

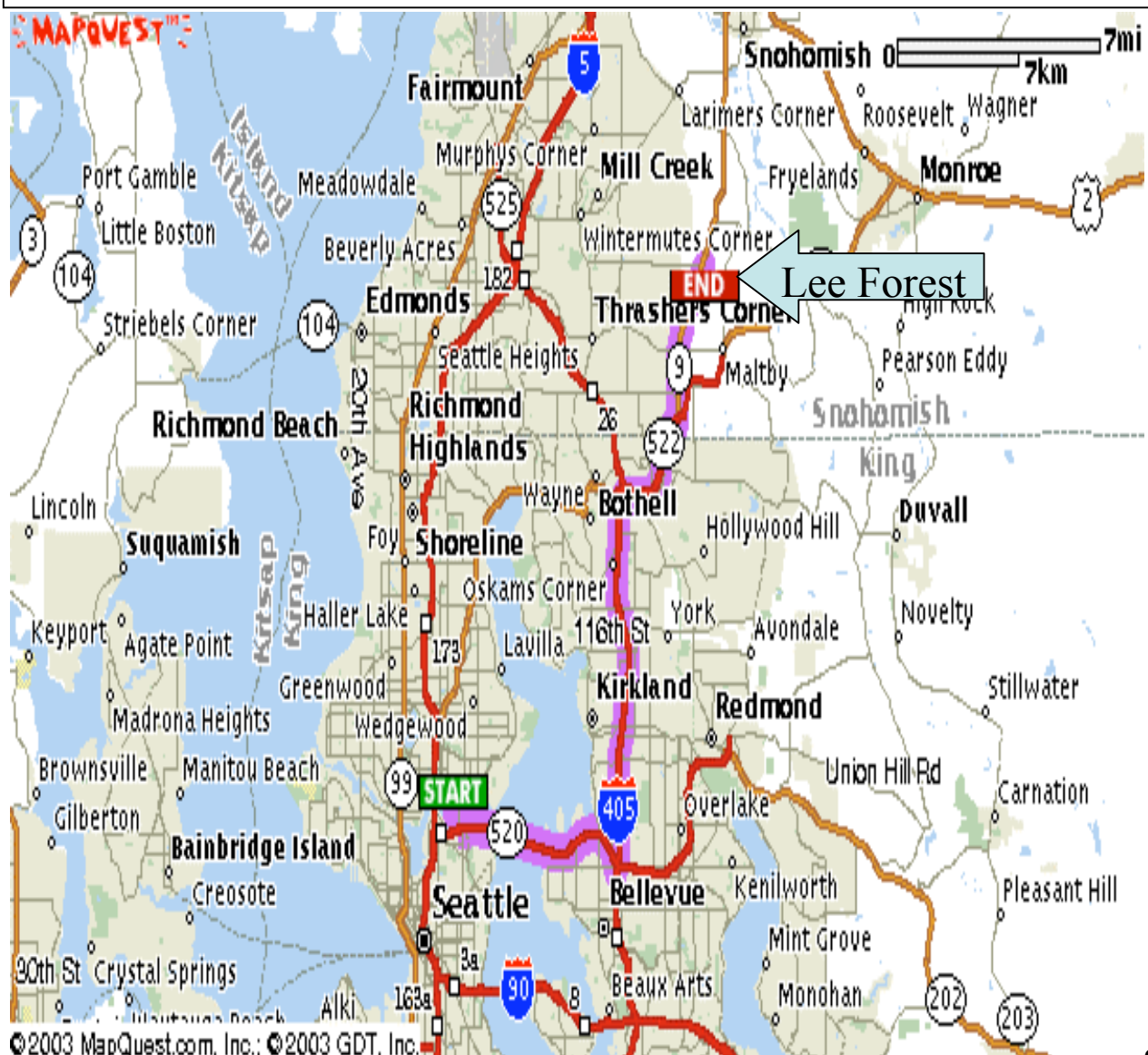
# Lee Forest

ESRM 368

Forest Resources Measurements

# Driving Directions

- Leave UW, go across Montlake Bridge & take 520 E for 5.9 mi & exit onto 405 N toward Everett.
- Go 8.9 mi. on 405 N & take WA 522 E (Monroe/Wenatchee exit # 23).
- Go 3 mi. on WA 522 E & take WA 9 N toward Snohomish/Arlington.
- Go ~ 3 mi. on WA 9 N. South entrance to Lee Forest → go E on SE 197th St to gate at road end or North entrance to Lee Forest → go E on SE 188th St just past Cathcart Elementary School and 83rd Ave.
- About 22 miles (25 minutes) one-way



# Location

Eastern slope of Cathcart Ridge in Snohomish County, WA., 1-1/2 miles northwest of the community of Maltby and 6-1/2 miles south of Snohomish.

# Legal description

the W  $\frac{1}{2}$ , SW  $\frac{1}{4}$  , Sec. 13; the E  $\frac{1}{2}$ , SE  $\frac{1}{4}$ , Sec 14 (except the W  $\frac{1}{4}$  thereof); and the N  $\frac{1}{2}$ , NW  $\frac{1}{4}$ , NW  $\frac{1}{4}$  Sec. 24, all in T 27N, R5E, W.M

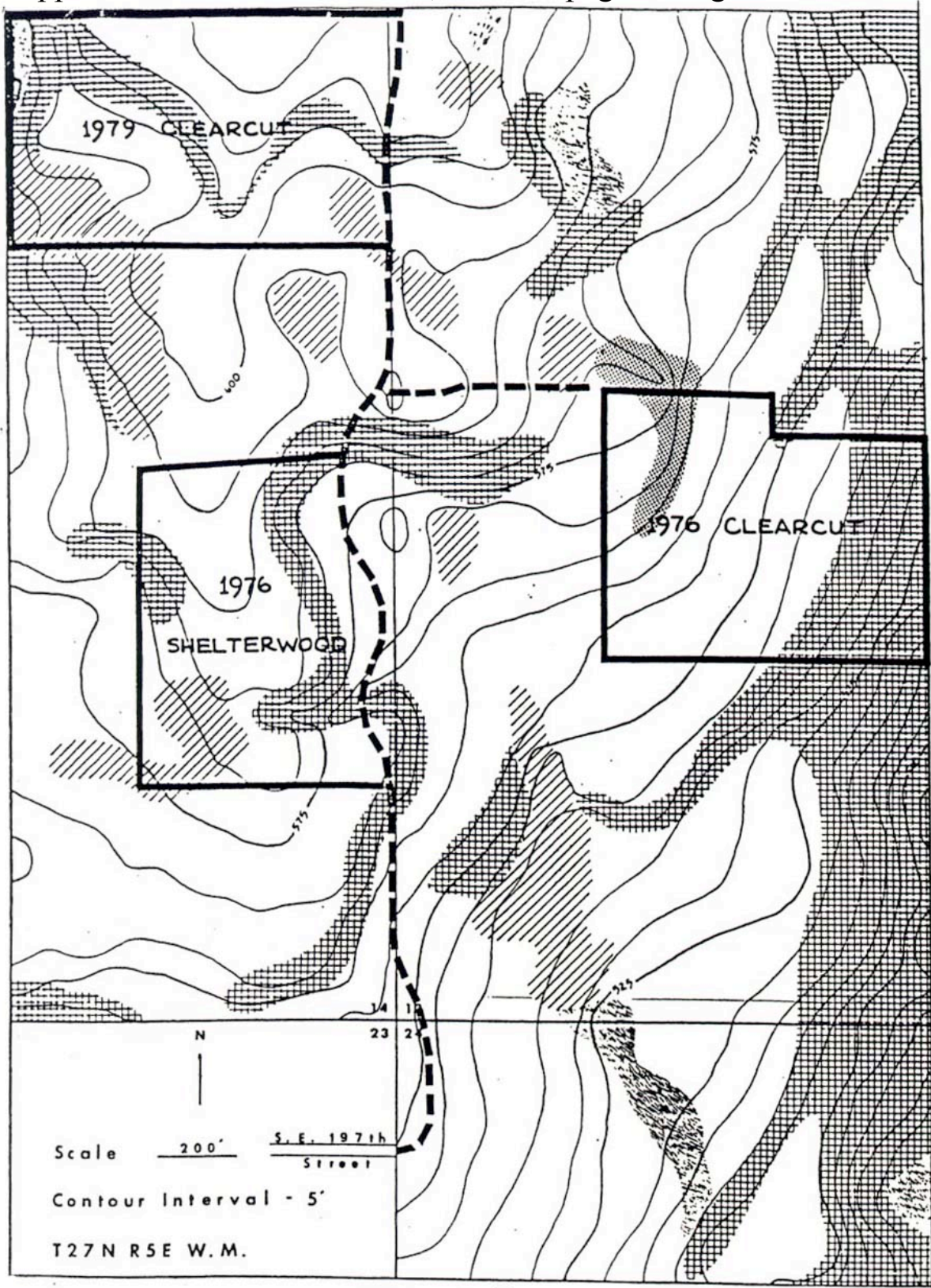
# History

- 1883 – logged when railroads made it possible to transport logs to market
- Burned, used for pasture, & eventually abandoned
- 1900 – the area was regenerating & covered with small trees
- 1915 – part of the area burned in a wildfire
- 1927 – heirs of Mr. & Mrs. O.H. Lee proposed donating 80 acres of second growth forest to UW for research use by CFR
- 1933 – UW Board of Regents formally accept the 80 acre donation, starting Lee Forest
- 1938 – Lee heirs donate 80 additional acres, bringing Lee Forest to it's 160 acre size
- 1936-76 – variety of “low-impact”, short term research projects for graduate student theses & class demonstration sites
  - Soil surveys
  - Growth studies
  - Small scale thinning & shelterwood cuts
  - Rainfall station
- 1976 Lee Forest Development Plan completed



# Lee Forest Soil & Contour Map






Approx 525-625 feet elevation; see next page for legend & soils info



Stream

# Lee Forest Soil Map:

## legend & soil info

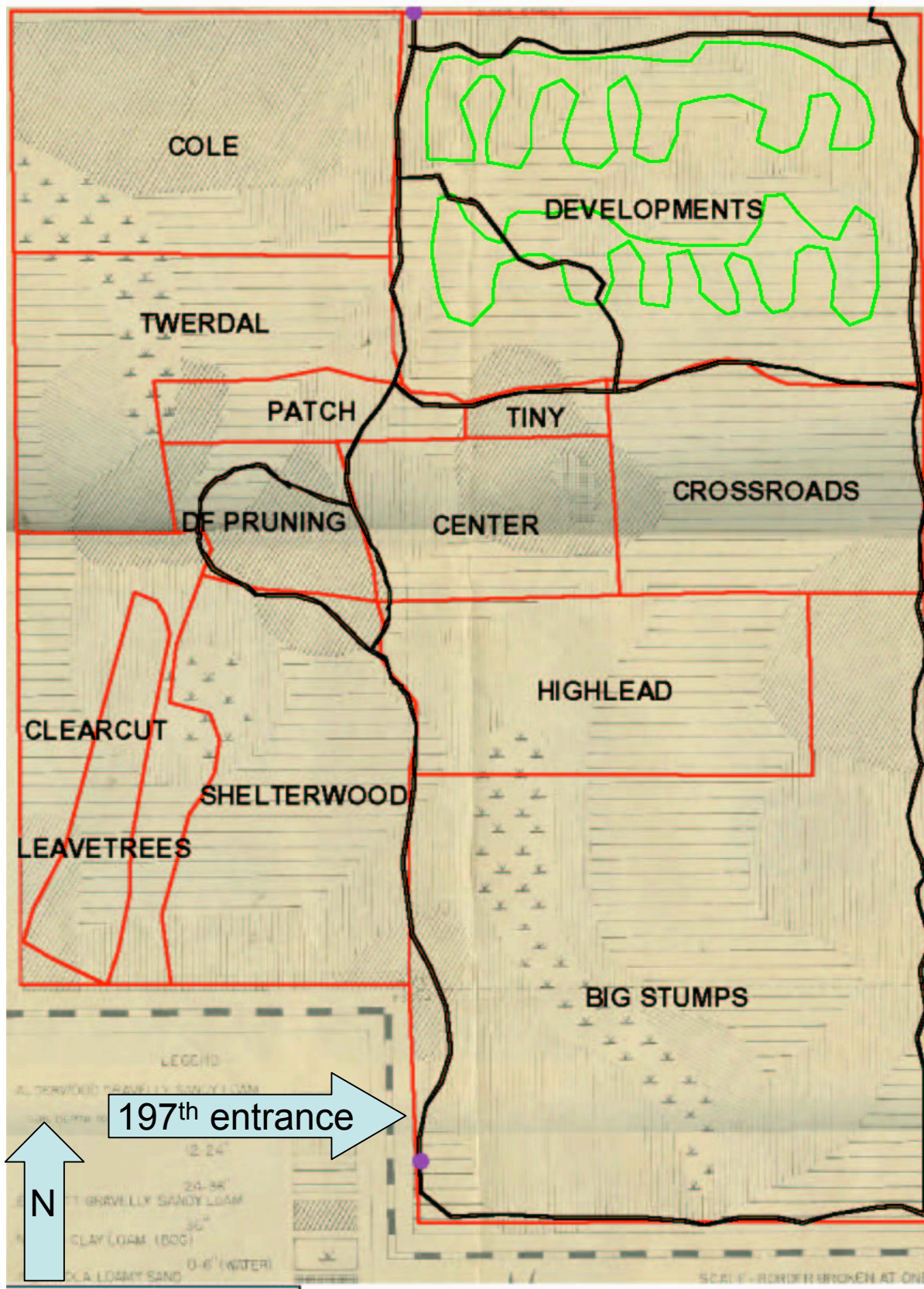
L E G E N D	
Alderwood gravelly sandy loam	Norma loam
 2-8 percent slopes	 0-2 percent slopes
 8-15 percent slopes	McKenna gravelly silt loam
 Alderwood inclusion	 0-8 percent slopes

- For specific information on these soils visit the following website

<http://ortho.ftw.nrcs.usda.gov/cgi-bin/osd/osdhome.cgi>



# Lee Forest Stand & Trail Map



# Lee Forest – Stand Information

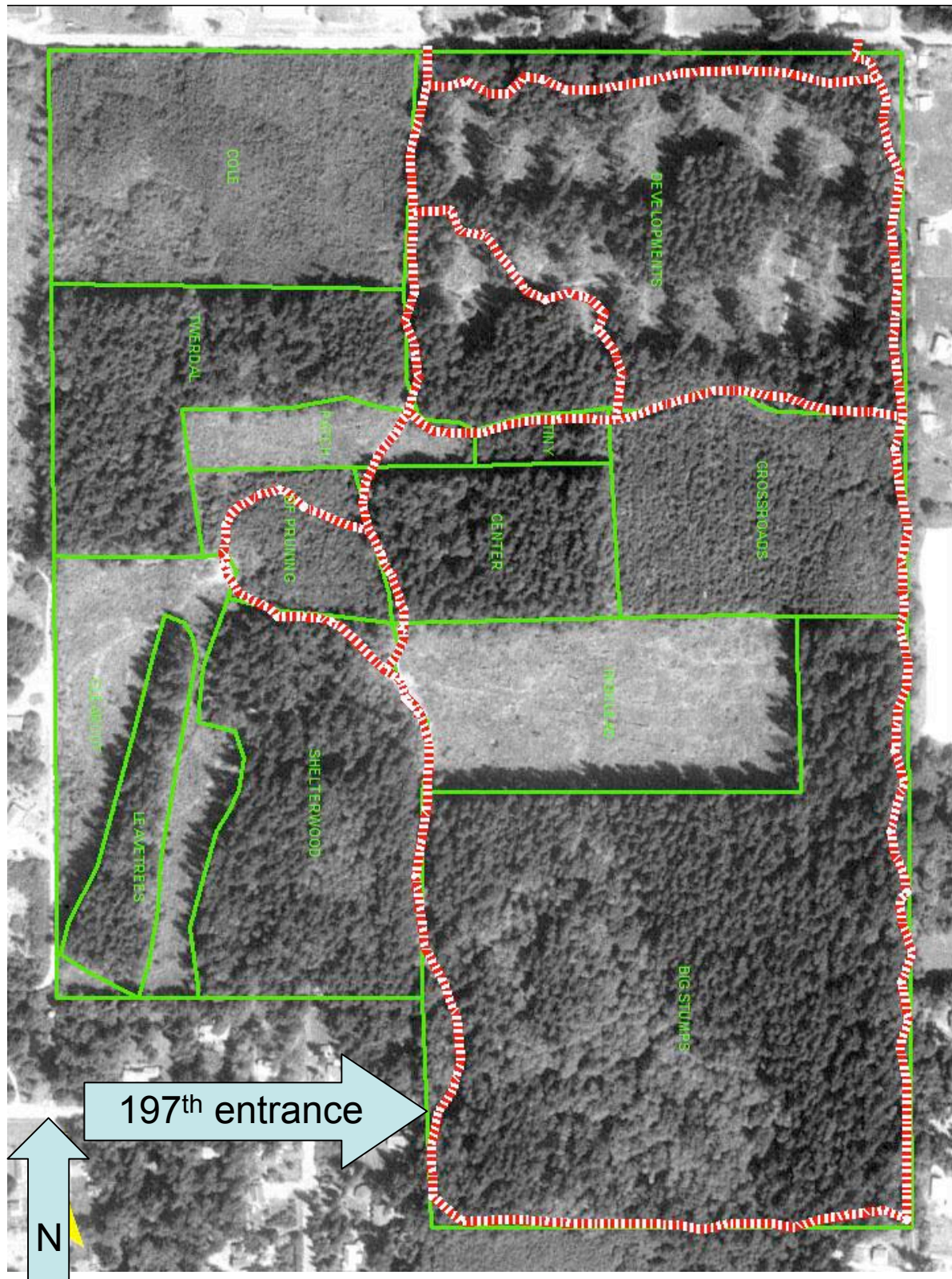
<u>STAND_NAME</u>	<u>SPECIES</u>	<u>ACRES</u>	<u>ESTABLISHED</u>	<u>AGE</u>
COLE	RED ALDER	14.91	1979	24
DEVELOPMENTS	DOUGLAS-FIR	31.11	1987	16
TWERDAL	DOUGLAS-FIR	11.14	1906	97
CLEARCUT	DOUGLAS-FIR	8.48	1987	16
DF PRUNING	MIXED DOUGLAS-FIR	4.12	1987	16
PATCH	DOUGLAS-FIR	2.95	1987	16
TINY	DOUGLAS-FIR	1.12	1976	27
CENTER	DOUGLAS-FIR	6.59	1906	97
CROSSROADS	DOUGLAS-FIR	10.73	1976	27
HIGHLEAD	MIXED DOUGLAS-FIR	11.75	1987	16
BIG STUMPS	DOUGLAS-FIR	40.42	1906	97
SHELTERWOOD	DOUGLAS-FIR	13.88	1976	27
LEAVETREES	DOUGLAS-FIR	3.73	1906	97

## Notes:

- Age in last column as of 2003
- Age indicated for Shelterwood is for the understory stand, the residual overstory stand has the same date of origin and age as the Big Stumps stand



# 1985 Lee Forest Stand/Trails Map



## **A. Original Second Growth Remnants**

- About 62 acres in 4 stands (1906 origin)
  - Big Stumps (40.42 ac)
    - Has 3 permanent plots
  - Twerdal (11.14 ac)
  - Center (6.59 ac)
  - Leave Trees (3.73ac)
    - A narrow strip left as a sound barrier experiment
- Most likely had a large hardwood component that has been replaced by conifers
- Note a few declining alder trees & snags

## B. Shelterwood

- 13.9 acres “shelterwood” harvest
- Part of a 1976 demonstration to compare
  - shelterwood/natural regeneration vs
  - clearcut/replanting approaches
- Has 3 permanent plots
- Shelterwood removed part of the original 1906 second growth when it was about 70 years old
  - Residual trees provide seeding of new stand (small trees in understory originated after the 1976 cut)
  - Residual trees from 1906 continued to grow and are now same age as the overstory in Big Stumps, Twerdal, Center & Leave Trees
- Now have a 2 age, 2 story stand

## C. Clearcut & replanted

- 10.7 acre clearcut (Crossroads stand)
  - replanted Douglas fir & western hemlock on 8 foot spacing; alternate 4 rows of each species
  - Has 3 permanent plots
- 1.1 ac fragment (Tiny stand); probably cut to provide access to road
- Part of a 1976 demonstration to compare
  - shelterwood/natural regeneration vs
  - clearcut/replanting approaches
- Note invasion by other species

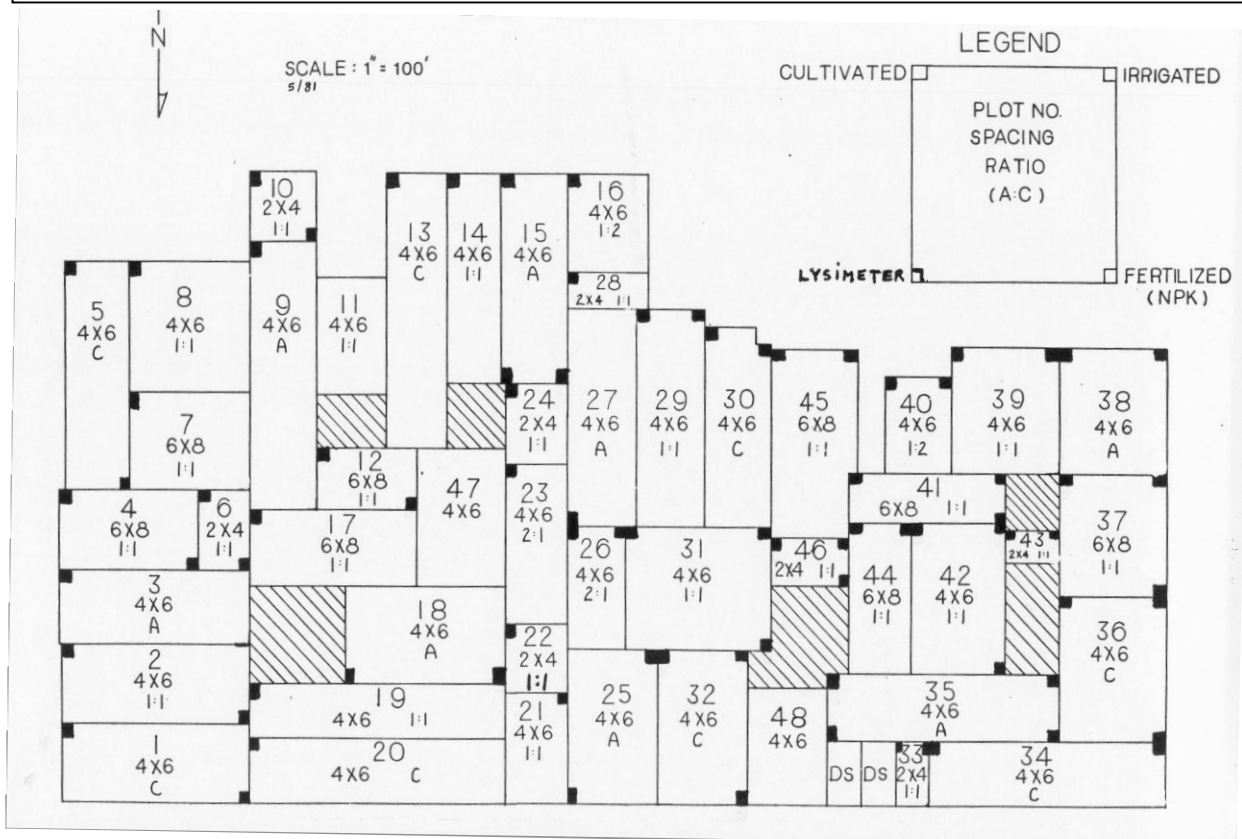


## **D. Clearcut & natural regeneration**

- 11.75 acre Highlead stand
  - Has 3 permanent plots
- 4.12 acre DF Pruning
- 2.95 acre Patch
- A 1987 demonstration of size of clearcut opening on subsequent natural regeneration and growth of trees and understory vegetation
  - Mostly covered with hardwood species

## E. Bioenergy study

- 1979 US Dept. of Energy, City of Seattle Lighting Dept., UW-CFR → bioenergy study
  - Clearcut 14.9 ac. → Cole stand on map
  - Plots planted at 2x4, 4x6, & 6x8 spacing in following mixtures
    - Pure red alder
    - Pure cottonwood
    - 50/50 red alder & cottonwood
    - 1/3 red alder & 2/3 cottonwood
  - Cultivation, irrigation & fertilization treatments were performed



## F. Suburban development study

- Cuttings in 1987 to study the effect of development activities on
    - Tree vigor
    - Noise & sight screening functions of forests
    - Alteration of stand structure through changes in species composition & dominance, especially in the understory
    - Windthrow
    - Examine tree clearing, bole damage, root damage, grade modification, vegetation buffer strips
    - Surrounding large trees are 1906 origin
- 
1. Buffer strips (the 8.8 ac Clearcut and 3.7 ac Leavetree stands)
    - 2 wedge-shaped strips 1000 ft long, 10-20 ft wide at one end & 100 ft long at the other end
    - Strips run in opposite direction so thick end of one matches thin end of the other
  2. Road simulation:
    - Three 50 ft wide cleared strips
    - Simulated road clearings

### 3. 31.1 Ac. Developments Stand

- Has 45 ft forested buffer at N & S of study area
- Simulation of residential housing
  - 4 treatments in sub-plots on a 4 ac. (6 replicates ~ 24 ac)
    - a. Unlogged (control)
    - b. Tree removal only
    - c. Tree & stump removal
    - d. Tree & stump removal plus grade modification (soil above & below pre-existing grade)
- In treatments 2, 3, & 4,
  - remove trees from front- central part of the sub-plot leaving 30 ft forested buffers on sides & 40 ft buffer on back of the “lot”
  - Leave 1 large tree at front of each cleared section to study bole & root damage, altered grade, etc.

