are probably from the same horizon.

The Lost Creek specimens probably represent the next lowest horizon collected from. Two horizons here, that of YD 16, 18, 14, 15 are lowest, and above that of YD 17.

The Specimen Ridge stumps can not with the present knowledge be correlated across the Yellowstone Valley with those already discussed. The relations of these horizons has been discussed already.

I think that little can be done in correlations of the groups or horizons. My suggestion is that the attempts at cross-dating be confined to a single layer at a time. The intervals between horizons are too great to cross by use of rings of growth of trees. Likewise, it is impossible to follow any one horizon for any great distance. The whole problem, in final analysis, is one of a bewildering magnitude and can be solved only by a great deal of field work over a long period of time.

N33W to "The Gut"

N12E to "Hellroaring"

Location of Elk Creek Trees

Sighting Station	Station Sighted	Bearing Sight	Paces	
			Hori- zontal	Vertical Distance
			These two feet apart 25 S and above	
YD 24	YD 25			
YD 24	YD 26	S13W	54(4°)	(2) 5!5
YD 26	YD 27	S16E	25	4 feet
YD 27	YD 28	S12E	4	approx.level
YD 27	YD 30	S33E	26	4 feet
YD 27	YD 29	S40E	33	5!5
YD 27	YD 31	S43E	31	3
YD 27	YD 32	N86E	16	9'
YD 27	YD 33	S21E	33	7'

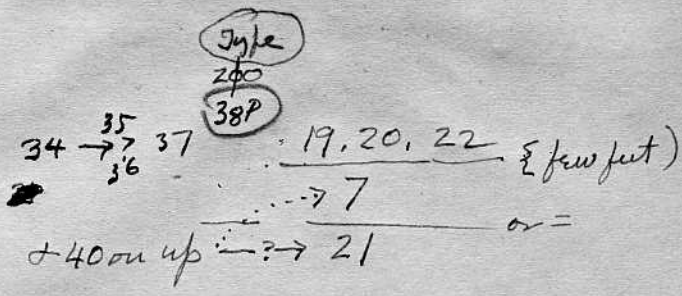
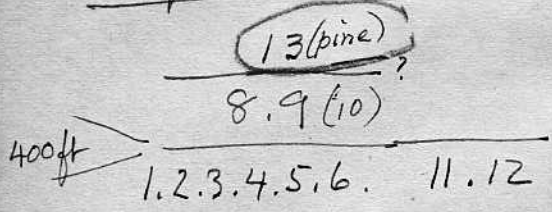
S61E Junction Butte - - - S13E Lamar Bridge

Station A	Station B	Distance	Vertical VAngle	Bearing	Remarks
YD 35	YD 38	45 paces	19°	N79E	YD 38 not collected
YD 38	YD 34	14 "	12°	S86E	Collected
YD 36	YD 37	46 "	17°	S9E	"
YD 35	YD 36	5 "	15°	S4E	"
YD 39	YD 38	15 "	6°	N21E	"
YD 35	YD 39	36 "	29°	S63E	"

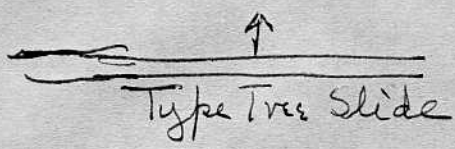
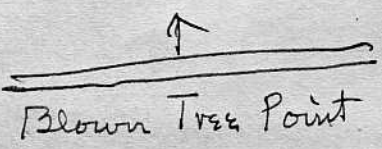
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3

Lands & probable XID

Specimen Ridge

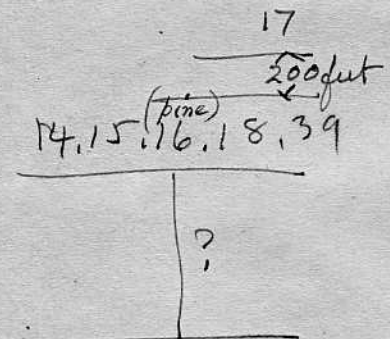


Type Tree
34-8
19, 20, 22
Type Tree



Lost Lake

Pet. Tree Hollow



16 float - is pine

14 & 15 perhaps at S end of Hill of 18

Crescent Hill

23-33 LOWEST: best chance XID (C.B. Road)
(23 float is pine)

Elke Creek
Crescent Hill

23-33
Crescent Hill

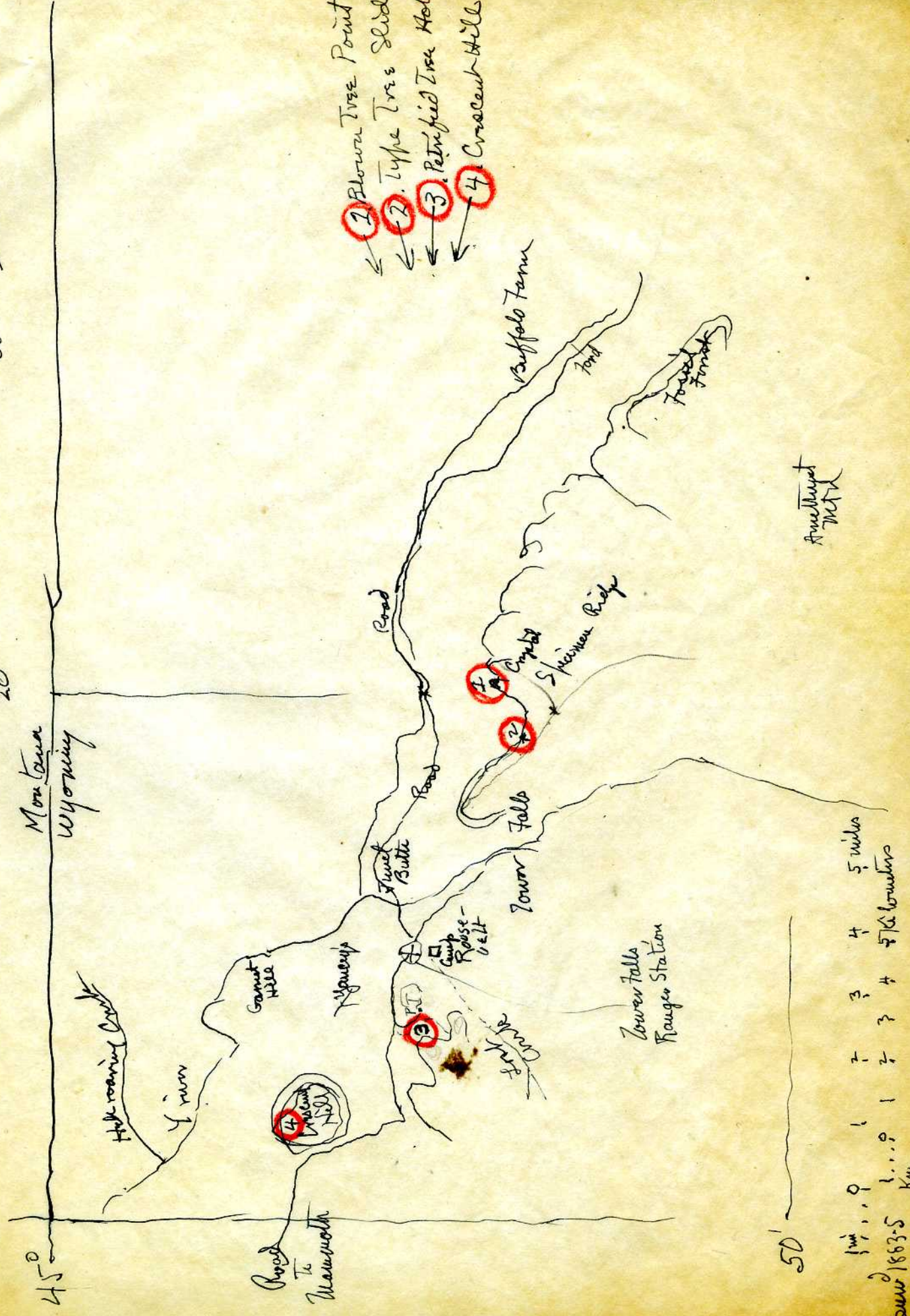
USGS

110° 20'

Montana
Wyoming

30'

45°



- 1 Blown Tree Point
- 2 Type Tree Slide
- 3 Petrified Tree Hollow
- 4 Crescent Hill

Amesbury
MPL

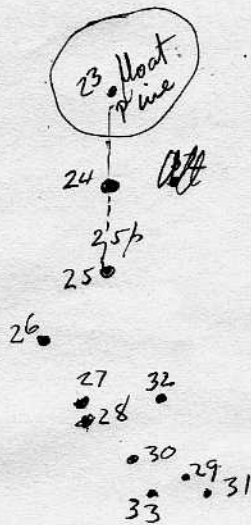
1 mi 1 2 3 4 5 miles
 1.6 3.2 4.8 6.4 8.0 Km

Survey 1863-5
 Revised 1910
 W. A. Marshall, Chief Geographer
 Edition Jan. 1912

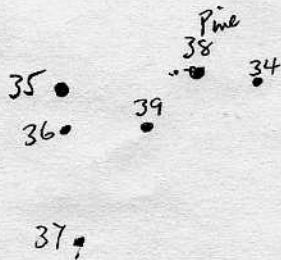
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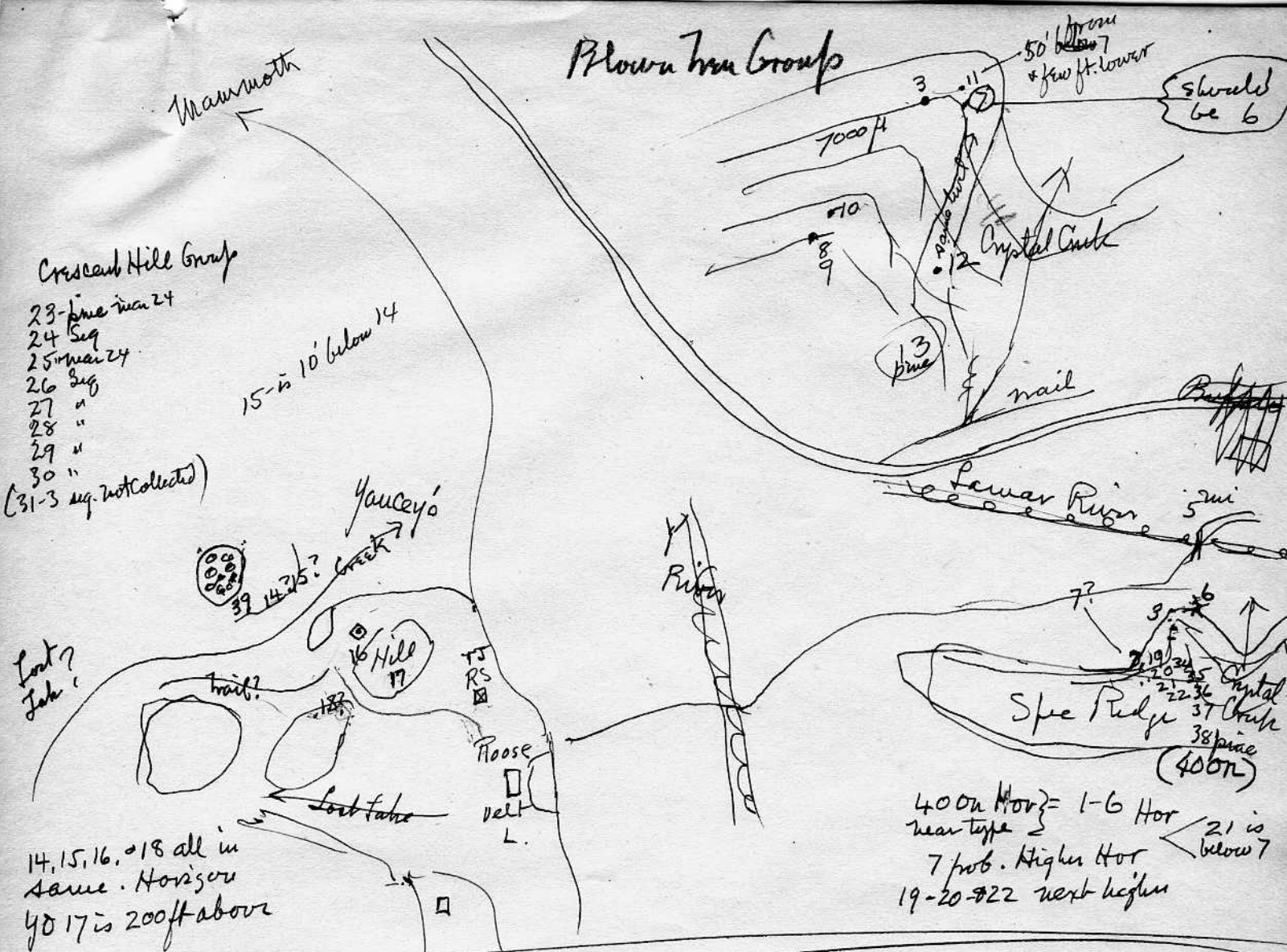
Elk Creek Truss
on Crescent Hill

Near Mammoth (Tower
Falls) Road.



Group near type Seg. 1
from Junction Butte S 61 E
from Lamar Bridge S 13 E
Type tree slide





YD 24-33 are lowest of all, & not related to other Hor.
 14, 15, 16, 18 next above 24-33
 17 next above 14, 15, 16, 18

11 miles

Buffalo

16

5 mi

Canyon
7 mi

YD 13 is highest horizon on Spe. Ridge
 8-9 next lower
 3, 1-6 + 12 next lower layer
 YD 40 on, belong in this horizon

from Reeds notes
 1/16/31

1/20/31

Work Page

Levels & Probable XID (1/16/31)

Specimen Ridge

~~Specimen Ridge~~

Crystal Point

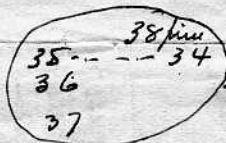
(Lower Tree Point)

13. pine

8. 9. (10)

400 ft

1. 2. 3. 4. 5. 6. -- 11. 12



19. 20. 22

7

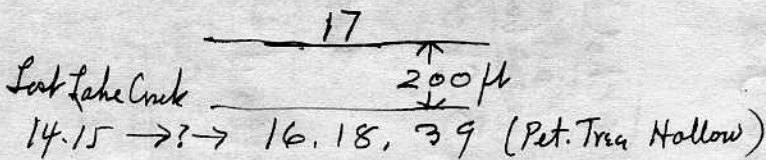
21

< few feet

? (may be same layer)

Tree Tree Slide

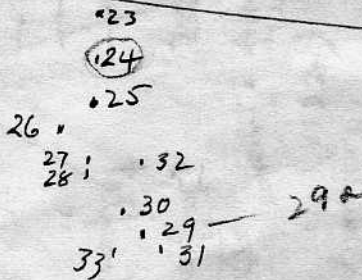
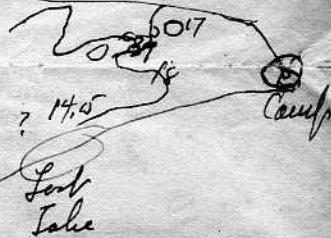
Yaucy Area



23-33

Crescent Hill

Crescent Hill
(Crescent Hill)



Crescent Hill