IFTNC Forest Health Experiment
Installation Setup Procedures

I. Plot Reconnaissance

1. Each installation will consist of 7 or 14 plots, depending on parent material, vegetation series, and the fertilizer treatment to be applied, as detailed in the IFTNC study plan. Each plot will consist of a growth plot (1/10 ac) inside of a 1/2 ac plot, which is surrounded by a 20 foot buffer zone. The 1/2 ac plot will be subdivided into 9 subplots. The growth plots will be used for periodic growth remeasurement. The 1/2 ac plots will provide adequate space and number of sample trees for future sampling of fertilized areas without disturbing the growth plot. The subplots will be used for measurement of regeneration (trees > 4.5' tall and < 2" dbh) and tracking of disease pockets. The buffer zone provides an additional "safety zone" and decreases edge effects on the main plot.

2. At each site the desired number of plots to be established should be laid out where site and stand factors are as uniform as possible. The completed plot should contain a minimum number of trees of each species (at least two healthy dominants/codominants of each of two dominant species), of a minimum diameter or greater. The number of trees and minimum diameter will vary for each stand, and will be determined by IFTNC staff.

3. IFTNC field staff will "flag" tentative plots for each installation, preferably before crew arrival. This procedure should be followed to be certain that all

plots can be established in the area under uniform conditions of aspect, slope, soil, stand density, and species composition. The reconnaissance person should use a hand compass to pace off the sides of each growth plot (66 feet square), and place flagging at center and corners. A minimum of three chains should be left between flagged growth plots to ensure sufficient space for surrounding 1/2 ac plots and buffer strips. The trees per acre and species composition, along with any additional comments, will be noted and passed on to the field crew for plot establishment.

II. Plot Establishment

1. All 1/10 ac (growth) plots will be established first, followed by the corresponding 1/2 ac plots, subplots and buffer zones. In some stands we may establish all of the growth plots before starting 1/2 ac plots in order to ensure uniformity between the growth plots. The 1/2 ac plots are of secondary priority for uniformity; we generally "fit" the 1/2 ac plots in where we can in order to accommodate the growth plots. The IFTNC field crew will establish the permanent plots by using staff compass and fiberglass measuring tape to lay out each 1/10 ac plot, 1/2 ac plot, 9 subplots and buffer strip. Measurements will be in horizontal distance rather than slope distance, so on steep slopes a technique for "breaking-chain" or correcting for slope angle must be employed to get the correct horizontal distance.

2. At each flagged location, a tentative growth plot should be established, and the trees on the plot tallied. For the Tally procedure, one person will measure

diameters of all trees on the plot, one person will record diameters either on the Initial Tally sheet (Figure 1) or on the Husky (using the TALLY program), while other crew members stand on the corners and help the measuring person keep track of the trees. At least three growth plots should be completed prior to scooching (see below), to get an idea of the "target" basal area (BA) and trees per acre (TPA) for the overall installation.

3. At this point "Scooching" may be necessary. Scooching refers to shifting the growth plot a few feet in one direction or another in order to add or lose trees in order to reach the target BA and TPA levels. Scooching may also be employed in order to obtain the desired species composition. Once the satisfactory BA, TPA and species composition have been attained for a growth plot, corner stakes should be pounded in and the crew may proceed to establishment of 1/2 ac, subplots and buffer zone.

4. Two common methods of setting up the 1/2 ac plot and buffers have been developed and are shown in Figures 2 and 3. Figure 2 shows the "Double Corner Method," which involves using one corner of the growth plot as a corner for the 1/2 ac plot. Figure 3 shows the "Double Center Method," which involves using the center of the growth plot as plot center for the 1/2 ac plot. For both methods, a convenient procedure is to place the staff compass at growth plot center and lay out growth plot corners from there. Then, for the Double Center Method, no further moving of the staff compass is necessary; all 1/2 ac corners, buffer corners and subplot centers can also be

Figure 1

INITIAL TALLY SHEET

Plot Number _____ Date _____ Installation Name _____

DBH	sp:	sp:	sp:	sp:	Total Number	Basal Area
2						
2.5						
3						
3.5						
4						
4.5						
5						
5.5						
6						
6.5						
7						
7.5						
8						
8.5						
9						
9.5						
10						
10.5						
11						
11.5						
12						
12.5						
13						
13.5						
14						
14.5						
15						
15.5						
16						
16.5						
17						
17.5						
TOTAL						

Figure 2

1/2 Acre Plot, 20' Buffer, Double Corner

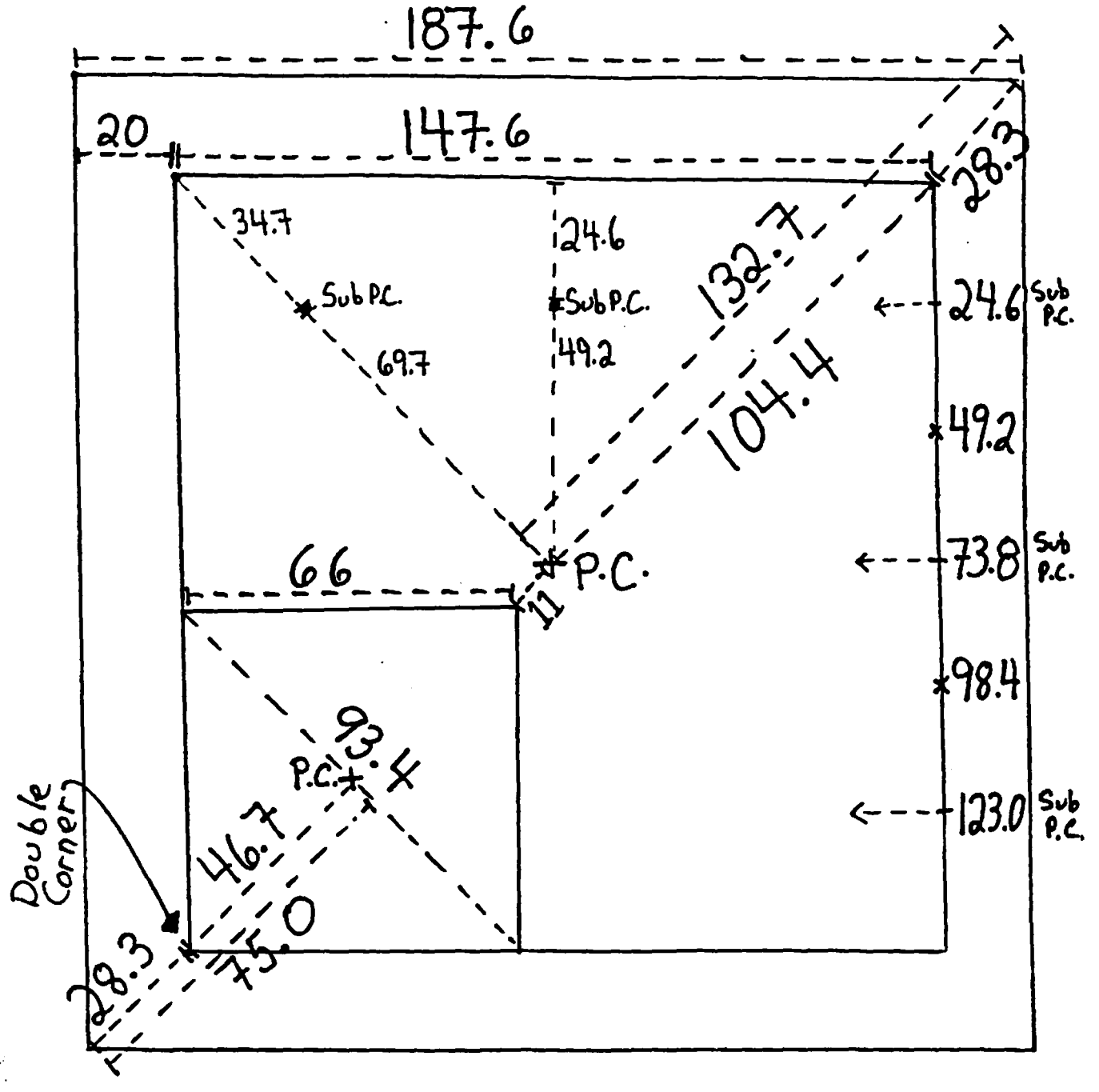
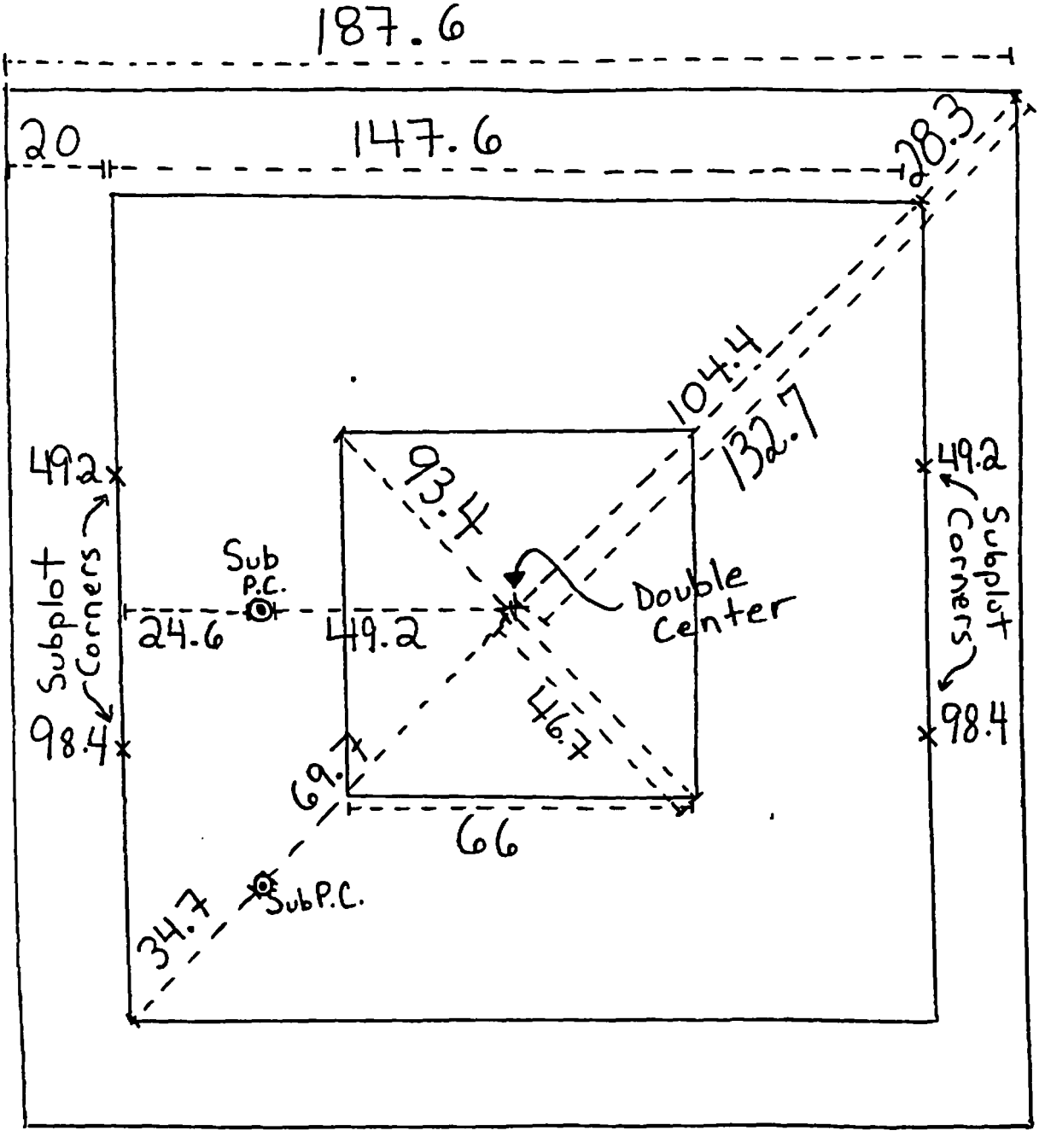


Figure 3

Double Center. ½ Ac, 20' buffer.



laid out from plot center. For the Double Corner Method, the staff compass needs to be moved once, from the growth plot center to the 1/2 ac plot center, to finish layout of the 1/2 ac corners, buffer corners and subplot centers.Stakes should be set at growth plot center (4.5' gray stake), corners of growth plots, 1/2 ac plots, and buffer strips (2.5' gray stakes), and centers of the subplots (2' white).

5. When the stakes have been set (pound them in tight) paint them and place a stick with flagging in them using the following color scheme:

Growth plot corners	=	Yellow
Growth plot center	=	Yellow
1/2 ac plot corners	=	Blue
Buffer corners	=	Yellow
Double corners	=	1/2 Blue, 1/2 Yellow
Subplot centers	=	do nothing

Also mark trees just outside the border with 2 short diagonal stripes on the side facing the plot. These marks help indicate "in" and "out" trees for numbering and measurement, and also facilitate finding the boundaries when we fertilize in the fall, especially in the snow!

6. Time-permitting, use the brush hook or hatchet to prune off all dead branches on trees within the growth plot to a height of about six or seven feet.

7. Once all plots have been established for an installation, the plot locations should be documented using the Plot Establishment Checklist forms (Figure 4),

Figure 4

PLOT ESTABLISHMENT CHECKLIST

Plot _____

Installation Number _____ Installation Name _____

Technician _____ Date _____

From Plot Center:

SLOPE _____ ASPECT _____

From 1/10 Ac. Corner:

AZIMUTH OF ANY SIDE (Indicate which side on sketch) _____

Location:	Plot	Azimuth	Distance
FROM (previous)	_____	_____	_____
TO (next)	_____	_____	_____
NEAREST PLOT	_____	_____	_____

Plot Sketch (Include location of 1/10 ac. within 1/2 ac., roads, ridges, drainages, etc.)

one per plot. Two persons are needed to record plot locations. One person stands at the reference point or current growth plot center stake, and the other goes to the next growth plot center stake. Calling out to each other, the first person (recorder) uses a hand compass and pacing to determine azimuth anddistance to the person waiting at the next plot. While waiting for the recorder, the other person should affix the red IFTNC tag and treatment tag to the plot center stake. Upon arrival, the recorder gathers information requested on forms, while the other person takes soil surface samples (See Section V.1). The recorder must create a detailed sketch (See Section V.3) which will be used help us find the plots in the future, and also indicates access points for fall fertilizer application.

8. Information to be recorded at each plot includes:

   a) Plot Establishment Checklists: slope, aspect, directions, plot sketch

   b) Cover Percentages (Figure 5): shrubs, grasses/forbs, and bare ground. Coverage codes are provided on the form.

   c) Any other pertinent information

III. Tree Marking

1. All trees will be marked at dbh for fall measurement and future remeasurements. A gray PVC stake with a black line at 4.5', or any stick with a mark at 4.5', will be used as a guide to mark d.b.h. on the plot trees. Locate the section of the stem representing d.b.h. (4.5 feet above the ground on the UPHILL side of the tree). If a branch or stem defect appears at this

COVER PERCENTAGES FOR SHRUBS, GRASSES/FORBS

Installation Number: Technician:
Installation Name: Date:

SPECIES / PLOTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Shrubs > 3'														
Shrubs < 3'														
Total Coverage, shrubs > 3'														
Total Coverage, shrubs < 3'														
Total Coverage, Grasses/Forbs														
Total Coverage, Bare Ground														

Codes: 1 = 0-5% 2 = 5-25% 3 = 25-50% 4 = 50-75% 5 = 75-95% 6 = >95%

Figure 5

height, move up or down the stem as far as necessary to avoid the irregularity in the stem surface. Carefully paint a horizontal band at the point where the diameter will be taken. On the growth plot trees, yellow paint will be used, and the band should extend all the way around the tree. On the 1/2 acre trees, blue paint will be used and the band should extend about halfway around thetree, clearly visible from the uphill side of the tree.

2. All trees will also be numbered just above the dbh mark in order to track individual tree growth/mortality over the course of the study. Standing at the center of the growth plot, face uphill and select the corner on the uphill left-hand side to begin numbering. Paint a number on each tree at about eye level on the uphill side of the tree. Number the trees systematically so that it is easy to find the trees in consecutive order. Numbering for growth plots should start at 1 on Plot 1, and run continuously through all growth plots, using yellow paint. Numbering for 1/2 acre trees will start over at 1 on each subplot, and run continuously through that subplot only, using blue paint. Include the subplot number (1 through 9) before the tree number. Subplots will be numbered starting on the uphill, left-hand corner of the plot and run consecutively.

5. At the time of numbering trees, each tree number and species should be recorded on the Final Tally form (Figure 6) or on the Husky (using FINAL program) in order to create a data file for fall measurements.

Figure 6

FINAL TALLY SHEET

Plot Number _____ 1/10 1/2 Date _____

Installation Number _____ Installation Name _____

Tree #	Species	Tree #	Species	Tree #	Species	Tree #	Species	Tree #	Species
1		34		67		100		133	
2		35		68		101		134	
3		36		69		102		135	
4		37		70		103		136	
5		38		71		104		137	
6		39		72		105		138	
7		40		73		106		139	
8		41		74		107		140	
9		42		75		108		141	
10		43		76		109		142	
11		44		77		110		143	
12		45		78		111		144	
13		46		79		112		145	
14		47		80		113		146	
15		48		81		114		147	
16		49		82		115		148	
17		50		83		116		149	
18		51		84		117		150	
19		52		85		118		151	
20		53		86		119		152	
21		54		87		120		153	
22		55		88		121		154	
23		56		89		122		155	
24		57		90		123		156	
25		58		91		124		157	
26		59		92		125		158	
27		60		93		126		159	
28		61		94		127		160	
29		62		95		128		161	
30		63		96		129		162	
31		64		97		130		163	
32		65		98		131		164	
33		66		99		132		165	

IV Plot Marking

1. If a snag, solid log or exposed rock is present near the growth plot center, paint the plot number to identify the plot on successive visits (i.e. "Plot 2"). Repeat this procedure at the edge of the road nearest the plot area, making the number readily visible from the road.

2. Place several of the red IFTNC signs in the area, particularly near the 1st plot encountered when entering the installation, and at any visible, central points within the installation. Avoid putting them on live trees.

3. Draw a map of the area using the Installation Sketch (Figure 7). Include the contour of the road near the plots (curves, turnouts, etc.) and spur roads that might aid in finding the plot area. Also include ridges, draws, any dominant features in the area near the plots, and of course, the plots. Indicate azimuths and distances between plots and a reference point from the road to at least one plot. The map need be only hand drawn, but should be accurate enough that anyone can find the plot once they are in the area.

V Other Data Collection

1. Surface Soil Sampling: One sample will be collected from each plot using the soil auger. The sample will be taken from the upper 10" of mineral soil near the growth plot center. Before taking the core sample, remove any litter or duff from the soil surface. Avoid taking the sample where trees are decaying where there are other irregularities. Composite all samples for the installation in a bucket and mix them. Remove a sample from the bucket and place it in a

Figure 7

INSTALLATION SKETCH (NK Surface Response - 14 Plots)

Installation Number _____ Date _____

Installation Name _____ Technician _____

Installation Sketch: Include azimuths and distances between plots, orientation of plots, growth plots within 1/2 acre plots, **roads or access for fertilizer.**

Suggested Fertilizer Treatments (Number in parenthesis is quantity 50# bags required):

Control (0) _____ 87.9N/58.6K (4.5) _____ 0N/200K (5.5)_____

300N/0K (10.5) _____ 87.9N/341.4K (12) _____

300N/200K (16) _____ _____ _____ _____ (K_2SO_4)_____

512.1N/58.6K (19.5) _____ 300N/400K (21.5) _____

600N/200K (26.5) _____ 512.1N/341.1K (27) _____

single zip-loc bag. Label the bag with installation name and number and date of sampling.

2. Soil Pit Sampling: At each site, dig a pit down to bedrock, hardpan, restrictive layer, or to unaltered parent material, whichever comes first. Using the Soil Profile Description (Figure 8), describe the soil horizons present, the depths of each, and the characteristics of the peds in each horizon. Note any soil characteristics that may be pertinent to understanding the quality of the site. Include any surface ash layer in the comments.

3. Vegetative Abundance: For each plot carefully observe the vegetation present within the plot boundaries. On the form provided (Figure 9), note the relative abundance of each species present, including trees, shrubs, grasses and forbs. If you observe species on the plot that are not listed on the form, write them in the spaces provided. If some species are present which you cannot identify but which are relatively abundant throughout the stand, collect and press them. Fill out ID sheets for each species collected. Temporarily give this species a code name, record it on the vegetative description sheet and record its abundance on each plot. After identification change the code name to the species name.

4. Habitat Type: Habitat type or plant association should be determined using information on vegetative abundance, soils, slope, aspect, elevation and other necessary information. This determination should be made using a manual specific to the region. Record habitat type on the Vegetative Abundance form

VEGETATIVE ABUNDANCE* figure 7

Stand No _____ Local Feature _____ Photo No _____

Plot No		Plot No	
Trees			
Abies concolor		Rubus	
Abies grandis		Rubus parviflorus	
Abies lasiocarpa		Salix scouleriana	
Betula paperifera		Sambucus caerulea	
Larix lyallii		Shepherdia canadensis	
Larix occidentalis		Sorbus scopulina	
Picea engelmannii		Sorbus sitchensis	
Picea glauca		Spirea betulifolia	
Pinus albicaulis		Symphoricarpos albus	
Pinus contorta		Symphoricarpos oreophilus	
Pinus monticola		Taxus brevifolia	
Pinus ponderosa		Vaccinium membranaceum	
Populus deltoides		Vaccinium scoparium	
Populus tremuloides		_____	
Pseudotsuga menziesii		_____	
Thuja plicata		_____	
Tsuga heterophylla		**Ferns**	
Tsuga mertensiana		Adiantum pedatum	
_____		Athyrium filix-femina	
_____		Dryopterus filix-mas	
Large & Medium Shrubs		Gymnocarpium dryopteris	
Acer glabrum		Polystichum munitum	
Alnus sinuata		Pteridium aquilinum	
Alnus tenuifolia		_____	
Amelanchier alnifolia		_____	
Artemesia tridentata		**Perennial Graminoids**	
Ceanothus sanguineus		Agropyron spicatum	
Ceanothus velutinus		Bromus vulgaris	
Cercocarpus ledifolius		Calamagrostis rubescens	
Clematus columbianum		Carex	
Cornus stolonifera		Carex geyeri	
Crataegus douglasii		Deschampsia elongata	
Holodiscus discolor		Elymus glaucus	
Juniperus communis		Festuca	
Juniperus horizontalis		Festuca occidentalis	
Lonicera ciliosa		Graminoids	
Lonicera utahensis		Luzula	
Menziesia ferruginea		Poa	
Pachistima myrsinites		_____	
Philadelphus lewisii		_____	
Physocarpus malvaceus		_____	
Prunus emarginata		_____	
Prunus virginiana		_____	
Rhamnus purshiana		_____	
Rhododendron albiflorum		_____	
Ribes		_____	
Rosa gymnocarpa		_____	
Rosa nutkana		_____	
Rosa woodsii		_____	

* Abundance Classes: 1-Rare; 2-Few; 3-Common; 4-Abundant; 5-Very Abundant

Plot No											Plot No										
Small Shrubs & Forbs																					
Achillea millefolium											Monotropa uniflora										
Actaea rubra											Montia										
Adenocaulon bicolor											Oplopanax horridum										
Anaphalis margaritacea											Osmorhiza										
Anemone piperi											Pedicularis										
Antennaria											Pedicularis racemosa										
Arabis											Penstemon										
Arctostaphylos uva-ursi											Phyllodoce										
Arenaria macrophylla											Polemonium										
Arnica cordifolia											Potentilla										
Asarum caudatum											Pterospera andromedea										
Aster conspicuus											Pyrola										
Astragalus											Pyrola asarifolia										
Balsamorhiza sagittata											Pyrola picta										
Berberis aquifolium											Pyrola secunda										
Berberis repens											Selaginella densa										
Bryophytes											Senecio triangularis										
Caltha biflora											Smilacina racemosa										
Calypso balbosa											Smilacina stellata										
Cassiope mertensiana											Streptopus amplexifolius										
Castilleja											Taraxacum										
Chimaphila menziesii											Thalictrum occidentale										
Chimaphila umbellata											Thermopsis montana										
Circaea alpina											Tiarella unifoliata										
Cirsium											Trautvetteria caroliniensis										
Claytonia lanceolata											Trifolium										
Clintonia uniflora											Trillium ovatum										
Coptis occidentalis											Veratrum californicum										
Corallorhiza mertensiana											Verbascum thapsus										
Cornus canadensis											Vicia americana										
Disporum hookeri											Viola adunca										
Dodecatheon											Viola glabella										
Epilobium											Viola orbiculata										
Epilobium angustifolium											Wycthia amplexicaulis										
Equisetum											Xerophyllum tenax										
Eriogonum																					
Erythronium grandiflorum																					
Fragaria vesca																					
Fragaria virginiana																					
Frasera																					
Galium triflorum																					
Galtheria ovatifolia																					
Goodyera oblongifolia																					
Habenaria																					
Hieracium																					
Hypericum perforatum																					
Hypericum formosum																					
Lathyrus																					
Linnaea borealis																					
Listera																					
Lomatium																					
Lupinus																					
Lycopodium																					
Mertensia																					
Mimulus																					
Mitella stauropetala																					

and on the Installation Checklist form.

VI. Installation Information

1. Provide as much information as possible about the stand, using the Installation Checklist (Figure 10).

2. Provide written directions to the plot area from a prominent place on an area map (i.e. specific place in a town or a major road intersection that can be easily found by anyone with little knowledge of the area). Provide mileage estimates to road intersections or prominent features so that anyone with the directions can locate the plot area.

4. Record the name of the nearest local feature to the plot area (i.e. Deer Creek, Thompson Butte, Johnson's Mill, etc.). This will be the name that applies to this site.

5. If possible, locate the position of the plot area to the nearest quarter-section, using a topographic quadrangle. Record the township, range, section and subsection. Also include ownership, soils information, and other information requested on the Installation Checklist.

6. If the crew must leave the installation before completing all of the above steps, then note ALL remaining tasks on the TO DO CHECKLIST (Figure 11).

Figure 10

INSTALLATION CHECKLIST
(To be completed before leaving site)

Installation Number _____ Installation Name _____

Date Completed _____ Number of Plots _____

Region _____ Ownership _____

Contacts:

Legal Description: (T) (R) (S)

Instructions for how to arrive:

Vegetation & Soil Information

Habitat Type _____

Parent Material _____

Soil-forming Process _____

Soil Depth (in) _____ Ash Depth (in) _____

Tasks completed:		Forms completed:	
Stakes placed & painted	_____	Plot Establishment (14)	_____
Boundaries marked	_____	Installation Sketch	_____
Growth plot center stakes	_____	Cover Percentages	_____
IFTNC red tags	_____	Vegetation List	_____
Subplot center stakes	_____	Soil Pit	_____
Final tallies completed	_____	To Do List	_____
Tree numbers painted(1/10)	_____	Initial Tally (14)	_____
Tree numbers painted (1/2)	_____	Final Tally (14)	_____
Soil samples	_____		
Plot numbers by roads	_____		

Figure 11

TO BE COMPLETED
1995 Installations

INSTALLATION NUMBER: _____ NAME: _____

General jobs:

PLOT:	JOB:
1	_____
2	_____
3	_____
4	_____
5	_____
6	_____
7	_____
8	_____
9	_____
10	_____
11	_____
12	_____
13	_____
14	_____

Other instructions, comments:

VII. Initial Tree Measurements

1. Initial tree measurements will be taken in the fall of the year of installation. Using the IFTNC2 program on the Husky data recorder, record the following information for each tree, using the codes shown in Figure 12:

   a. Tree number (should be in the startup data set)

   b. Species (should also be in the startup data set; if not use number codes for species)

   c. Crown Ratio for trees being measured by height pole rather than clinometer (generally trees less than 20' tall, or deformed/sweepy/leaning trees).

   d. Management codes and defects

   e. Diameter of the tree at the painted dbh line. Record this diameter to the nearest 1/100 inch. Make sure the D-tape is straight and that no debris is wedged between the tape and the tree.

   f. Height is automatically calculated by the Husky using the following four angles (measured in percent with a Suunto clinometer): Top Height, Misc. Angle (greater than dbh but less than top height), Base of Live Crown, and DBH line. Also enter distance to the tree, using measuring tape or Sonins to obtain horizontal distance from clinometer to the center of the tree. The data recorder person should inform the clinometer person of the resultant tree height, to try and screen out incorrect measurements. If a tree is measured with height pole or

Figure 12: Tree Codes

TALLY PROGRAM		FINAL PROGRAM	
1	Douglas-fir	11	Maple
2	Grand fir	12	Amalanchier
3	Subalpine fir	13	Alder
4	Western redcedar	14	Birch
5	Western hemlock	15	Willow
6	Western larch	16	Aspen
7	Lodgepole pine	17	Black cottonwood
8	Western white pine	18	Juniper
9	Ponderosa pine		
10	Engelmann spruce		
11	Other species		

CONDITION CLASS CODES (prefix to defect codes)

Code	Description
00	No noticeable defects or disease
01	Minor defects or disease
02	Major defects or disease (cull)
60	Alive and down
80	Dead or missing
90	Dead and down

DEFECT CODES

Codes	Description
00	No obvious defect
11	Unhealthy foliage (cause unknown)
12	Competitive disadvantage (suppressed)
21	Thinned (cut down)
22	Logging damage
23	Girdled (by man)
24	Poisoned
25	Equipment inflicted damage
31	Forked stem
32	Excessive lean
33	Excessive sweep
34	Deformed stem
35	Excessively small crown
36	Excessively limby
37	Multiple leader
38	Bayonet top
39	Broken top
40	Dead top
41	Stem damage (unknown)
42	Scraped top
50	Insect (unknow)
51	Bark beetles
52	Carpenter ants
53	Defoliating insects
60	Fungal (unknown)
61	Rusts
62	Stem rots and conks
63	Root rots
64	Blights
65	Stem cankers
66	Dwarf mistletoe

Code	Description
70	Animal (unknown)
71	Domestic animal
72	Rodent
73	Porcupine
74	Deer & Elk browse
75	Other wildlife
80	Weather (unknown)
81	Wind
82	Lightening
83	Snow
84	Frost
85	Fire

otherwise calculated, be sure to enter the height and crown ratio in the correct columns of the Husky.

2. Also at this time, any tasks which were not accomplished during the installation process should be completed. These tasks may be found on the TO DO form (see VI.6).

VIII. Fertilization

1. Determine the exact amount of fertilizer compound needed for each plot by multiplying the number of pounds per acre to be applied by the total plot size (.8 ac). Then divide this number by the percentage of element in the fertilizer compound (46% N in urea, 60% K in potash, 50% K_2O in potassium sulphate). This gives the total pounds of each fertilizer compound to be delivered to the plot; divide this number by 50 to get the number of 50# bags required for that plot.

2. Hand spreaders will be used to spread the fertilizer over the plot. Subdivide the plot according to growth plot, remaining 1/2 ac plot, and buffer zone. The growth plot will receive 1/8 of the total fertilizer, the remaining 1/2 ac plot will receive 4/8 of the fertilizer, and the buffer strip gets the rest (3/8 of the fertilizer). Apply the fertilizer as evenly as possible over the entire plot. Until precision in applying the fertilizer is gained, it is best to begin conservatively, going over each area several times if necessary. This would avoid the possibility of running out of fertilizer before finishing the plot.

3. Record the fertilizer treatment and weather conditions at time of application on

the Treatment Checklist (Figure 13).

TREATMENT CHECKLIST
(N Rate and N-K Response Surface Experiments)

Installation Name:

Installation Number:

Date	Plots Fertilized	Weather Conditions

Plot	Treatment
1	_____
2	_____
3	_____
4	_____
5	_____
6	_____
7	_____
8	_____
9	_____
10	_____
11	_____
12	_____
13	_____
14	_____

Treatments:

(14-Plot): N-K Resp. Surf.

- 00: 0/0
- 30: 300/0
- 02: 0/200
- 85: 87.9/58.6
- 83: 87.9/341.4
- 55: 512.1/58.6
- 53: 512.1/341.4
- 62: 600/200
- 34: 300/400
- 32: 300/200 (5x)

(7-Plot): N Rate

- 00: 0/0
- 30: 300/0
- 02: 0/200
- 32: 300/200
- 10: 100/0
- 20: 200/0
- 60: 600/0