

1994 Inventory of Ponderosa Pine Thinnings

Ponderosa pine plantations were established on the Big Meadow Creek Unit of the University of Idaho Experimental Forest from 1941 to 1943. Between 1958 and 1964, twelve study plots were installed averaging .25 acres in size. All twelve plots were thinned from below at the time of establishment, removing the smallest, least vigorous trees. A second "low" thinning was conducted on six of these plots in 1976. Three unthinned control plots were established in 1975, and tree ring measurements were used to recreate tree diameters at the time adjacent plots were thinned. These control plots have since been used to compare unmanaged growth with the thinned stands. Plot numbers in the study are 59-1, 59-2, 59-3, 61-1, 61-2, 61-3, 61-4, 61-5, 63-1, 63-2, 63-3, 64-1, 75-1, 75-2, and 75-3 (see attached map for plot locations). Measurements were made on these plots in 1977, 1988, and in 1994. The Study results obtained after the 1988 inventory were published in the March 1990 "Station Note" No.40, University of Idaho, Idaho Forest, Wildlife and Range Experiment Station.

The plantation on which this study is being conducted is located in NE 1/4, S26, T40N, R4W, B.M. The plantation is bound by Umbarger Road to the east, and the Big Meadow Creek Recreation Area (a former CCC camp) to the west. According to the Latah County soil survey, the soil in this unit is a Vassar silt loam. This soil type consists of volcanic ash over loess over granite. The seed source for the Ponderosa pine is not known. However, photos that were taken of the site shortly after planting indicate that a 2-0 stock type, if not bigger, was used.

The 1994 inventory was begun on June 1st and completed on June 10th, 1995, just prior to the growing season. All marking and measurements were performed by Brandt Elwell, Chad Sanders, and David Smith. Elwell and Smith have both completed their second year of graduate studies in Forest Resources, and while Elwell has had limited experience cruising timber, this was Smith's first field experience. Sanders received his B.S. in Wildlife in the Spring of 1995, and has worked one summer as a timber cruiser for International Timber Management. He also worked a summer on the UI Logging Crew.

The inventory was conducted as follows. After locating each tree within a plot, a small area was scraped with a Pulaski, approximately 7 feet from ground level on opposite sides of each tree. Care was taken to avoid cambium damage while scraping an area of the tree that would not be scorched by future prescribed fire. This was achieved by examining existing scorch patterns from a prescribed fire conducted in certain plots during the early spring of 1994. Specified numbers were then painted within the scraped areas. Although most plots were marked with orange paint, a few were marked with blue. Finally, all four corners of each plot were marked by painting two double bands around the corner trees, one above the tree number, and another below.

After locating, scraping, and marking the trees, measurements were taken. Data sheets from the previous inventory in 1988 were used for recording data in the field. Diameters (DBH) were taken to the nearest 1/10 inch for every tree that had been measured in 1988 and which was still standing with needles. DBHs were measured from the average ground level, i.e., neither up-slope nor down-slope, but rather from the mid-slope point along the tree base. It is not known how diameters were measured in previous years.

Heights (to the nearest foot) and crown ratios (to the nearest percent) were taken from each tree on which a height measurement had been recorded in 1988. In the event that a former height tree was missing or was dead and had no needles, a height and crown ratio were obtained from the next tree in the plot sequence. Measurement data was written next to the 1988 data. Height and crown ratios were expressed by writing the height, then a backward slash, followed by the crown ratio. For example, a tree that was 54' tall and had a crown ratio of 40% was written as follows -- 54/40.

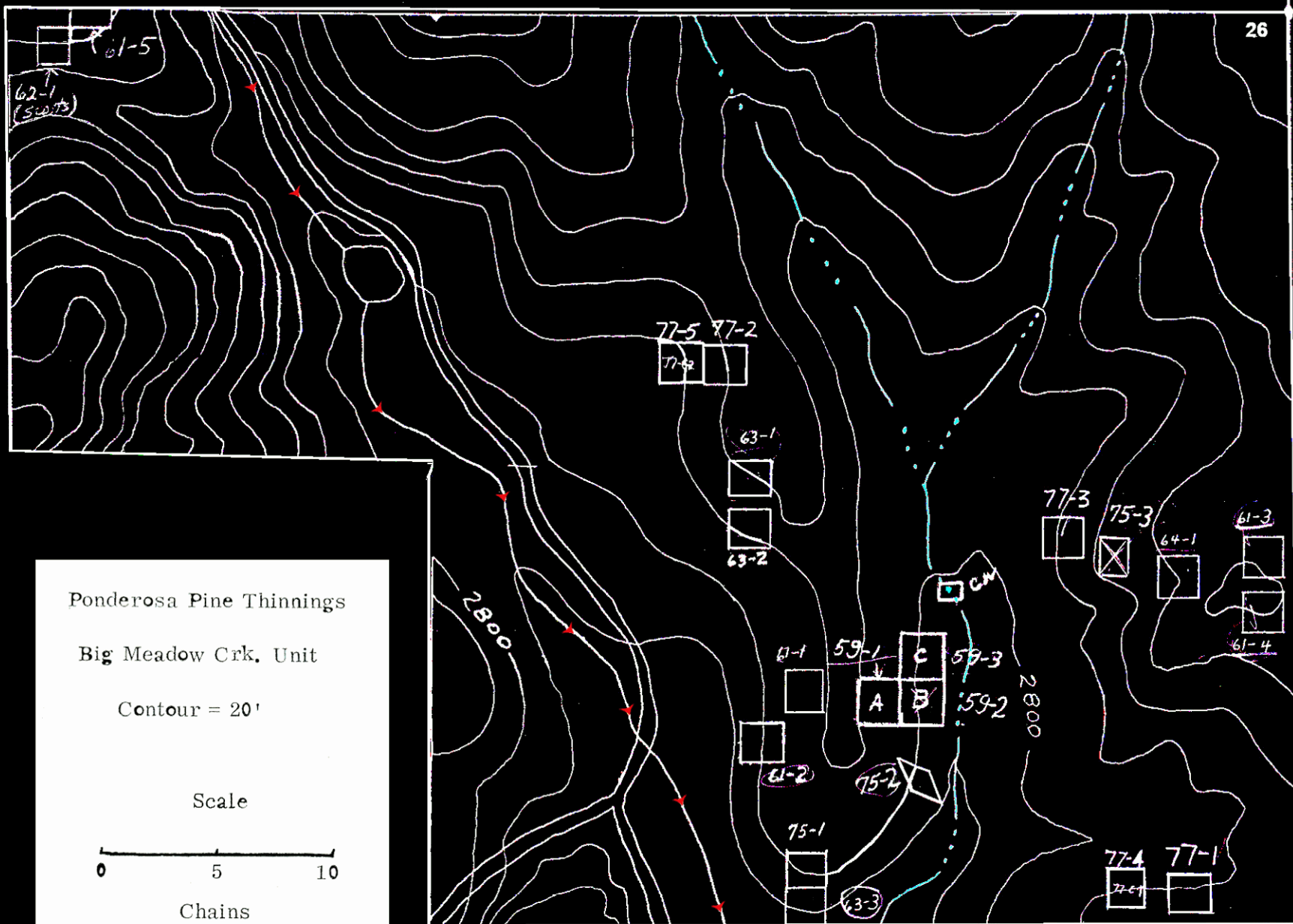
Due to severe drought conditions in 1994, there were a large number of dead and/or dying trees within certain plots. Trees that were obviously 1994 mortality, i.e., those that had red needles, were identified by placing an asterisk (*) next to the diameter measurement. The word "DEAD" was written next to all trees that had been dead for an extended period of time. In some areas there were trees which had been measured in 1988 and had since fallen. These too were identified with the word "DEAD".

Approximately three weeks following completion of the inventory, the data was entered by David Smith. The KRUZIT format was used in the KEDIT program. KEDIT was copied onto the C drive of computer A in room B-14 in Phinney Hall. KEDIT is accessed by first entering the OSBORNE subdirectory, and then typing KEDIT. The file name is BMCTHIN.DAT. A back-up of the file was made and is located on a diskette entitled "Big Meadow PP Thinning Study".

7/12/95

DCS

BIG MEADOW CREEK UNIT
PONDEROSA PINE THINNING PLOTS



Big Meadow Creek Ponderosa Pine Thinning Plot Locations

- 59-1 Location: Proceed approximately 12 chains west to the bottom of the draw, from the plot cluster (64-1, 61-3, 61-4). The plot cluster is located along the east edge of the BMC unit. Once in the draw, proceed approximately two chains southward to the Cottonwood clone. Proceed two additional chains southward in the draw, then two chains west up the side slope to the barbed wire fence and plots A, B, C. (59-1, 2, 3)
- 59-2 Location: Proceed approximately 12 chains west to the bottom of the draw, from the plot cluster (64-1, 61-3, 61-4). The plot cluster is located along the east edge of the BMC unit. Once in the draw, proceed approximately two chains southward to the Cottonwood Clone. Proceed two additional chains southward in the draw, then two chains west up the side slope to the barbed wire fence and plots A, B, C. (59-1, 2, 3).
- 59-3 Location: Proceed approximately 12 chains west to the bottom of the draw, from the plot cluster (64-1, 61-3, 61-4). The plot cluster is located along the east edge of the BMC unit. Once in the draw, proceed approximately two chains southward to the Cottonwood Clone. Proceed two additional chains southward in the draw, then two chains west up the side slope to the barbed wire fence and plots A, B, C.
- 61-1 Location: Proceed approximately 5 chains N 80° E from the point at which the entrance road to the Big Meadow Creek recreation area crosses Big Creek, at the picnic area entrance. Plot 61-1 is immediately north of Plot 61-2.
- 61-2 Location: Proceed approximately 5 chains east from the point at which the entrance road to the Big Meadows Creek recreation area crosses Big Creek, at the picnic area entrance. Plot 61-2 is immediately south of Plot 61-1.
- 61-3 Location: Located on the east boundary road of the Big Meadow Creek Forest Unit, approximately 14 chains north of the Forest property corner. (¼ corner, 26 + 25) T 40N R 4W.)
- 61-4 Location: Located on the east boundary road of the Big Meadow Creek Forest Unit, approximately 14 chains north of the Forest property corner. (¼ corner, 26 + 25) T 40N R 4W.)
- 61-5 Location: Proceed approximately 3/10 mile up Big Meadow Creek past recreation area to a 14" western larch on west side of road. Proceed 10 chains up side draw in a Northwestern direction to a ponderosa pine with orange paint. Proceed 100' up slope to Scotts' pine plantation and 150' to plot 61-5. (See map).

- 63-1 Location: Proceed 8 chains east from locked gate at north end of Big Meadow Creek Recreation Area. Located near post #7 on self-guided trail of picnic area. Plot 63-1 is immediately north of plot 63-2.
- 63-2 Location: Proceed 8 chains S83E from locked gate at north end of Big Meadows Creek Recreation Area. Plot 63-2 is immediately south of Plot 63-1.
- 63-3 Location: Proceed east 6 chains along fence line, starting at Forest property line, immediately east of entrance road to Big Meadow Creek Recreation Area. Fence corner is located approximately 8 chains south of picnic area entrance sign along road. Plot 63-3 is located approximately 14 chains south of Plot 63-2.
- 64-1 Location: Lies 4 chains west of plots 61-3, 61-4, which are adjacent to the east boundary of the Big Meadow Creek Unit, approximately 14 chains north of the property corner. ($\frac{1}{4}$ corner, 26 + 25) T 40N R 4W.
- 62-1 Location: Proceed approximately 3/10 mile up Big Meadow Creek past recreation area to a 14" western larch on west side of road. Proceed 10 chains up side draw in a Northwestern direction to a ponderosa pine with orange paint. Proceed 100' up slope to Scotts' pine plantation and 150' to plot 61-5. (See map)
- 75-1 Location: Plot 75-1 is immediately north of plot 63-3. Proceed east 6 chains along fence line, starting at Forest property line, immediately east of entrance road to Big Meadow Creek Recreation Area. Fence corner is located approximately 8 chains south of picnic area entrance sign along road. Plot 63-3 is located approximately 14 chains south of Plot 63-2.
- 75-2 Location: Plot 75-2 is immediately south of plot 59-2. Proceed approximately 12 chains west to the bottom of the draw, from the plot cluster (64-1, 61-3, 61-4). The plot cluster is located along the east edge of the BMC unit. Once in the draw, proceed approximately two chains southward to the Cottonwood Clone. Proceed two additional chains southward in the draw, then two chains west up the side slope to the barbed wire fence and plots A, B, C. (59-1, 2, 3)
- 75-3 Location: Plot 75-3 is immediately west of plot 64-1, which is adjacent to the east boundary of the Big Meadow Creek Unit, approximately 14 chains north of the property corner ($\frac{1}{4}$ corner, Sec. 25 & 26, T 40N R 4W).

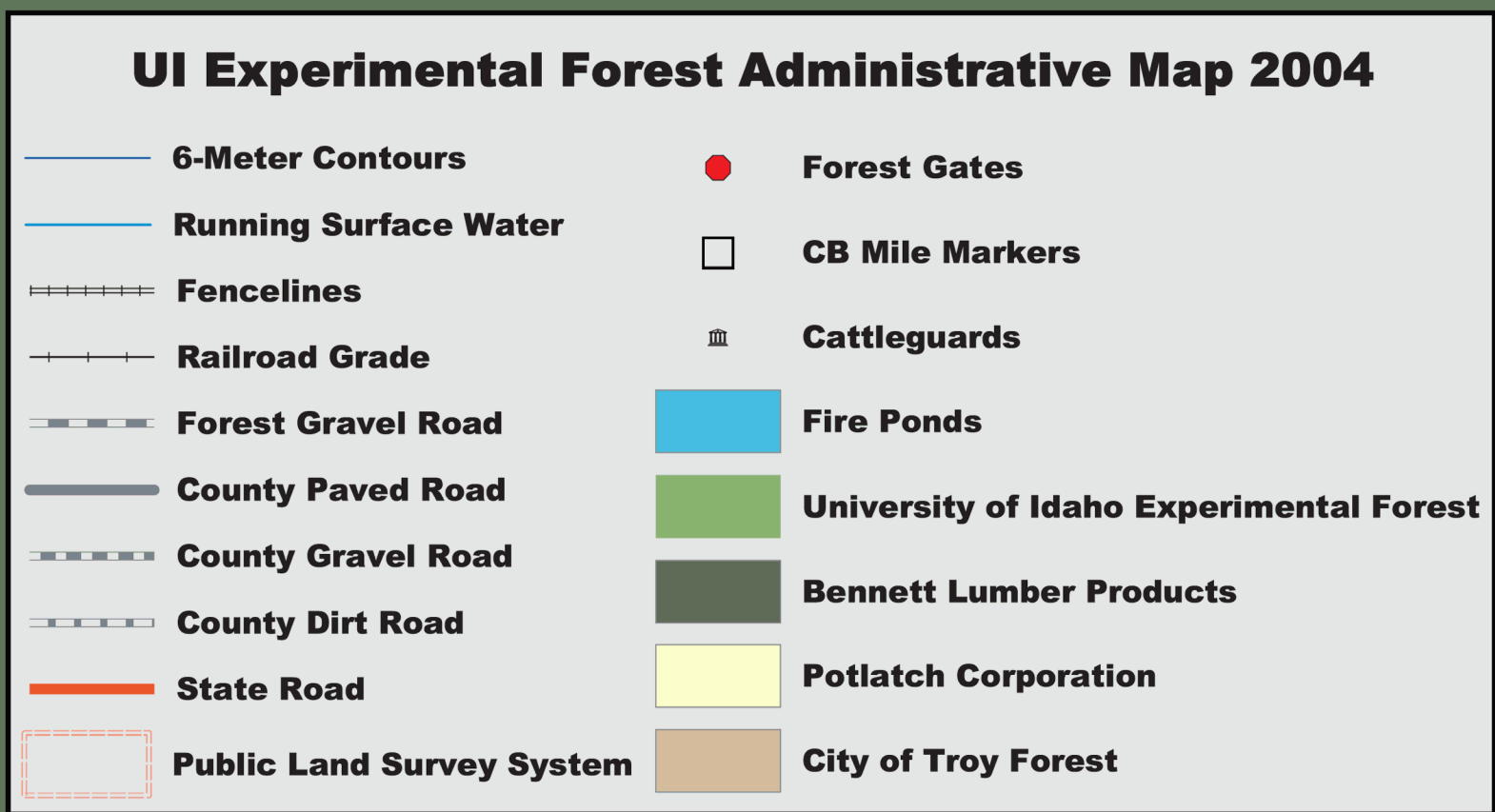
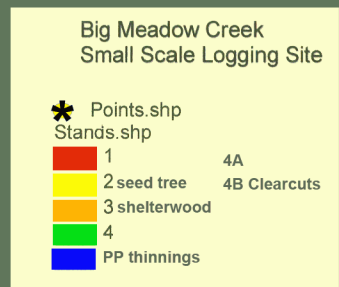
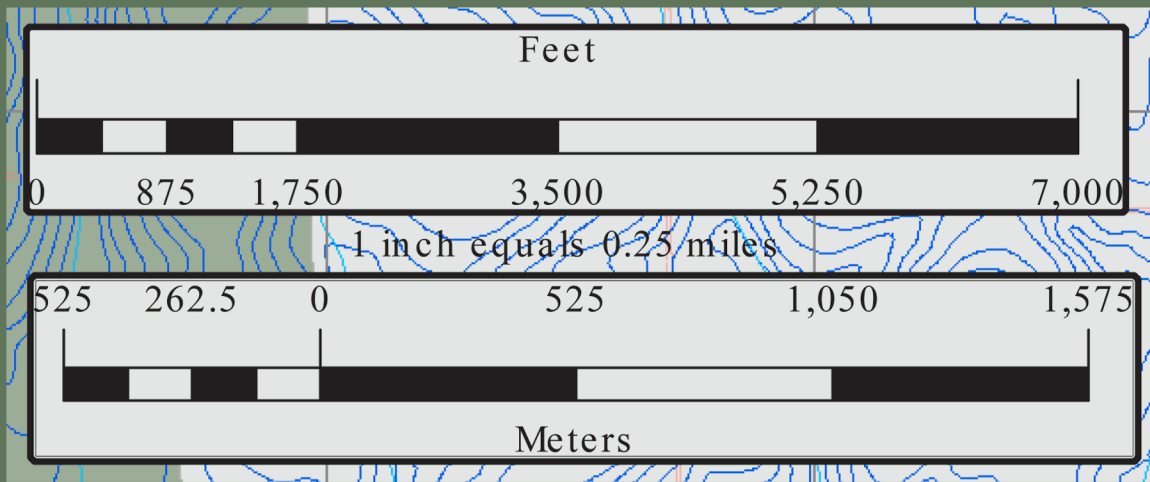
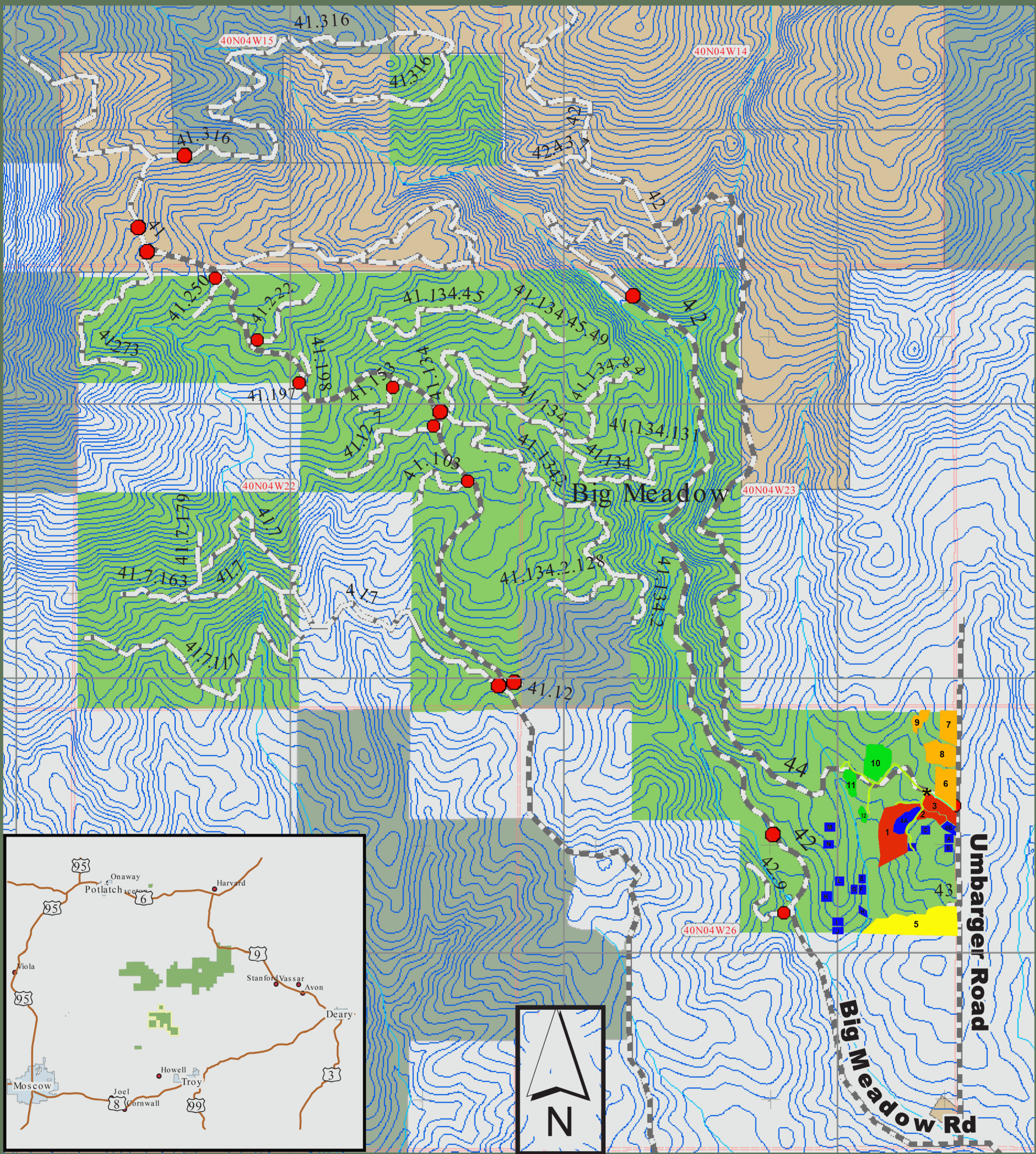
ANALYSIS

Measurement Period		CCF		Trees/Acre		Basal Area per acre (sq. ft.)		Average DBH (inches)		P. A. I.			
T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T/A	BA/A	DBH	CCF
1959-1974		35.8	73.1	185	180	27.5	78.9	5.2	9.0	-0.3	3.4	0.25	2.5
1959-1974		54.7	100.6	307	290	39.3	99.5	4.8	7.9	-1.1	4.0	0.21	3.1
1959-1974		60.8	105.5	372	340	40.5	99.8	4.5	7.3	-2.1	4.0	0.19	3.0
1963-1974		68.4	99.0	180	180	69.7	114.1	8.4	10.8	0	4.0	0.22	2.8
1961-1974		59.1	89.6	240	230	49.7	92.1	6.1	8.6	-0.8	3.3	0.19	2.3
1961-1974		58.6	90.9	200	174	53.5	102.3	7.0	10.4	-2.0	3.8	0.26	2.5
1961-1974		41.8	74.5	147	139	37.4	85.0	6.8	10.6	-0.6	3.7	0.29	2.5
1961-1975		58.6	92.7	186	186	54.0	103.6	7.3	10.1	0	5.5	0.22	2.4
1963-1974		44.9	71.4	156	156	41.0	78.1	6.9	9.6	0	3.4	0.25	2.4
1963-1974		54.3	83.4	217	212	45.9	85.5	6.2	8.6	-0.5	3.6	0.18	2.6
1963-1974		97.5	143.5	355	355	86.6	151.4	6.7	8.8	0	5.9	0.19	4.2
1964-1974		47.1	71.5	182	173	40.7	75.2	6.4	8.9	-0.9	3.4	0.25	2.4
		56.8	91.3	227	218	48.8	97.1	6.3	9.2	-0.7	4.0	0.22	2.7
1963-1974		147.1	168.0	551	551	130.4	158.3	6.6	7.3	0	2.5	0.06	1.9
1959-1974		150.9	183.4	802	802	108.4	147.4	5.0	5.8	0	2.6	0.05	2.2
1961-1974		108.1	132.7	447	447	91.5	123.8	6.1	7.1	0	2.5	0.07	1.9
1964-1974		115.6	132.7	447	447	101.2	123.8	6.4	7.1	0	2.3	0.07	1.7
		130.4	154.2	562	562	107.9	138.3	6.0	6.8	0	2.5	0.06	1.9
1962-1975		(61.8)	(74.0)	234	182	53.5	74.9	6.5	8.7	-4.0	1.6	0.18	0.9

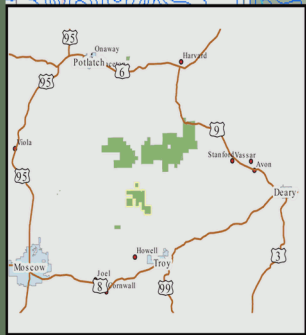
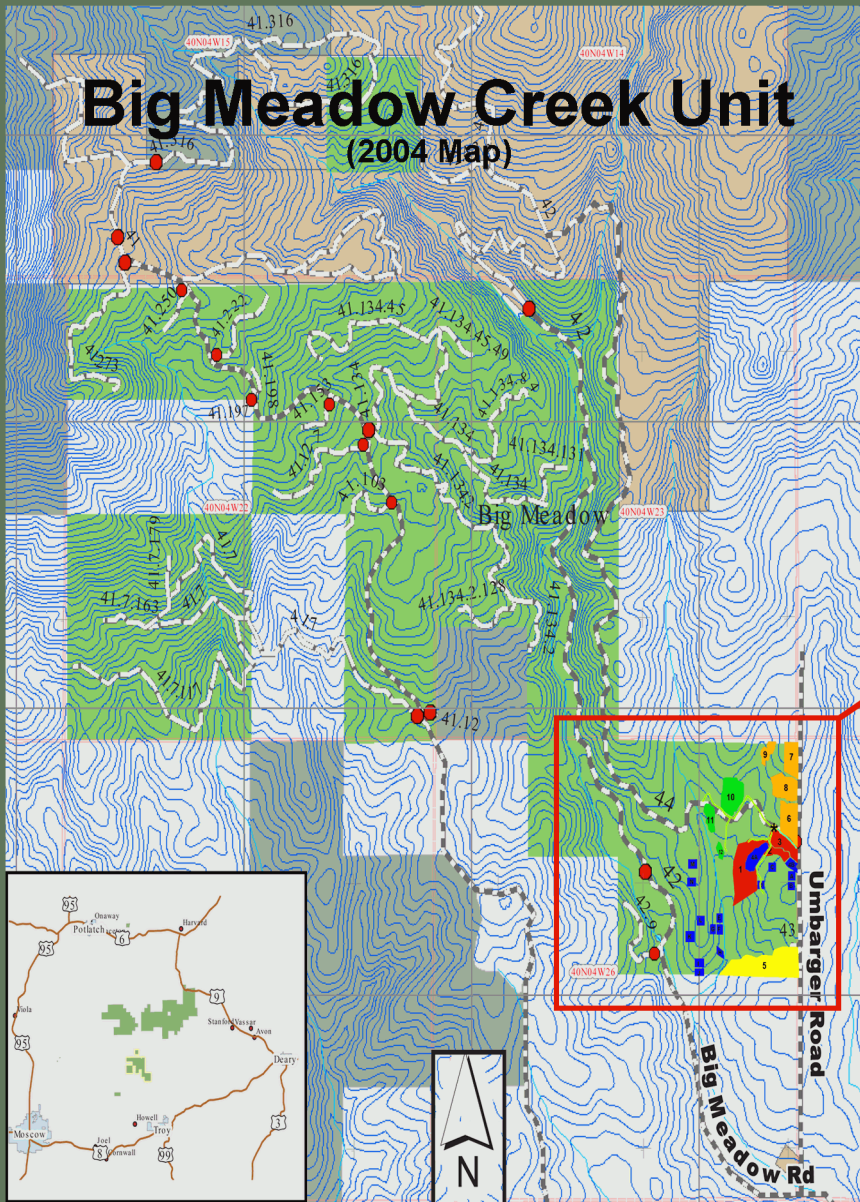
Plot	Measurement Period		Total Above-Ground Biomass		Component Percentages				Periodic Annual Productivity Above Ground (Mlbs/Ac/Yr)	Component Percentages				Average Productivity Yr/tree (lbs./yr)
	T1	T2	T1	T2	Foliage	Branch wood	Peeled bole	Bark		Foliage wood	Peeled bole	Bark		
	(Mlbs/Ac)				%									
59-1	1959-1974		20.1	68.4	16	24	50	10	3.10	6	26	56	12	17.2
59-2	1959-1974		27.9	82.8	16	24	50	10	3.52	7	26	55	11	11.7
59-3	1959-1974		27.8	81.7	17	23	49	10	3.50	7	26	56	11	9.7
61-1	1963-1974		57.1	102.2	13	25	52	10	4.19	10	24	54	12	23.3
61-2	1961-1974		36.8	77.6	12	25	52	11	3.12	10	25	54	11	13.3
61-3	1961-1974		41.2	95.3	11	25	53	11	4.10	7	26	56	11	21.9
61-4	1961-1974		28.5	77.7	15	24	51	10	3.69	7	26	56	11	26.0
61-5	1961-1974		43.3	91.6	11	25	53	11	3.71	9	25	55	11	19.9
63-1	1963-1974		31.8	68.0	15	24	51	10	3.27	9	25	55	11	20.9
63-2	1963-1974		34.1	71.6	15	24	51	10	3.39	9	25	54	11	15.7
63-3	1963-1974		66.9	129.0	15	24	51	10	5.69	10	25	54	11	16.0
64-1	1964-1974		30.8	65.2	14	24	51	11	3.41	9	25	55	11	18.9
\bar{X}			37.2	84.3	14.2	24.3	51.2	10.3	3.72	8.3	25.3	55.0	11.2	17.9
75-1	1963-1974		101.3	126.8	15	24	51	10	2.57	25	21	45	9	4.6
75-2	1959-1974		78.7	111.8	16	24	50	10	2.28	20	23	48	10	2.8
75-3	1961-1974		69.0	98.0	15	24	51	10	2.27	19	23	49	9	5.0
75-3	1963-1974		77.5	98.0	14	24	51	11	2.22	25	21	46	8	4.9
\bar{X}			58.8	108.6	15.0	24	50.8	10.3	2.34	22.3	22.0	47.0	9.0	4.3
62.1	1962-1974		47.3	79.9	13	21	56	10	2.53	10	22	57	11	12.1

Plot	Size (acres)	Slope (%)	Aspect	Measurement Record						Topographic Position	
				1959	1961	1963	1964	1969	1970		1974 ¹⁹⁷⁷
59-1 (A)	0.40	5	E	X				X	X	X	ridge top
59-2 (B)	0.40	37	E	X				X	X	X	side slope
59-3 (C)	0.40	38	E	X				X	X	X	side slope
61-1	0.10	40	W			X		X	X	X	side slope
61-2	0.10	30	W		X	X		X	X	X	side slope
61-3	0.23	3	S		X	X		X	X	X	ridge top
61-4	0.23	3	S		X	X		X	X	X	ridge top
61-5	0.23	5	SW		X			X	X	X	ridge top
63-1	0.23	10	SW			X		X	X	X	side slope
63-2	0.23	12	SW			X		X	X	X	side slope
63-3	0.23	25	SE			X		X	X	X	side slope
64-1	0.23	5	W				X		X	X	ridge top
77-1 ↑											
X 77-3	0.25	18	S								
75-1	0.23	10	S			X				X	side slope
75-2	0.13	20	E	X						X	side slope
75-3	0.23	8	SW		X					X	side slope
75-3	0.23	8	SW				X			X	side slope
X 77C-1 77C-2	0.21	12	S								
62-1 (Scott's Pine)	0.23	8	SE			X				X	side slope

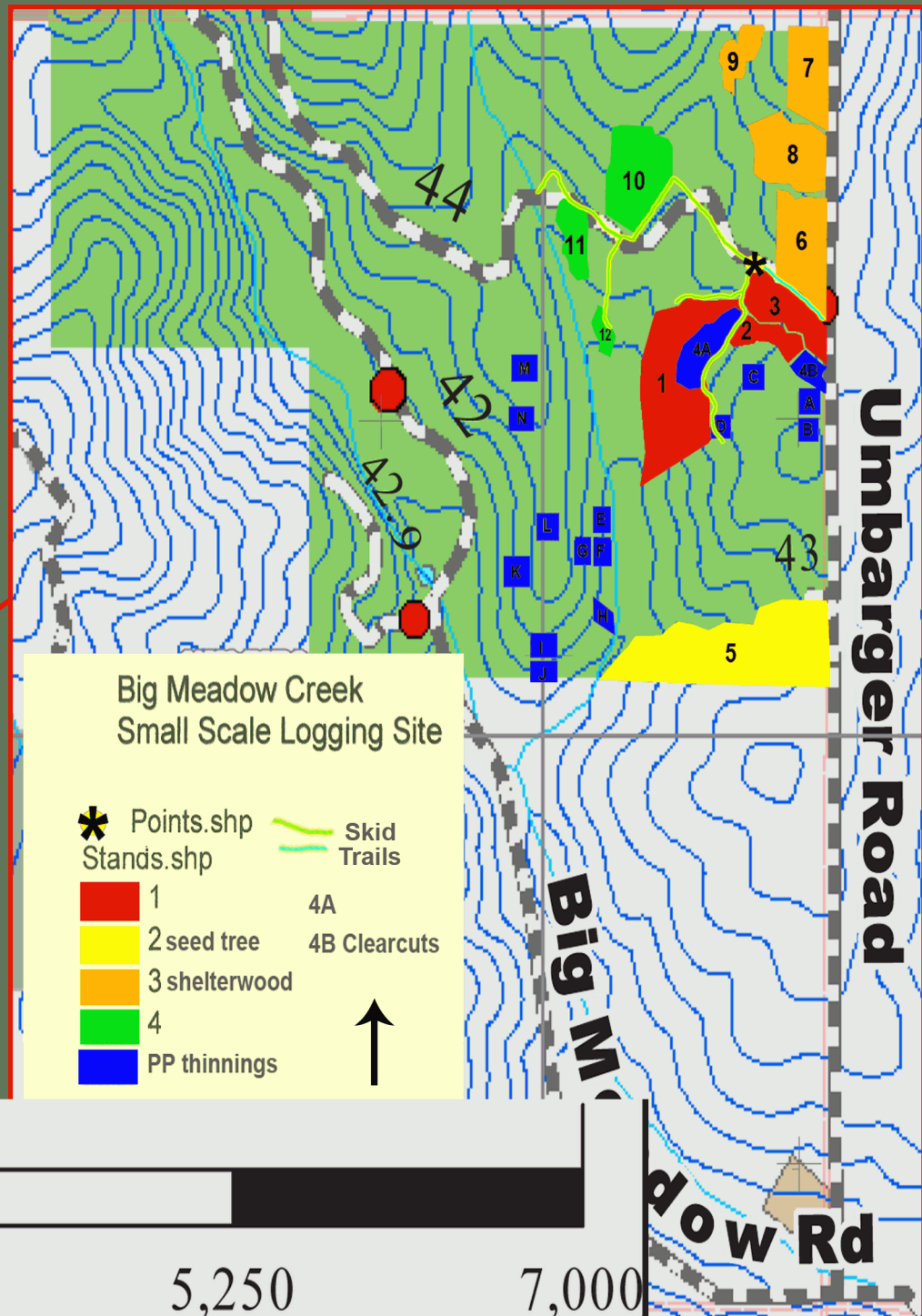
Big Meadow Creek Unit



Big Meadow Creek Unit (2004 Map)



Feet

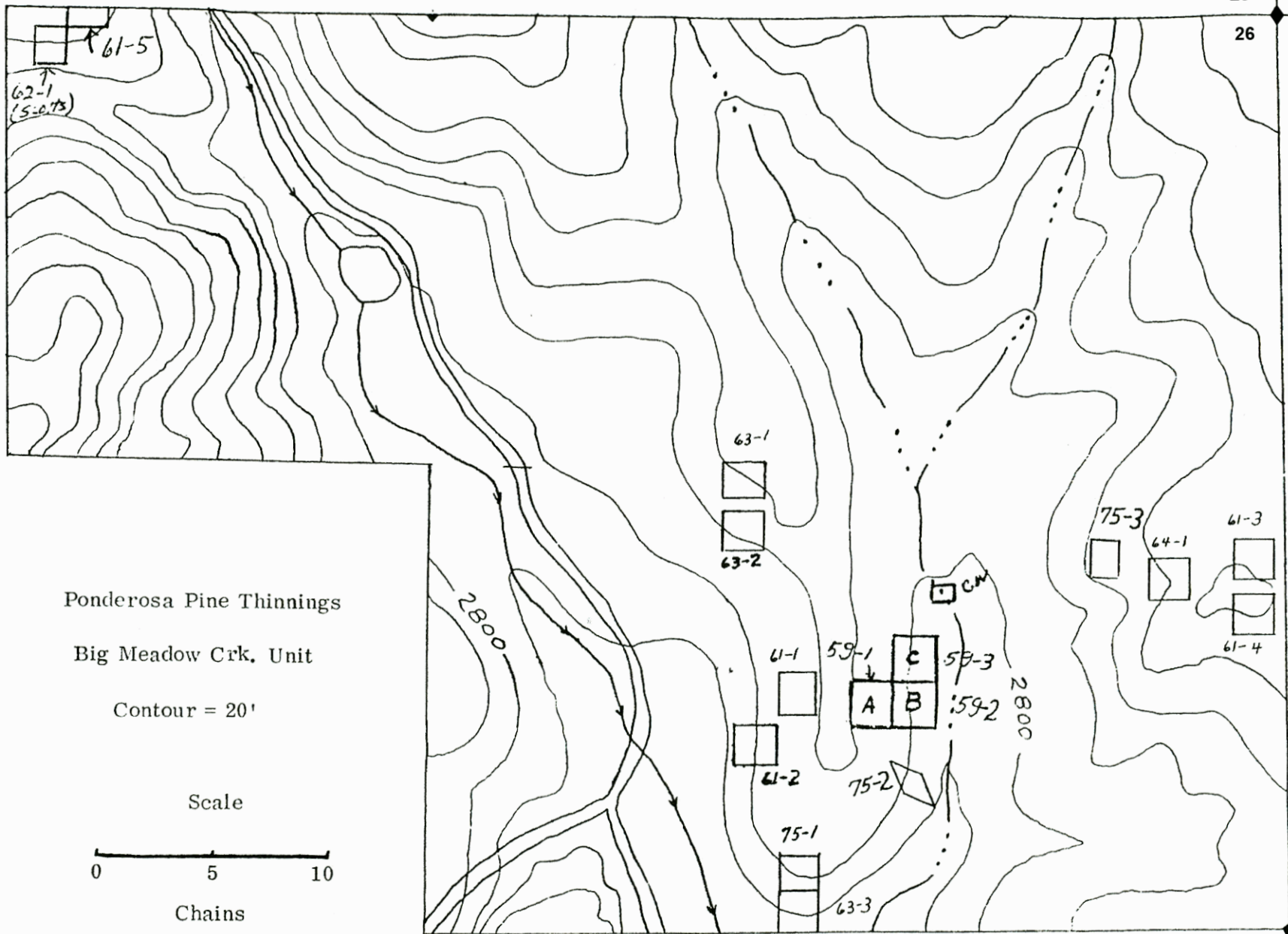


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24

26






25



Big Meadow Creek Small Scale Logging Site

Log DeckPoints.shp

Stands.shp

-  ~~Phase 1~~
-  Phase 2 *Seed tree*
-  Phase 3 *Shelterwood*
-  ~~Phase 4~~ *Clearcut*
-  Boundary.shp



200 0 200 400 Feet



Big Meadow Creek Small Scale Logging Site

Log DeckPoints.shp

Stands.shp

Phase 1

Phase 2

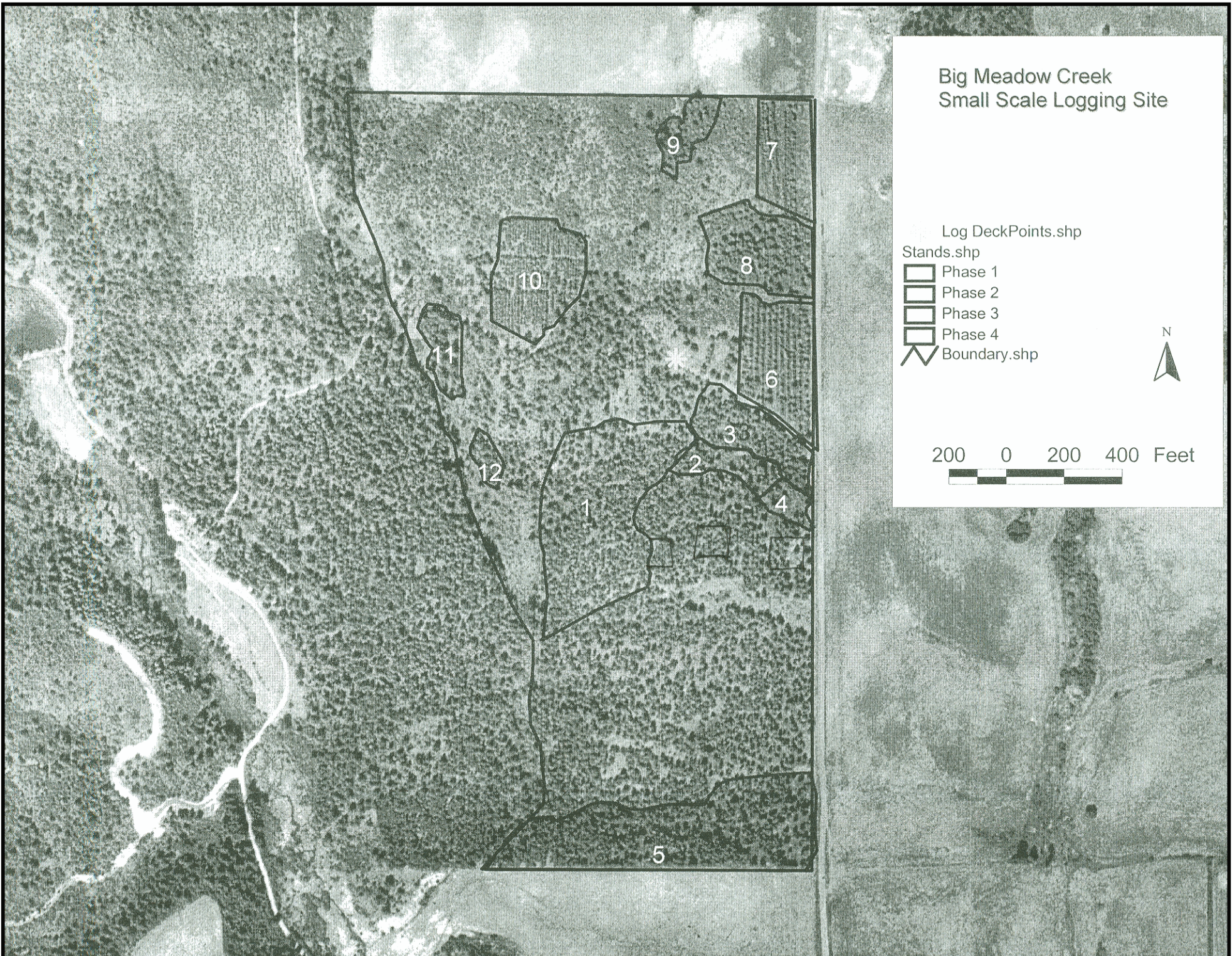
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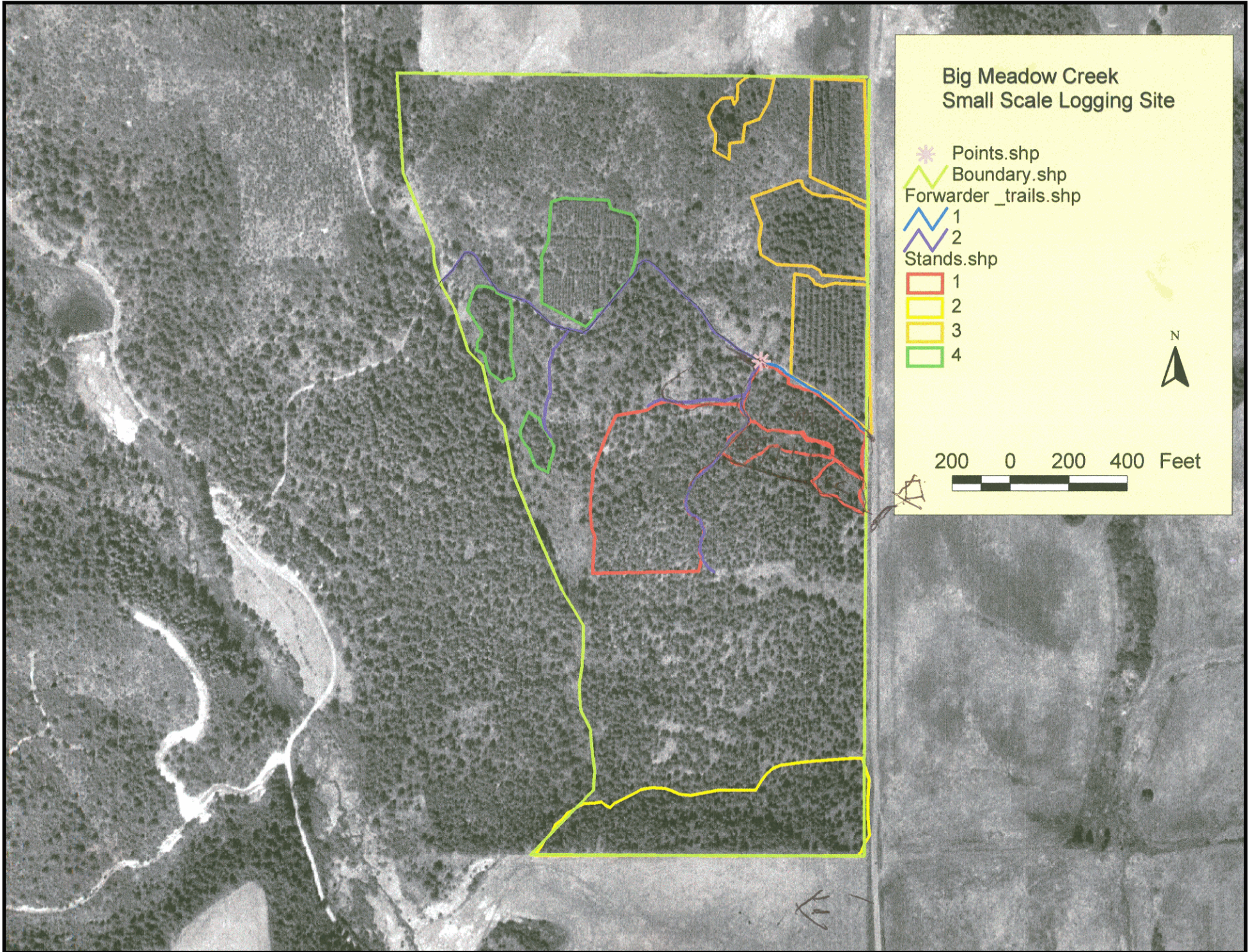
Phase 4

Boundary.shp



200 0 200 400 Feet





Big Meadow Creek
Small Scale Logging Site

Boundary.shp
Cont3meter_83



200 0 200 400 Feet

