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INFLUENCES OF ECOLOGICAL PARAMETERS ON HERPETOFAUNAL ASSEMBLAGES IN NORTHERN MINNESOTA, WITH AN ASSESSMENT OF SAMPLING METHODOLOGIES

By

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ABSTRACT

INFLUENCES OF ECOLOGICAL PARAMETERS ON HERPETOFAUNAL ASSEMBLAGES IN NORTHERN MINNESOTA, WITH AN ASSESSMENT OF SAMPLING METHODOLOGIES

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Incorporating herpetofauna into ecosystem management on a landscape scale is becoming increasingly important to land managers. In a coarse-filter approach, an ecosystem diversity matrix (EDM) divides a landscape into habitat type classes on one axis of the matrix and vegetation growth stages on the other axis. Where these two axes of the matrix intersect is called an ecological land unit, or ELU.

ELUs in northern Minnesota were evaluated for herpetofaunal species and vegetation attributes. Herpetofaunal species numbers, richness and diversity did not vary statistically among ELUs and when they did vary, it was not in any discernible pattern on the EDM. This suggests that herps do not successfully differentiate ELUs within the EDM in northern Minnesota.

Spearman rank correlations and Kruskal-Wallis tests found that the most important vegetation attributes for herps were vegetation stem densities, coarse woody debris presence and size, and litter and slash understory cover. These vegetation attributes could possibly be incorporated into BCC's timber harvesting practices by leaving more coarse woody debris, litter and slash on the ground after harvest. In evaluating herpetofaunal sampling methods, the most effective and efficient method of capture for herps was the drift fences with pitfall and funnel traps.

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INTRODUCTION

Importance of studying herptiles

Herptiles are an important, yet frequently overlooked, taxonomic group to examine in ecological studies. They often play an essential role in forested natural communities. Salamanders, for example, have a significant role in nutrient cycling by regulating invertebrate populations that help break down the leaf litter (Burton and Likens 1975a). They are also substantial sources of energy for predators because their tissue is higher in protein than that of birds or mammals (Burton and Likens 1975a). They can be an abundant portion of vertebrate biomass in a forest as well. In a New Hampshire forest, there were more salamanders than birds or mammals (Burton and Likens 1975b). Despite these important roles, herps are generally poorly studied vertebrates.

There has been a recent shift towards examining herps in more depth in ecological studies partly due to concern about the decline of amphibian populations (Wyman 1990, Johnson 1992, Blaustein et al. 1994, Blaustein and Wake 1995). Possible reasons for this decline range from habitat fragmentation to chemical pollutants to the depletion of the ozone layer. Whether this decline is significantly different from that of other taxonomic groups in the general biodiversity crisis has not been agreed upon, but most scientists concede that there are fewer amphibians and species of amphibians than there have been historically (Wyman, 1990, Johnson 1992, Blaustein et al. 1994, Pechmann and Wilbur 1994, Blaustein 1994, Blaustein and Wake 1995). This decline makes the herpetofauna an even more interesting and important group to study. With more basic ecology studies on herps, we can add to the small existing knowledge base, which may eventually help find an answer to their decline.

Herpetofaunal habitat associations

One important aspect of herpetofaunal biology that is beginning to be studied more is habitat associations. It has been shown that herpetofaunal species distribution, abundance, and diversity may vary according to different habitats (Jones 1988, Karns 1988, Degraaf and Rudis 1990) and habitat structure (Pais et al. 1988, Raphael 1988, Welsh and Lind 1988) within the same geographical region. These attributes of the herpetofauna may depend upon such characteristics of the habitat as biomass of nonwoody vegetation (Pais et al. 1988), presence of coarse woody debris (Aubry et al. 1988, Bury and Corn 1988, Whiles and Grubaugh 1996), amount of leaf litter (Petranka et al. 1993), overstory and understory vegetation species composition, canopy cover (Ash 1988, Karns 1988), and pH (Wyman and Hawksley-Lescault 1987, Karns 1992) and moisture (Welsh and Lind 1988, Dupuis et al. 1995) of the soil. Coarse woody debris is important to herps for reproduction, feeding, thermoregulation, protection from dessication, and as refugia from predators (Whiles and Grubaugh 1996). Other types of cover, such as the bases of ferns, moss, and bark are also used by herptiles (Dupuis et al. 1995). Amphibian populations and their ability to breed may be affected by pH (Degraaf and Rudis 1990, Karns 1992) and moisture (Dupuis et al. 1995) of soil and surrounding water due to their need for water to reproduce. Karns (1988) commented that forest structural complexity is perhaps one of the most important factors in determining herpetofaunal species richness, diversity and abundance.

When studying individual species, different habitat characteristics may have varying degrees of importance. One study in Kentucky, for example, found that American toads were associated with dense herbaceous cover in forest clearings (Pais et al. 1988). Another study found that 30% of individuals of *Plethodon vehiculum*, a terrestrial salamander species, were associated with logs (Dupuis et al. 1995). Specific species requirements may vary somewhat, but for herptiles, it is easier to generalize requirements and habitats between amphibians and reptiles. Reptiles, for example, often favor clearcut plots over forested plots due to the increase in temperature in the clearcuts from the absence of canopy cover (Bury and Corn 1988; Phelps and Lancia 1995). This would generally not be true for most amphibians due to their need for constant moisture. Knowledge of these kinds of specific species requirements, and general taxonomic requirements, can have important implications, such as in ecosystem management.

The focus of forest management has historically been towards large species and game animals, while reptiles, amphibians, and small mammals have been neglected (Bury et al. 1980). With recent concerns about habitat fragmentation and the loss of biodiversity, land managers are attempting to adjust some of their ecosystem management practices according to requirements of these lower profile species. This study is an investigation into herpetofaunal habitat associations and is being done as part of an ecosystem management study in northern Minnesota by Boise Cascade Corporation (BCC). Unfortunately, there is a lack of literature on including herps in large-scale ecological classification systems. This ecosystem management effort is attempting to characterize a landscape as a coarse filter for ecological communities. The coarse filter approach involves investigating communities in different vegetation growth stages and habitat type classes in a region (Haufler et al. 1996). Documenting distributions and abundances of herpetofauna using this coarse filter approach will allow data about these species to be incorporated in landscape planning efforts.

Much of the forested lands of Minnesota have been harvested for timber use for more than a century by the state, counties, and private owners (Frelich 1995). This has created a large land area with different aged, although generally young, forests (Frelich 1995). BCC owns 125,455 hectares of land in northern Minnesota, covering many habitat type classes and growth stages, making this area an important one for the study of herpetofaunal habitat associations.

Herpetofaunal sampling methods

Amphibians and reptiles are difficult organisms to study due to their secretive habits, making another reason relatively little research has been conducted on them. Amphibians often come to the surface of leaf litter only when they are preparing to overwinter in the fall, in the spring during breeding season, or to forage for invertebrates in the rain, and often at night. Because amphibians and reptiles are ectothermic, they are completely inactive during the winter. Since herps are difficult to study in their natural habitats, more work needs to be done on evaluating sampling methods for studying them. Effectiveness of search methods often depends on habitat and environmental factors, such as time of day, amount of rainfall, temperature, and acidity of the soil (Karns 1986).

Some sampling methods that have been used successfully in other studies include drift fence arrays with pitfall traps, which were successful in sampling amphibians, but not reptiles in Douglas-fir forests in the western United States (Bury and Corn 1988).

Other studies have found that the pitfall arrays are most efficient during periods of precipitation or soon thereafter (Vogt and Hine 1982). In fact, drift fences with pitfall traps seem to be the most efficient sampling technique for herps, although they also insert certain biases into the study, such as those due to morphology, behavior, and ecology of the organisms (Gibbons and Semlitsch 1981). Time-constrained or plot searches are other techniques that have been employed in studies, but they generally do not provide enough animals to complete quantitative analyses (Bury and Corn 1988). These types of searches may still be necessary to determine more specific microhabitat associations (Vogt and Hine 1982) or for temporal studies (Gibbons and Semlitsch 1981) and to attempt to avoid the biases of using only pitfall trap arrays. Therefore, the survey of all herps in an area, depending on the questions being asked, requires more than one survey technique (Corn and Bury 1990). An additional goal of this study is to examine the relative success of different sampling methods for amphibians and reptiles in northern Minnesota.

OBJECTIVES

The objectives of this research are the following:

1) To determine herpetofaunal species distribution and their relative abundance in different ecological land units as described by habitat type classes and growth stages in northern Minnesota.

2) To determine herpetofaunal species richness and diversity in different ecological units as described by habitat type classes and growth stages in northern Minnesota.

3) To compare herpetofaunal species abundance, distribution, diversity and richness with various stand characteristics such as soil pH, understory vegetation cover, and overstory canopy closure.

4) To compare 3 sampling methods: area-constrained searches, time-constrained searches, and drift fences with pitfall traps in surveying the herpetofauna in northern Minnesota.

5) To provide recommendations to Boise Cascade Corporation on how to continue to monitor the herpetofauna on their lands.

METHODS

Study Site Description

This study, an extension of the cooperative ecosystem management project of Boise Cascade Corporation (BCC) and Michigan State University (MSU), was conducted in 1996 and 1997 in and around Koochiching County, Minnesota (Figure 1). International Falls, Minnesota, in Koochiching County, is found at a latitude of 48° 33' 59" N and longitude of 93° 24' 11" W, which is an area with extremely cold winters with much snowfall. The normal daily maximum temperature from October through March varies monthly from 51.8°F in October to 32.8, 16.6, 11.9, 19.3, and 32.8°F in March. The highest normal daily maximum temperature in the summer is 78.8°F in July. Normal snowfall from October through March is 1.9 inches in October to 11.2, 12.8, 13.4, 8.9, and 9.3 inches in March (National Oceanic and Atmospheric Administration 1998).

Eight different types of sites were tentatively identified using an incomplete Ecosystem Diversity Matrix (EDM) in the 1996 field season. An EDM is a matrix with 2 axes, one for habitat type classes, and one for vegetation growth stages (Haufler et al. 1996). Each element, or cell within the matrix is called an ecological land unit (ELU), and these ELUs characterize the northern Minnesota vegetation. Most of the ELU sites were on land owned by BCC, although some were also on state and county lands.

During the 1996 field season, sites were chosen according to soil type, overstory vegetation, understory vegetation, and in the cases of the wet sites, ground vegetation, from BCC protocol (Table 1). This initial site selection was done using gross vegetation characteristics which eventually helped BCC define their full EDM, completed in the spring of 1998. Once the EDM was completed, these sites were fit into the habitat type classes and vegetation growth stages stated within it. Due to the iterative method with which the ELUs were ultimately classified, the resulting number of ELUs sampled does not represent the entire matrix, and there was not equal replication within the ELUs that were sampled. There were from 1 to 4 sites within each ELU, and a total of 12 ELUs sampled. Each ELU was designated by vegetation growth stage and habitat type, described by overstory vegetation, soil moisture and soil nutrients (Table 2, Appendix A Table 1).

Herpetofaunal sampling methods

Multiple sampling methods are most effective for studies of herpetofaunal species diversity (Corn and Bury 1990, Mitchell et al. 1993). Drift fences and pitfall traps have been shown to be effective means of capturing the herpetofauna in various habitat type classes and different aged stands (Gibbons and Bennett 1974, Gibbons and Semlitsch 1981, Enge and Marion 1986, Corn and Bury 1990, Mitchell et al. 1993), although they alone are not sufficient to determine species diversity (Corn and Bury 1990). Therefore, this study used a combination of drift fences with pitfall and funnel traps and time-constrained and area-constrained searches for the herpetofaunal survey in 1997. In addition to these trapping and search methods, incidental observations of herpetofauna were also recorded, although these animals were not marked (see below).

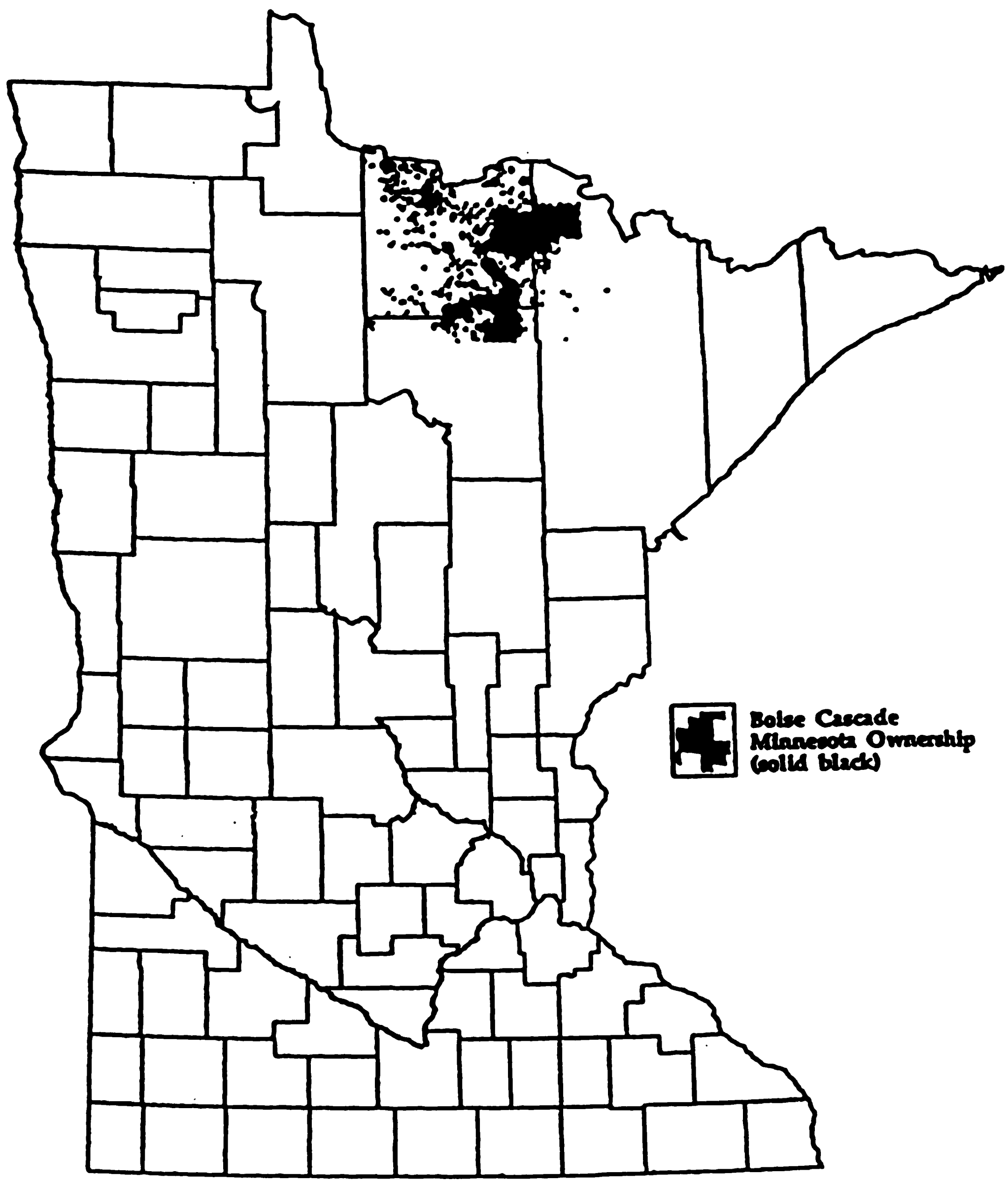

Figure 1. Map of Minnesota with Boise Cascade Corporation lands highlighted.

Table 1. Initial ecological sampling unit selection criteria for Boise Cascade Corporation's Ecosystem Diversity Matrix, 1996[a].

	Early Successional	Late Successional
Dry	>2ft. sandy soil aspen overstory balsam fir understory	>2ft. sandy soil aspen and balsam fir overstory balsam fir understory
Mesic	clayey-loam over clay soil aspen overstory balsam fir understory	clayey-loam over clay soil aspen and balsam fir overstory balsam fir understory
Shallow Wet	6-8" and no more than 2' organic soil black ash, balm of gilead, aspen overstory white cedar understory sedges, herbs, ferns ground cover	6-8" and no more than 2' organic soil white cedar overstory white cedar understory sedges, herbs, ferns ground cover
Deep Wet	>36" organic peat soil tamarack overstory tamarack, black spruce understory moss ground cover	>36" organic peat soil black spruce overstory black spruce understory moss ground cover

[a]Scientific names of above species:

Aspen	*Populus* spp.
Balm-of-Gilead	*Populus balsamifera*
Balsam Fir	*Abies balsamea*
Black Ash	*Fraxinus nigra*
Black Spruce	*Picea mariana*
Tamarack	*Larix laricina*
White cedar	*Thuja occidentalis*

Table 2. Ecosystem Diversity Matrix (EDM) for northern Minnesota Boise Cascade lands with BCC's terminology on the axes, and within the matrix, a simplified version used throughout this paper. Numbers within the matrix indicate number of replications of that ELU. See Appendix A Table 1 for key to EDM.

	XMAbPi pb	XMAbAr pb	XMAbAr pr	MAbAr ar	MAbFn pt	HMFn pb	HMAbFnTh pt	HMAbFnTh to
GFS								
SSE l								
SSE m								
SSE h								
SAP INT l								
SAP INT m								
SAP INT h								
SMT INT l								
SMT INT m					MM(m) - 4			
SMT INT h				MM(p) - 1		MW(m) - 2		
MET INT m								
MET INT h								
LAT INT l								
LAT INT m								
LAT INT h								
SAP TOL l								
SAP TOL m								
SAP TOL h						EW(m) - 2		
SMT TOL l			ED(p) - 1	EM(p) - 4				
SMT TOL m					LM(m) - 4			
SMT TOL h						LW(m) - 2	LW(pm) - 4	

Table 2. (Cont).

	HMAbTh to HMAbTh bp	HAbTh ll	HAbTh pm	HPm pm
GFS				
SSE l				
SSE m				
SSE h				
SAP INT l				
SAP INT m				
SAP INT h				
SMT INT l				
SMT INT m				
SMT INT h			MW(p) - 2	
MET INT m				
MET INT h				
LAT INT l				
LAT INT m				
LAT INT h				
SAP TOL l				
SAP TOL m				
SAP TOL h				
SMT TOL l				
SMT TOL m			LW(p) - 2	LW(vp) - 4
SMT TOL h				
MET TOL l				
MET TOL m				
MET TOL h				
LAT TOL l				
LAT TOL m				
LAT TOL h				

Table 2. (Cont.).

	XMAbPi pb	XMAbAr pb	XMAbAr pr	MAbAr ar	MAbFn pt	HMFn pb	HMAbFnTh pt	HMAbFnTh to
MET TOL l								
MET TOL m								
MET TOL h								
LAT TOL l								
LAT TOL m								
LAT TOL h								

Drift fences with pitfall and funnel traps

One array of drift fences with pitfall and funnel traps was installed 50 m from an edge into each site. The drift fence arrays were constructed of 50 cm wide aluminum flashing, partially buried in the ground, so that approximately 30 cm of the aluminum was above the ground. The arrays consisted of 3 arms of aluminum sheeting 7.0 m long, radiating out approximately 120 degrees from each other. Pitfall traps were constructed of 2 number 10 cans, 1 with both ends opened, and 1 with only 1 end opened, attached together with silicone sealant to prevent leakage (Karns 1986), and duct tape. These were then set in the ground so that the open top was flush with the surface of the ground. Each of the traps had a rock placed in it to secure the trap and allow a place of refuge when the traps filled with water. This rock was intended to not be large enough to enable escape from the trap. A pitfall trap was placed at both ends of each of the arms of the drift fences, with a raised plywood cover over the top of the trap to protect the animals from weather extremes and to slow the accumulation of rain water (Figure 2).

Funnel traps were constructed of a piece of window screen rolled into a cylinder, and two other pieces of window screen rolled into cones and placed inside each end of the cylinder. The cylinder was 25 cm in diameter and 76 cm long, as suggested by Heyer et al.(1994). One funnel trap was placed between pitfall traps along each of the drift fences and was shaded with either leaf litter or moss (Figure 2).

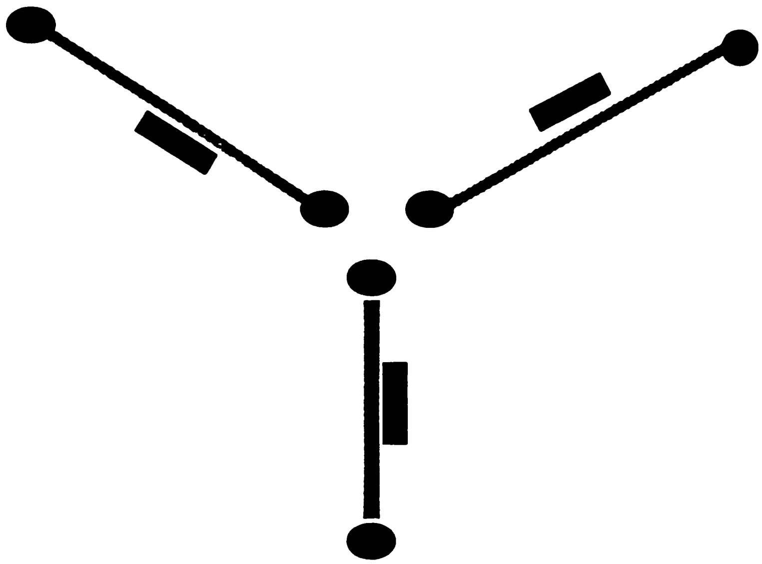

Figure 2. Diagram of drift fence array used in northern Minnesota, 1997. Lines are drift fences, rectangles are funnel traps, and circles are pitfall traps.

Every trap was opened for 5 consecutive nights during each month of the field season and was checked daily. Due to time constraints and distance between sites, only traps on half of the sites were open at one time, which resulted in 2 sets of 5 consecutive trapping nights per month. These 2 trapping sets were right after each other, resulting in 5 days of trapping, one day off, and 5 more days of trapping. The operable periods for the traps were: May 26 - June 6, June 23 - July 4, and July 21 - August 1, 1997. The animals found in the traps were marked by toe-clipping and released to determine recaptures. They were marked only to determine whether they had been caught previously, and not for individual recognition. All trapping and handling procedures were approved by the Michigan State University All University Committee on Animal Use and Care (approval #06/96-066-00).

Time and area-constrained searches

In addition to trapping, every site was surveyed using time-constrained and area-constrained searches for herpetofauna. For the area-constrained searches, the minimum amount of quadrats searched was 1 quadrat for approximately every 12.14 hectares (30 acres) of a site, searched once during the field season, e.g. a 24.28 hectare (60 acre) site had 2 quadrats searched (Table 3). The quadrats were 5 m by 20 m, and 50 m apart. Area-constrained searching included thoroughly searching the quadrat for herptiles, such as looking under all leaf litter, around tree stumps, under any woody debris, or anywhere else a herptile may be found within the quadrats. The searcher(s) started at one corner of a quadrat, and walked horizontal transects back and forth, sweeping the quadrat until reaching the opposite corner, or reaching the other searcher who would have started at the opposite corner. Searching was done within 48 hours after rainfall, since herps often emerge to forage after precipitation (Karns 1986). During these searches the herps encountered were also toe-clipped for recognition.

Time-constrained searching included searching for herptiles in a site for a total of 1 continuous person-hour. These searches occurred over the course of the field season. There was no designated area for searching; only time was standardized. Observers looked only in areas where they thought herps might be found, but not as closely or intensively as with the area-constrained searches. Examples of areas where herps might be found were under coarse woody debris, under litter and around stumps. Time-constrained searching was also completed within 48 hours after rainfall, and the animals were toe-clipped for recognition.

Vegetation sampling

Vegetation data were used for analyses for this study to help identify site attributes related to herpetofaunal presence or absence, species richness, or diversity. Field methods for the vegetation sampling followed the protocol developed by BCC and MSU, which was established and used in the 1996 and 1997 field seasons (Campa et al. 1996 and 1997). When necessary, protocol was altered between the 2 field seasons, but the methods remained comparable. Three rectangular macro vegetation plots per site, 14 x 21 m in size were established and divided into a grid of 6 square micro plots, 7 x 7 m (Figure 3). The first plot in a site was 50 m from the edge, the second 100 m from the first, and the third 100 m from the second.

Canopy closure was estimated using moosehorns at the NE, NW, SE, and SW corners, and the north central point in the plot. Cover was recorded as being a "hit" if canopy cover appeared through the moosehorn either at 4.88 m or at all. A GPS reading

Table 3. Number of acres of sites and number of quadrats that were searched for herps in those sites in northern Minnesota in 1997.

ELU	Unit No.	# Acres	# Quadrats searched	ELU	Unit No.	# Acres	# Quadrats searched
ED(p)	23	54	6	LM(m)	13	38	2
				LM(m)	34	47	2
EM(p)	3	21	1	LM(m)	39	111	4
EM(p)	4	70	2	LM(m)	40	76	3
EM(p)	22	16	2				
EM(p)	24	64	3	LW(vp)	28	33	2
				LW(vp)	30	113	4
EW(m)	19	32	2	LW(vp)	31	27	1
EW(m)	20	28	1	LW(vp)	32	37	3
MM(p)	21	49	2	LW(p)	6	130	4
				LW(p)	8	92	3
MM(m)	9	19	2				
MM(m)	11	168	6	LW(pm)	45	58	2
MM(m)	16	109	4	LW(pm)	46	82	3
MM(m)	38	124	4	LW(pm)	47	28	1
				LW(pm)	48	10	1
MW(p)	5	30	2				
MW(p)	7	222	8	LW(m)	17	67	2
				LW(m)	18	23	1
MW(m)	1	25	1				
MW(m)	2	55	2				

was also taken at the north central point. We recorded dbh and species (see Appendix A Table 2 for species codes used for all small trees, large trees, snags and stumps) of small trees (<10.3 cm dbh) in 12.25 m^2 quarter-circle plots within each corner of the macro plot. From the NW to the NE corners; from the SE corner, going north 14 m; and from the SW corner going north 14 m we recorded understory cover and coarse woody debris along transects at 0.6 m intervals in the 1996 field season. In 1997 this was altered so the coarse woody debris was measured along the east and west transects of the macro plot, and the percent understory cover was measured at each corner of the macro plot and every 7 m around the perimeter, making a total of 10 points measured. Percent understory cover was estimated by recording the interception of cover classes within each of 6 strata delineated every 0.98 m on two, 2.44 m poles joined together. The different cover classes of the understory cover were defined as litter (L), grass (G), forb (F), shrub (S), live stem (T), rock (R), mineral soil (O), moss (M), slash (H), or coarse woody debris (>10.3 cm diameter) (C). For coarse woody debris, we recorded transect number, position of reading along the transect, total length of the debris, diameter at the large end of the debris, and decay class (Table 4). Species, dbh, and height of large trees ≥10.3 cm dbh were also recorded in each macro plot. Every snag with ≥10.3 cm diameter and 1.8 m tall or greater, and every stump 10.3 cm or greater in diameter and less than 1.8 m in height were recorded in each macro plot. For each snag, species, diameter, height, and decay class were recorded (Table 5). For each stump, species, diameter, height, and age class were recorded (Table 6). Moisture and pH were measured using a Kelway soil pH and moisture meter, at the north central point in each macro plot.

Data Analysis

By ELU

The herpetofaunal data were examined in 3 ways: as species presence/absence, total number of individuals recorded, and the Shannon-Weaver diversity index (Shannon and Weaver 1949). The Shannon-Weaver diversity index and total number of individuals recorded were corrected both for the number of plots searched per ELU and the number of sites within an ELU. Vegetation data were tested for normality within each ELU using the Shapiro-Wilk (W) statistic within the univariate procedure in the SAS/STAT program version 6.1 (SAS Institute Inc., Cary, NC), and for equal variances among ELUs using the modified Levene's test (Neter et al. 1996). Spearman rank-order correlation coefficients (Siegel and Castellan, Jr. 1988) were calculated between the number of herps caught, the Shannon-Weaver diversity index value and the mean values of each of the vegetation attributes (e.g. mean large tree dbh, height and stem density).

For correlation analyses involving large trees and small trees the following vegetation variables were used: mean dbh, mean height, and stem density, measured as stems per vegetation plot. The formula used to determine stem density was the total number of stems measured in an ELU divided by the number of vegetation plots measured in that ELU. To convert stems per plot to stems per hectare, the following formulas can be used: for large trees, snags and stumps, divide the stems per plot value by 0.029 ha (size of the macro vegetation plot) to obtain stems per hectare; for small trees, divide the stems per plot value by 0.004 ha (size of 4 corner plots) to obtain stems per hectare. Correlations were calculated using the overall ELU mean value of each

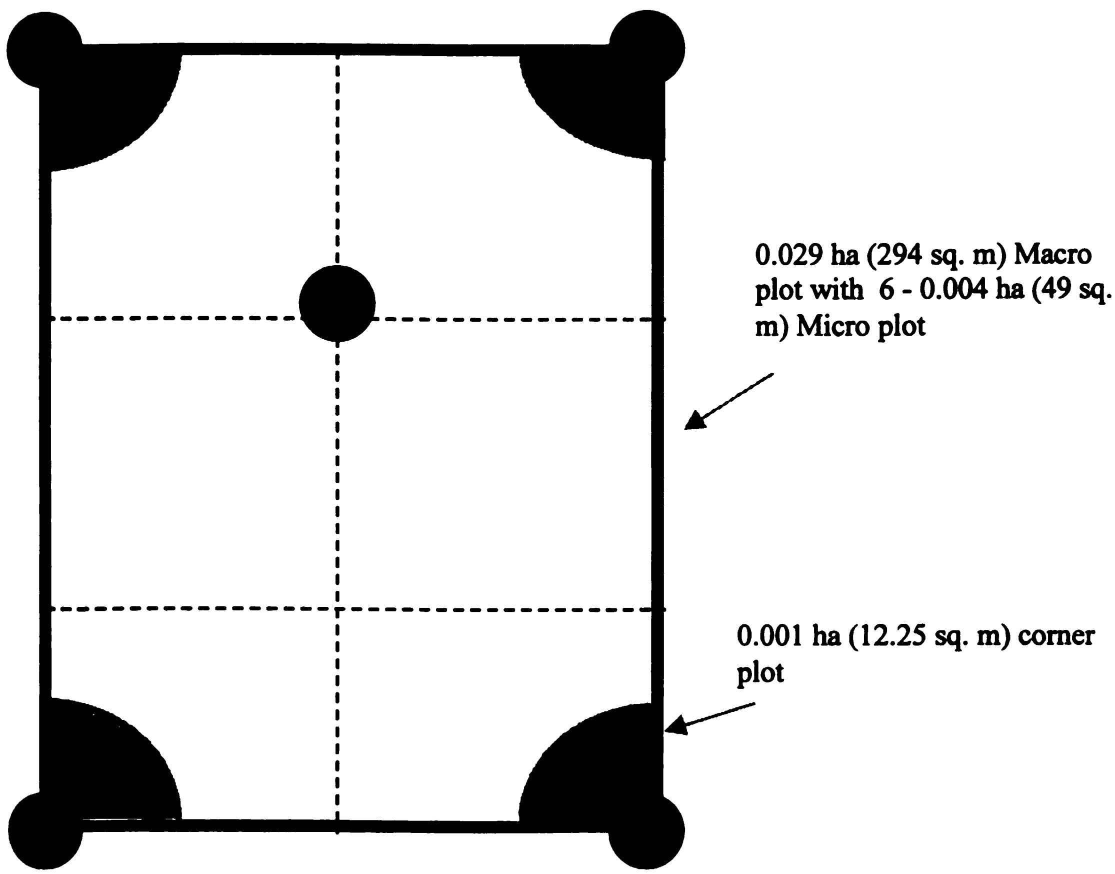

Figure 3. Diagram of vegetation plot used to sample vegetation in sites.

Table 4. Coarse woody debris decay classes used for vegetation sampling of sites.

Decay Class	Bark	Twigs >3cm in length	Texture	Shape	Color of Wood[a]	Portion of log on ground
1	intact	present	intact	round	original color	log elev. on support points
2	intact	absent	intact to partly soft	round	original color	log sagging slightly
3	trace	absent	hard, large pieces	round	original to faded	log sags near ground
4	absent	absent	small, soft blocky pieces	round to oval	light brn to faded brn or yellow	all of log on ground
5	absent	absent	soft and powdery	oval	faded to lt. yellow or gray	all of log on ground

[a]Abbreviations: brn = brown, lt = light

Table 5. Snag decay classes used for vegetation sampling of sites. If snags were burned more than 50%, letter B was added to the end of the snag decay class.

Decay Class	Bark	Heartwood Decay	Sapwood Decay	Limbs	Top Breakage	Bole Form
1	tight, intact	none to minor	none to initial	mostly present	may be present	intact
2	50% loose or missing	none to advanced	none to initial	small limbs missing	may be present	intact
3	>75% missing	incipient to advanced	none to 25%	few remaining	usually 1/3	mostly intact
4	>75% missing	incipient to advanced	25%-50%	few remaining	usually 1/3-1/2	starting to lose form
5	>75% missing	advanced to crumbly	>50% advanced	absent	usually 1/2+	form mostly lost

Table 6. Stump age classes used for vegetation sampling of sites. If stumps were burned more than 50%, the letter B was added to the end of the stump age class.

Stump Age Class	Description
1	Recent, 0-25 years, solid, bark still intact.
2	Old, 25-50 years, generally bark is loose, stump soft.
3	Very old, >50 years, no bark, sometimes very hard, sometimes bark exists, but no center wood.

vegetation attribute measured and the mean value by ELU and species (Appendix B Tables 1-53). All vegetation mean values are corrected for both number of replicates of an ELU and for the number of vegetation plots measured within each ELU.

The variables used for correlation analyses involving snags and stumps included mean diameter, mean height, stem density, and area. Area was determined to be the overall horizontal area of all snags or stumps measured in an ELU. This was calculated by the area of a circle formula: $\pi*\text{radius}^2$, which when applied to the data was: $\pi*(\text{dbh}/2 * \text{dbh}/2)$ for individual dbh measurements in an ELU. This was then corrected for the number of replicates of an ELU and number of vegetation plots, then summed by ELU to get the overall area value by ELU. Correlations with the variables for snags and stumps used the overall value for each ELU, ELU value by species, ELU value by decay class, and ELU value by species and decay class (Appendix B Tables 9-32).

Coarse woody debris (CWD) variables used were diameter, length, and density, by overall ELU values, and ELU values by decay class (Appendix B Tables 33-37). Density of CWD in logs/ha was determined by the formula: $X = 10^5 * \pi/2L * \Sigma(1/l_i)$, where 10^5 is the number of meters^2 in a hectare, L = length of transect, and l_i = length of CWD (deVries 1986). Understory cover data were summarized by calculating the mean number of times a variable, such as grass (G), was found in each stratum level.

Correlation analyses used ELU mean values (Appendix B Tables 38-49). Canopy data were summarized by calculating the mean number of times there was found to be cover either above 4.88 m, or at all, by ELU (Appendix B Tables 50-51). Soil correlations were completed on the ELU mean soil pH and moisture values (Appendix B Tables 50-53). Overall stem density was calculated using the total number of large trees, small trees, snags and stumps per plot by ELU.

A principal components analysis (PCA) (Neter et al. 1996) was done to test for vegetation similarities among ELUs. Pairwise plots of the first 3 principal components were constructed to determine whether the ELUs fell together when graphed using the PCA as predicted by the EDM.

For each herp species, sites were divided into those that had a species and those that did not have that species. A Kruskal-Wallis test (Siegel and Castellan, Jr. 1988) was then used to test for vegetation differences between these ELUs for each herp species. The Kruskal-Wallis test was also used to compare differences in numbers of individuals of herps or Shannon-Weaver values between certain habitat type classes or vegetation growth stages within the EDM. For example, one comparison done was between LW(p) and LW(vp) ELUs, which would be a comparison to test for the effects of poor versus very poor soil in an older, wet site. These tests were completed to determine whether the herpetofaunal attributes measured followed along the same gradients as would be expected from the matrix

For all correlations and Kruskal-Wallis tests, alpha was set at 0.10. A Bonferroni correction was used within each set of tests of the same data to maintain the overall experimentwise error rate at 0.10 (Neter et al. 1996). This strategy preserved the exploratory nature of the analysis by using a fairly liberal alpha of 0.10, but reduced the probability of making a Type I error by using the Bonferroni correction.

By Unit Number

After completing these statistical tests on the ELUs, it seemed that the next plausible step would be to also complete these same tests on the individual sites. Although this does not allow for replication, it seemed that it might provide pertinent information about vegetation and the herpetofauna that would not otherwise be observed when constrained by the EDM. Therefore, the previously mentioned statistical tests were also performed by "unit number", or individual site, ignoring the ELU and EDM, with the exception of the last Kruskal-Wallis test mentioned which needed the EDM in order to be completed (Appendix B Tables 1-53).

RESULTS

General vegetation results

Vegetation attributes were summarized by calculating the mean value of each attribute measured except for stem density and area, which were calculated by previously stated formulas. Two means were calculated: by ELU, and by individual site, or unit number (Appendix B). Most vegetation attributes were found to be not normally distributed, and did not have equal variances among ELUs or sites. Therefore, Spearman rank correlations and Kruskal-Wallis tests were used to examine the data.

A Principal Components Analysis (PCA) was completed on the measured vegetation attributes by ELU. The PCA accounted for approximately 55% of the ELU variability within the first 3 eigenvalues. When graphed, the PCA showed a slight propensity to reflect the EDM in terms of habitat type, but not in terms of vegetation growth stage (Appendix B Table 60, Figures 1, 2, 3). The 3 ELUs on the more wet end of the matrix, MW(p), LW(p), and LW(vp), separate out well from the other 9 ELUs, but these latter 9 ELUs do not to separate out into any meaningful pattern (Table 2, Appendix B Figure 3).

A PCA was also completed on measured vegetation attributes by unit number to determine if individual sites, when graphed, made any sort of discernable pattern similar to or different from the EDM, but no such pattern is discernable (Appendix B Table 61, Figures 4, 5, 6).

Herpetofaunal results

A total of 8 herp species were observed in the ELUs. These included: American toad (*Bufo americanus*), boreal chorus frog (*Pseudacris triseriata maculata*), gray tree frog (*Hyla versicolor*), northern leopard frog (*Rana pipiens*), spring peeper (*Pseudacris crucifer*), wood frog (*Rana sylvatica*), blue-spotted salamander (*Ambystoma laterale*), and eastern garter snake (*Thamnophis sirtalis sirtalis*). Only American toads and wood frogs were found in every ELU. Blue-spotted salamanders and spring peepers were found in 7 of the 12 ELUs, northern leopard frogs and boreal chorus frogs in 2 ELUs, and the eastern garter snake and gray tree frog in only 1 ELU each (Table 7).

Herpetofaunal information calculated included mean number of individuals found, the Shannon-Weaver diversity index values (Shannon and Weaver 1949), and Pielou's J evenness values (Hayek and Buzas 1997) by ELU for all search methods combined, with the exception of incidental sightings. Incidental observations were not included in these analyses because they could not be standardized the way the other search methods were, and individuals found by incidental observations were not marked. Also, all species observed in incidental observations were also found in other methods. Diversity was similar among most of the ELUs, as was richness and evenness, with American toads and wood frogs being by far the most abundant species (Tables 7 and 8). The most diverse ELU was LW(p), and least diverse was LW(vp). The ELU with the most number of individuals (mean = 63.5) was ED(p), and that with the least (mean = 9.036) was LW(pm) (Table 8). The ELUs with the highest species richness were LM(m)

Table 7. ELUs and species found within them in northern Minnesota, 1997 according to search method[a]. Numbers in parentheses indicate total number of individuals captured in that method.

	American toad	Blue-spotted salamander	Boreal chorus frog	E. garter snake	Gray treefrog	N. leopard frog	Spring peeper	Wood frog
ED(p)	P (1) Tr (11)	P (1) Tr (5)						P (1) T (8) Tr (36)
EM(p)	P (3) T (6) Tr (69)	Tr (1)					T (1) Tr (1)	P (1) T (3) Tr (31)
EW(m)	T (3) Tr (66)				Tr (1)	Tr (1)		T (3) Tr (34)
LM(m)	P (7) T (3) Tr (49)	Tr (1)		Tr (1)			T (2) Tr (2)	P (7) T (24) Tr (105)
LW(m)	P (1) T (1) Tr (13)						Tr (1)	P (2) Tr (25)
LW(p)	P (8) Tr (19)	Tr (1)	T (1)				P (3)	P (1) T (1) Tr (14)
LW(pm)	P (1) T (3) Tr (21)	Tr (1)				Tr (1)		T (4) Tr (6)
LW(vp)	Tr (39)							Tr (6)
MM(m)	T (2) Tr (12)	Tr (1)					T (1) Tr (1)	P (2) T (3) Tr (17)
MM(p)	P (2) T (5) Tr (21)	Tr (1)					T (1)	P (3) T (1) Tr (11)
MW(m)	P (3) Tr (13)		T (1)				Tr (1)	Tr (2)
MW(p)	P (2) T (2) Tr (26)							P (1) T (2) Tr (7)

[a] P indicates plot search, T indicates time search, and Tr indicates trap.

Table 8. Shannon-Weaver (S-W) diversity index mean values, Pielou's J values, mean number of individuals captured, and species richness of each ELU in northern Minnesota, 1997.

ELU	S-W	J	Mean captured	Richness
ED(p)	0.894	0.634	63.50	4
EM(p)	0.589	0.606	28.50	4
EW(m)	0.713	0.832	54.00	3
MM(p)	0.830	0.599	46.00	4
MM(m)	0.789	0.929	14.82	4
MW(p)	0.531	0.766	20.95	2
MW(m)	0.633	0.574	11.50	4
LM(m)	0.677	0.638	51.20	5
LW(vp)	0.156	.	12.75	2
LW(p)	0.955	0.716	28.28	5
LW(pm)	0.587	.	9.04	4
LW(m)	0.653	0.754	21.50	3

and LW(p) with 5 species in each, and those with lowest species richness were MW(p) and LW(vp) with 2 species in each (Table 8)

When observed by site, or unit number, the most diverse unit number was number 9, with a Shannon-Weaver value of 1.162, and the least diverse were numbers 28 and 32, with values of 0. Unit number 9 is in ELU MM(m), and numbers 28 and 32 are LW(vp). The site with the largest mean number of individuals captured was number 40 (LM(m)), with 101.158 individuals, and that with the smallest mean was number 28, with only 1 individual captured (Table 9).

ELU herpetofaunal and vegetation results

Correlations

Spearman rank correlations (Siegel and Castellan, Jr. 1988) were calculated between the means of the vegetation variables, stem densities and areas and Shannon-

Table 9. Shannon-Weaver diversity index (S-W), Pielou's J, the average number of herps captured, and species richness by unit number in northern Minnesota, 1997.

Unit No	ELU	S-W	J	Mean captured	Richness
1	MW(m)	0.940	0.678	9.75	4
2	MW(m)	0.325	0.469	9.50	2
3	EM(p)	0.667	0.962	21.80	2
4	EM(p)	0.173	0.250	24.00	2
5	MW(p)	0.689	0.994	11.00	2
6	LW(p)	0.852	0.775	27.31	3
7	MW(p)	0.372	0.537	26.90	2
8	LW(p)	1.057	0.657	19.77	5
9	MM(m)	1.162	0.838	11.00	4
11	MM(m)	0.693	1.000	2.00	2
13	LM(m)	0.892	0.812	15.00	3
16	MM(m)	0.622	0.897	19.13	2
17	LW(m)	0.598	0.863	6.75	2
18	LW(m)	0.709	0.645	36.00	3
19	EW(m)	0.687	0.625	87.00	4
20	EW(m)	0.688	0.993	20.00	2
21	MM(p)	0.830	0.599	44.17	4
22	EM(p)	0.876	0.632	38.00	4
23	ED(p)	0.879	0.634	63.50	4
24	EM(p)	0.639	0.582	29.80	3
28	LW(vp)	0.000	.	1.00	1
30	LW(vp)	0.173	0.250	24.00	2
31	LW(vp)	0.451	0.650	6.00	2
32	LW(vp)	0.000	.	14.00	1
34	LM(m)	0.780	0.563	36.42	4
38	MM(m)	0.679	0.979	5.13	2
39	LM(m)	0.441	0.636	44.74	2
40	LM(m)	0.595	0.541	101.16	3
45	LW(pm)	0.658	0.949	8.14	2
46	LW(pm)	0.000	.	10.00	1
47	LW(pm)	0.637	0.918	3.00	2
48	LW(pm)	1.055	0.761	14.00	4

Weaver diversity index values and the mean number of individuals. Even though the correlation analyses are exploratory in nature, because of the large number of correlations calculated, only those correlations that were significant at a Bonferroni adjusted alpha of 0.10 and had a sample size of at least 4 are included in these results. Twenty-one correlations were significant for analyses involving large trees, small trees, snags, stumps, coarse woody debris, and strata (Table 10, Appendix B Table 54). No significant correlations were found with canopy, soil, or all density variables. For the analyses involving small trees, large trees, snags, stumps and coarse woody debris, almost no correlations were significant without being stratified by species and/or decay class. The only exception to this was the correlation of large-trees-dbh and number of individuals in which all 12 ELUs were represented. Not all 12 ELUs were represented in the rest of the significant correlations, and not every species or decay class was represented in every ELU. For example, the tree species balsam fir (ABBA) was found in only 10 of the 12 ELUs for small trees.

Overall, significance was found over three times as much for correlations between vegetation attributes and number of individuals as for the correlations with Shannon-Weaver values (16 versus 5 times). Tree species that had significant correlations for small trees, large trees, snags, and stumps for both the Shannon-Weaver diversity index and number of individuals correlations included ABBA and POBA. The only other species that showed any significance in the Shannon-Weaver correlations was BEPA, but there were additional species that were significant in the correlations with the number of individuals. These included: ACRU1, PIGL and POTR1. ACRU1 and PIGL were significant in the small trees stem density correlation, and POTR1 was significant in the large trees diameter, snag diameter, stump diameter, stump stem density, and stump area correlations. Diameter, height, stem density, and area correlations were significant a total of 7, 1, 6, and 4 times, respectively (Table 10).

Coarse woody debris had 1 significant correlation: with stem density and number of individuals in decay class 2. The only correlation that was significant for strata data was litter at level 1 (Table 10).

Kruskal-Wallis tests

Kruskal-Wallis tests (Siegel and Castellan, Jr. 1988) were completed to test for vegetation differences between ELUs that had each herp species and ELUs that did not. Each of these was stratified according to the variable by species, decay, or decay and species, when necessary. Most significance was found when these stratifications were made.

Spring peepers were found significantly more in ELUs with larger stump height. They were also found significantly more in ELUs with canopy cover both below 4.88 m and above 4.88 m than in sites without canopy cover at those places (Table 11). The northern leopard frog was found in ELUs where coarse woody debris had larger diameter (Table 12). The boreal chorus frog was found in ELUs where snag diameter was smaller, and stump height was larger. It was also found where stump stem density and area were low (Table 13). The gray treefrog and eastern garter snake had no significant ELU Kruskal-Wallis tests. Blue-spotted salamanders were found significantly more in ELUs where coarse woody debris had a smaller mean diameter. From the understory cover data, blue-spotted salamanders were found in ELUs with fewer shrubs at strata level 4 (Table 14).

Table 10. Significant Spearman rank correlations between the Shannon-Weaver diversity index (S-W) and/or mean number of individuals and vegetation attributes by ELU in northern Minnesota, 1997.

	Variable	Species[a]/ Decay	S-W			Number of individuals		
			n	r	p	n	r	p
Small trees by species	Stem density	ACRU1				8	0.881	0.004
		PIGL				5	0.975	0.005
Large trees	dbh					12	0.671	0.017
Large trees by species	dbh	POTR1				9	0.883	0.002
Snags by decay	Stem density	Decay 2				12	0.732	0.007
	Area	Decay 1				11	0.782	0.005
Snags by decay and species	dbh							
	Decay 2	POTR1				6	-0.943	0.005
Snags by species	dbh	POBA				6	0.943	0.005
	Height	BEPA	7	0.929	0.003			
	Stem density	POBA				6	0.943	0.005
	Area	POBA	6	0.943	0.005			
Stumps by age class	dbh	Age class 3	11	0.718	0.013			
Stumps by age class and species	dbh							
	Age class 1	POTR1				7	0.857	0.014
	Age class 2	ABBA				6	-0.943	0.005
	Stem density							
	Age class 1	POTR1				7	0.955	0.001
	Age class 2	ABBA	6	0.943	0.005			

Table 10 (Cont).

	Variable	Species[a]/ Decay	S-W			Number of individuals		
			n	r	p	n	r	p
	Area							
	Age class 1	POTR1				7	0.857	0.014
Stumps by species	Area	ABBA	8	0.810	0.015			
		POTR1				7	0.929	0.003
CWD by decay	Stem density	Decay 2				12	0.664	0.019
Strata[b]	L=1					12	0.809	0.001

[a]For a key to species codes, see Appendix A Table 2.
[b]Strata level 1 is from 0.1 m to 0.98 m. L is litter

Table 11. Significant results of Kruskal-Wallis tests for differences in vegetation attributes between ELUs with (present n=7) and without (absent n=5) the spring peeper in northern Minnesota, 1997.

	Variable	P value	Veg species/decay (if appl.)	Interpretation
Stumps by age class	Height	0.0091	Age class 1	found where height is larger Present: mean=31.35 range=23.33 to 38.70 ft. Absent: mean=29.43 range=22.71 to 34.91 ft.
Canopy	allveg=1	0.0493		found where there is more canopy cover above and below 4.88 m Present: mean=0.86 range=0.80 to 0.97 Absent: mean=0.74 range=0.52 to 0.83
	tallveg=1	0.0145		found where there is more canopy cover above 4.88 m Present: mean=0.78 range=0.67 to 0.90 Absent: mean=0.63 range=0.48 to 0.70

Table 12. Significant results of Kruskal-Wallis tests for differences in vegetation attributes between ELUs with (present n=2) and those without (absent n=10) the northern leopard frog in northern Minnesota, 1997.

	Variable	P value	Veg species/Decay (if appl.)	Interpretation
CWD	Diameter	0.0532		found where diameter is larger Present: mean=7.25 range=5.88 to 9.55 in. Absent: mean=4.92 range=4 to 16 in.

American toads and wood frogs were found in all ELUs, therefore ELUs could not be divided in the same way they were divided for other species for this analysis. I divided the ELUs into those that had greater than the overall mean number of individuals for that species and those that had fewer (Table 15). American toads were found in greater proportions in ELUs with more slash (strata levels 0 and 1) for understory cover, and in ELUs where the soil was less moist (Table 16).

The wood frog had the most difficult generalities to pick out due to the more contrasting significant findings. They were found more in ELUs where large tree and stump diameter was larger, and where small tree diameter was smaller. Also, they were associated with low stem density for large trees and high stem density for small trees and stumps. They were found more in ELUs with high stump area and with more slash for understory cover at strata level 2 (Table 17).

EDM Comparisons

Comparisons of Shannon-Weaver diversity index values and average number of individuals values between ELUs along axes in the matrix were also completed using the

Table 13. Significant results of Kruskal-Wallis tests for differences in vegetation attributes between ELUs with (present n=2) and those without (absent n=10) the boreal chorus frog in northern Minnesota, 1997.

	Variable	P value	Veg species/Decay (if appl.)	Interpretation
Snags	Diameter	0.0371		found where diameter is smaller Present: mean=5.34 range=4.25 to 9 in. Absent: mean=6.5 range=4 to 19.5 in.
Stumps	Height	0.0317		found where height is larger Present: mean=2.85 range=2 to 4 ft. Absent: mean=0.95 range=1 to 5 ft.
	Stem density	0.0367		found where stem density is lower Present: mean=238 range=183 to 293 stems/ha Absent: mean=297 range=186 to 435 stems/ha
	Area	0.0367		found where area is lower Present: mean=21.24 range=19.05 to 23.43 in. Absent: mean=168.64 range=13.56 to 581.72 in.

Table 14. Significant results of Kruskal-Wallis tests for differences in vegetation attributes between ELUs with (present n=7) and those without (absent n=5) the blue-spotted salamander by ELU in northern Minnesota, 1997.

	Variable	P value	Veg species/Decay (if appl.)	Interpretation
CWD by decay	Diameter	0.0177	Decay class 1	found where diameter is smaller Present: mean=4.89 range=4 to 6 in. Absent: mean=8.03 range=5 to 11 in.
Strata[a]	level 4	0.0056	S	found where there is less S Present: mean=0.02 range=0 to 0.03 Absent: mean=0.03 range=0.03 to 0.13

[a] Strata level 4 is from 2.94 m to 3.92 m. S = shrubs.

Table 15. Mean abundances of American toads and wood frogs captured by ELU and overall in northern Minnesota, 1997, used to determine which ELUs were above the average, and which were below for Kruskal-Wallis tests.

ELU	American toad mean abundance	ELU	Wood frog mean abundance
MM(m)	3.50	MW(m)	1.00
LW(pm)	6.04	LW(vp)	1.50
MW(m)	6.88	LW(pm)	2.25
LW(m)	7.13	MW(p)	4.55
LW(vp)	9.75	MM(m)	5.03
ED(p)	11.17	LW(p)	7.54
LM(m)	13.09	EM(p)	8.53
LW(p)	13.81	MM(p)	12.50
MW(p)	14.10	LW(m)	12.75
EM(p)	18.83	EW(m)	18.50
MM(p)	26.33	LM(m)	32.34
EW(m)	34.50	ED(p)	44.17
Mean	13.76	Mean	12.55

Table 16. Significant results of Kruskal-Wallis tests for differences in vegetation attributes between ELUs above (n=5) and those below (n=7) the mean number of American toads in northern Minnesota, 1997.

	Variable	P value	Veg species/Decay (if appl.)	Interpretation
Strata[a]	level 1	0.0045	H	found where there is more H Above: mean=0.22 range=0.13 to 0.32 Below: mean=0.15 range=0 to 0.07
	level 0	0.0056	H	found where there is more H Above: mean=0.16 range=0.10 to 0.17 Below: mean=0.03 range=0.01 to 0.10
Soil	moisture	0.0618		found where soil is less moist Above: mean=44.88 range=37.5 to 53.3 Below: mean=53.1 range=47.5 to 63.7

[a] Strata level 0 is at ground level, and level 1 is from 0.1 m to 0.98 m. H is slash, F is forbs, and O is exposed soil.

Table 17. Significant results of Kruskal-Wallis tests for differences in vegetation attributes between ELUs above (n=4) and those below (n=8) the average number of wood frogs in northern Minnesota, 1997.

	Variable	P value	Veg species[a]/Decay (if appl.)	Interpretation
Large trees	dbh	0.0066		found where dbh is larger Above: mean=7.06 range=6.68 to 7.79 in. Below: mean=6.07 range=5.3 to 6.51 in.
	Stem density	0.0105		found where stem density is lower Above: mean=862 range=838 to 902 stems/ha Below: mean=1428 range=1069 to 2037 stems/ha
Small trees	Diameter	0.0108		found where diameter is smaller Above: mean=0.74 range=0.68 to 0.84 in. Below: mean=1.22 range=0.81 to 2.35 in.
	Height	0.0066		found where height is smaller Above: mean=5.51 range=5.18 to 6.1 ft. Below: mean=11 range=6.98 to 15.47 ft.
	Stem density	0.033		found where stem density is higher Above: mean=12578 range=10267 to 15168 stems/ha Below: mean=6448 range=2750 to 9250 stems/ha

Table 17 (Cont).

	Variable	P value	Veg species[a]/Decay (if appl.)	Interpretation
Stumps by age class	Diameter	0.014	Decay 3	found where diameter is larger Above: mean=11.94 range=10.47 to 15 in. Below: mean=7.88 range=5 to 10.62 in.
	Area	0.0275	Decay 3	found where area is higher Above: mean=98.09 range=58.91 to 154.53 in. Below: mean=24.98 range=21.08 to 72.01 in.
Stumps by age class and species	Stem density	0.0323	POTR1, Decay 1	found where stem density is higher Above: mean=20 range=15 to 23.1 stems/ha Below: mean=10.34 range=5.76 to 14.5 stems/ha
Stumps	Diameter	0.0066		found where diameter is larger Above: mean=10.71 range=9.5 to 12.62 in. Below: mean=7.15 range=5.3 to 9.26 in.
	Area	0.033		found where area is higher Above: mean=269.64 range=97.01 to 581.72 in. Below: mean=91.06 range=13.56 to 234.83 in.
Strata[b]	level 2	0.0075	H	found where there is more H Above: mean=0.06 range=0 to 0.23 Below: mean=0 range=0 to 0

[a]For a key to species codes, see Appendix A Table 2.

[b]Strata level 2 is from 0.98 m to 1.96 m. H is slash.

Kruskal-Wallis test (Siegel and Castellan, Jr. 1988). These comparisons were between: MM(m) and LM(m); EW(m), MW(m), and LW(m); MW(p) and LW(p); MW(p), MW(m), and MM(p); EW(m) and EM(p); LW(pm) and LW(m); and LW(p) and LW(vp). The comparisons that were significant at the 0.10 level were MM(m) and LM(m) for average number of individuals (p=0.0433), and LW(p) and LW(vp) (p=0.0603) for the Shannon-Weaver values (Table 18).

Unit number herpetofaunal and vegetation results

Correlations

Spearman rank correlations (Siegel and Castellan, Jr. 1988) were completed on means of the vegetation variables, stem densities and areas by individual site, also called a unit number. Eighteen correlations were found to be significant within large trees, small trees, snags, stumps, coarse woody debris and strata data (Table 19, Appendix B Table 55). No correlations were significant in canopy or soil correlations. Within small trees, large trees, snags, stumps, and coarse woody debris the only correlations that were significant without being stratified (by species and/or decay) were small

Table 18. P values of comparisons of Shannon-Weaver diversity index (S-W) values and mean number of individuals between ELUs along different axes within the EDM.

Comparisons	S-W	Mean indivs.
MM(m) & LM(m)	0.5637	0.0433*
EW(m), MW(m) & LW(m)	1.0000	0.3679
MW(p) & LW(p)	0.1213	0.4386
MW(p), MW(m) & MM(p)	0.7408	0.1653
EW(m) & EM(p)	0.2354	0.5853
LW(pm) & LW(m)	1.0000	0.6434
LW(p) & LW(vp)	0.0603	0.1649

Table 19. Spearman rank correlations by Shannon-Weaver diversity index and mean number of individuals values that were significant by unit number.

	Variable	Species[a]/ Decay	S-W			Number of individuals		
			n	r	p	n	r	p
Large trees by species	Stem density	ABBA				23	0.69	0.0003
		PIMA	10	-0.79	0.007			
Small trees	Stem density					32	0.35	0.05
Snags	Stem density					28	0.4	0.037
	Area					28	0.37	0.054
Snags by decay	Stem density	Decay 2				23	0.46	0.026
Snags by decay and species	Diameter							
	Decay 3	POTR1	5	-0.87	0.054			
	Stem density							
	Decay 3	POTR1	5	0.949	0.013			
Snags by species	Stem density	PIMA	7	-0.87	0.01			
Stumps by age class and species	dbh							
	Age class 1	POTR1				13	0.77	0.002
	Stem density							
	Age class 2	POTR1				8	0.83	0.001
	Area							
	Age class 1	POTR1				13	0.74	0.004

Table 19 (Cont).

	Variable	Species[a]/ Decay	S-W			Number of individuals		
			n	r	p	n	r	p
Stumps by species	Stem density	PIMA	8	-0.93	0.001			
CWD by decay	Stem density	Decay 4				23	0.5	0.016
Strata[b]	H=0					32	0.68	0.0001
	L=1					32	0.6	0.0003
	H=1					32	0.61	0.0002
	T=3					32	0.44	0.012

[a]For a key to species codes see Appendix A Table 2.
[b]Strata level 0 is at ground level, level 1 is from 0.98 m to 1.96 m, and level 3 is from 1.96 m to 2.94 m. H is slash, L is litter, and T is tree live stems.

trees stem density and snag stem density and area with mean number of individuals. As with the ELU correlations, not all sites were represented in the rest of the significant correlations. Only those correlations with a sample size of at least 4 are included in these results, and not every species or decay class is represented in every site.

The number of times Shannon-Weaver correlations were significant versus the number of times number of individuals correlations were significant was 5 and 13 times, respectively. The vegetation species that was significant in both the Shannon-Weaver and number of individuals correlations was POTR1. The vegetation species that was significant only for the Shannon-Weaver correlations was PIMA, in the correlation with large trees stem density. The vegetation species that was significant only in the number of individuals correlations was ABBA, for large trees stem density. Diameter, height, stem density and area were each significant a total of 4, 0, 8, and 2 times, respectively (Table 19).

Coarse woody debris had a significant correlation only once: for density and number of individuals by decay class 4. Correlations that were significant in strata data were forbs and slash at level 0, litter and slash at level 1, and tree live stems at levels 3 and 5 (Table 19).

Kruskal-Wallis tests

Kruskal-Wallis tests (Siegel and Castellan, Jr. 1988) were completed to test for vegetation differences between sites that had each herp species compared to those that did not to look for differences that were not apparent in the tests by ELU. Each of these was stratified when necessary according to the variable by species, decay, or decay and species, and most significance was found when these stratifications were made.

Spring peepers were found in sites with higher stem density (snags, stumps) and low stump area (Table 20). northern leopard frogs were found in sites of larger coarse woody debris diameter (Table 21). Boreal chorus frogs were found in sites of smaller snag diameter, lower density of coarse woody debris, and more slash and exposed organic soil at strata level 1 for understory cover (Table 22). Gray treefrogs had no significant Kruskal-Wallis tests. The eastern garter snake was found in sites with more slash understory cover at strata level 2 (Table 23). Blue-spotted salamanders were found in sites of higher stump stem density. They were also found in sites of larger diameter and longer length for coarse woody debris (Table 24). Wood frogs were found in sites where coarse woody debris diameter was larger, length was longer, and density was higher. They were found in sites of less canopy cover both below 4.88 m, and above 4.88 m, as well in sites with more litter at strata level 1 for understory cover (Table 25).

American toads were found in every site, therefore could not be divided in the same way as the other herp species. I divided the sites into those with a number of American toads that was either higher or lower than the overall mean for that species (Table 26). American toads were found in sites of smaller diameter (snags, stumps) vegetation. They were found in sites with more slash at levels 0 and 1, less grass at level 1, and fewer shrubs at strata levels 2 and 3 (Table 27).

Table 20. Significant results of Kruskal-Wallis tests for differences in vegetation attributes between units with (present n=10) and those without (absent n=22) the spring peeper in northern Minnesota, 1997.

	Variable	P value	Veg species[a]/Decay (if appl.)	Interpretation
Snags by decay	Stem density	0.0207	Decay 1	found where stem density is higher Present: mean=43.45 range=11.38 to 103.45 stems/ha Absent: mean=34.48 range=11.38 to 137.93 stems/ha
Snags	Stem density	0.0204		found where stem density is higher Present: mean=171.03 range=45.86 to 241.38 stems/ha Absent: mean=92.76 range=23.10 to 161.03 stems/ha
Stumps by age class and species	Stem density	0.0094	Age class 3, POTR1	found where stem density is higher Present: mean=107.59 range=51.72 to 195.52 stems/ha Absent: mean=26.90 range=11.38 to 34.48 stems/ha
Stumps	Area	0.0455	PIMA	found where area is lower Present: mean=0.21 range=0.13 to 0.29 in. Absent: mean=2.01 range=0.61 to 3.43 in.

[a]For key to species codes, see Appendix A Table 2.

Table 21. Significant results of Kruskal-Wallis tests for differences in vegetation attributes between units with (present n=2) and those without (absent n=30) the northern leopard frog in northern Minnesota, 1997.

	Variable	P value	Veg species/Decay (if appl.)	Interpretation
CWD	Diameter	0.0306		found where diameter is larger Present: mean=8.98 range=8.55 to 9.4 in. Absent: mean=5.95 range=4 to 9 in.

Table 22. Significant results of Kruskal-Wallis tests for differences in vegetation attributes between units with (present n=2) and those without (absent n=30) the boreal chorus frog in northern Minnesota, 1997.

	Variable	P value	Veg species[a]/Decay (if appl.)	Interpretation
Snags	Diameter	0.0322		found where diameter is smaller Present: mean=4.58 range=4.5 to 4.67 in. Absent: mean=6.78 range=4.25 to 14.6 in.
CWD	Stem density	0.0306		found where stem density is lower Present: mean=152.82 range=125.45 to 180.19 logs/ha Absent: mean=928.39 range=21.65 to 2442.25 logs/ha
Strata[b]	level 1	0.0593	H	found where there is more H Present: mean=0.28 range=0.23 to 0.33 Absent: mean=0.06 range=0 to 0.53
		0.0001	O	found where there is more O Present: mean=0.04 range=0 to 0.07 Absent: mean=0 range=0 to 0

[a]For a key to species codes, see Appendix A Table 2.
[b]Strata level 1 is from 0.1 m to 0.98 m. H is slash, O is exposed soil.

Table 23. Significant results of Kruskal-Wallis tests for differences in vegetation attributes between units with (present n=1) and those without (absent n=32) the eastern garter snake in northern Minnesota, 1997.

Variable	P value	Veg species/Decay (if appl.)	Interpretation
Strata[a] level 2	0.0013	H	found where there is more H Present: mean=0.33 Absent: mean=0

[a]Strata level 2 is from 0.98 m to 1.96 m. H is slash.

Table 24. Significant results of Kruskal-Wallis tests for differences in vegetation attributes between units with (present n=7) and those without (absent n=25) the blue-spotted salamander in northern Minnesota, 1997.

	Variable	P value	Veg species/Decay (if applicable)	Interpretation
Stumps	Stem density	0.0495		found where stem density is higher Present: mean=252.76 range=149.31 to 390.69 stems/ha
CWD by decay	Diameter	0.0204	Decay class 2	found where diameter is larger Present: mean=7.81 range=4.89 to 13 in. Absent: mean=5.28 range=4 to 6.43 in.
CWD	Length	0.0329		found where length is longer Present: mean=35.92 range=24.32 to 88.4 ft. Absent: mean=21.22 range=6 to 37.14 ft.

Table 25. Significant results of Kruskal-Wallis tests for differences in vegetation attributes between units with (present n=28) and those without (absent n=4) the wood frog in northern Minnesota, 1997.

	Variable	P value	Veg species/Decay (if appl.)	Interpretation
CWD by decay	Diameter	0.0101	Decay class 4	found where diameter is higher Present: mean=6.34 range=5 to 9.67 in. Absent: mean=4.22 range=4 to 4.67 in.
	Length	0.0223	Decay class 1	found where length is higher Present: mean=32.98 range=20 to 48 ft. Absent: mean=11 range=10 to 12 ft.
	Stem density	0.0319	Decay class 4	found where density is higher Present: mean=343.73 range=53.22 to 801.19 logs/ha Absent: mean=143.69 range=127.73 to 159.66 logs/ha
Canopy	Allveg=0	0.0085		found where canopy cover is lower above and below 4.88 m Present: mean=0.79 range=0.33 to 1.00 Absent: mean=0.88 range=0.73 to 0.93
	Tallveg=0	0.0037		found where canopy cover is lower above 4.88 m Present: mean=0.71 range=0.33 to 0.93 Absent: mean=0.75 range=0.73 to 0.80

Table 25 (Cont).

	Variable	P value	Veg species/Decay (if appl.)	Interpretation
Strata[a]	level 1	0.0075	L	found where there is more L Present: mean=0.13 range=0 to 0.47 Absent: mean=0 range=0 to 0

[a]Strata level 1 is from 0.98 m to 1.96 m. L is litter.

Table 26. Mean number of American toads by unit number and overall.

Unit no.	Mean number
1	7
2	9
3	8.5
4	23
5	5
6	17.998
7	23.6
8	14.714
9	4
11	1
13	7
16	6
17	5
18	10
19	58
20	11
21	31
22	22
23	11.5
24	23
28	1
30	23
31	1
32	14
34	27.8181
38	3
39	7.2727
40	18.8181
45	5.1429
46	10
47	1
48	8
Overall Average	20.07407

Table 27. Significant results of Kruskal-Wallis tests for differences in vegetation attributes between units with (present) and those without (absent) American toads in northern Minnesota, 1997.

	Variable	P value	Veg species/Decay (if appl.)	Interpretation
Snags by decay	Diameter	0.003	Decay 2	found where diameter is smaller Present: mean=5.95 range=4.4 to 7 in. Absent: mean=6.67 range=4 to 13 in.
Snags	Diameter	0.0199		found where diameter is smaller Present: mean=5.58 range=4.25 to 8.9 in Absent: mean=7.30 range=4.67 to 14.6 in.
Strata[a]	level 3	0.0049	S	found where there is less S Present: mean=0.026 range=0 to 0.1 Absent: mean=0.12 range=0 to 0.37.
	level 2	0.0097	S	found where there is less S Present: mean=0.065 range=0 to 0.3 Absent: mean=0.19 range=0 to 0.5
	level 1	0.0075	H	found where there is more H Present: mean=0.19 range=0 to 0.53 Absent: mean=0.063 range=0 to 0.23
		0.0045	G	found where there is less G Present: mean=0.20 range=0.03 to 0.53 Absent: mean=0.41 range=0.08 to 0.68

Table 27 (Cont).

Variable	P value	Veg species/Decay (if appl.)	Interpretation
level 0	0.0013	H	found where there is more H Present: mean=0.11 range=0 to 0.3 Absent: mean =0.03 range=0 to 0.2

[a]Strata level 0 is from ground level to 0.98 m, level 1 is from 0.98 m to 1.96 m, level 2 is from 1.96 m to 2.94 m, and level 3 is from 2.94 m to 3.92 m. G is grass, H is slash, F is forbs, and S is shrub.

Herptile sampling methodology results

This section presents results based on the different methodologies used to capture herps in this study. Those methodologies were drift fences with pitfall and funnel traps, time-constrained searches, area-constrained, or plot, searches, and incidental sightings.

Time-constrained searches

The majority of the animals captured in time-constrained searches were American toads and wood frogs. Additionally, some spring peepers and 2 boreal chorus frogs were captured with this method. This is the only method in which we captured boreal chorus frogs. No individuals were captured in the LW(vp) ELU (Table 7). Microhabitats where species were found in timed searches included: forbs, grass, litter, moss, mud, on or under logs, and near stumps. The microhabitat where the most individuals were found was on litter, with 16 American toads, 17 wood frogs, and 3 spring peepers. A number of wood frogs were also incidentally seen in puddles. Boreal chorus frogs were found on litter and on moss in the timed searches (Table 28).

Table 28. Microhabitats and herptile species found in those microhabitats by search method in northern Minnesota, 1997.

	Plot searches	Timed searches	Incidentals
Forbs	1 American toad	3 American toads 3 Wood frogs	5 American toads 4 Wood frogs 1 Spring peeper
Grass		3 Wood frogs	
Litter/Slash	19 American toads 13 Wood frogs 1 Blue-spotted salamander	16 American toads 17 Wood frogs 3 Spring peepers 1 Boreal chorus frog	39 American toads 45 Wood frogs 4 Spring peepers 1 E. garter snake
Logs (on/in/under)	2 American toads 3 Wood frogs	4 American toads	2 American toads 3 Wood frogs
Moss	6 American toads 2 Wood frogs 3 Spring peepers	4 Wood frogs 1 Boreal chorus frog	11 American toads 7 Wood frogs 1 Spring peeper 1 E. garter snake
Mossy rock			1 Wood frog 1 E. garter snake
Mud		1 American toad 1 Wood frog	
Puddle			1 American toad 13 Wood frogs 2 N. leopard frogs 1 E. garter snake
Soil			1 Wood frog
Stump		1 Wood frog	

Plot searches

American toads and wood frogs were also the main species captured in plot searches, with the addition of blue-spotted salamanders. Spring peepers were captured in the LW(p) ELU. No animals were captured in the LW(vp) or EW(m) ELUs using this method (Table 7). Microhabitats where species were found in plot searches included: litter, forbs, moss, and in or under logs. The microhabitat where the most individuals were found was litter, with 19 American toads, 13 wood frogs, and 1 blue-spotted salamander. The uncommon species found in plot searches were 3 spring peepers, found on moss, and 1 blue-spotted salamander found on litter (Table 28).

Traps

Many more individuals were caught in pitfall and funnel traps than in either the time or plot searches, including a majority of American toads and wood frogs. Additionally, more species were captured, including the gray tree frog, northern leopard frog, and eastern garter snake. Each of these species was captured using only funnel traps. All species caught in time-constrained searches or plot searches were also caught in traps, with the exception of the boreal chorus frog (Table 7)

Incidentals

In incidental sightings the same species were found as were found in traps, excepting the gray tree frog, but fewer numbers of individuals were found, especially for the American toads and wood frogs. Microhabitats where species were found in incidental sightings included: moss with forbs or litter, litter and slash, forbs, on or under a log, on a mossy rock, puddle, and soil. The microhabitat with the most individuals found was litter and slash with 39 American toads, 45 wood frogs, 4 spring peepers, and 1 eastern garter snake. Uncommon species found and associated microhabitats were: eastern garter snake, on moss, litter and slash, a mossy rock, and a puddle; spring peepers found on moss, and litter and slash; and the northern leopard frog in puddles (Table 28).

General

Species least observed were the boreal chorus frog, the gray tree frog, and the northern leopard frog. The eastern garter snake was the only reptile observed; it was caught once in a LM(m) funnel trap and was observed 4 times in incidental sightings. The blue-spotted salamander was the only salamander species to be observed, and was mainly caught in pitfall traps. Spring peepers were never caught in pitfall traps, only funnel traps (Table 7)

The Shannon-Weaver diversity index (Shannon and Weaver 1949) was calculated for each of the methods, as well as for all methods combined, demonstrating that the trapping data were the most similar to that of the overall data in terms of diversity (Table 29, Figure 4).

Table 29. Shannon-Weaver diversity index values (H') by ELU for all methods combined, traps, plot searches, and time searches in northern Minnesota, 1997.

ELU	All data H'	Traps H'	Plots H'	Time H'
ED(p)	0.8935	0.9368	1.0986	0
EM(p)	0.5888	0.5513	0.3466	0.5014
EW(m)	0.7130	0.6853	NONE	0.6931
MM(p)	0.8298	0.7598	0.6730	0.7963
MM(m)	0.7890	0.6352	0	0.1874
MW(p)	0.5306	0.5300	0.6365	0.3183
MW(m)	0.6328	0.5562	0	0
LM(m)	0.6767	0.6618	0.4587	0.1521
LW(vp)	0.1559	0.1559	NONE	NONE
LW(p)	0.9545	0.6192	0.6601	0
LW(pm)	0.5873	0.6730	0	0.2243
LW(m)	0.6534	0.7005	0	0

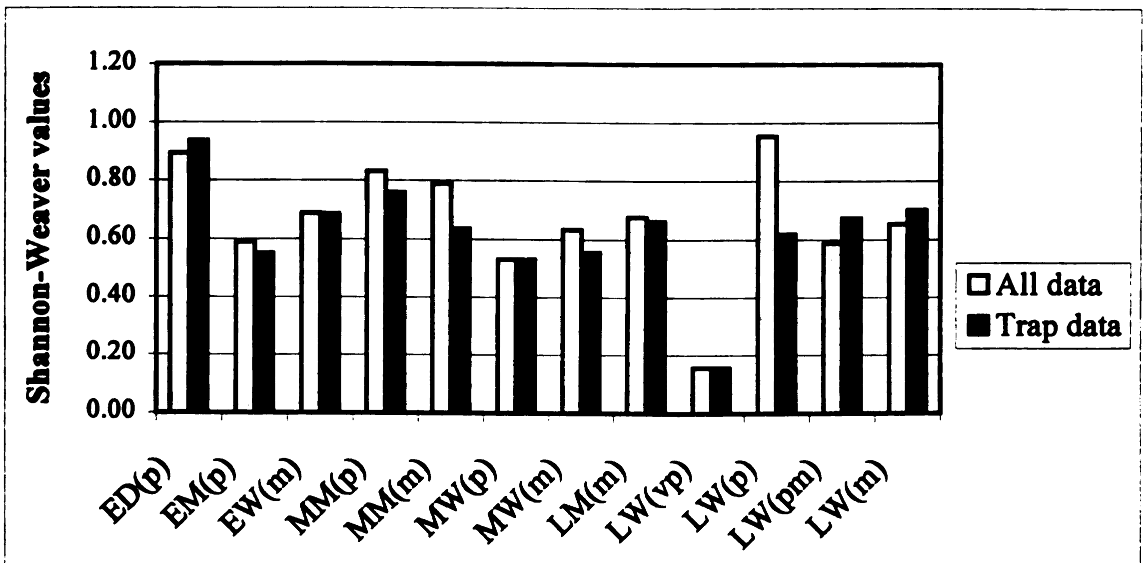

Figure 4. Shannon-Weaver diversity index values for all data combined (plot searches, timed searches, and traps) and trap data alone.

DISCUSSION

Vegetation

An important consideration to take into account when reviewing the results of this study is the way in which the sites were chosen, and their subsequent placement in the ecosystem diversity matrix (EDM) (Table 2). Sites were chosen according to gross site characteristics (i.e. overstory vegetation, understory vegetation, soils), prior to the completion of the final EDM. Unfortunately, this resulted in many of the sites falling into similar categories in the final EDM. Had the final EDM been complete before site selection, sites could have been chosen that reflected the entire diversity inherent in the matrix, allowing differences in species composition and other characteristics to be possibly more easily observed.

One result of the site selection process is that the pairwise plots of the first 3 principal components do not show many differences among sites, with the exceptions of LW(p), LW(vp), and MW(p), which separate from the other sites due to the high moisture content and apparently low nutrient content of their soil (Appendix B Figures 1, 2, 3). The rest of the 9 sites all lump together as generally mesic, medium-aged stands. This could be predicted from Frelich (1995) who said that Minnesota is generally made up of young to medium-aged forests due to harvesting that has occurred over the past century.

Herpetofauna

The general herpetofaunal results mimic the vegetation results in that there are not many differences among ELUs in terms of species presence or absence, diversity, or richness. There was no discernible pattern in species richness, diversity or abundance in terms of either vegetation growth stage or habitat type, not even for the 3 ELUs that separated in the principal components analysis, LW(p), LW(vp) or MW(p) (Table 8). Eight species were observed in the ELUs, although most of individuals were of 2 species: American toads and wood frogs (Table 7). The other species were so infrequently observed that generalizations were difficult to make about them. Despite the fact that there were not many other individuals of other species found, these species are not necessarily rare, and this area is not necessarily representative of other areas where amphibian populations are declining. It is more likely that the northern Minnesota environment is not optimal for herps, especially due to the harsh, long winters (National Oceanic and Atmospheric Administration 1998), resulting in a small herp community with few individuals and species that are generalists. Another deterrent may be pH levels that are too low for many species, although this was not typically a significant result from this study. The mean pH value by ELU in this study was 6.28, with a minimum value of 5.3 and a maximum value of 7.2 (Appendix B Table 52). Karns (1992) found that wood frogs were the only species able to reproduce in marginal fen sites with pH values of 4.5 to 5.0. Because none of our sites had values this low, the pH should not be a significant factor for these herps (Appendix B Table 53).

Herpetofauna and vegetation

Twenty-one correlations between large trees, small trees, snags, stumps and coarse woody debris and Shannon-Weaver values and mean number of individuals were significant for the ELUs (Table 10). No correlations were significant in two likely measured attributes: canopy cover and soil. These results are somewhat surprising because herps have often been found to be sensitive to canopy cover (Ash 1988, Karns 1992, Wyman and Hawksley-Lescault 1987) and soil pH and moisture (Dupuis et al. 1995, Welsh and Lind 1988) in past studies. Also, of these 21 correlations, 16 were significant for the abundance correlations, and only 5 were significant for Shannon-Weaver diversity index correlations. Why this is true is not readily evident, although it might be because there is more variation in number-of-individuals values than Shannon-Weaver values. The low diversity of herps in northern Minnesota as explained above, may be due to weather extremes and/or low pH values. Unfortunately, most of the correlations that were significant do not have any obvious biological explanation. Most other studies have only looked at herpetofaunal general correlations with habitat type classes (Bennett et al. 1980, Jones 1988, Karns 1988, Pais et al. 1988, Degraaf and Rudis 1990, Dupuis et al. 1995), not with specific vegetation species or decay classes as was attempted in this study. Another explanation may be that the Shannon-Weaver values were very similar, whereas with a wider range of abundance values, there was more of a chance that a correlation could be significant.

In the ELU correlations between vegetation attributes and herptile community attributes, there were five species that never had significant correlations: black ash (FRNI), tamarack (LALA), black spruce (PIMA), white cedar (THOC), and slippery elm

(ULRU) (Table 10). The rationale for why these species would never have any significant correlations is not clear. One thing to consider is that the only time that slippery elm was found in more than 3 ELUs was for small trees, so that was the only time it could have had a significant correlation value. Another interesting fact is that these tree species are all typical of wet sites. But, because these trees had no significant correlations with the herptile community attributes, either positive or negative, the only conclusion to be drawn from this is that these trees typical of wet sites had no influence on either diversity or numbers of herps, and that trees typical of more dry sites do have an impact. Why this is so is not biologically clear, and is also not explained in the literature.

One habitat variable that in past studies has often been found to influence the presence of herps is coarse woody debris. It can provide food, shelter for thermoregulation, protection from desiccation, refugia from predators, and breeding habitat (Whiles and Grubaugh 1996). In the ELU correlations, coarse woody debris had a significant correlation only once: with stem density and number of individuals in decay class 2 (Table 10). Coarse woody debris in higher decay classes have traditionally been found to have significant effects on herpetofauna, which makes it difficult to explain why this correlation was significant in only decay class 2. One explanation may be that herps often use coarse woody debris for protection from desiccation, and the habitats of northern Minnesota are very moist in general, therefore herps would not need the coarse woody debris protection as much in this area. This might also provide an explanation as to why no correlations were significant for soil moisture. The northern Minnesota habitats may be above the moisture thresholds that each herp species needs.

The only understory cover correlation that was significant was litter at strata level 1, which is horizontal cover from 0.1 m to 0.98 m (Table 10). This correlation is biologically supported in that the presence of litter has often been found to influence the presence of herps. Litter can be used as refugia for protection from predators, for thermoregulation and as a food source (Ash 1988, Petranka et al. 1993).

In the correlation results by unit number, as in the ELU results, no correlations were significant within either canopy or soil data. The number of times correlations were significant between the Shannon-Weaver diversity index and number of individuals did not vary as much with the unit number correlations as they did with the ELU correlations (5 versus 13) (Table 19). This may be due to the larger sample size used in these correlations: 32 sites instead of 12 ELUs.

The correlations by unit number do not explain herpetofaunal species characteristics much more than the correlations by ELU did. There is no biological evidence as to why certain vegetation species were significant in some correlations and not in others. Species that were never significant in any correlation were: red maple (ACRU1), paper birch (BEPA), black ash (FRNI), tamarack (LALA), white spruce (PIGL), balsam popular (POBA), and white cedar (THOC). The only species that were significant in these unit number correlations were: balsam fir (ABBA), black spruce (PIMA) and quaking aspen (POTR1) (Table 19). Balsam fir and quaking aspen are 2 of the most dominant species in many habitat type classes in northern Minnesota. They are found in almost all of the sites chosen in this study. Black spruce is a common species in the wet sites, both as part of the overstory and understory vegetation. Therefore, it seems that the species with significant tests are simply the most common species.

Stem density correlations were significant over twice as many times as any other category of correlations (diameter, height, and area) (Table 19). One possible reason for this could be that with higher stem densities, more habitats and microhabitats suitable for herps are created. For example, more slash and litter could be added to the forest floor from the leaves and branches on the trees, snags, and stumps. Although no canopy cover correlations were significant, percent understory cover correlations were significant at lower strata (from 0 m to 1.96 m) for slash and litter, and tree live stems at higher strata (from 1.96 to 2.94 m). These vegetation variables, stem density and understory cover, may therefore be complementing each other in creating good habitat for the herpetofauna. As stated previously, litter is documented as being helpful for herps (Ash 1988, Petranka et al. 1993) but slash as its own category is not as readily documented.

Coarse woody debris only had one significant correlation, which was for density in decay class 4 (Table 19). It is important to note that it is only in this later stage of decay that coarse woody debris had a significant effect on herps, which is also what has been found in past studies (Aubry et al. 1988, Bury and Corn 1988, Whiles and Grubaugh 1996).

Kruskal-Wallis tests by ELU and unit number

Kruskal-Wallis tests were completed on ELUs that had each herp species compared to those ELUs that did not have that species. This was done to see if there were specific vegetation differences in the ELUs that might attract, or deter herps from being there. These same tests were completed on a site (unit number) basis. As with the correlations, many tests that were significant are not biologically supported and not supported in the literature. Therefore, only those tests that were significant and can be biologically supported will be discussed.

Spring peepers have been found in both deciduous and coniferous woodlands, mainly near wetlands (Oldfield and Moriarty 1994). In a study done by Karns (1992) on the effects of pH on breeding amphibians in northern Minnesota, spring peepers were found to be one of the more common species in bog sites. In the present study, pH did not have an influence on where they were or were not found. They were found in ELUs with good canopy cover at both low (< 4.88 m) and high (>4.88 m) heights which was not a significant variable for most other species (Table 11). Spring peepers were found in sites with high stem density for snags and stumps (Table 20).

The boreal chorus frog, in contrast, was found in ELUs where stump stem density and area were lower (Table 13). The boreal chorus frog did not have any significant Kruskal-Wallis tests for large and small trees. In site understory cover results, the boreal chorus frog was found in sites where there was more exposed soil. Yet, in the plot and timed searches, it was not found on a microhabitat of exposed soil; it was found on litter/slash and moss (Table 28). Past studies, such as Karns (1992) found that chorus frogs (sub-species was not specified) was either uncommon or absent from bog sites. In Colorado, the boreal chorus frog is associated with both deciduous and coniferous forests, and both dry and wet habitats (Spencer 1971). In the site comparisons, boreal chorus frogs were found in areas with more slash, which is a common finding with other species also, such as the eastern garter snake and American toads (Table 23, Table 27).

The occurrence of more herps in areas with fewer shrubs for understory cover was found for the blue-spotted salamanders and American toads, both at higher strata (Table 24, Table 27). No species were found in sites with greater amounts of shrubs.

Northern leopard frogs were found in areas where coarse woody debris diameter was larger in both ELU and site tests (Table 12, Table 21). They are usually most abundant in wet meadows and open fields, and prefer meadows with grasses 15 to 30 cm tall (Oldfield and Moriarty 1994). They have also been found in past studies to avoid forested areas (Pace 1974, Hine 1981). Unfortunately, these findings did not hold true in this study.

The gray treefrog and eastern garter snake did not have any significant comparisons by ELU. The gray treefrog is a forest-associated species (Jaslow and Vogt 1977) that may perch as high as 10 m in a tree to call or feed (Vogt 1980). They spend most of their time in tree cavities, under loose bark, or in bird nest boxes (McComb and Noble 1981). With such specific needs, it is interesting that there were no significant comparisons for this species by either ELU or unit number. The eastern garter snake is a habitat generalist, and can commonly be found in deciduous and coniferous forests to peatlands and prairies. It can also withstand some habitat degradation, being found on farms and golf courses, often near water (Oldfield and Moriarty 1994). Therefore, it is not necessarily surprising that no significant results by ELU were found for this species. There was only one significant result for eastern garter snakes by site, which was slash understory cover in unit number tests at strata level 2 (Table 23). One reason for finding so few significant Kruskal-Wallis tests for these species may be because only one of each species was found. Both these species are difficult to find using the methods employed in this study. The gray treefrog could easily climb out of pitfall traps and spends much of its time in trees, so it would not be easily found in ground searches. One option for surveying gray treefrogs could be to use calling surveys, and listen to calls instead of actively looking for individuals. Also, other researchers have used artificial habitat, or "frog houses", to attract other treefrog species which could be adapted to fit northern Minnesota (Heyer et al. 1994). The eastern garter snake could not be caught in pitfall traps due to the shape and length of its body, and can easily be overlooked in searches.

Blue-spotted salamanders have been found to inhabit the forest floors of both boreal forests and wet woodlands, and they use temporary ponds in woodlands for breeding (Oldfield and Moriarty 1994). Karns (1992) found that they were one of the more common species found in bog sites. In terms of microhabitats, they have been found traditionally under bark, logs, moss (Oldfield and Moriarty 1994) and leaf litter (Johnson 1992). Johnson (1992) found that the adults lived in mixed hardwood and hardwood/pine forests. In the present study, they were found in ELUs with less shrub understory cover at a higher strata level, which was also true for American toads (Table 14). In the site results, blue-spotted salamanders were found in sites with coarse woody debris that had larger diameter and longer length, which would agree with the fact that they have been found to be associated with logs for refugia as stated above (Table 24).

American toads and wood frogs were the most abundant species found overall (Table 7). In past studies, American toads have been found to be uncommon in bog sites (Karns 1992), but can sometimes be found in bogs and conifer forests of wooded areas (Oldfield and Moriarty 1994). They have also been found to be associated with dense herbaceous cover in forest clearings (Pais et al. 1988). In ELU results American toads were found in areas with more slash at lower strata levels (Table 16). They were also found in ELUs with soil that is less moist, which is verified because toads generally do not need as much moisture as frogs do, being completely terrestrial species (Cook 1984). In the site tests, American toads had 5 significant results in understory cover (Table 27). They were found in sites with less grass at lower strata levels, more slash at lower strata levels, and less shrub cover at higher strata levels. The slash finding is similar to that found by ELU. There was no significant test for soil moisture by site.

Wood frogs, including their eggs and larvae, are bog water tolerant (Karns 1992). They have been called the most common amphibians in northern Minnesota, which may be because of their high tolerance for acidic waters (Karns 1992, Oldfield and Moriarty 1994). They are generally found in moist, deciduous and coniferous forests (Oldfield and Moriarty 1994). Perhaps due to the fact that they are the most common amphibians in northern Minnesota, it was difficult to find generalizations for wood frogs by ELU. From the percent understory results by ELU, they were found in areas with more slash at strata level 2 (Table 17). The site tests were easier to find generalizations for, showing that the EDM does not apply well for this species. In the site tests, it was evident that wood frogs needed less canopy cover, and more litter understory cover (Table 25). They were also found in areas where coarse woody debris had higher diameter, length, and density.

Summary

The aforementioned conclusions are those of both the ELUs and sites. The reason that the herpetofauna was chosen to be studied in this experiment was to decide whether or not herps were good species to use to differentiate ELUs within the ecosystem diversity matrix used for ecosystem management. From the above conclusions, it does not appear that herps accurately represent this EDM. Herpetofaunal species richness and diversity are low in northern Minnesota. Also, the indexes of abundance, species present, richness and diversity do not change much among ELUs, and when they do change, it is not in any discernible pattern, such as along either vegetation growth stages, soil moisture, or soil nutrient stages. Even when completing correlations on specific vegetation attributes measured for the study, it is difficult to make generalizations that make biological sense. For these reasons, it does not appear that the herpetofauna would be a good group of species to differentiate the ELUs for BCC's ecosystem diversity matrix to help them make better management decisions.

There are many possible reasons why herps did not accurately represent the EDM. It could be because we did not have enough ELUs to represent the matrix, or enough sites within the ELUs, and the ELUs were not distributed well within the matrix. Another possibility could be that the matrix is too finely defined for the herpetofauna in the area. Perhaps coarser-grained ELU designations would have yielded a more suitable EDM for reflecting the diversity and abundance of the herpetofauna. Also, herps are more related to microhabitat characteristics than macrohabitat characteristics, therefore the EDM may not be at the proper scale for herps to key into the ELUs. Along those same lines, it appears that the herpetofauna in northern Minnesota are generalist species for the area, and are not associated with characteristics that are specific to an ELU, habitat type class, or vegetation growth stage.

Another purpose of this study was to see if there were certain vegetation attributes, not necessarily associated with the ELUs, that may indicate the presence or absence of herps, or that herps may cue into for their own requirements. For this reason, the same statistical tests which were completed on the ELUs were also completed on a per site basis.

Unfortunately, completing these tests by site did not provide many more clues as to what shapes the presence of herps in northern Minnesota. Sometimes the conclusions were the same as those in the ELUs, and sometimes they were not. Sometimes the significant tests made biological sense, and sometimes they did not. However, some general conclusions can still be made regarding the herpetofauna in northern Minnesota.

Correlation results for large trees, small trees, snags and stumps by species and/or decay did not generally provide useful information. Those vegetation species not significant by ELU were generally associated with wet habitats, although this was not true for correlations by site. More vegetation species had significant correlations by ELU than by site. Only 3 species were significant in the by site correlations: balsam fir, quaking aspen, and black spruce, but this could simply be a product of the most common species in the area. The most useful habitat variables measured were stem densities; coarse woody debris, overall and by decay; and understory cover. It seems that most of the herps found in northern Minnesota are habitat generalist species, which makes it difficult to find specific vegetation attributes, especially by ELU, that are associated with the species.

In the Kruskal-Wallis tests, some generalizations did become apparent, both by species and generalizations that spanned several species. The most useful conclusions found across species were that herps were generally associated with coarse woody debris, whether it was for larger diameter, length, or higher stem density. The only species associated with smaller diameter coarse woody debris was the blue-spotted salamander and that associated with lower density was the boreal chorus frog. Spring peepers and blue-spotted salamanders were both associated with greater vegetation stem density by site and boreal chorus frogs were associated with smaller stump stem density and area by ELU.

An important understory cover association with herps was that of litter and/or slash. No herps were negatively associated with litter or slash understory cover. Moisture does not seem to have much effect on the herps in northern Minnesota, with the exception of the American toad, found in less moist areas. For other species the northern Minnesota habitat seems to be moist enough to not have an effect on where they are or are not found.

Methodology Discussion

Drawing from the results of the methodology portion of this study, it is evident that the most efficient sampling method was the pitfall/funnel trap array. We expended approximately 1,980 hours on installation of the arrays and checking the traps. In contrast, the combination of traps and searches of herptiles yielded results similar to that of the traps alone, and we expended approximately 2,344 hours on this combination of methods. Drift fences with pitfall and funnel traps were the most reliable methods for observing uncommon species. Plot and time searches were beneficial for presence/absence data, but did not give useful information for species evenness. Although species were detected differentially with each of the sampling methods, the most efficient and effective sampling method was the pitfall/funnel trap array. Although the cost of materials for the pitfalls and funnel traps is greater than that of the searches, the benefits of finding more individuals and species using this method outweigh those costs.

General Conclusions and Management Recommendations

From the previously presented results, it is evident that the herpetofauna do not accurately represent the ecosystem diversity matrix (EDM) for northern Minnesota. This is due to the fact that their species attributes, presence/absence, diversity, and richness do not reflect the structure of the EDM in any way, either by vegetation growth stage or habitat type. Although 8 species were captured, the only species captured in enough abundance for accurate analyses were American toads and wood frogs. In correlations and Kruskal-Wallis tests, both by ELU and by site, no vegetation species emerged as being clearly important for herpetofaunal assemblages. These tests, however, did show strong herpetofaunal associations with stem density, coarse woody debris, and litter and slash understory cover. Soil pH and moisture and canopy cover were surprisingly not important factors for these herps.

Among the three different herpetofaunal sampling methods examined, the most efficient and effective method was the drift fences with pitfall and funnel traps. This method captured almost all the same species as were captured in the time-constrained searches or plot searches, but did so with the most amount of confidence out of the 3 methods examined. There was a greater chance that individuals and species would be captured in the traps as compared with the other methods. This method also captured the greatest amount of each species, especially the most common species: American toads and wood frogs.

Although herptiles appear to be not very abundant or diverse in northern Minnesota, it is still important to think about them in ecosystem management considerations. It would be beneficial to continue to monitor this community to watch fluctuations in numbers and diversity to make sure that this area does not become representative of other areas in which they are declining. American toads and wood frogs should be especially watched, as they are the most abundant species in northern Minnesota. Management recommendations for BCC based on results from this study include leaving more litter, slash and coarse woody debris on the ground when harvesting timber. Another suggestion that might be helpful for herps is to remove shrubs when possible when harvesting trees, since some herps tended to have negative associations with shrub understory cover. But, these associations were correlations, and there may be additional, unmeasured factors that are actually causing the correlations. Recommendations to BCC for their continued monitoring of herps includes using pitfall/funnel trap arrays as opposed to plot or timed searches, and to use more than 1 array per site to increase the chances of capturing more of the less common species on their lands.

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Appendix A

Appendix A

Appendix A Table 1. Keys to habitat type classes and vegetation growth stages as indicated in the Ecosystem Diversity Matrix (EDM).

Vegetation Growth Stages (VGS)		dbh (inches)
GFS	Grass/forb/seedling	0
SSE	Shrub/seedling	0.01-2.00
SAP INT	Saplings; with intolerants	2.01-5.00
SMT INT	Small trees; with intolerants	5.01-9.00
MET INT	Medium trees; with intolerants	9.01-12.00
LAT INT	Large trees; with intolerants	12+
SAP TOL	Saplings; with tolerants	2.01-5.00
SMT TOL	Small trees; with tolerants	5.01-9.00
MET TOL	Medium trees; with tolerants	9.01-12.00
LAT TOL	Large trees; with tolerants	12+
OLG	Old growth	

Density of VGS	
l = low density	10-40%
m= medium density	41-70%
h = high density	71-100%

Habitat Type Classes	
XMAbPi pb	Xeric-Mesic/Nutrient Poor; *Abies-Picea – Pinus banksiana*
XMAbPi ps	Xeric-Mesic/Nutrient Poor; *Abies-Picea – Pinus strobus*
XMAbAr pb	Xeric-Mesic/Nutrient Poor; *Abies-Acer – Pinus banksiana*
XMAbAr pr	Xeric-Mesic/Nutrient Poor; *Abies-Acer – Pinus resinosa*
MAbAr ar	Mesic/Nutrient Poor, *Abies-Acer – Acer rubrum*
MAbFn pt	Mesic/Nutrient Medium; *Abies-Fraxinus – Populus tremuloides*
HMFn pb	Hydric-Mesic/Nutrient Medium; *Fraxinus – Populus balsamifera*
HMAbFnTh pt	Hydric-Mesic/Nutrient Poor-Medium; *Abies-Fraxinus-Thuja – Populus tremuloides*
HMAbFnTh to	Hydric-Mesic/Nutrient Poor-Medium; *Abies-Fraxinus-Thuja – Thuja occidentalis*
HMAbTh to	Hydric-Mesic/Nutrient Poor; *Abies-Thuja – Thuja occidentalis*
HMAbTh bp	Hydric-Mesic/Nutrient Poor; *Abies-Thuja – Betula papyrifera*
HAbTh ll	Hydric/Nutrient Poor; *Abies-Thuja – Larix laricina*
HAbTh pm	Hydric/Nutrient Poor; *Abies-Thuja – Picea mariana*
HPm pm	Hydric/Nutrient Very Poor; *Picea – Picea mariana*

Appendix A Table 1 (Cont).

Character	Name	Habitat Type Class Description
XMAb	Dry Fir	Xeric-Mesic/Nutrient Poor; *Abies*
MAbAr	Moist Fir	Mesic/Nutrient Poor; *Abies-Acer*
MAbFn	Rich, Moist Fir	Mesic/Nutrient Medium; *Abies-Fraxinus*
HMFn	Moist Ash	Hydric-Mesic/Nutrient Medium; *Fraxinus*
HMAs	Moist Maple	Hydric-Mesic; Nutrient Medium-Rich *Acer*
HMAbFnTh	Moist Fir/Ash/Cedar	Hydric-Mesic/Nutrient Poor-Medium; *Abies-Fraxinus-Thuja*
HMAbTh	Moist Fir/Cedar	Hydric-Mesic/Nutrient Poor; *Abies-Thuja*
HAbTh	Wet Fir/Cedar	Hydric/Nutrient Poor; *Abies-Thuja*
HPm	Poor, Wet Spruce	Hydric/Nutrient Very Poor; *Picea*

Appendix A Table 2. Tree species codes used with scientific and common names.

Code	Scientific name	Common name
ABBA	*Abies balsamea*	Balsam fir
ACRU1	*Acer rubrum*	Red maple
ACSA1	*Acer saccharinum*	Silver maple, soft maple
ACSA2	*Acer saccharum*	Sugar maple
BEAL	*Betula alleghaniensis*	Yellow birch
BEPA	*Betula papyrifera*	Paper birch
FRAM	*Fraxinus americana*	White ash
FRNI	*Fraxinus nigra*	Black ash
FRPE	*Fraxinus pennsylvanica*	Green ash
LALA	*Larix laricina*	Tamarack
OSVI	*Ostrya vinginiana*	Ironwood, hop hornbeam
PIGL	*Picea glauca*	White spruce
PIMA	*Picea mariana*	Black spruce
PIBA	*Pinus banksiana*	Jack pine
PIRE	*Pinus resinosa*	Red pine, Norway pine
PIST	*Pinus strobus*	White pine
POBA	*Populus balsamifera*	Balsam popular
POGR	*Populus grandidentata*	Big-toothed aspen
POTR1	*Populus tremuloides*	Quaking aspen
QUEL	*Quercus ellipsoidalis*	northern pin oak
QUMA	*Quercus macrocarpa*	Bur oak
QURU	*Quercus rubra*	northern red oak
THOC	*Thuja occidentalis*	White cedar, arbor vitae
TIAM	*Tilia americana*	Basswood
ULAM	*Ulmus americana*	American elm
ULRU	*Ulmus rubra*	Slippery elm

Appendix B

Appendix B

Appendix B Table 1. Large trees dbh (in) and height (ft).sample size, means, variances, standard deviations, standard errors, minimums and maximums by ELU and species[a].

ELU	dbh/ Height	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
ED(p)	dbh	ABBA	32	5.81	2.54	1.60	0.28	4	10
ED(p)	dbh	ACRU1	3	7.67	1.33	1.15	0.67	7	9
ED(p)	dbh	BEPA	2	6.50	4.50	2.12	1.50	5	8
ED(p)	dbh	FRNI	5	5.80	1.70	1.30	0.58	4	7
ED(p)	dbh	POTR1	18	10.06	13.47	3.67	0.86	4	16
ED(p)	dbh	THOC	13	10.54	5.44	2.33	0.65	8	15
ED(p)	Height	ABBA	32	38.78	95.27	9.76	1.73	23	63
ED(p)	Height	ACRU1	3	52.33	5.33	2.31	1.33	51	55
ED(p)	Height	BEPA	2	55.00	200.00	14.14	0.00	45	65
ED(p)	Height	FRNI	5	36.80	81.20	9.01	4.03	27	49
ED(p)	Height	POTR1	18	63.22	308.77	17.57	4.14	24	84
ED(p)	Height	THOC	13	39.38	52.26	7.23	2.00	22	54
EM(p)	dbh	ABBA	67	6.00	2.94	1.71	0.21	4	11
EM(p)	dbh	ACRU1	3	5.67	1.33	1.15	0.67	5	7
EM(p)	dbh	BEPA	34	5.12	0.83	0.91	0.16	4	7
EM(p)	dbh	PIBA	5	6.80	2.70	1.64	0.73	4	8
EM(p)	dbh	PIRE	1	19.00	.	.	.	19	19
EM(p)	dbh	POBA	13	6.08	2.58	1.61	0.45	4	10
EM(p)	dbh	POTR1	220	6.73	4.53	2.13	0.14	4	13
EM(p)	dbh	THOC	32	5.84	2.14	1.46	0.26	4	11
EM(p)	Height	ABBA	67	42.70	189.61	13.77	1.68	20	85
EM(p)	Height	ACRU1	3	47.00	109.00	10.44	6.03	40	59
EM(p)	Height	BEPA	34	47.85	53.40	7.31	1.25	36	65
EM(p)	Height	PIBA	5	48.40	46.30	6.80	3.04	41	54
EM(p)	Height	PIRE	1	58.00	.	.	.	58	58
EM(p)	Height	POBA	13	59.92	246.91	15.71	4.36	39	80
EM(p)	Height	POTR1	220	57.41	127.37	11.29	0.76	19	87
EM(p)	Height	THOC	32	35.00	31.61	5.62	0.99	22	47
EW(m)	dbh	ABBA	27	6.74	6.12	2.47	0.48	4	13
EW(m)	dbh	BEPA	2	9.50	40.50	6.36	4.50	5	14
EW(m)	dbh	FRNI	83	6.64	5.55	2.36	0.26	4	14
EW(m)	dbh	LALA	1	6.00	.	.	.	6	6
EW(m)	dbh	PIMA	17	7.65	5.49	2.34	0.57	4	12
EW(m)	dbh	POBA	16	8.94	9.40	3.07	0.77	4	15
EW(m)	dbh	POTR1	11	6.91	3.89	1.97	0.59	4	10
EW(m)	Height	ABBA	27	39.74	100.05	10.00	1.92	20	56
EW(m)	Height	BEPA	2	50.00	450.00	21.21	5.00	35	65
EW(m)	Height	FRNI	83	48.22	100.76	10.04	1.10	30	70
EW(m)	Height	LALA	1	40.00	.	.	.	40	40
EW(m)	Height	PIMA	17	53.00	196.38	14.01	3.40	28	75

Appendix B Table 1 (Cont).

ELU	dbh/ Height	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
EW(m)	Height	POBA	16	49.50	64.67	8.04	2.01	39	60
EW(m)	Height	POTR1	11	64.73	33.62	5.80	1.75	52	73
LM(m)	dbh	ABBA	88	5.73	3.40	1.84	0.20	4	14
LM(m)	dbh	ACRU1	6	6.00	3.20	1.79	0.73	4	9
LM(m)	dbh	BEPA	9	4.67	0.50	0.71	0.24	4	6
LM(m)	dbh	FRNI	7	5.71	3.90	1.98	0.75	4	10
LM(m)	dbh	PIGL	1	7.00	.	.	.	7	7
LM(m)	dbh	POBA	19	6.00	2.89	1.70	0.39	4	10
LM(m)	dbh	POTR1	212	7.34	5.06	2.25	0.15	4	16
LM(m)	dbh	QUPR	1	5.00	.	.	.	5	5
LM(m)	dbh	ULRU	4	4.00	0.00	0.00	0.00	4	4
LM(m)	dbh	UNK	1	6.00	.	.	.	6	6
LM(m)	Height	ABBA	88	38.38	166.10	12.89	1.37	8	66
LM(m)	Height	ACRU1	6	48.00	68.80	8.29	3.39	38	59
LM(m)	Height	BEPA	9	47.67	133.75	11.57	3.86	32	66
LM(m)	Height	FRNI	7	48.14	226.48	15.05	5.69	30	78
LM(m)	Height	PIGL	1	46.00	.	.	.	46	46
LM(m)	Height	POBA	19	50.95	115.27	10.74	2.46	34	70
LM(m)	Height	POTR1	212	56.06	214.43	14.64	1.01	10	90
LM(m)	Height	QUPR	1	35.00	.	.	.	35	35
LM(m)	Height	ULRU	4	31.00	2.00	1.41	0.71	29	32
LM(m)	Height	UNK	1	46.00	.	.	.	46	46
LW(m)	dbh	ABBA	18	8.17	7.44	2.73	0.64	5	13
LW(m)	dbh	ACRU1	4	4.00	0.00	0.00	0.00	4	4
LW(m)	dbh	BEPA	6	5.50	1.90	1.38	0.56	4	7
LW(m)	dbh	FRNI	80	6.98	5.90	2.43	0.27	4	14
LW(m)	dbh	FRPE	2	5.00	2.00	1.41	1.00	4	6
LW(m)	dbh	PIGL	10	6.30	8.90	2.98	0.94	4	14
LW(m)	dbh	POBA	4	6.25	14.92	3.86	1.93	4	12
LW(m)	dbh	POGR	1	14.00	.	.	.	14	14
LW(m)	dbh	POTR1	10	5.80	0.40	0.63	0.20	5	7
LW(m)	dbh	QUMA	1	4.00	.	.	.	4	4
LW(m)	dbh	TIAM	5	6.40	2.80	1.67	0.75	5	9
LW(m)	dbh	ULAM	1	4.00	.	.	.	4	4
LW(m)	dbh	ULRU	6	4.83	0.57	0.75	0.31	4	6
LW(m)	Height	ABBA	18	42.17	124.03	11.14	2.62	20	65
LW(m)	Height	ACRU1	4	38.00	63.33	7.96	3.98	30	49
LW(m)	Height	BEPA	6	42.83	110.17	10.50	4.28	27	58
LW(m)	Height	FRNI	80	46.54	234.02	15.30	1.71	3	82
LW(m)	Height	FRPE	2	43.50	84.50	9.19	6.50	37	50
LW(m)	Height	PIGL	10	35.90	284.54	16.87	5.33	22	79
LW(m)	Height	POBA	4	45.75	98.92	9.95	4.97	34	57
LW(m)	Height	POGR	1	63.00	.	.	.	63	63

Appendix B Table 1 (Cont).

ELU	dbh/ Height	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
LW(m)	Height	POTR1	10	53.70	48.68	6.98	2.21	40	62
LW(m)	Height	QUMA	1	32.00	.	.	.	32	32
LW(m)	Height	TIAM	5	37.00	74.50	8.63	3.86	27	47
LW(m)	Height	ULAM	1	31.00	.	.	.	31	31
LW(m)	Height	ULRU	6	34.33	9.07	3.01	1.23	30	39
LW(p)	dbh	LALA	295	5.31	0.87	0.93	0.05	4	8
LW(p)	dbh	PIMA	1	5.00	.	.	.	5	5
LW(p)	dbh	POBA	1	4.00	.	.	.	4	4
LW(p)	Height	LALA	295	45.24	38.28	6.19	0.36	25	61
LW(p)	Height	PIMA	1	29.00	.	.	.	29	29
LW(p)	Height	POBA	1	51.00	.	.	.	51	51
LW(pm)	dbh	ABBA	53	5.72	2.32	1.52	0.21	4	10
LW(pm)	dbh	BEPA	30	5.17	1.32	1.15	0.21	4	9
LW(pm)	dbh	FRNI	4	10.25	24.92	4.99	2.50	5	17
LW(pm)	dbh	LALA	3	8.33	1.33	1.15	0.67	7	9
LW(pm)	dbh	PIGL	1	7.00	.	.	.	7	7
LW(pm)	dbh	PIMA	28	6.07	0.59	0.77	0.14	5	9
LW(pm)	dbh	POBA	11	5.36	1.25	1.12	0.34	4	7
LW(pm)	dbh	POTR1	2	5.50	0.50	0.71	0.50	5	6
LW(pm)	dbh	THOC	577	6.41	4.42	2.10	0.09	4	19
LW(pm)	Height	ABBA	53	39.68	54.88	7.41	1.02	26	61
LW(pm)	Height	BEPA	30	36.20	41.61	6.45	1.18	25	48
LW(pm)	Height	FRNI	4	43.25	82.25	9.07	4.53	30	50
LW(pm)	Height	LALA	3	54.67	6.33	2.52	1.45	52	57
LW(pm)	Height	PIGL	1	41.00	.	.	.	41	41
LW(pm)	Height	PIMA	28	45.86	7.98	2.82	0.53	37	48
LW(pm)	Height	POBA	11	38.36	21.45	4.63	1.40	30	43
LW(pm)	Height	POTR1	2	42.50	0.50	0.71	0.50	42	43
LW(pm)	Height	THOC	577	32.15	47.63	6.90	0.29	9	56
LW(vp)	dbh	LALA	47	5.17	2.41	1.55	0.23	4	12
LW(vp)	dbh	PIMA	355	5.48	1.88	1.37	0.07	4	11
LW(vp)	dbh	THOC	21	5.48	1.56	1.25	0.27	4	8
LW(vp)	Height	LALA	47	31.53	47.17	6.87	1.00	23	56
LW(vp)	Height	PIMA	355	38.23	62.64	7.91	0.42	18	60
LW(vp)	Height	THOC	21	19.71	32.01	5.66	1.23	13	32
MM(m)	dbh	ABBA	22	6.73	2.87	1.70	0.36	4	10
MM(m)	dbh	FRNI	10	7.30	1.57	1.25	0.40	6	10
MM(m)	dbh	PIGL	3	4.67	0.33	0.58	0.33	4	5
MM(m)	dbh	POBA	25	5.68	0.89	0.95	0.19	4	8
MM(m)	dbh	POTR1	289	6.19	3.16	1.78	0.10	4	13
MM(m)	dbh	ULRU	2	4.50	0.50	0.71	0.50	4	5
MM(m)	Height	ABBA	22	47.64	151.29	12.30	2.62	25	63
MM(m)	Height	FRNI	10	50.90	259.43	16.11	5.09	13	71

Appendix B Table 1 (Cont).

ELU	dbh/ Height	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
MM(m)	Height	PIGL	3	51.33	408.33	20.21	1.67	28	63
MM(m)	Height	POBA	25	46.40	41.83	6.47	1.29	38	63
MM(m)	Height	POTR1	289	54.60	206.39	14.37	0.85	26	92
MM(m)	Height	ULRU	2	37.50	112.50	10.61	7.50	30	45
MM(p)	dbh	ABBA	110	5.70	1.40	1.19	0.11	4	10
MM(p)	dbh	BEPA	13	6.69	5.23	2.29	0.63	4	11
MM(p)	dbh	PIGL	1	9.00	.	.	.	9	9
MM(p)	dbh	PIMA	3	8.67	2.33	1.53	0.88	7	10
MM(p)	dbh	POTR1	36	8.67	4.23	2.06	0.34	4	13
MM(p)	Height	ABBA	110	44.51	83.37	9.13	0.87	25	75
MM(p)	Height	BEPA	13	50.62	217.92	14.76	4.09	25	70
MM(p)	Height	PIGL	1	50.00	.	.	.	50	50
MM(p)	Height	PIMA	3	51.67	58.33	7.64	4.41	45	60
MM(p)	Height	POTR1	36	56.86	159.44	12.63	2.10	27	70
MW(m)	dbh	ABBA	2	7.50	24.50	4.95	3.50	4	11
MW(m)	dbh	ACRU1	26	6.27	1.80	1.34	0.26	4	9
MW(m)	dbh	BEPA	13	7.38	6.42	2.53	0.70	5	13
MW(m)	dbh	FRNI	2	5.00	2.00	1.41	1.00	4	6
MW(m)	dbh	POBA	27	6.37	3.78	1.94	0.37	4	13
MW(m)	dbh	POTR1	115	6.05	6.30	2.51	0.23	4	18
MW(m)	dbh	UNK	1	4.00	.	.	.	4	4
MW(m)	Height	ABBA	2	40.00	0.00	0.00	0.00	40	40
MW(m)	Height	ACRU1	26	66.12	123.15	11.10	2.18	29	83
MW(m)	Height	BEPA	13	65.38	170.92	13.07	3.63	33	75
MW(m)	Height	FRNI	2	42.00	0.00	0.00	0.00	42	42
MW(m)	Height	POBA	27	44.15	170.90	13.07	2.52	25	72
MW(m)	Height	POTR1	115	63.39	116.06	10.77	1.00	25	90
MW(m)	Height	UNK	1	30.00	.	.	.	30	30
MW(p)	dbh	LALA	231	6.18	2.86	1.69	0.11	4	13
MW(p)	dbh	PIMA	3	6.67	21.33	4.62	2.67	4	12
MW(p)	Height	LALA	231	53.67	51.48	7.17	0.47	25	70
MW(p)	Height	PIMA	3	37.00	133.00	11.53	6.66	28	50

[a] a dot (.) indicates that data was either nonexistent, or was unable to be calculated.

Appendix B Table 2. Large trees dbh (in) and height (ft) means, variances, standard deviations, standard errors, minimums and maximums by unit number and species[a].

Unit no.	Species	dbh/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
1	ABBA	dbh	1	4.00	.	.	.	4	4
1	ABBA	Height	1	40.00	.	.	.	40	40
1	ACRU1	dbh	24	6.08	1.47	1.21	0.25	4	9
1	ACRU2	Height	24	68.42	54.17	7.36	1.50	51	83
1	BEPA	dbh	13	7.38	6.42	2.53	0.70	5	13
1	BEPA	Height	13	65.38	170.92	13.07	3.63	33	75
1	FRNI	dbh	2	5.00	2.00	1.41	1.00	4	6
1	FRNI	Height	2	42.00	0.00	0.00	0.00	42	42
1	POBA	dbh	3	5.00	1.00	1.00	0.58	4	6
1	POBA	Height	3	42.00	27.00	5.20	3.00	36	45
1	POTR1	dbh	68	5.37	1.70	1.30	0.16	4	9
1	POTR1	Height	68	66.69	27.17	5.21	0.63	51	81
1	UNK	dbh	1	4.00	.	.	.	4	4
1	UNK	Height	1	30.00	.	.	.	30	30
2	ABBA	dbh	1	11.00	.	.	.	11	11
2	ABBA	Height	1	40.00	.	.	.	40	40
2	ACRU1	dbh	2	8.50	0.50	0.71	0.50	8	9
2	ACRU1	Height	2	38.50	180.50	13.44	9.50	29	48
2	POBA	dbh	24	6.54	3.91	1.98	0.40	4	13
2	POBA	Height	24	44.42	190.17	13.79	2.81	25	72
2	POTR1	dbh	47	7.04	11.43	3.38	0.49	4	18
2	POTR1	Height	47	58.62	208.68	14.45	2.11	25	90
3	ABBA	dbh	5	5.60	3.30	1.82	0.81	4	8
3	ABBA	Height	5	35.60	23.30	4.83	2.16	30	42
3	ACRU1	dbh	3	5.67	1.33	1.15	0.67	5	7
3	ACRU1	Height	3	47.00	109.00	10.44	6.03	40	59
3	BEPA	dbh	15	5.33	1.24	1.11	0.29	4	7
3	BEPA	Height	15	46.20	40.31	6.35	1.64	39	60
3	POBA	dbh	2	5.00	0.00	0.00	0.00	5	5
3	POBA	Height	2	46.00	2.00	1.41	1.00	45	47
3	POTR1	Height	66	54.09	36.61	6.05	0.74	39	66
3	POTR1	dbh	66	5.92	2.50	1.58	0.19	4	11
4	ABBA	dbh	2	7.50	0.50	0.71	0.50	7	8
4	ABBA	Height	2	47.00	392.00	19.80	4.00	33	61

Appendix B Table 2 (Cont).

Unit no.	Species	dbh/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
4	BEPA	dbh	1	6.00	.	.	.	6	6
4	BEPA	Height	1	55.00	.	.	.	55	55
4	PIBA	dbh	5	6.80	2.70	1.64	0.73	4	8
4	PIBA	Height	5	48.40	46.30	6.80	3.04	41	54
4	PIRE	dbh	1	19.00	.	.	.	19	19
4	PIRE	Height	1	58.00	.	.	.	58	58
4	POBA	dbh	3	4.67	0.33	0.58	0.33	4	5
4	POBA	Height	3	40.67	4.33	2.08	1.20	39	43
4	POTR1	Height	76	50.75	23.04	4.80	0.55	38	60
4	POTR1	dbh	76	5.68	1.71	1.31	0.15	4	9
5	LALA	dbh	130	5.27	0.99	0.99	0.09	4	8
5	LALA	Height	130	50.85	27.29	5.22	0.46	40	60
5	PIMA	dbh	3	6.67	21.33	4.62	2.67	4	12
5	PIMA	Height	3	37.00	133.00	11.53	6.66	28	50
6	LALA	dbh	174	5.20	0.90	0.95	0.07	4	8
6	LALA	Height	174	46.05	17.59	4.19	0.32	27	55
6	PIMA	dbh	1	5.00	.	.	.	5	5
6	PIMA	Height	1	29.00	.	.	.	29	29
7	LALA	dbh	101	7.35	2.85	1.69	0.17	4	13
7	LALA	Height	101	57.30	59.53	7.72	0.77	25	70
8	LALA	dbh	121	5.46	0.80	0.89	0.08	4	8
8	LALA	Height	121	44.08	66.13	8.13	0.74	25	61
8	POBA	dbh	1	4.00	.	.	.	4	4
8	POBA	Height	1	51.00	.	.	.	51	51
9	POBA	dbh	1	5.00	.	.	.	5	5
9	POBA	Height	1	43.00	.	.	.	43	43
9	POTR1	Height	61	37.26	44.53	6.67	0.85	28	53
9	POTR1	dbh	61	4.74	0.46	0.68	0.09	4	7
11	ABBA	dbh	3	5.33	5.33	2.31	1.33	4	8
11	ABBA	Height	3	63.00	0.00	0.00	0.00	63	63
11	PIGL	dbh	2	5.00	0.00	0.00	0.00	5	5
11	PIGL	Height	2	63.00	0.00	0.00	0.00	63	63
11	POBA	dbh	24	5.71	0.91	0.95	0.19	4	8
11	POBA	Height	24	46.54	43.13	6.57	1.34	38	63
11	POTR1	Height	76	54.99	109.67	10.47	1.20	26	75
11	POTR1	dbh	76	6.24	1.73	1.32	0.15	4	9
11	ULRU	dbh	1	5.00	.	.	.	5	5

Appendix B Table 2 (Cont).

Unit no.	Species	dbh/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
11	ULRU	Height	1	45.00	.	.	.	45	45
13	ABBA	dbh	6	9.00	12.80	3.58	1.46	4	14
13	ABBA	Height	6	44.67	215.47	14.68	5.99	24	64
13	ACRU1	Height	6	48.00	68.80	8.29	3.39	38	59
13	ACRU1	dbh	6	6.00	3.20	1.79	0.73	4	9
13	BEPA	dbh	2	4.50	0.50	0.71	0.50	4	5
13	BEPA	Height	2	42.00	8.00	2.83	2.00	40	44
13	FRNI	dbh	6	6.00	4.00	2.00	0.82	5	10
13	FRNI	Height	6	51.17	194.97	13.96	5.70	41	78
13	POBA	dbh	2	6.50	0.50	0.71	0.50	6	7
13	POBA	Height	2	55.00	200.00	14.14	0.00	45	65
13	POTR1	Height	72	58.40	183.62	13.55	1.60	34	90
13	POTR1	dbh	72	6.63	4.38	2.09	0.25	4	14
13	QUPR	dbh	1	5.00	.	.	.	5	5
13	QUPR	Height	1	35.00	.	.	.	35	35
16	ABBA	dbh	7	5.86	1.81	1.35	0.51	4	7
16	ABBA	Height	7	35.71	79.90	8.94	3.38	25	49
16	PIGL	dbh	1	4.00	.	.	.	4	4
16	PIGL	Height	1	28.00	.	.	.	28	28
16	POTR1	Height	57	72.79	135.92	11.66	1.54	50	92
16	POTR1	dbh	57	8.35	3.34	1.83	0.24	5	13
16	ULRU	dbh	1	4.00	.	.	.	4	4
16	ULRU	Height	1	30.00	.	.	.	30	30
17	ABBA	dbh	1	13.00	.	.	.	13	13
17	ABBA	Height	1	62.00	.	.	.	62	62
17	FRNI	dbh	47	7.47	7.21	2.69	0.39	4	14
17	FRNI	Height	47	50.55	271.64	16.48	2.40	3	82
17	PIGL	dbh	9	6.56	9.28	3.05	1.02	4	14
17	PIGL	Height	9	37.44	293.28	17.13	5.71	22	79
17	POBA	dbh	2	8.00	32.00	5.66	4.00	4	12
17	POBA	Height	2	45.50	264.50	16.26	1.50	34	57
17	QUMA	dbh	1	4.00	.	.	.	4	4
17	QUMA	Height	1	32.00	.	.	.	32	32
17	ULAM	dbh	1	4.00	.	.	.	4	4
17	ULAM	Height	1	31.00	.	.	.	31	31
17	ULRU	dbh	2	5.00	0.00	0.00	0.00	5	5
17	ULRU	Height	2	32.00	8.00	2.83	2.00	30	34

Appendix B Table 2 (Cont).

Unit no.	Species	dbh/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
18	ABBA	dbh	17	7.88	6.36	2.52	0.61	5	12
18	ABBA	Height	17	41.00	105.75	10.28	2.49	20	65
18	ACRU1	dbh	4	4.00	0.00	0.00	0.00	4	4
18	ACRU1	Height	4	38.00	63.33	7.96	3.98	30	49
18	BEPA	dbh	6	5.50	1.90	1.38	0.56	4	7
18	BEPA	Height	6	42.83	110.17	10.50	4.28	27	58
18	FRNI	dbh	33	6.27	3.33	1.82	0.32	4	11
18	FRNI	Height	33	40.82	129.84	11.39	1.98	18	67
18	FRPE	dbh	2	5.00	2.00	1.41	1.00	4	6
18	FRPE	Height	2	43.50	84.50	9.19	6.50	37	50
18	LALA	dbh	2	11.50	0.50	0.71	0.50	11	12
18	LALA	Height	2	55.50	0.50	0.71	0.50	55	56
18	PIGL	dbh	1	4.00	.	.	.	4	4
18	PIGL	Height	1	22.00	.	.	.	22	22
18	POBA	dbh	2	4.50	0.50	0.71	0.50	4	5
18	POBA	Height	2	46.00	32.00	5.66	4.00	42	50
18	POGR	dbh	1	14.00	.	.	.	14	14
18	POGR	Height	1	63.00	.	.	.	63	63
18	POTR1	dbh	10	5.80	0.40	0.63	0.20	5	7
18	POTR1	Height	10	53.70	48.68	6.98	2.21	40	62
18	TIAM	dbh	5	6.40	2.80	1.67	0.75	5	9
18	TIAM	Height	5	37.00	74.50	8.63	3.86	27	47
18	ULRU	dbh	4	4.75	0.92	0.96	0.48	4	6
18	ULRU	Height	4	35.50	7.00	2.65	1.32	33	39
19	ABBA	dbh	23	7.09	6.36	2.52	0.53	4	13
19	ABBA	Height	23	41.65	87.60	9.36	1.95	21	56
19	FRNI	dbh	39	6.87	6.64	2.58	0.41	4	14
19	FRNI	Height	39	50.23	85.87	9.27	1.48	33	70
19	LALA	dbh	1	6.00	.	.	.	6	6
19	LALA	Height	1	40.00	.	.	.	40	40
19	PIMA	dbh	17	7.65	5.49	2.34	0.57	4	12
19	PIMA	Height	17	53.00	196.38	14.01	3.40	28	75
19	POBA	dbh	4	4.75	0.92	0.96	0.48	4	6
19	POBA	Height	4	43.00	23.33	4.83	2.42	39	50
19	POTR1	Height	11	64.73	33.62	5.80	1.75	52	73
19	POTR1	dbh	11	6.91	3.89	1.97	0.59	4	10
20	ABBA	dbh	4	4.75	0.25	0.50	0.25	4	5

Appendix B Table 2 (Cont).

Unit no.	Species	dbh/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
20	ABBA	Height	4	28.75	35.58	5.97	2.98	20	33
20	BEPA	dbh	2	9.50	40.50	6.36	4.50	5	14
20	BEPA	Height	2	50.00	450.00	21.21	5.00	35	65
20	FRNI	dbh	44	6.43	4.62	2.15	0.32	4	13
20	FRNI	Height	44	46.43	109.32	10.46	1.58	30	68
20	POBA	dbh	12	10.33	4.06	2.02	0.58	7	15
20	POBA	Height	12	51.67	61.33	7.83	2.26	40	60
21	ABBA	dbh	110	5.70	1.40	1.19	0.11	4	10
21	ABBA	Height	110	44.51	83.37	9.13	0.87	25	75
21	BEPA	dbh	13	6.69	5.23	2.29	0.63	4	11
21	BEPA	Height	13	50.62	217.92	14.76	4.09	25	70
21	PIGL	dbh	1	9.00	.	.	.	9	9
21	PIGL	Height	1	50.00	.	.	.	50	50
21	PIMA	dbh	3	8.67	2.33	1.53	0.88	7	10
21	PIMA	Height	3	51.67	58.33	7.64	4.41	45	60
21	POTR1	Height	36	56.86	159.44	12.63	2.10	27	70
21	POTR1	dbh	36	8.67	4.23	2.06	0.34	4	13
22	ABBA	dbh	42	5.36	1.21	1.10	0.17	4	8
22	ABBA	Height	42	37.83	83.56	9.14	1.41	20	55
22	BEPA	dbh	8	4.88	0.41	0.64	0.23	4	6
22	BEPA	Height	8	48.63	83.13	9.12	3.22	36	63
22	POBA	dbh	1	7.00	.	.	.	7	7
22	POBA	Height	1	60.00	.	.	.	60	60
22	POTR1	Height	36	69.36	73.84	8.59	1.43	37	83
22	POTR1	dbh	36	8.89	3.53	1.88	0.31	4	13
23	ABBA	dbh	32	5.81	2.54	1.60	0.28	4	10
23	ABBA	Height	32	38.78	95.27	9.76	1.73	23	63
23	ACRU1	Height	3	52.33	5.33	2.31	1.33	51	55
23	ACRU1	dbh	3	7.67	1.33	1.15	0.67	7	9
23	BEPA	dbh	2	6.50	4.50	2.12	1.50	5	8
23	BEPA	Height	2	55.00	200.00	14.14	0.00	45	65
23	FRNI	dbh	5	5.80	1.70	1.30	0.58	4	7
23	FRNI	Height	5	36.80	81.20	9.01	4.03	27	49
23	POTR1	Height	18	63.22	308.77	17.57	4.14	24	84
23	POTR1	dbh	18	10.06	13.47	3.67	0.86	4	16
23	THOC	dbh	13	10.54	5.44	2.33	0.65	8	15
23	THOC	Height	13	39.38	52.26	7.23	2.00	22	54

Appendix B Table 2 (Cont).

Unit no.	Species	dbh/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
24	ABBA	dbh	18	7.44	4.14	2.04	0.48	4	11
24	ABBA	Height	18	55.56	255.56	15.99	3.77	30	85
24	BEPA	dbh	10	4.90	0.54	0.74	0.23	4	6
24	BEPA	Height	10	49.00	56.22	7.50	2.37	38	65
24	POBA	dbh	7	6.86	2.81	1.68	0.63	5	10
24	POBA	Height	7	72.14	67.81	8.23	3.11	55	80
24	POTR1	Height	42	64.45	240.94	15.52	2.40	19	87
24	POTR1	dbh	42	8.05	5.12	2.26	0.35	4	13
24	THOC	dbh	32	5.84	2.14	1.46	0.26	4	11
24	THOC	Height	32	35.00	31.61	5.62	0.99	22	47
28	PIMA	dbh	64	4.67	0.76	0.87	0.11	4	8
28	PIMA	dbh	153	5.59	1.77	1.33	0.11	4	11
28	PIMA	Height	64	34.36	39.09	6.25	0.78	22	57
28	PIMA	Height	153	40.40	58.18	7.63	0.62	22.7	60
28	THOC	dbh	21	5.48	1.56	1.25	0.27	4	8
28	THOC	Height	21	19.71	32.01	5.66	1.23	13	32
31	PIMA	dbh	109	5.57	1.84	1.36	0.13	4	9
31	PIMA	Height	109	37.59	74.65	8.64	0.83	18	50
32	LALA	dbh	45	4.89	0.60	0.78	0.12	4	7
32	LALA	Height	45	30.47	22.03	4.69	0.70	23	40
32	PIMA	dbh	29	6.34	3.02	1.74	0.32	4	11
32	PIMA	Height	29	37.72	38.35	6.19	1.15	29	58
34	ABBA	dbh	19	5.16	1.81	1.34	0.31	4	9
34	ABBA	Height	19	45.26	104.98	10.25	2.35	30	66
34	BEPA	dbh	4	5.00	0.67	0.82	0.41	4	6
34	BEPA	Height	4	57.25	106.25	10.31	5.15	46	66
34	PIGL	dbh	1	7.00	.	.	.	7	7
34	PIGL	Height	1	46.00	.	.	.	46	46
34	POBA	dbh	5	5.60	2.30	1.52	0.68	4	8
34	POBA	Height	5	55.40	6.30	2.51	1.12	53	59
34	POTR1	Height	64	60.00	27.49	5.24	0.66	46	66
34	POTR1	dbh	64	7.20	3.94	1.99	0.25	4	13
34	UNK	dbh	1	6.00	.	.	.	6	6
34	UNK	Height	1	46.00	.	.	.	46	46
38	ABBA	dbh	12	7.58	1.72	1.31	0.38	5	10
38	ABBA	Height	12	50.75	79.84	8.94	2.58	36	63
38	FRNI	dbh	10	7.30	1.57	1.25	0.40	6	10

Appendix B Table 2 (Cont).

Unit no.	Species	dbh/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
38	FRNI	Height	10	50.90	259.43	16.11	5.09	13	71
38	POTR1	Height	95	54.52	39.64	6.30	0.65	40	75
38	POTR1	dbh	95	5.78	1.64	1.28	0.13	4	10
39	ABBA	dbh	29	6.59	1.97	1.40	0.26	4	10
39	ABBA	Height	29	32.38	281.82	16.79	3.12	8	53
39	POBA	dbh	3	5.33	2.33	1.53	0.88	4	7
39	POBA	Height	3	38.67	32.33	5.69	3.28	34	45
39	POTR1	Height	21	31.24	429.09	20.71	4.52	10	65
39	POTR1	dbh	21	8.57	5.96	2.44	0.53	5	13
39	ULRU	dbh	4	4.00	0.00	0.00	0.00	4	4
39	ULRU	Height	4	31.00	2.00	1.41	0.71	29	32
40	ABBA	dbh	34	4.74	0.56	0.75	0.13	4	7
40	ABBA	Height	34	38.53	42.74	6.54	1.12	27	59
40	BEPA	dbh	3	4.33	0.33	0.58	0.33	4	5
40	BEPA	Height	3	38.67	34.33	5.86	3.38	32	43
40	FRNI	dbh	1	4.00	.	.	.	4	4
40	FRNI	Height	1	30.00	.	.	.	30	30
40	POBA	dbh	9	6.33	4.25	2.06	0.69	5	10
40	POBA	Height	9	51.67	149.50	12.23	4.08	38	70
40	POTR1	Height	55	57.87	136.78	11.70	1.58	35	76
40	POTR1	dbh	55	7.96	5.52	2.35	0.32	4	16
45	ABBA	dbh	21	5.05	0.65	0.80	0.18	4	6
45	ABBA	Height	21	39.52	25.56	5.06	1.10	32	50
45	BEPA	dbh	9	5.33	0.25	0.50	0.17	5	6
45	BEPA	Height	9	38.44	55.03	7.42	2.47	26	48
45	LALA	dbh	3	8.33	1.33	1.15	0.67	7	9
45	LALA	Height	3	54.67	6.33	2.52	1.45	52	57
45	POBA	dbh	1	4.00	.	.	.	4	4
45	POBA	Height	1	30.00	.	.	.	30	30
45	THOC	dbh	133	6.12	2.71	1.65	0.14	4	14
45	THOC	Height	133	32.48	60.95	7.81	0.68	9	49
46	ABBA	dbh	8	6.25	4.50	2.12	0.75	4	9
46	ABBA	Height	8	37.50	54.57	7.39	2.61	26	45
46	BEPA	dbh	14	4.86	1.05	1.03	0.27	4	7
46	BEPA	Height	14	34.86	38.59	6.21	1.66	25	43
46	PIGL	dbh	1	7.00	.	.	.	7	7
46	PIGL	Height	1	41.00	.	.	.	41	41

Appendix B Table 2 (Cont).

Unit no.	Species	dbh/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
46	PIMA	dbh	26	6.15	0.54	0.73	0.14	5	9
46	PIMA	Height	26	46.38	4.25	2.06	0.40	40	48
46	POBA	dbh	10	5.50	1.17	1.08	0.34	4	7
46	POBA	Height	10	39.20	15.29	3.91	1.24	30	43
46	POTR1	dbh	2	5.50	0.50	0.71	0.50	5	6
46	POTR1	Height	2	42.50	0.50	0.71	0.50	42	43
46	THOC	dbh	148	5.95	3.73	1.93	0.16	4	15
46	THOC	Height	148	29.62	23.91	4.89	0.40	16	42
47	ABBA	dbh	10	6.60	2.71	1.65	0.52	4	10
47	ABBA	Height	10	42.20	85.29	9.24	2.92	30	59
47	BEPA	dbh	4	5.00	2.00	1.41	0.71	4	7
47	BEPA	Height	4	32.25	4.25	2.06	1.03	30	35
47	FRNI	dbh	4	10.25	24.92	4.99	2.50	5	17
47	FRNI	Height	4	43.25	82.25	9.07	4.53	30	50
47	THOC	dbh	140	7.44	7.53	2.74	0.23	4	19
47	THOC	Height	140	35.04	70.50	8.40	0.71	15	56
48	ABBA	dbh	14	5.79	2.49	1.58	0.42	4	9
48	ABBA	Height	14	39.36	83.79	9.15	2.45	28	61
48	BEPA	dbh	3	6.33	5.33	2.31	1.33	5	9
48	BEPA	Height	3	41.00	25.00	5.00	2.89	36	46
48	PIMA	dbh	2	5.00	0.00	0.00	0.00	5	5
48	PIMA	Height	2	39.00	8.00	2.83	2.00	37	41
48	THOC	dbh	156	6.17	2.54	1.60	0.13	4	13
48	THOC	Height	156	31.69	25.22	5.02	0.40	15	49

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 3. Large trees stem density (stems/plot) by ELU.

ELU	Species	Stem density	ELU	Species	Stem density
ED(p)	ABBA	10.6667	LW(m)	POBA	0.6667
ED(p)	ACRU1	1	LW(m)	POGR	0.1667
ED(p)	BEPA	0.6667	LW(m)	POTR1	1.6667
ED(p)	FRNI	1.6667	LW(m)	QUMA	0.1667
ED(p)	POTR1	6	LW(m)	TIAM	0.8333
ED(p)	THOC	4.3333	LW(m)	ULAM	0.1667
EM(p)	ABBA	5.5833	LW(m)	ULRU	1
EM(p)	ACRU1	0.25	LW(p)	LALA	49.1667
EM(p)	BEPA	2.8333	LW(p)	PIMA	0.1667
EM(p)	PIBA	0.4167	LW(p)	POBA	0.1667
EM(p)	PIRE	0.0833	LW(pm)	POBA	0.9167
EM(p)	POBA	1.0833	LW(pm)	POTR1	0.1667
EM(p)	POTR1	18.3333	LW(pm)	THOC	48.0833
EM(p)	THOC	2.6667	LW(pm)	ABBA	4.4167
EW(m)	ABBA	4.5	LW(pm)	BEPA	2.5
EW(m)	BEPA	0.3333	LW(pm)	FRNI	0.3333
EW(m)	FRNI	13.8333	LW(pm)	LALA	0.25
EW(m)	LALA	0.1667	LW(pm)	PIGL	0.0833
EW(m)	PIMA	2.8333	LW(pm)	PIMA	2.3333
EW(m)	POBA	2.6667	LW(vp)	THOC	1.75
EW(m)	POTR1	1.8333	LW(vp)	LALA	3.9167
LM(m)	ABBA	6.2857	LW(vp)	PIMA	29.5833
LM(m)	ACRU1	0.4286	MM(m)	ABBA	2
LM(m)	BEPA	0.6429	MM(m)	FRNI	0.9091
LM(m)	FRNI	0.5	MM(m)	PIGL	0.2727
LM(m)	PIGL	0.0714	MM(m)	POBA	2.2727
LM(m)	POBA	1.3571	MM(m)	POTR1	26.2727
LM(m)	POTR1	15.1429	MM(m)	ULRU	0.1818
LM(m)	QUPR	0.0714	MM(p)	ABBA	36.6667
LM(m)	ULRU	0.2857	MM(p)	BEPA	4.3333
LM(m)	UNK	0.0714	MM(p)	PIGL	0.3333
LW(m)	ABBA	3	MM(p)	PIMA	1
LW(m)	ACRU1	0.6667	MM(p)	POTR1	12
LW(m)	BEPA	1	MW(m)	ABBA	0.3333
LW(m)	FRNI	13.3333	MW(m)	ACRU1	4.3333
LW(m)	FRPE	0.3333	MW(m)	BEPA	2.1667
LW(m)	PIGL	1.6667	MW(m)	FRNI	0.3333

Appendix B Table 3 (Cont).

ELU	Species	Stem density
MW(m)	POBA	4.5
MW(m)	POTR1	19.1667
MW(m)	UNK	0.1667
MW(p)	LALA	38.5
MW(p)	PIMA	0.5

Appendix B Table 4. Large trees stem density (stems/plot) by unit number.

Unit No.	Species	Stem density	Unit No.	Species	Stem density
1	ABBA	0.3333	13	ACRU1	2
1	ACRU1	8	13	BEPA	0.6667
1	BEPA	4.3333	13	FRNI	2
1	FRNI	0.6667	13	POBA	0.6667
1	POBA	1	13	POTR1	24
1	POTR1	22.6667	13	QUPR	0.3333
1	UNK	0.3333	16	ABBA	2.3333
2	ABBA	0.3333	16	PIGL	0.3333
2	ACRU1	0.6667	16	POTR1	19
2	POBA	8	16	ULRU	0.3333
2	POTR1	15.6667	17	ABBA	0.3333
3	ABBA	1.6667	17	FRNI	15.6667
3	ACRU1	1	17	PIGL	3
3	BEPA	5	17	POBA	0.6667
3	POBA	0.6667	17	QUMA	0.3333
3	POTR1	22	17	ULAM	0.3333
4	ABBA	0.6667	17	ULRU	0.6667
4	BEPA	0.3333	18	ABBA	5.6667
4	PIBA	1.6667	18	ACRU1	1.3333
4	PIRE	0.3333	18	BEPA	2
4	POBA	1	18	FRNI	11
4	POTR1	25.3333	18	FRPE	0.6667
5	LALA	43.3333	18	PIGL	0.3333
5	PIMA	1	18	POBA	0.6667
6	LALA	58	18	POGR	0.3333
6	PIMA	0.3333	18	POTR1	3.3333
7	LALA	33.6667	18	TIAM	1.6667
8	LALA	40.3333	18	ULRU	1.3333
8	POBA	0.3333	19	ABBA	7.6667
9	POBA	0.5	19	FRNI	13
9	POTR1	30.5	19	LALA	0.3333
11	ABBA	1	19	PIMA	5.6667
11	PIGL	0.6667	19	POBA	1.3333
11	POBA	8	19	POTR1	3.6667
11	POTR1	25.3333	20	ABBA	1.3333
11	ULRU	0.3333	20	BEPA	0.6667
13	ABBA	2	20	FRNI	14.6667

Appendix B Table 4 (Cont).

Unit No.	Species	Stem density	Unit No.	Species	Stem density
21	PIGL	0.3333	40	ABBA	11.3333
21	PIMA	1	40	BEPA	1
21	POTR1	12	40	FRNI	0.3333
22	ABBA	14	40	POBA	3
22	BEPA	2.6667	40	POTR1	18.3333
22	POBA	0.3333	45	ABBA	7
22	POTR1	12	45	BEPA	3
23	ABBA	10.6667	45	LALA	1
23	ACRU1	1	45	POBA	0.3333
23	BEPA	0.6667	45	THOC	44.3333
23	FRNI	1.6667	46	ABBA	2.6667
23	POTR1	6	46	BEPA	4.6667
23	THOC	4.3333	46	PIGL	0.3333
24	ABBA	6	46	PIMA	8.6667
24	BEPA	3.3333	46	POBA	3.3333
24	POBA	2.3333	46	POTR1	0.6667
24	POTR1	14	46	THOC	49.3333
24	THOC	10.6667	47	ABBA	3.3333
28	LALA	0.6667	47	BEPA	1.3333
28	PIMA	21.3333	47	FRNI	1.3333
28	THOC	7	47	THOC	46.6667
30	PIMA	51	48	ABBA	4.6667
31	PIMA	36.3333	48	BEPA	1
32	LALA	15	48	PIMA	0.6667
32	PIMA	9.6667	48	THOC	52
34	ABBA	6.3333			
34	BEPA	1.3333			
34	PIGL	0.3333			
34	POBA	1.6667			
34	POTR1	21.3333			
34	UNK	0.3333			
38	ABBA	4			
38	FRNI	3.3333			
38	POTR1	31.6667			
39	ABBA	9.6667			
39	POBA	1			
39	POTR1	7			
39	ULRU	1.3333			

Appendix B Table 5. Small trees diameter (in) and height (ft) means, variances, standard deviations, standard errors, minimums, and maximums by ELU and species[a].

ELU	Variable	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
ED(p)	Diameter	ABBA	34	1.51	0.93	0.97	0.17	0.5	3
ED(p)	Diameter	ACRU1	49	0.51	0.01	0.07	0.01	0.5	1
ED(p)	Diameter	BEPA	5	1.80	0.70	0.84	0.37	1	3
ED(p)	Diameter	FRNI	57	0.63	0.16	0.40	0.05	0.5	2
ED(p)	Diameter	POTR1	7	0.86	0.89	0.94	0.36	0.5	3
ED(p)	Height	ABBA	34	10.85	68.25	8.26	1.42	1	27
ED(p)	Height	ACRU1	49	2.18	2.65	1.63	0.23	1	7
ED(p)	Height	BEPA	5	25.60	38.30	6.19	2.77	18	34
ED(p)	Height	FRNI	57	5.02	20.73	4.55	0.60	1	22
ED(p)	Height	POTR1	7	5.29	100.90	10.05	3.80	1	28
EM(p)	Diameter	ABBA	152	0.94	0.61	0.78	0.06	0.5	4
EM(p)	Diameter	ACRU1	166	0.60	0.19	0.44	0.03	0.5	4
EM(p)	Diameter	BEAL	5	1.10	0.30	0.55	0.24	0.5	2
EM(p)	Diameter	BEPA	10	2.70	0.46	0.67	0.21	1	3
EM(p)	Diameter	FRNI	103	0.53	0.03	0.17	0.02	0.5	2
EM(p)	Diameter	PIGL	4	0.75	0.08	0.29	0.14	0.5	1
EM(p)	Diameter	POBA	2	0.50	0.00	0.00	0.00	0.5	0.5
EM(p)	Diameter	POTR1	47	2.00	1.27	1.13	0.16	0.5	4
EM(p)	Diameter	THOC	99	0.72	0.35	0.59	0.06	0.5	3
EM(p)	Diameter	ULRU	11	1.77	0.47	0.68	0.21	0.5	3
EM(p)	Height	ABBA	152	5.93	42.98	6.56	0.53	1	45
EM(p)	Height	ACRU1	166	3.33	43.34	6.58	0.51	1	42
EM(p)	Height	BEAL	5	20.20	55.70	7.46	3.34	8	25
EM(p)	Height	BEPA	10	34.00	26.00	5.10	1.61	25	41
EM(p)	Height	FRNI	103	2.45	8.70	2.95	0.29	1	24
EM(p)	Height	PIGL	4	7.00	36.67	6.06	3.03	1	14
EM(p)	Height	POBA	2	4.50	0.50	0.71	0.50	4	5
EM(p)	Height	POTR1	47	25.87	277.33	16.65	2.43	1	50
EM(p)	Height	THOC	99	4.52	23.13	4.81	0.48	1	21
EM(p)	Height	ULRU	11	20.00	45.80	6.77	2.04	2	30
EW(m)	Diameter	ABBA	48	1.00	0.37	0.61	0.09	0.5	3
EW(m)	Diameter	ACRU1	180	0.53	0.01	0.11	0.01	0.5	1
EW(m)	Diameter	BEAL	1	1.00	.	.	.	1	1
EW(m)	Diameter	FRNI	113	0.85	0.44	0.67	0.06	0.5	3
EW(m)	Diameter	PIGL	4	0.63	0.06	0.25	0.13	0.5	1
EW(m)	Diameter	PIMA	1	0.50	.	.	.	0.5	0.5
EW(m)	Diameter	POBA	8	0.94	0.25	0.50	0.18	0.5	2
EW(m)	Diameter	ULRU	9	0.61	0.05	0.22	0.07	0.5	1
EW(m)	Height	ABBA	48	6.58	21.35	4.62	0.67	1	20
EW(m)	Height	ACRU1	180	2.86	3.07	1.75	0.13	1	13
EW(m)	Height	BEAL	1	18.00	.	.	.	18	18

Appendix B Table 5 (Cont).

ELU	Variable	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
EW(m)	Height	FRNI	113	7.86	63.43	7.96	0.75	1	35
EW(m)	Height	PIGL	4	1.75	2.25	1.50	0.75	1	4
EW(m)	Height	PIMA	1	2.00	.	.	.	2	2
EW(m)	Height	POBA	8	11.38	29.70	5.45	1.93	5	23
EW(m)	Height	ULRU	9	5.56	9.03	3.00	1.00	1	10
LM(m)	Diameter	ABBA	56	1.99	1.48	1.22	0.16	0.5	4
LM(m)	Diameter	ACRU1	71	0.52	0.03	0.18	0.02	0.5	2
LM(m)	Diameter	BEPA	4	2.75	0.25	0.50	0.25	2	3
LM(m)	Diameter	FRNI	397	0.58	0.12	0.35	0.02	0.5	3
LM(m)	Diameter	POBA	4	1.63	1.23	1.11	0.55	0.5	3
LM(m)	Diameter	POTR1	23	0.91	1.22	1.10	0.23	0.5	4
LM(m)	Diameter	QUMA	1	0.50	.	.	.	0.5	0.5
LM(m)	Diameter	THOC	3	0.67	0.08	0.29	0.17	0.5	1
LM(m)	Diameter	ULRU	27	0.81	0.29	0.54	0.10	0.5	2
LM(m)	Diameter	UNK	7	0.71	0.32	0.57	0.21	0.5	2
LM(m)	Height	ABBA	56	15.59	107.05	10.35	1.38	1	49
LM(m)	Height	ACRU1	71	2.58	4.99	2.23	0.27	1	13
LM(m)	Height	BEPA	4	26.75	4.92	2.22	1.11	25	30
LM(m)	Height	FRNI	397	3.65	34.21	5.85	0.29	1	52
LM(m)	Height	POBA	4	17.25	98.25	9.91	4.96	8	30
LM(m)	Height	POTR1	23	7.83	184.97	13.60	2.84	1	59
LM(m)	Height	QUMA	1	1.00	.	.	.	1	1
LM(m)	Height	THOC	3	7.00	1.00	1.00	0.58	6	8
LM(m)	Height	ULRU	27	7.52	30.03	5.48	1.05	1	20
LM(m)	Height	UNK	7	5.00	3.00	1.73	0.65	3	7
LW(m)	Diameter	ABBA	7	0.86	0.31	0.56	0.21	0.5	2
LW(m)	Diameter	ACRU1	44	0.51	0.01	0.08	0.01	0.5	1
LW(m)	Diameter	FRNI	199	0.64	0.21	0.46	0.03	0.5	3
LW(m)	Diameter	PIGL	2	1.50	0.50	0.71	0.50	1	2
LW(m)	Diameter	POBA	4	0.88	0.56	0.75	0.38	0.5	2
LW(m)	Diameter	POTR1	2	2.00	0.00	0.00	0.00	2	2
LW(m)	Diameter	QUMA	5	0.80	0.45	0.67	0.30	0.5	2
LW(m)	Diameter	QURU	1	0.50	.	.	.	0.5	0.5
LW(m)	Diameter	ULAM	3	1.33	2.08	1.44	0.83	0.5	3
LW(m)	Diameter	ULRU	26	0.92	0.75	0.87	0.17	0.5	3
LW(m)	Height	ABBA	7	5.14	23.81	4.88	1.84	1	13
LW(m)	Height	ACRU1	44	4.20	25.00	5.00	0.75	1	26
LW(m)	Height	FRNI	199	5.08	35.49	5.96	0.42	1	32
LW(m)	Height	PIGL	2	11.00	50.00	7.07	5.00	6	16
LW(m)	Height	POBA	4	6.75	56.92	7.54	3.77	2	18
LW(m)	Height	POTR1	2	27.50	12.50	3.54	2.50	25	30
LW(m)	Height	QUMA	5	7.60	67.30	8.20	3.67	2	21
LW(m)	Height	QURU	1	3.00	.	.	.	3	3
LW(m)	Height	ULAM	3	9.67	154.33	12.42	7.17	2	24

Appendix B Table 5 (Cont).

ELU	Variable	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
LW(m)	Height	ULRU	26	8.15	83.18	9.12	1.79	1	32
LW(p)	Diameter	ABBA	1	1.00	.	.	.	1	1
LW(p)	Diameter	LALA	18	2.33	1.18	1.08	0.26	1	4
LW(p)	Diameter	PIMA	85	0.97	0.45	0.67	0.07	0.5	3
LW(p)	Diameter	THOC	25	0.84	0.39	0.62	0.12	0.5	3
LW(p)	Height	ABBA	1	8.00	.	.	.	8	8
LW(p)	Height	LALA	18	24.78	115.24	10.74	2.53	9	40
LW(p)	Height	PIMA	85	6.36	20.57	4.54	0.49	1	22
LW(p)	Height	THOC	25	6.08	25.66	5.07	1.01	2	15
LW(pm)	Diameter	ABBA	309	0.83	0.43	0.66	0.04	0.5	4
LW(pm)	Diameter	ACRU1	1	0.50	.	.	.	0.5	0.5
LW(pm)	Diameter	BEPA	2	4.00	0.00	0.00	0.00	4	4
LW(pm)	Diameter	FRNI	17	0.79	0.35	0.59	0.14	0.5	2
LW(pm)	Diameter	LALA	2	1.00	0.00	0.00	0.00	1	1
LW(pm)	Diameter	PIGL	1	0.50	.	.	.	0.5	0.5
LW(pm)	Diameter	PIMA	3	1.00	0.00	0.00	0.00	1	1
LW(pm)	Diameter	POBA	3	0.83	0.08	0.29	0.17	0.5	1
LW(pm)	Diameter	POTR1	1	1.00	.	.	.	1	1
LW(pm)	Diameter	THOC	99	2.03	1.14	1.07	0.11	0.5	4
LW(pm)	Diameter	ULRU	6	0.58	0.04	0.20	0.08	0.5	1
LW(pm)	Height	ABBA	309	5.56	35.21	5.93	0.34	1	30
LW(pm)	Height	ACRU1	1	2.00	.	.	.	2	2
LW(pm)	Height	BEPA	2	25.00	18.00	4.24	3.00	22	28
LW(pm)	Height	FRNI	17	3.18	10.40	3.23	0.78	1	15
LW(pm)	Height	LALA	2	4.50	12.50	3.54	2.50	2	7
LW(pm)	Height	PIGL	1	1.00	.	.	.	1	1
LW(pm)	Height	PIMA	3	3.33	0.33	0.58	0.33	3	4
LW(pm)	Height	POBA	3	6.67	16.33	4.04	2.33	2	9
LW(pm)	Height	POTR1	1	14.00	.	.	.	14	14
LW(pm)	Height	THOC	99	14.73	51.10	7.15	0.72	1	33
LW(pm)	Height	ULRU	6	2.83	6.57	2.56	1.05	1	8
LW(vp)	Diameter	ABBA	43	0.62	0.08	0.29	0.04	0.5	2
LW(vp)	Diameter	LALA	20	1.98	1.41	1.19	0.27	0.5	4
LW(vp)	Diameter	PIMA	260	1.01	0.76	0.87	0.05	0.5	4
LW(vp)	Diameter	THOC	16	0.69	0.16	0.40	0.10	0.5	2
LW(vp)	Height	ABBA	43	4.02	8.74	2.96	0.45	1	11
LW(vp)	Height	LALA	20	17.25	101.99	10.10	2.26	3	35
LW(vp)	Height	PIMA	260	7.33	78.35	8.85	0.55	1	39
LW(vp)	Height	THOC	16	4.81	8.83	2.97	0.74	1	10
MM(m)	Diameter	ABBA	41	1.15	0.77	0.87	0.14	0.5	4
MM(m)	Diameter	ACRU1	9	0.56	0.03	0.17	0.06	0.5	1
MM(m)	Diameter	BEPA	16	1.41	0.51	0.71	0.18	0.5	2
MM(m)	Diameter	FRNI	258	0.53	0.03	0.18	0.01	0.5	2
MM(m)	Diameter	POBA	3	0.50	0.00	0.00	0.00	0.5	0.5

Appendix B Table 5 (Cont).

ELU	Variable	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
MM(m)	Diameter	POTR1	68	1.53	1.52	1.23	0.15	0.5	4
MM(m)	Diameter	QUMA	1	1.00	.	.	.	1	1
MM(m)	Diameter	ULRU	5	1.10	1.18	1.08	0.48	0.5	3
MM(m)	Height	ABBA	41	8.44	27.60	5.25	0.82	1	25
MM(m)	Height	ACRU1	9	4.00	28.50	5.34	1.78	1	16
MM(m)	Height	BEPA	16	16.38	43.18	6.57	1.64	3	28
MM(m)	Height	FRNI	258	3.42	10.07	3.17	0.20	1	30
MM(m)	Height	POBA	3	2.33	0.33	0.58	0.33	2	3
MM(m)	Height	POTR1	68	17.88	189.78	13.78	1.67	1	53
MM(m)	Height	QUMA	1	10.00	.	.	.	10	10
MM(m)	Height	ULRU	5	7.80	46.20	6.80	3.04	2	18
MM(p)	Diameter	ABBA	7	3.14	0.48	0.69	0.26	2	4
MM(p)	Diameter	POTR1	3	0.50	0.00	0.00	0.00	0.5	0.5
MM(p)	Height	ABBA	7	38.29	40.90	6.40	2.42	28	45
MM(p)	Height	POTR1	3	3.00	3.00	1.73	1.00	2	5
MW(m)	Diameter	ACRU1	22	0.66	0.56	0.75	0.16	0.5	4
MW(m)	Diameter	BEPA	1	3.00	.	.	.	3	3
MW(m)	Diameter	FRNI	3	0.50	0.00	0.00	0.00	0.5	0.5
MW(m)	Diameter	PIGL	1	1.00	.	.	.	1	1
MW(m)	Diameter	POBA	25	0.94	0.88	0.94	0.19	0.5	4
MW(m)	Diameter	POTR1	52	1.03	0.99	1.00	0.14	0.5	4
MW(m)	Diameter	ULRU	9	0.50	0.00	0.00	0.00	0.5	0.5
MW(m)	Height	ACRU1	22	3.05	51.57	7.18	1.53	1	35
MW(m)	Height	BEPA	1	38.00	.	.	.	38	38
MW(m)	Height	FRNI	3	2.00	0.00	0.00	0.00	2	2
MW(m)	Height	PIGL	1	6.00	.	.	.	6	6
MW(m)	Height	POBA	25	7.88	130.19	11.41	2.28	2	50
MW(m)	Height	POTR1	52	9.40	209.70	14.48	2.01	1	51
MW(m)	Height	ULRU	9	1.56	0.53	0.73	0.24	1	3
MW(p)	Diameter	PIMA	32	1.30	1.29	1.13	0.20	0.5	4
MW(p)	Diameter	THOC	2	1.75	3.13	1.77	1.25	0.5	3
MW(p)	Height	PIMA	32	9.25	159.61	12.63	2.23	1	50
MW(p)	Height	THOC	2	10.00	128.00	11.31	8.00	2	18

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 6. Small trees diameter (in) and height (ft) means, variances, standard deviations, standard errors, minimums and maximums by unit number and species[a].

Unit No.	Variable	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
1	Diameter	ACRU1	14	0.75	0.88	0.94	0.25	0.5	4
1	Diameter	BEPA	1	3.00	.	.	.	3	3
1	Diameter	POBA	1	4.00	.	.	.	4	4
1	Diameter	POTR1	5	2.60	0.30	0.55	0.24	2	3
1	Height	ACRU1	14	3.79	80.95	9.00	2.40	1	35
1	Height	BEPA	1	38.00	.	.	.	38	38
1	Height	POBA	1	50.00	.	.	.	50	50
1	Height	POTR1	5	40.40	163.30	12.78	5.71	25	51
2	Diameter	ACRU1	8	0.50	0.00	0.00	0.00	0.5	0.5
2	Diameter	FRNI	3	0.50	0.00	0.00	0.00	0.5	0.5
2	Diameter	PIGL	1	1.00	.	.	.	1	1
2	Diameter	POBA	24	0.81	0.50	0.70	0.14	0.5	3
2	Diameter	POTR1	47	0.86	0.78	0.88	0.13	0.5	4
2	Diameter	ULRU	9	0.50	0.00	0.00	0.00	0.5	0.5
2	Height	ACRU1	8	1.75	1.36	1.16	0.41	1	4
2	Height	FRNI	3	2.00	0.00	0.00	0.00	2	2
2	Height	PIGL	1	6.00	.	.	.	6	6
2	Height	POBA	24	6.13	55.51	7.45	1.52	2	30
2	Height	POTR1	47	6.11	102.75	10.14	1.48	1	35
2	Height	ULRU	9	1.56	0.53	0.73	0.24	1	3
3	Diameter	ABBA	11	0.55	0.02	0.15	0.05	0.5	1
3	Diameter	ACRU1	72	0.69	0.39	0.62	0.07	0.5	4
3	Diameter	BEAL	5	1.10	0.30	0.55	0.24	0.5	2
3	Diameter	BEPA	4	2.50	1.00	1.00	0.50	1	3
3	Diameter	PIGL	1	0.50	.	.	.	0.5	0.5
3	Diameter	POTR1	27	1.76	1.35	1.16	0.22	0.5	4
3	Diameter	ULRU	10	1.90	0.32	0.57	0.18	1	3
3	Height	ABBA	11	2.27	2.22	1.49	0.45	1	5
3	Height	ACRU1	72	4.82	77.95	8.83	1.04	1	42
3	Height	BEAL	5	20.20	55.70	7.46	3.34	8	25
3	Height	BEPA	4	34.25	42.25	6.50	3.25	25	40
3	Height	PIGL	1	3.00	.	.	.	3	3
3	Height	POTR1	27	21.89	324.41	18.01	3.47	1	46
3	Height	ULRU	10	21.80	11.29	3.36	1.06	20	30

Appendix B Table 6 (Cont).

Unit No.	Variable	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
4	Diameter	ABBA	30	0.67	0.16	0.40	0.07	0.5	2
4	Diameter	ACRU1	72	0.53	0.04	0.19	0.02	0.5	2
4	Diameter	PIGL	3	0.83	0.08	0.29	0.17	0.5	1
4	Diameter	POTR1	17	2.65	0.49	0.70	0.17	2	4
4	Height	ABBA	30	3.20	14.03	3.75	0.68	1	14
4	Height	ACRU2	72	2.46	18.39	4.29	0.51	1	35
4	Height	PIGL	3	8.33	44.33	6.66	3.84	1	14
4	Height	POTR1	17	36.24	31.07	5.57	1.35	30	50
5	Diameter	LALA	13	3.31	0.56	0.75	0.21	2	4
5	Diameter	PIMA	10	1.45	1.41	1.19	0.38	0.5	4
5	Height	LALA	13	37.54	85.60	9.25	2.57	18	48
5	Height	PIMA	10	12.10	279.88	16.73	5.29	2	50
6	Diameter	ABBA	1	1.00	.	.	.	1	1
6	Diameter	LALA	11	3.09	0.29	0.54	0.16	2	4
6	Diameter	PIMA	31	0.90	0.29	0.54	0.10	0.5	2
6	Diameter	THOC	23	0.74	0.20	0.45	0.09	0.5	2
6	Height	ABBA	1	8.00	.	.	.	8	8
6	Height	LALA	11	32.45	20.27	4.50	1.36	25	40
6	Height	PIMA	31	5.55	20.32	4.51	0.81	1	16
6	Height	THOC	23	5.65	25.24	5.02	1.05	2	15
7	Diameter	LALA	19	0.97	0.18	0.42	0.10	0.5	2
7	Diameter	PIMA	22	1.23	1.28	1.13	0.24	0.5	4
7	Diameter	THOC	2	1.75	3.13	1.77	1.25	0.5	3
7	Height	LALA	19	11.42	58.70	7.66	1.76	2	25
7	Height	PIMA	22	7.95	110.05	10.49	2.24	1	38
7	Height	THOC	2	10.00	128.00	11.31	8.00	2	18
8	Diameter	LALA	7	1.14	0.14	0.38	0.14	1	2
8	Diameter	PIMA	54	1.01	0.54	0.74	0.10	0.5	3
8	Diameter	THOC	2	2.00	2.00	1.41	1.00	1	3
8	Height	LALA	7	12.71	14.90	3.86	1.46	9	20
8	Height	PIMA	54	6.83	20.48	4.53	0.62	2	22
8	Height	THOC	2	11.00	8.00	2.83	2.00	9	13
9	Diameter	ABBA	23	1.28	0.91	0.95	0.20	0.5	4
9	Diameter	BEPA	1	0.50	.	.	.	0.5	0.5
9	Diameter	FRNI	2	0.50	0.00	0.00	0.00	0.5	0.5
9	Diameter	POTR1	24	2.79	0.43	0.66	0.13	2	4
9	Height	ABBA	23	9.04	29.04	5.39	1.12	1	25

Appendix B Table 6. (Cont).

Unit No.	Variable	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
9	Height	BEPA	1	8.00	.	.	.	8	8
9	Height	FRNI	2	2.00	0.00	0.00	0.00	2	2
9	Height	POTR1	24	29.79	110.00	10.49	2.14	1	44
11	Diameter	ABBA	8	0.81	0.78	0.88	0.31	0.5	3
11	Diameter	FRNI	1	0.50	.	.	.	0.5	0.5
11	Diameter	POBA	3	0.50	0.00	0.00	0.00	0.5	0.5
11	Diameter	POTR1	4	2.63	2.23	1.49	0.75	0.5	4
11	Diameter	ULRU	5	1.10	1.18	1.08	0.48	0.5	3
11	Height	ABBA	8	6.13	33.84	5.82	2.06	1	20
11	Height	FRNI	1	4.00	.	.	.	4	4
11	Height	POBA	3	2.33	0.33	0.58	0.33	2	3
11	Height	POTR1	4	34.75	534.92	23.13	11.56	1	53
11	Height	ULRU	5	7.80	46.20	6.80	3.04	2	18
13	Diameter	ABBA	3	1.83	1.58	1.26	0.73	0.5	3
13	Diameter	ACRU1	59	0.50	0.00	0.00	0.00	0.5	0.5
13	Diameter	FRNI	51	0.55	0.05	0.23	0.03	0.5	2
13	Diameter	POTR1	3	1.33	2.08	1.44	0.83	0.5	3
13	Diameter	ULRU	5	1.00	0.38	0.61	0.27	0.5	2
13	Diameter	UNK	3	0.50	0.00	0.00	0.00	0.5	0.5
13	Height	ABBA	3	20.67	622.33	24.95	14.40	2	49
13	Height	ACRU1	59	2.61	3.83	1.96	0.25	1	10
13	Height	FRNI	51	3.53	55.41	7.44	1.04	1	52
13	Height	POTR1	3	22.00	######	32.14	18.56	1	59
13	Height	ULRU	5	9.60	16.80	4.10	1.83	6	16
13	Height	UNK	3	4.00	1.00	1.00	0.58	3	5
16	Diameter	ABBA	1	2.00	.	.	.	2	2
16	Diameter	ACRU1	4	0.50	0.00	0.00	0.00	0.5	0.5
16	Diameter	FRNI	228	0.52	0.02	0.15	0.01	0.5	2
16	Diameter	POTR1	36	0.53	0.01	0.12	0.02	0.5	1
16	Diameter	QUMA	1	1.00	.	.	.	1	1
16	Height	ABBA	1	16.00	.	.	.	16	16
16	Height	ACRU1	4	1.75	0.25	0.50	0.25	1	2
16	Height	FRNI	228	3.42	10.28	3.21	0.21	1	30
16	Height	POTR1	36	8.00	6.57	2.56	0.43	3	13
16	Height	QUMA	1	10.00	.	.	.	10	10
17	Diameter	ABBA	1	1.00	.	.	.	1	1
17	Diameter	ACRU1	1	0.50	.	.	.	0.5	0.5

Appendix B Table 6. (Cont).

Unit No.	Variable	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
17	Diameter	FRNI	61	0.65	0.21	0.46	0.06	0.5	3
17	Diameter	PIGL	2	1.50	0.50	0.71	0.50	1	2
17	Diameter	POBA	1	2.00	.	.	.	2	2
17	Diameter	QUMA	5	0.80	0.45	0.67	0.30	0.5	2
17	Diameter	QURU	1	0.50	.	.	.	0.5	0.5
17	Diameter	ULAM	3	1.33	2.08	1.44	0.83	0.5	3
17	Diameter	ULRU	21	1.00	0.90	0.95	0.21	0.5	3
17	Height	ABBA	1	10.00	.	.	.	10	10
17	Height	ACRU1	1	2.00	.	.	.	2	2
17	Height	FRNI	61	5.18	31.72	5.63	0.72	1	32
17	Height	PIGL	2	11.00	50.00	7.07	5.00	6	16
17	Height	POBA	1	18.00	.	.	.	18	18
17	Height	QUMA	5	7.60	67.30	8.20	3.67	2	21
17	Height	QURU	1	3.00	.	.	.	3	3
17	Height	ULAM	3	9.67	154.33	12.42	7.17	2	24
17	Height	ULRU	21	8.48	95.76	9.79	2.14	1	32
18	Diameter	ABBA	6	0.83	0.37	0.61	0.25	0.5	2
18	Diameter	ACRU1	43	0.51	0.01	0.08	0.01	0.5	1
18	Diameter	FRNI	138	0.64	0.22	0.47	0.04	0.5	3
18	Diameter	POBA	3	0.50	0.00	0.00	0.00	0.5	0.5
18	Diameter	POTR1	2	2.00	0.00	0.00	0.00	2	2
18	Diameter	ULRU	5	0.60	0.05	0.22	0.10	0.5	1
18	Height	ABBA	6	4.33	23.07	4.80	1.96	1	13
18	Height	ACRU1	43	4.26	25.48	5.05	0.77	1	26
18	Height	FRNI	138	5.04	37.39	6.11	0.52	1	32
18	Height	POBA	3	3.00	1.00	1.00	0.58	2	4
18	Height	POTR1	2	27.50	12.50	3.54	2.50	25	30
18	Height	ULRU	5	6.80	38.20	6.18	2.76	1	17
19	Diameter	ABBA	27	0.96	0.52	0.72	0.14	0.5	3
19	Diameter	ACRU1	180	0.53	0.01	0.11	0.01	0.5	1
19	Diameter	FRNI	66	0.91	0.53	0.73	0.09	0.5	3
19	Diameter	PIMA	1	0.50	.	.	.	0.5	0.5
19	Height	ABBA	27	5.48	23.34	4.83	0.93	1	20
19	Height	ACRU1	180	2.86	3.07	1.75	0.13	1	13
19	Height	FRNI	66	7.91	75.81	8.71	1.07	1	35
19	Height	PIMA	1	2.00	.	.	.	2	2
20	Diameter	ABBA	21	1.05	0.20	0.44	0.10	0.5	2

Appendix B Table 6 (Cont).

Unit No.	Variable	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
20	Diameter	BEAL	1	1.00	.	.	.	1	1
20	Diameter	FRNI	47	0.76	0.31	0.56	0.08	0.5	3
20	Diameter	PIGL	4	0.63	0.06	0.25	0.13	0.5	1
20	Diameter	POBA	8	0.94	0.25	0.50	0.18	0.5	2
20	Diameter	ULRU	9	0.61	0.05	0.22	0.07	0.5	1
20	Height	ABBA	21	8.00	16.10	4.01	0.88	1	15
20	Height	BEAL	1	18.00	.	.	.	18	18
20	Height	FRNI	47	7.79	47.30	6.88	1.00	1	33
20	Height	PIGL	4	1.75	2.25	1.50	0.75	1	4
20	Height	POBA	8	11.38	29.70	5.45	1.93	5	23
20	Height	ULRU	9	5.56	9.03	3.00	1.00	1	10
21	Diameter	ABBA	7	3.14	0.48	0.69	0.26	2	4
21	Diameter	POTR1	3	0.50	0.00	0.00	0.00	0.5	0.5
21	Height	ABBA	7	38.29	40.90	6.40	2.42	28	45
21	Height	POTR1	3	3.00	3.00	1.73	1.00	2	5
22	Diameter	ABBA	52	1.28	0.98	0.99	0.14	0.5	4
22	Diameter	ACRU1	21	0.50	0.00	0.00	0.00	0.5	0.5
22	Diameter	BEPA	6	2.83	0.17	0.41	0.17	2	3
22	Diameter	FRNI	101	0.53	0.03	0.17	0.02	0.5	2
22	Diameter	POBA	2	0.50	0.00	0.00	0.00	0.5	0.5
22	Diameter	POTR1	3	0.50	0.00	0.00	0.00	0.5	0.5
22	Diameter	THOC	1	0.50	.	.	.	0.5	0.5
22	Diameter	ULRU	1	0.50	.	.	.	0.5	0.5
22	Height	ABBA	52	8.75	72.00	8.48	1.18	1	45
22	Height	ACRU2	21	1.29	0.31	0.56	0.12	1	3
22	Height	BEPA	6	33.83	21.37	4.62	1.89	30	41
22	Height	FRNI	101	2.38	8.62	2.94	0.29	1	24
22	Height	POBA	2	4.50	0.50	0.71	0.50	4	5
22	Height	POTR1	3	3.00	1.00	1.00	0.58	2	4
22	Height	THOC	1	2.00	.	.	.	2	2
22	Height	ULRU	1	2.00	.	.	.	2	2
23	Diameter	ABBA	34	1.51	0.93	0.97	0.17	0.5	3
23	Diameter	ACRU1	49	0.51	0.01	0.07	0.01	0.5	1
23	Diameter	BEPA	5	1.80	0.70	0.84	0.37	1	3
23	Diameter	FRNI	57	0.63	0.16	0.40	0.05	0.5	2
23	Diameter	LALA	32	1.92	1.68	1.30	0.23	0.5	4
23	Diameter	POTR1	7	0.86	0.89	0.94	0.36	0.5	3

Appendix B Table 6 (Cont).

Unit No.	Variable	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
23	Height	ABBA	34	10.85	68.25	8.26	1.42	1	27
23	Height	ACRU1	49	2.18	2.65	1.63	0.23	1	7
23	Height	BEPA	5	25.60	38.30	6.19	2.77	18	34
23	Height	FRNI	57	5.02	20.73	4.55	0.60	1	22
23	Height	LALA	32	22.03	237.06	15.40	2.72	2	48
23	Height	POTR1	7	5.29	100.90	10.05	3.80	1	28
24	Diameter	ABBA	59	0.86	0.45	0.67	0.09	0.5	3
24	Diameter	ACRU1	1	0.50	.	.	.	0.5	0.5
24	Diameter	FRNI	2	0.50	0.00	0.00	0.00	0.5	0.5
24	Diameter	THOC	98	0.72	0.35	0.59	0.06	0.5	3
24	Height	ABBA	59	5.53	27.50	5.24	0.68	1	22
24	Height	ACRU1	1	2.00	.	.	.	2	2
24	Height	FRNI	2	6.00	0.00	0.00	0.00	6	6
24	Height	THOC	98	4.54	23.30	4.83	0.49	1	21
28	Diameter	ABBA	43	0.62	0.08	0.29	0.04	0.5	2
28	Diameter	PIMA	67	1.38	1.04	1.02	0.12	0.5	4
28	Diameter	THOC	16	0.69	0.16	0.40	0.10	0.5	2
28	Height	ABBA	43	4.02	8.74	2.96	0.45	1	11
28	Height	PIMA	67	11.19	116.43	10.79	1.32	1	31
28	Height	THOC	16	4.81	8.83	2.97	0.74	1	10
30	Diameter	PIMA	31	1.24	0.98	0.99	0.18	0.5	4
30	Height	PIMA	31	9.03	103.83	10.19	1.83	1	39
31	Diameter	LALA	2	0.50	0.00	0.00	0.00	0.5	0.5
31	Diameter	PIMA	77	1.01	0.80	0.90	0.10	0.5	4
31	Height	LALA	2	4.00	2.00	1.41	1.00	3	5
31	Height	PIMA	77	6.61	83.93	9.16	1.04	1	35
32	Diameter	LALA	18	2.14	1.29	1.14	0.27	0.5	4
32	Diameter	PIMA	85	0.64	0.17	0.41	0.04	0.5	3
32	Height	LALA	18	18.72	90.92	9.54	2.25	5	35
32	Height	PIMA	85	4.33	14.53	3.81	0.41	1	25
34	Diameter	ABBA	25	2.38	1.63	1.28	0.26	0.5	4
34	Diameter	ACRU1	1	0.50	.	.	.	0.5	0.5
34	Diameter	BEPA	2	2.50	0.50	0.71	0.50	2	3
34	Diameter	FRNI	99	0.65	0.22	0.47	0.05	0.5	3
34	Diameter	POTR1	3	2.83	4.08	2.02	1.17	0.5	4
34	Diameter	ULRU	1	0.50	.	.	.	0.5	0.5
34	Height	ABBA	25	18.08	71.16	8.44	1.69	1	33

Appendix B Table 6 (Cont).

Unit No.	Variable	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
34	Height	ACRU1	1	2.00	.	.	.	2	2
34	Height	BEPA	2	26.00	0.00	0.00	0.00	26	26
34	Height	FRNI	99	5.75	62.93	7.93	0.80	1	43
34	Height	POTR1	3	20.33	264.33	16.26	9.39	2	33
34	Height	ULRU	1	3.00	.	.	.	3	3
38	Diameter	ABBA	9	1.00	0.38	0.61	0.20	0.5	2
38	Diameter	ACRU1	5	0.60	0.05	0.22	0.10	0.5	1
38	Diameter	BEPA	15	1.47	0.48	0.69	0.18	0.5	2
38	Diameter	FRNI	27	0.65	0.11	0.33	0.06	0.5	2
38	Diameter	POTR1	4	1.88	1.73	1.31	0.66	0.5	3
38	Height	ABBA	9	8.11	14.86	3.86	1.29	3	15
38	Height	ACRU1	5	5.80	47.70	6.91	3.09	1	16
38	Height	BEPA	15	16.93	40.92	6.40	1.65	3	28
38	Height	FRNI	27	3.52	9.64	3.11	0.60	1	13
38	Height	POTR2	4	18.50	97.00	9.85	4.92	10	28
39	Diameter	ABBA	4	1.38	1.23	1.11	0.55	0.5	3
39	Diameter	ACRU1	1	0.50	.	.	.	0.5	0.5
39	Diameter	FRNI	3	0.50	0.00	0.00	0.00	0.5	0.5
39	Diameter	POBA	3	2.00	1.00	1.00	0.58	1	3
39	Diameter	POTR1	14	0.50	0.00	0.00	0.00	0.5	0.5
39	Diameter	ULRU	4	0.75	0.08	0.29	0.14	0.5	1
39	Diameter	UNK	4	0.88	0.56	0.75	0.38	0.5	2
39	Height	ABBA	4	12.00	120.00	10.95	5.48	4	28
39	Height	ACRU1	1	3.00	.	.	.	3	3
39	Height	FRNI	3	5.33	2.33	1.53	0.88	4	7
39	Height	POBA	3	20.33	90.33	9.50	5.49	11	30
39	Height	POTR1	14	3.36	1.63	1.28	0.34	1	6
39	Height	ULRU	4	6.75	36.92	6.08	3.04	1	12
39	Height	UNK	4	5.75	3.58	1.89	0.95	3	7
40	Diameter	ABBA	23	1.61	1.02	1.01	0.21	0.5	4
40	Diameter	ACRU1	7	0.50	0.00	0.00	0.00	0.5	0.5
40	Diameter	BEPA	2	3.00	0.00	0.00	0.00	3	3
40	Diameter	FRNI	234	0.55	0.09	0.30	0.02	0.5	3
40	Diameter	POBA	1	0.50	.	.	.	0.5	0.5
40	Diameter	QUMA	1	0.50	.	.	.	0.5	0.5
40	Diameter	THOC	3	0.67	0.08	0.29	0.17	0.5	1
40	Diameter	ULRU	16	0.81	0.36	0.60	0.15	0.5	2

Appendix B Table 6 (Cont).

Unit No.	Variable	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
40	Height	ABBA	23	12.09	77.54	8.81	1.84	1	28
40	Height	ACRU1	7	1.29	0.24	0.49	0.18	1	2
40	Height	BEPA	2	27.50	12.50	3.54	2.50	25	30
40	Height	FRNI	234	2.75	16.09	4.01	0.26	1	28
40	Height	POBA	1	8.00	.	.	.	8	8
40	Height	QUMA	1	1.00	.	.	.	1	1
40	Height	THOC	3	7.00	1.00	1.00	0.58	6	8
40	Height	ULRU	16	7.38	37.18	6.10	1.52	2	20
45	Diameter	ABBA	47	1.34	0.68	0.82	0.12	0.5	4
45	Diameter	ACRU1	1	0.50	.	.	.	0.5	0.5
45	Diameter	BEPA	1	4.00	.	.	.	4	4
45	Diameter	LALA	2	1.00	0.00	0.00	0.00	1	1
45	Diameter	PIGL	1	0.50	.	.	.	0.5	0.5
45	Diameter	PIMA	3	1.00	0.00	0.00	0.00	1	1
45	Diameter	POBA	3	0.83	0.08	0.29	0.17	0.5	1
45	Diameter	THOC	6	2.08	0.84	0.92	0.37	0.5	3
45	Diameter	ULRU	2	0.75	0.13	0.35	0.25	0.5	1
45	Height	ABBA	47	10.23	66.01	8.12	1.19	1	27
45	Height	ACRU2	1	2.00	.	.	.	2	2
45	Height	BEPA	1	22.00	.	.	.	22	22
45	Height	LALA	2	4.50	12.50	3.54	2.50	2	7
45	Height	PIGL	1	1.00	.	.	.	1	1
45	Height	PIMA	3	3.33	0.33	0.58	0.33	3	4
45	Height	POBA	3	6.67	16.33	4.04	2.33	2	9
45	Height	THOC	6	14.17	52.57	7.25	2.96	1	23
45	Height	ULRU	2	4.50	24.50	4.95	3.50	1	8
46	Diameter	ABBA	128	0.62	0.10	0.32	0.03	0.5	2
46	Diameter	BEPA	1	4.00	.	.	.	4	4
46	Diameter	FRNI	1	2.00	.	.	.	2	2
46	Diameter	THOC	44	1.67	1.03	1.02	0.15	0.5	4
46	Height	ABBA	128	3.25	9.56	3.09	0.27	1	16
46	Height	BEPA	1	28.00	.	.	.	28	28
46	Height	FRNI	1	15.00	.	.	.	15	15
46	Height	THOC	44	11.73	42.02	6.48	0.98	1	25
47	Diameter	ABBA	51	0.62	0.08	0.28	0.04	0.5	2
47	Diameter	ABBA	83	1.01	0.75	0.87	0.10	0.5	4
47	Diameter	FRNI	16	0.72	0.27	0.52	0.13	0.5	2

Appendix B Table 6 (Cont).

Unit No.	Variable	Species	N	Mean	Var	Std Dev	Std Err	Min	Max
47	Diameter	POTR1	1	1.00	.	.	.	1	1
47	Diameter	THOC	9	3.22	0.44	0.67	0.22	2	4
47	Diameter	ULRU	4	0.50	0.00	0.00	0.00	0.5	0.5
47	Height	ABBA	51	4.31	9.58	3.10	0.43	1	18
47	Height	ABBA	83	7.25	49.87	7.06	0.78	1	30
47	Height	FRNI	16	2.44	1.20	1.09	0.27	1	5
47	Height	POTR2	1	14.00	.	.	.	14	14
47	Height	THOC	9	19.22	71.44	8.45	2.82	9	33
47	Height	ULRU	4	2.00	0.00	0.00	0.00	2	2
48	Diameter	THOC	40	2.15	1.03	1.01	0.16	0.5	4
48	Height	THOC	40	17.10	40.04	6.33	1.00	1	28

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 7. Small trees stem density (stems/plot) by ELU and species.

ELU	Species	Stem density	ELU	Species	Stem density
ED(p)	ABBA	11.3333	LW(m)	QURU	0.16667
ED(p)	ACRU1	16.3333	LW(m)	ULAM	0.5
ED(p)	BEPA	1.6667	LW(m)	ULRU	4.33333
ED(p)	FRNI	19	LW(p)	ABBA	0.1667
ED(p)	POTR1	2.33333	LW(p)	LALA	3
EM(p)	ABBA	12.6667	LW(p)	PIMA	14.1667
EM(p)	ACRU1	13.8333	LW(p)	THOC	4.16667
EM(p)	BEAL	0.4167	LW(pm)	ABBA	25.75
EM(p)	BEPA	0.8333	LW(pm)	ACRU1	0.0833
EM(p)	FRNI	8.5833	LW(pm)	BEPA	0.1667
EM(p)	PIGL	0.3333	LW(pm)	FRNI	1.4167
EM(p)	POBA	0.16667	LW(pm)	LALA	0.1667
EM(p)	POTR1	3.91667	LW(pm)	PIGL	0.0833
EM(p)	THOC	8.25	LW(pm)	PIMA	0.25
EM(p)	ULRU	0.91667	LW(pm)	POBA	0.25
EW(m)	ABBA	8	LW(pm)	POTR1	0.08333
EW(m)	ACRU1	30	LW(pm)	THOC	8.25
EW(m)	BEAL	0.1667	LW(pm)	ULRU	0.5
EW(m)	FRNI	18.8333	LW(vp)	ABBA	3.5833
EW(m)	PIGL	0.6667	LW(vp)	LALA	1.6667
EW(m)	PIMA	0.1667	LW(vp)	PIMA	21.6667
EW(m)	POBA	1.33333	LW(vp)	THOC	1.33333
EW(m)	ULRU	1.5	MM(m)	ABBA	3.7273
LM(m)	ABBA	3.9286	MM(m)	ACRU1	0.8182
LM(m)	ACRU1	4.8571	MM(m)	BEPA	1.4545
LM(m)	BEPA	0.2857	MM(m)	FRNI	23.4545
LM(m)	FRNI	27.6429	MM(m)	POBA	0.27273
LM(m)	POBA	0.28571	MM(m)	POTR1	6.18182
LM(m)	POTR1	1.42857	MM(m)	QUMA	0.09091
LM(m)	QUMA	0.07143	MM(m)	ULRU	0.45455
LM(m)	THOC	0.21429	MM(p)	ABBA	2.3333
LM(m)	ULRU	1.85714	MM(p)	POTR1	1
LM(m)	UNK	0.5	MW(m)	ACRU1	3.6667
LW(m)	ABBA	1.1667	MW(m)	BEPA	0.1667
LW(m)	ACRU1	7.3333	MW(m)	FRNI	0.5
LW(m)	FRNI	33.1667	MW(m)	PIGL	0.1667
LW(m)	PIGL	0.3333	MW(m)	POBA	4.16667
LW(m)	POBA	0.66667	MW(m)	POTR1	8.66667
LW(m)	POTR1	0.33333	MW(m)	ULRU	1.5
LW(m)	QUMA	0.83333	MW(p)	LALA	5.3333
			MW(p)	PIMA	5.3333
			MW(p)	THOC	0.33333

Appendix B Table 8. Small trees stem density (stems/plot) by unit number and species.

Unit no.	Species	Stem density	Unit no.	Species	Stem density
1	ACRU1	4.6667	11	FRNI	0.3333
1	BEPA	0.3333	11	POBA	1
1	POBA	0.3333	11	POTR1	1.3333
1	POTR1	1.6667	11	ULRU	1.6667
2	ACRU1	2.6667	13	ABBA	1
2	FRNI	1	13	ACRU1	19.6667
2	PIGL	0.3333	13	FRNI	17
2	POBA	8	13	POTR1	1
2	POTR1	15.6667	13	ULRU	1.6667
2	ULRU	3	13	UNK	1
3	ABBA	3.6667	16	ABBA	0.3333
3	ACRU1	24	16	ACRU1	1.3333
3	BEAL	1.6667	16	FRNI	76
3	BEPA	1.3333	16	POTR1	12
3	PIGL	0.3333	16	QUMA	0.3333
3	POTR1	9	17	ABBA	0.3333
3	ULRU	3.3333	17	ACRU1	0.3333
4	ABBA	10	17	FRNI	20.3333
4	ACRU1	24	17	PIGL	0.6667
4	PIGL	1	17	POBA	0.3333
4	POTR1	5.6667	17	QUMA	1.6667
5	LALA	4.3333	17	QURU	0.3333
5	PIMA	3.3333	17	ULAM	1
6	ABBA	0.3333	17	ULRU	7
6	LALA	3.6667	18	ABBA	2
6	PIMA	10.3333	18	ACRU1	14.3333
6	THOC	7.6667	18	FRNI	46
7	LALA	6.3333	18	POBA	1
7	PIMA	7.3333	18	POTR1	0.6667
7	THOC	0.6667	18	ULRU	1.6667
8	LALA	2.3333	19	ABBA	9
8	PIMA	18	19	ACRU1	60
8	THOC	0.6667	19	FRNI	22
9	ABBA	11.5	19	PIMA	0.3333
9	BEPA	0.5	20	ABBA	7
9	FRNI	1	20	BEAL	0.3333
9	POTR1	12	20	FRNI	15.6667
11	ABBA	2.6667	20	PIGL	1.3333
20	POBA	2.6667	39	FRNI	1
20	ULRU	3	39	POBA	1
21	ABBA	2.3333	39	POTR1	4.6667

Appendix B Table 8 (Cont).

Unit no.	Species	Stem density	Unit no.	Species	Stem density
21	POTR1	1	39	ULRU	1.3333
22	ABBA	17.3333	39	UNK	1.33333
22	ACRU1	7	40	ABBA	7.6667
22	BEPA	2	40	ACRU1	2.3333
22	FRNI	33.6667	40	BEPA	0.6667
22	POBA	0.6667	40	FRNI	78
22	POTR1	1	40	POBA	0.3333
22	THOC	0.3333	40	QUMA	0.3333
22	ULRU	0.3333	40	THOC	1
23	ABBA	11.3333	40	ULRU	5.3333
23	ACRU1	16.3333	45	ABBA	15.6667
23	BEPA	1.6667	45	ACRU1	0.3333
23	FRNI	19	45	BEPA	0.3333
23	POTR1	2.3333	45	LALA	0.6667
24	ABBA	19.6667	45	PIGL	0.3333
24	ACRU1	0.3333	45	PIMA	1
24	FRNI	0.6667	45	POBA	1
24	THOC	32.6667	45	THOC	2
28	ABBA	14.3333	45	ULRU	0.66667
28	PIMA	22.3333	46	ABBA	42.6667
28	THOC	5.3333	46	BEPA	0.3333
30	PIMA	10.3333	46	FRNI	0.3333
31	LALA	0.6667	46	THOC	14.6667
31	PIMA	25.6667	47	ABBA	17
32	LALA	6	47	FRNI	5.3333
32	PIMA	28.3333	47	POTR1	0.3333
34	ABBA	8.3333	47	THOC	3
34	ACRU1	0.3333	47	ULRU	1.33333
34	BEPA	0.6667	48	ABBA	27.6667
34	FRNI	33	48	THOC	13.3333
34	POTR1	1			
34	ULRU	0.3333			
38	ABBA	3			
38	ACRU1	1.6667			
38	BEPA	5			
38	FRNI	9			
38	POTR1	1.3333			
39	ABBA	1.3333			
39	ACRU1	0.3333			

Appendix B Table 9. Snag diameter (in) and height (ft) means, variances, standard deviations, standard errors, minimums, and maximums by ELU and decay[a].

ELU	Decay	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
ED(p)	1	Diameter	7	7.86	10.14	3.18	1.20	5	13
ED(p)	1	Height	7	23.57	461.95	21.49	8.12	7	60
ED(p)	2	Diameter	4	13.00	38.00	6.16	3.08	4	18
ED(p)	2	Height	4	28.75	21.58	4.65	2.32	23	33
EM(p)	1	Diameter	23	6.57	4.80	2.19	0.46	4	11
EM(p)	1	Height	23	38.70	339.31	18.42	3.84	8	69
EM(p)	2	Diameter	18	5.44	1.32	1.15	0.27	4	8
EM(p)	2	Height	18	20.33	154.82	12.44	2.93	6	50
EM(p)	3	Diameter	3	6.00	1.00	1.00	0.58	5	7
EW(m)	1	Diameter	11	11.45	24.07	4.91	1.48	4	17
EW(m)	1	Height	11	34.91	179.89	13.41	4.04	9	63
EW(m)	2	Diameter	7	6.57	4.95	2.23	0.84	5	11
EW(m)	2	Height	7	20.29	222.57	14.92	5.64	6	50
EW(m)	3	Diameter	1	9.00	.	.	.	9	9
EW(m)	3	Height	1	11.00	.	.	.	11	11
LM(m)	1	Diameter	32	5.44	1.80	1.34	0.24	4	8
LM(m)	1	Height	32	38.22	260.18	16.13	2.85	7	70
LM(m)	2	Diameter	11	4.64	0.45	0.67	0.20	4	6
LM(m)	2	Height	11	26.45	207.07	14.39	4.34	6	51
LM(m)	3	Diameter	2	5.50	4.50	2.12	1.50	4	7
LM(m)	3	Height	2	25.50	60.50	7.78	5.50	20	31
LW(m)	N/A	Diameter	2	19.50	112.50	10.61	7.50	12	27
LW(m)	N/A	Height	2	36.00	1250.00	35.36	25.00	11	61
LW(m)	2	Diameter	4	11.25	20.92	4.57	2.29	6	17
LW(m)	2	Height	4	20.00	36.67	6.06	3.03	14	28
LW(m)	3	Diameter	3	13.33	89.33	9.45	5.46	6	24
LW(m)	3	Height	3	16.00	13.00	3.61	2.08	12	19
LW(m)	5	Diameter	1	15.00	.	.	.	15	15
LW(m)	5	Height	1	32.00	.	.	.	32	32
LW(p)	1	Diameter	4	4.50	0.33	0.58	0.29	4	5
LW(p)	1	Height	4	24.00	130.00	11.40	5.70	7	31
LW(p)	2	Diameter	4	4.25	0.25	0.50	0.25	4	5
LW(p)	2	Height	4	23.00	88.67	9.42	4.71	10	32
LW(pm)	1	Diameter	24	5.67	2.32	1.52	0.31	4	9
LW(pm)	1	Height	24	22.71	85.78	9.26	1.89	6	38
LW(pm)	2	Diameter	9	6.78	3.19	1.79	0.60	4	9
LW(pm)	2	Height	9	12.44	14.03	3.75	1.25	7	19
LW(pm)	3	Diameter	4	6.00	2.00	1.41	0.71	5	8
LW(pm)	3	Height	4	11.00	24.67	4.97	2.48	6	17
LW(pm)	5	Diameter	1	11.00	.	.	.	11	11
LW(pm)	5	Height	1	26.00	.	.	.	26	26

Appendix B Table 9 (Cont).

ELU	Decay	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
LW(vp)	1	Diameter	10	5.50	1.83	1.35	0.43	4	8
LW(vp)	1	Height	10	31.10	132.54	11.51	3.64	9	45
LW(vp)	2	Diameter	1	5.00	.	.	.	5	5
LW(vp)	2	Height	1	20.00	.	.	.	20	20
LW(vp)	4	Diameter	1	4.00	.	.	.	4	4
LW(vp)	4	Height	1	21.00	.	.	.	21	21
MM(m)	1	Diameter	27	5.59	2.71	1.65	0.32	4	9
MM(m)	1	Height	27	36.15	264.67	16.27	3.13	3	70
MM(m)	2	Diameter	5	6.00	11.50	3.39	1.52	4	12
MM(m)	2	Height	5	32.00	278.00	16.67	7.46	6	52
MM(m)	4	Diameter	1	11.00	.	.	.	11	11
MM(m)	4	Height	1	24.00	.	.	.	24	24
MM(p)	1	Diameter	14	5.14	1.52	1.23	0.33	4	7
MM(p)	1	Height	14	27.71	87.30	9.34	2.50	7	40
MM(p)	2	Diameter	7	5.86	2.81	1.68	0.63	4	9
MM(p)	2	Height	7	17.71	148.24	12.18	4.60	6	35
MW(m)	N/A	Diameter	1	5.00	.	.	.	5	5
MW(m)	N/A	Height	1	51.00	.	.	.	51	51
MW(m)	1	Diameter	3	4.67	0.33	0.58	0.33	4	5
MW(m)	1	Height	3	23.33	8.33	2.89	1.67	20	25
MW(m)	2	Diameter	1	9.00	.	.	.	9	9
MW(m)	2	Height	1	20.00	.	.	.	20	20
MW(m)	3	Diameter	11	4.64	2.25	1.50	0.45	4	9
MW(m)	3	Height	11	23.82	187.56	13.70	4.13	9	52
MW(p)	1	Diameter	8	5.13	1.84	1.36	0.48	4	8
MW(p)	1	Height	8	34.88	173.27	13.16	4.65	7	48
MW(p)	2	Diameter	2	6.00	2.00	1.41	1.00	5	7
MW(p)	2	Height	2	15.00	18.00	4.24	3.00	12	18
MW(p)	3	Diameter	1	5.00	.	.	.	5	5
MW(p)	3	Height	1	10.00	.	.	.	10	10

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 10. Snag diameter (in) and height (ft) means, variances, standard deviations, standard errors, minimums and maximums by unit number and decay[a].

Unit No.	Decay	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
1	3	Diameter	11	4.64	2.25	1.50	0.45	4	9
1	3	Height	11	23.82	187.56	13.70	4.13	9	52
1	N/A	Diameter	1	5.00	.	.	.	5	5
1	N/A	Height	1	51.00	.	.	.	51	51
2	1	Diameter	3	4.67	0.33	0.58	0.33	4	5
2	1	Height	3	23.33	8.33	2.89	1.67	20	25
2	2	Diameter	1	9.00	.	.	.	9	9
2	2	Height	1	20.00	.	.	.	20	20
3	1	Diameter	5	6.20	3.20	1.79	0.80	5	9
3	1	Height	5	31.80	193.70	13.92	6.22	9	45
3	2	Diameter	1	5	.	.	.	5	5
3	2	Height	1	7	.	.	.	7	7
4	1	Diameter	3	5	1	1	0.58	4	6
4	1	Height	3	47	48	6.93	4	43	55
4	2	Diameter	3	5.67	1.33	1.15	0.67	5	7
4	2	Height	3	25.33	41.33	6.43	3.71	18	30
4	3	Diameter	1	7	.	.	.	7	7
4	3	Height	1	7	.	.	.	7	7
6	1	Diameter	1	5.00	.	.	.	5	5
6	1	Height	1	7.00	.	.	.	7	7
6	2	Diameter	3	4.00	0.00	0.00	0.00	4	4
6	2	Height	3	23.00	133.00	11.53	6.66	10	32
7	1	Diameter	8	5.13	1.84	1.36	0.48	4	8
7	1	Height	8	34.88	173.27	13.16	4.65	7	48
7	2	Diameter	2	6.00	2.00	1.41	1.00	5	7
7	2	Height	2	15.00	18.00	4.24	3.00	12	18
7	3	Diameter	1	5.00	.	.	.	5	5
7	3	Height	1	10.00	.	.	.	10	10
8	1	Diameter	3	4.33	0.33	0.58	0.33	4	5
8	1	Height	3	29.67	2.33	1.53	0.88	28	31
8	2	Diameter	1	5.00	.	.	.	5	5
8	2	Height	1	23.00	.	.	.	23	23
11	1	Diameter	16	5.38	2.38	1.54	0.39	4	9
11	1	Height	16	32.06	270.33	16.44	4.11	3	53
13	1	Diameter	8	6.25	1.64	1.28	0.45	4	8
13	1	Height	8	26.63	151.70	12.32	4.35	7	36
13	2	Diameter	4	4.75	0.25	0.50	0.25	4	5
13	2	Height	4	34.75	24.25	4.92	2.46	31	42
16	1	Diameter	7	6.29	4.24	2.06	0.78	4	9
16	1	Height	7	39.43	337.95	18.38	6.95	20	70

Appendix B Table 10 (Cont).

Unit No.	Decay	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
16	2	Diameter	5	6.00	11.50	3.39	1.52	4	12
16	2	Height	5	32.00	278.00	16.67	7.46	6	52
17	2	Diameter	3	13.00	13.00	3.61	2.08	10	17
17	2	Height	3	17.33	12.33	3.51	2.03	14	21
17	3	Diameter	2	17.00	98.00	9.90	7.00	10	24
17	3	Height	2	14.50	12.50	3.54	2.50	12	17
18	2	Diameter	1	6.00	.	.	.	6	6
18	2	Height	1	28.00	.	.	.	28	28
18	3	Diameter	1	6.00	.	.	.	6	6
18	3	Height	1	19.00	.	.	.	19	19
18	5	Diameter	1	15.00	.	.	.	15	15
18	5	Height	1	32.00	.	.	.	32	32
18	N/A	Diameter	2	19.50	112.50	10.61	7.50	12	27
18	N/A	Height	2	36.00	1250.00	35.36	25.00	11	61
19	1	Diameter	5	12.00	36.50	6.04	2.70	4	17
19	1	Height	5	31.20	171.20	13.08	5.85	9	41
19	2	Diameter	5	5.80	1.70	1.30	0.58	5	8
19	2	Height	5	21.20	317.70	17.82	7.97	6	50
20	1	Diameter	6	11.00	18.40	4.29	1.75	4	15
20	1	Height	6	38.00	197.60	14.06	5.74	20	63
20	2	Diameter	2	8.50	12.50	3.54	2.50	6	11
20	2	Height	2	18.00	50.00	7.07	5.00	13	23
20	3	Diameter	1	9.00	.	.	.	9	9
20	3	Height	1	11.00	.	.	.	11	11
21	1	Diameter	14	5.14	1.52	1.23	0.33	4	7
21	1	Height	14	27.71	87.30	9.34	2.50	7	40
21	2	Diameter	7	5.86	2.81	1.68	0.63	4	9
21	2	Height	7	17.71	148.24	12.18	4.60	6	35
22	1	Diameter	8	7.50	6.57	2.56	0.91	4	11
22	1	Height	8	28.75	472.79	21.74	7.69	8	69
22	2	Diameter	11	5.45	0.87	0.93	0.28	4	7
22	2	Height	11	19.18	146.76	12.11	3.65	6	50
22	3	Diameter	2	5.50	0.50	0.71	0.50	5	6
22	3	Height	2	8.00	8.00	2.83	2.00	6	10
23	1	Diameter	7	7.86	10.14	3.18	1.20	5	13
23	1	Height	7	23.57	461.95	21.49	8.12	7	60
23	2	Diameter	4	13.00	38.00	6.16	3.08	4	18
23	2	Height	4	28.75	21.58	4.65	2.32	23	33
24	1	Diameter	7	6.43	4.95	2.23	0.84	4	10
24	1	Height	7	51.43	152.29	12.34	4.66	33	65
24	2	Diameter	3	5.33	5.33	2.31	1.33	4	8
24	2	Height	3	24.00	387.00	19.67	11.36	6	45
28	1	Diameter	3	5.67	4.33	2.08	1.20	4	8

Appendix B Table 10 (Cont).

Unit No.	Decay	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
28	1	Height	3	20.00	181.00	13.45	7.77	9	35
30	1	Diameter	5	5.20	1.70	1.30	0.58	4	7
30	1	Height	5	35.20	45.70	6.76	3.02	24	42
30	2	Diameter	1	5.00	.	.	.	5	5
30	2	Height	1	20.00	.	.	.	20	20
30	4	Diameter	1	4.00	.	.	.	4	4
30	4	Height	1	21.00	.	.	.	21	21
31	1	Diameter	2	6.00	0.00	0.00	0.00	6	6
31	1	Height	2	37.50	112.50	10.61	7.50	30	45
34	1	Diameter	9	5.33	2.00	1.41	0.47	4	8
34	1	Height	9	42.56	204.03	14.28	4.76	15	56
34	2	Diameter	2	5.00	2.00	1.41	1.00	4	6
34	2	Height	2	33.50	612.50	24.75	17.50	16	51
34	3	Diameter	2	5.50	4.50	2.12	1.50	4	7
34	3	Height	2	25.50	60.50	7.78	5.50	20	31
38	1	Diameter	4	5.25	1.58	1.26	0.63	4	7
38	1	Height	4	46.75	2.25	1.50	0.75	46	49
38	4	Diameter	1	11.00	.	.	.	11	11
38	4	Height	1	24.00	.	.	.	24	24
40	1	Diameter	15	5.07	1.50	1.22	0.32	4	8
40	1	Height	15	41.80	281.03	16.76	4.33	15	70
40	2	Diameter	5	4.40	0.30	0.55	0.24	4	5
40	2	Height	5	17.00	141.00	11.87	5.31	6	36
45	1	Diameter	10	5.70	2.01	1.42	0.45	4	9
45	1	Height	10	23.90	84.54	9.19	2.91	6	35
45	2	Diameter	1	7.00	.	.	.	7	7
45	2	Height	1	13.00	.	.	.	13	13
45	3	Diameter	3	6.33	2.33	1.53	0.88	5	8
45	3	Height	3	12.00	31.00	5.57	3.21	6	17
46	1	Diameter	1	5.00	.	.	.	5	5
46	1	Height	1	18.00	.	.	.	18	18
46	2	Diameter	5	7.00	4.00	2.00	0.89	4	9
46	2	Height	5	13.20	19.20	4.38	1.96	7	19
46	3	Diameter	1	5.00	.	.	.	5	5
46	3	Height	1	8.00	.	.	.	8	8
46	5	Diameter	1	11.00	.	.	.	11	11
46	5	Height	1	26.00	.	.	.	26	26
47	1	Diameter	7	6.29	4.57	2.14	0.81	4	9
47	1	Height	7	20.57	123.29	11.10	4.20	7	38
47	2	Diameter	1	7.00	.	.	.	7	7
47	2	Height	1	10.00	.	.	.	10	10
48	1	Diameter	6	5.00	0.40	0.63	0.26	4	6
48	1	Height	6	24.00	78.80	8.88	3.62	8	33

Appendix B Table 10 (Cont).

Unit No.	Decay	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
48	2	Diameter	2	6.00	8.00	2.83	2.00	4	8
48	2	Height	2	11.50	24.50	4.95	3.50	8	15

[a]a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 11. Snag diameter (in) and height (ft) means, variances, standard deviations, standard errors, minimums and maximums by ELU, species, and decay[a].

ELU	Diameter/ Height	Species	Decay	N	Mean	Var	Std Dev	Std Err	Min	Max
ED(p)	Diameter	ABBA	1	3	6.00	3.00	1.73	1.00	5	8
ED(p)	Diameter	ABBA	2	1	4.00	.	.	.	4	4
ED(p)	Height	ABBA	1	3	27.33	320.33	17.90	10.33	17	48
ED(p)	Height	ABBA	2	1	23.00	.	.	.	23	23
ED(p)	Diameter	BEPA	2	3	16.00	3.00	1.73	1.00	15	18
ED(p)	Height	BEPA	2	3	30.67	10.33	3.21	1.86	27	33
ED(p)	Diameter	POTR1	1	4	9.25	12.25	3.50	1.75	5	13
ED(p)	Height	POTR1	1	4	20.75	685.58	26.18	13.09	7	60
EM(p)	Diameter	ABBA	1	8	6.38	4.27	2.07	0.73	4	10
EM(p)	Diameter	ABBA	2	2	4.00	0.00	0.00	0.00	4	4
EM(p)	Height	ABBA	1	8	46.25	184.79	13.59	4.81	27	65
EM(p)	Height	ABBA	2	2	16.00	200.00	14.14	10.00	6	26
EM(p)	Diameter	BEPA	2	1	4.00	.	.	.	4	4
EM(p)	Height	BEPA	2	1	21.00	.	.	.	21	21
EM(p)	Diameter	POBA	2	1	6.00	.	.	.	6	6
EM(p)	Height	POBA	2	1	22.00	.	.	.	22	22
EM(p)	Diameter	POTR1	1	15	6.67	5.38	2.32	0.60	4	11
EM(p)	Diameter	POTR1	2	14	5.71	1.14	1.07	0.29	4	8
EM(p)	Diameter	POTR1	3	3	6.00	1.00	1.00	0.58	5	7
EM(p)	Height	POTR1	1	15	34.67	390.81	19.77	5.10	8	69
EM(p)	Height	POTR1	2	14	20.79	183.72	13.55	3.62	6	50
EM(p)	Height	POTR1	3	3	7.67	4.33	2.08	1.20	6	10
EW(m)	Diameter	ABBA	2	2	6.50	4.50	2.12	1.50	5	8
EW(m)	Diameter	ABBA	3	1	9.00	.	.	.	9	9
EW(m)	Height	ABBA	2	2	32.50	612.50	24.75	17.50	15	50
EW(m)	Height	ABBA	3	1	11.00	.	.	.	11	11
EW(m)	Diameter	FRNI	1	2	5.50	4.50	2.12	1.50	4	7
EW(m)	Diameter	FRNI	2	1	5.00	.	.	.	5	5
EW(m)	Height	FRNI	1	2	29.50	180.50	13.44	9.50	20	39
EW(m)	Height	FRNI	2	1	26.00	.	.	.	26	26
EW(m)	Diameter	PIMA	1	1	4.00	.	.	.	4	4
EW(m)	Diameter	PIMA	2	1	6.00	.	.	.	6	6
EW(m)	Height	PIMA	1	1	30.00	.	.	.	30	30
EW(m)	Height	PIMA	2	1	6.00	.	.	.	6	6
EW(m)	Diameter	POBA	1	7	13.57	9.62	3.10	1.17	8	17

Appendix B Table 11 (Cont).

ELU	Diameter/ Height	Species	Decay	N	Mean	Var	Std Dev	Std Err	Min	Max
EW(m)	Diameter	POBA	2	2	8.50	12.50	3.54	2.50	6	11
EW(m)	Height	POBA	1	7	36.29	247.57	15.73	5.95	9	63
EW(m)	Height	POBA	2	2	18.00	50.00	7.07	5.00	13	23
EW(m)	Diameter	POTR1	1	1	16.00	.	.	.	16	16
EW(m)	Diameter	POTR1	2	1	5.00	.	.	.	5	5
EW(m)	Height	POTR1	1	1	41.00	.	.	.	41	41
EW(m)	Height	POTR1	2	1	9.00	.	.	.	9	9
LM(m)	Diameter	BEPA	1	2	4.00	0.00	0.00	0.00	4	4
LM(m)	Diameter	BEPA	2	1	4.00	.	.	.	4	4
LM(m)	Height	BEPA	1	2	31.00	512.00	22.63	16.00	15	47
LM(m)	Height	BEPA	2	1	8.00	.	.	.	8	8
LM(m)	Diameter	FRNI	2	2	5.00	0.00	0.00	0.00	5	5
LM(m)	Height	FRNI	2	2	33.00	0.00	0.00	0.00	33	33
LM(m)	Diameter	POBA	1	8	5.00	0.86	0.93	0.33	4	6
LM(m)	Height	POBA	1	8	30.75	345.64	18.59	6.57	7	52
LM(m)	Diameter	POTR1	1	21	5.71	2.11	1.45	0.32	4	8
LM(m)	Diameter	POTR1	2	7	4.71	0.57	0.76	0.29	4	6
LM(m)	Diameter	POTR1	3	2	5.50	4.50	2.12	1.50	4	7
LM(m)	Height	POTR1	1	21	42.00	212.80	14.59	3.18	15	70
LM(m)	Height	POTR1	2	7	26.57	270.62	16.45	6.22	6	51
LM(m)	Height	POTR1	3	2	25.50	60.50	7.78	5.50	20	31
LM(m)	Diameter	QUPR	2	1	4.00	.	.	.	4	4
LM(m)	Height	QUPR	2	1	31.00	.	.	.	31	31
LM(m)	Diameter	UNK	1	1	6.00	.	.	.	6	6
LM(m)	Height	UNK	1	1	33.00	.	.	.	33	33
LW(m)	Diameter	FRNI	2	3	13.00	13.00	3.61	2.08	10	17
LW(m)	Diameter	FRNI	3	2	8.00	8.00	2.83	2.00	6	10
LW(m)	Diameter	FRNI	5	1	15.00	.	.	.	15	15
LW(m)	Diameter	FRNI	UNK	1	12.00	.	.	.	12	12
LW(m)	Height	FRNI	2	3	17.33	12.33	3.51	2.03	14	21
LW(m)	Height	FRNI	3	2	18.00	2.00	1.41	1.00	17	19
LW(m)	Height	FRNI	5	1	32.00	.	.	.	32	32
LW(m)	Height	FRNI	UNK	1	11.00	.	.	.	11	11
LW(m)	Diameter	POTR1	2	1	6.00	.	.	.	6	6
LW(m)	Height	POTR1	2	1	28.00	.	.	.	28	28
LW(m)	Diameter	TIAM	UNK	1	27.00	.	.	.	27	27

Appendix B Table 11 (Cont).

ELU	Diameter/ Height	Species	Decay	N	Mean	Var	Std Dev	Std Err	Min	Max
LW(m)	Height	TIAM	UNK	1	61.00	.	.	.	61	61
LW(m)	Diameter	ULRU	3	1	24.00	.	.	.	24	24
LW(m)	Height	ULRU	3	1	12.00	.	.	.	12	12
LW(p)	Diameter	LALA	1	4	4.50	0.33	0.58	0.29	4	5
LW(p)	Diameter	LALA	2	4	4.25	0.25	0.50	0.25	4	5
LW(p)	Height	LALA	1	4	24.00	130.00	11.40	5.70	7	31
LW(p)	Height	LALA	2	4	23.00	88.67	9.42	4.71	10	32
LW(pm)	Diameter	ABBA	1	12	5.50	1.91	1.38	0.40	4	9
LW(pm)	Diameter	ABBA	2	4	6.50	3.67	1.91	0.96	4	8
LW(pm)	Height	ABBA	1	12	21.08	130.81	11.44	3.30	6	35
LW(pm)	Height	ABBA	2	4	15.50	6.33	2.52	1.26	13	19
LW(pm)	Diameter	BEPA	1	4	6.50	3.00	1.73	0.87	5	9
LW(pm)	Diameter	BEPA	2	1	7.00	.	.	.	7	7
LW(pm)	Height	BEPA	1	4	19.75	22.25	4.72	2.36	13	23
LW(pm)	Height	BEPA	2	1	13.00	.	.	.	13	13
LW(pm)	Diameter	LALA	3	2	5.50	0.50	0.71	0.50	5	6
LW(pm)	Diameter	LALA	5	1	11.00	.	.	.	11	11
LW(pm)	Height	LALA	3	2	15.00	8.00	2.83	2.00	13	17
LW(pm)	Height	LALA	5	1	26.00	.	.	.	26	26
LW(pm)	Diameter	PIMA	2	1	8.00	.	.	.	8	8
LW(pm)	Height	PIMA	2	1	8.00	.	.	.	8	8
LW(pm)	Diameter	POBA	1	1	4.00	.	.	.	4	4
LW(pm)	Height	POBA	1	1	26.00	.	.	.	26	26
LW(pm)	Diameter	POTR1	3	1	8.00	.	.	.	8	8
LW(pm)	Height	POTR1	3	1	6.00	.	.	.	6	6
LW(pm)	Diameter	THOC	1	7	5.71	2.90	1.70	0.64	4	9
LW(pm)	Diameter	THOC	2	3	6.67	6.33	2.52	1.45	4	9
LW(pm)	Diameter	THOC	3	1	5.00	.	.	.	5	5
LW(pm)	Height	THOC	1	7	26.71	46.24	6.80	2.57	19	38
LW(pm)	Height	THOC	2	3	9.67	6.33	2.52	1.45	7	12
LW(pm)	Height	THOC	3	1	8.00	.	.	.	8	8
LW(vp)	Diameter	PIMA	1	10	5.50	1.83	1.35	0.43	4	8
LW(vp)	Diameter	PIMA	2	1	5.00	.	.	.	5	5
LW(vp)	Diameter	PIMA	4	1	4.00	.	.	.	4	4
LW(vp)	Height	PIMA	1	10	31.10	132.54	11.51	3.64	9	45
LW(vp)	Height	PIMA	2	1	20.00	.	.	.	20	20
LW(vp)	Height	PIMA	4	1	21.00	.	.	.	21	21

Appendix B Table 11 (Cont).

ELU	Diameter/ Height	Species	Decay	N	Mean	Var	Std Dev	Std Err	Min	Max
MM(m)	Diameter	ABBA	1	1	7.00	.	.	.	7	7
MM(m)	Height	ABBA	1	1	46.00	.	.	.	46	46
MM(m)	Diameter	ACRU1	4	1	11.00	.	.	.	11	11
MM(m)	Height	ACRU1	4	1	24.00	.	.	.	24	24
MM(m)	Diameter	BEPA	1	1	4.00	.	.	.	4	4
MM(m)	Diameter	BEPA	2	1	4.00	.	.	.	4	4
MM(m)	Height	BEPA	1	1	27.00	.	.	.	27	27
MM(m)	Height	BEPA	2	1	32.00	.	.	.	32	32
MM(m)	Diameter	POBA	1	7	4.71	3.57	1.89	0.71	4	9
MM(m)	Height	POBA	1	7	26.29	308.90	17.58	6.64	3	46
MM(m)	Diameter	POTR1	1	18	5.94	2.17	1.47	0.35	4	9
MM(m)	Diameter	POTR1	2	4	6.50	13.67	3.70	1.85	4	12
MM(m)	Height	POTR1	1	18	39.94	229.82	15.16	3.57	6	70
MM(m)	Height	POTR1	2	4	32.00	370.67	19.25	9.63	6	52
MM(p)	Diameter	ABBA	1	10	5.10	1.43	1.20	0.38	4	7
MM(p)	Diameter	ABBA	2	3	6.00	7.00	2.65	1.53	4	9
MM(p)	Height	ABBA	1	10	31.80	28.62	5.35	1.69	24	40
MM(p)	Height	ABBA	2	3	11.67	96.33	9.81	5.67	6	23
MM(p)	Diameter	BEPA	2	2	6.00	2.00	1.41	1.00	5	7
MM(p)	Height	BEPA	2	2	32.50	12.50	3.54	2.50	30	35
MM(p)	Diameter	PIMA	1	1	4.00	.	.	.	4	4
MM(p)	Height	PIMA	1	1	30.00	.	.	.	30	30
MM(p)	Diameter	POTR1	1	3	5.67	2.33	1.53	0.88	4	7
MM(p)	Diameter	POTR1	2	2	5.50	0.50	0.71	0.50	5	6
MM(p)	Height	POTR1	1	3	13.33	42.33	6.51	3.76	7	20
MM(p)	Height	POTR1	2	2	12.00	72.00	8.49	6.00	6	18
MW(m)	Diameter	BEPA	2	1	9.00	.	.	.	9	9
MW(m)	Height	BEPA	2	1	20.00	.	.	.	20	20
MW(m)	Diameter	POBA	1	2	4.50	0.50	0.71	0.50	4	5
MW(m)	Height	POBA	1	2	22.50	12.50	3.54	2.50	20	25
MW(m)	Diameter	POTR1	1	1	5.00	.	.	.	5	5
MW(m)	Diameter	POTR1	3	11	4.64	2.25	1.50	0.45	4	9
MW(m)	Diameter	POTR1	UNK	1	5.00	.	.	.	5	5
MW(m)	Height	POTR1	1	1	25.00	.	.	.	25	25
MW(m)	Height	POTR1	3	11	23.82	187.56	13.70	4.13	9	52
MW(m)	Height	POTR1	UNK	1	51.00	.	.	.	51	51
MW(p)	Diameter	LALA	1	4	5.00	0.67	0.82	0.41	4	6

Appendix B Table 11 (Cont).

ELU	Diameter/ Height	Species	Decay	N	Mean	Var	Std Dev	Std Err	Min	Max
MW(p)	Diameter	LALA	2	2	6.00	2.00	1.41	1.00	5	7
MW(p)	Diameter	LALA	3	1	5.00	.	.	.	5	5
MW(p)	Height	LALA	1	4	38.25	106.92	10.34	5.17	27	48
MW(p)	Height	LALA	2	2	15.00	18.00	4.24	3.00	12	18
MW(p)	Height	LALA	3	1	10.00	.	.	.	10	10
MW(p)	Diameter	PIMA	1	4	5.25	3.58	1.89	0.95	4	8
MW(p)	Height	PIMA	1	4	31.50	267.00	16.34	8.17	7	40

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 12. Snag diameter (in) and height (ft) means, variances, standard deviations, standard errors, minimums and maximums by unit number, decay and species[a].

Unit no.	Decay	Species	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
1	UNK	POTR1	Diameter	1	5.00	.	.	.	5	5
1	UNK	POTR1	Height	1	51.00	.	.	.	51	51
1	3	POTR1	Diameter	11	4.64	2.25	1.50	0.45	4	9
1	3	POTR1	Height	11	23.82	187.56	13.70	4.13	9	52
2	1	POBA	Diameter	2	4.50	0.50	0.71	0.50	4	5
2	1	POBA	Height	2	22.50	12.50	3.54	2.50	20	25
2	1	POTR1	Diameter	1	5.00	.	.	.	5	5
2	1	POTR1	Height	1	25.00	.	.	.	25	25
2	2	BEPA	Diameter	1	9.00	.	.	.	9	9
2	2	BEPA	Height	1	20.00	.	.	.	20	20
3	1	POTR1	Diameter	5	6.20	3.20	1.79	0.80	5	9
3	1	POTR1	Height	5	31.80	193.70	13.92	6.22	9	45
3	2	POTR1	Diameter	1	5.00	.	.	.	5	5
3	2	POTR1	Height	1	7.00	.	.	.	7	7
4	1	POTR1	Diameter	3	5.00	1.00	1.00	0.58	4	6
4	1	POTR1	Height	3	47.00	48.00	6.93	4.00	43	55
4	2	POTR1	Diameter	3	5.67	1.33	1.15	0.67	5	7
4	2	POTR1	Height	3	25.33	41.33	6.43	3.71	18	30
4	3	POTR1	Diameter	1	7.00	.	.	.	7	7
4	3	POTR1	Height	1	7.00	.	.	.	7	7
6	1	LALA	Diameter	1	5.00	.	.	.	5	5
6	1	LALA	Height	1	7.00	.	.	.	7	7
6	2	LALA	Diameter	3	4.00	0.00	0.00	0.00	4	4
6	2	LALA	Height	3	23.00	133.00	11.53	6.66	10	32
7	1	LALA	Diameter	4	5.00	0.67	0.82	0.41	4	6
7	1	LALA	Height	4	38.25	106.92	10.34	5.17	27	48
7	1	PIMA	Diameter	4	5.25	3.58	1.89	0.95	4	8
7	1	PIMA	Height	4	31.50	267.00	16.34	8.17	7	40
7	2	LALA	Diameter	2	6.00	2.00	1.41	1.00	5	7
7	2	LALA	Height	2	15.00	18.00	4.24	3.00	12	18
7	3	LALA	Diameter	1	5.00	.	.	.	5	5
7	3	LALA	Height	1	10.00	.	.	.	10	10
8	1	LALA	Diameter	3	4.33	0.33	0.58	0.33	4	5
8	1	LALA	Height	3	29.67	2.33	1.53	0.88	28	31

Appendix B Table 12 (Cont).

Unit no.	Decay	Species	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
8	2	LALA	Diameter	1	5.00	.	.	.	5	5
8	2	LALA	Height	1	23.00	.	.	.	23	23
11	1	POBA	Diameter	7	4.71	3.57	1.89	0.71	4	9
11	1	POBA	Height	7	26.29	308.90	17.58	6.64	3	46
11	1	POTR1	Diameter	9	5.89	1.11	1.05	0.35	5	8
11	1	POTR1	Height	9	36.56	223.28	14.94	4.98	6	53
13	1	POBA	Diameter	2	6.00	0.00	0.00	0.00	6	6
13	1	POBA	Height	2	7.00	0.00	0.00	0.00	7	7
13	1	POTR1	Diameter	5	6.40	2.80	1.67	0.75	4	8
13	1	POTR1	Height	5	33.20	8.70	2.95	1.32	30	36
13	1	UNK	Diameter	1	6.00	.	.	.	6	6
13	1	UNK	Height	1	33.00	.	.	.	33	33
13	2	FRNI	Diameter	2	5.00	0.00	0.00	0.00	5	5
13	2	FRNI	Height	2	33.00	0.00	0.00	0.00	33	33
13	2	POTR1	Diameter	1	5.00	.	.	.	5	5
13	2	POTR1	Height	1	42.00	.	.	.	42	42
13	2	QUPR	Diameter	1	4.00	.	.	.	4	4
13	2	QUPR	Height	1	31.00	.	.	.	31	31
16	1	BEPA	Diameter	1	4.00	.	.	.	4	4
16	1	BEPA	Height	1	27.00	.	.	.	27	27
16	2	BEPA	Diameter	1	4.00	.	.	.	4	4
16	2	BEPA	Height	1	32.00	.	.	.	32	32
16	2	POTR1	Diameter	4	6.50	13.67	3.70	1.85	4	12
16	2	POTR1	Height	4	32.00	370.67	19.25	9.63	6	52
16	5	POTR1	Diameter	6	6.67	3.87	1.97	0.80	4	9
16	5	POTR1	Height	6	41.50	369.50	19.22	7.85	20	70
17	2	FRNI	Diameter	3	13.00	13.00	3.61	2.08	10	17
17	2	FRNI	Height	3	17.33	12.33	3.51	2.03	14	21
17	3	FRNI	Diameter	1	10.00	.	.	.	10	10
17	3	FRNI	Height	1	17.00	.	.	.	17	17
17	3	ULRU	Diameter	1	24.00	.	.	.	24	24
17	3	ULRU	Height	1	12.00	.	.	.	12	12
18	UNK	FRNI	Diameter	1	12.00	.	.	.	12	12
18	UNK	FRNI	Height	1	11.00	.	.	.	11	11
18	UNK	TIAM	Diameter	1	27.00	.	.	.	27	27
18	UNK	TIAM	Height	1	61.00	.	.	.	61	61
18	2	POTR1	Diameter	1	6.00	.	.	.	6	6

Appendix B Table 12 (Cont).

Unit no.	Decay	Species	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
18	2	POTR1	Height	1	28.00	.	.	.	28	28
18	3	FRNI	Diameter	1	6.00	.	.	.	6	6
18	3	FRNI	Height	1	19.00	.	.	.	19	19
18	5	FRNI	Diameter	1	15.00	.	.	.	15	15
18	5	FRNI	Height	1	32.00	.	.	.	32	32
19	1	FRNI	Diameter	1	7.00	.	.	.	7	7
19	1	FRNI	Height	1	39.00	.	.	.	39	39
19	1	PIMA	Diameter	1	4.00	.	.	.	4	4
19	1	PIMA	Height	1	30.00	.	.	.	30	30
19	1	POBA	Diameter	2	16.50	0.50	0.71	0.50	16	17
19	1	POBA	Height	2	23.00	392.00	19.80	14.00	9	37
19	1	POTR1	Diameter	1	16.00	.	.	.	16	16
19	1	POTR1	Height	1	41.00	.	.	.	41	41
19	2	ABBA	Diameter	2	6.50	4.50	2.12	1.50	5	8
19	2	ABBA	Height	2	32.50	612.50	24.75	17.50	15	50
19	2	FRNI	Diameter	1	5.00	.	.	.	5	5
19	2	FRNI	Height	1	26.00	.	.	.	26	26
19	2	PIMA	Diameter	1	6.00	.	.	.	6	6
19	2	PIMA	Height	1	6.00	.	.	.	6	6
19	2	POTR1	Diameter	1	5.00	.	.	.	5	5
19	2	POTR1	Height	1	9.00	.	.	.	9	9
20	1	FRNI	Diameter	1	4.00	.	.	.	4	4
20	1	FRNI	Height	1	20.00	.	.	.	20	20
20	1	POBA	Diameter	5	12.40	8.30	2.88	1.29	8	15
20	1	POBA	Height	5	41.60	149.80	12.24	5.47	33	63
20	2	POBA	Diameter	2	8.50	12.50	3.54	2.50	6	11
20	2	POBA	Height	2	18.00	50.00	7.07	5.00	13	23
20	3	ABBA	Diameter	1	9.00	.	.	.	9	9
20	3	ABBA	Height	1	11.00	.	.	.	11	11
21	1	ABBA	Diameter	10	5.10	1.43	1.20	0.38	4	7
21	1	ABBA	Height	10	31.80	28.62	5.35	1.69	24	40
21	1	PIMA	Diameter	1	4.00	.	.	.	4	4
21	1	PIMA	Height	1	30.00	.	.	.	30	30
21	1	POTR1	Diameter	3	5.67	2.33	1.53	0.88	4	7
21	1	POTR1	Height	3	13.33	42.33	6.51	3.76	7	20
21	2	ABBA	Diameter	3	6.00	7.00	2.65	1.53	4	9
21	2	ABBA	Height	3	11.67	96.33	9.81	5.67	6	23

Appendix B Table 12 (Cont).

Unit no.	Decay	Species	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
21	2	BEPA	Diameter	2	6.00	2.00	1.41	1.00	5	7
21	2	BEPA	Height	2	32.50	12.50	3.54	2.50	30	35
21	2	POTR1	Diameter	2	5.50	0.50	0.71	0.50	5	6
21	2	POTR1	Height	2	12.00	72.00	8.49	6.00	6	18
22	1	ABBA	Diameter	2	5.00	2.00	1.41	1.00	4	6
22	1	ABBA	Height	2	35.00	128.00	11.31	8.00	27	43
22	1	POTR1	Diameter	6	8.33	5.47	2.34	0.95	5	11
22	1	POTR1	Height	6	26.67	615.47	24.81	10.13	8	69
22	2	ABBA	Diameter	1	4.00	.	.	.	4	4
22	2	ABBA	Height	1	26.00	.	.	.	26	26
22	2	POBA	Diameter	1	6.00	.	.	.	6	6
22	2	POBA	Height	1	22.00	.	.	.	22	22
22	2	POTR1	Diameter	9	5.56	0.78	0.88	0.29	4	7
22	2	POTR1	Height	9	18.11	175.36	13.24	4.41	6	50
22	3	POTR1	Diameter	2	5.50	0.50	0.71	0.50	5	6
22	3	POTR1	Height	2	8.00	8.00	2.83	2.00	6	10
23	1	ABBA	Diameter	3	6.00	3.00	1.73	1.00	5	8
23	1	ABBA	Height	3	27.33	320.33	17.90	10.33	17	48
23	1	POTR1	Diameter	4	9.25	12.25	3.50	1.75	5	13
23	1	POTR1	Height	4	20.75	685.58	26.18	13.09	7	60
23	2	ABBA	Diameter	1	4.00	.	.	.	4	4
23	2	ABBA	Height	1	23.00	.	.	.	23	23
23	2	BEPA	Diameter	3	16.00	3.00	1.73	1.00	15	18
23	2	BEPA	Height	3	30.67	10.33	3.21	1.86	27	33
24	1	ABBA	Diameter	6	6.83	4.57	2.14	0.87	4	10
24	1	ABBA	Height	6	50.00	165.60	12.87	5.25	33	65
24	1	POTR1	Diameter	1	4.00	.	.	.	4	4
24	1	POTR1	Height	1	60.00	.	.	.	60	60
24	2	ABBA	Diameter	1	4.00	.	.	.	4	4
24	2	ABBA	Height	1	6.00	.	.	.	6	6
24	2	POTR1	Diameter	1	8.00	.	.	.	8	8
24	2	POTR1	Height	1	45.00	.	.	.	45	45
24	4	BEPA	Diameter	1	4.00	.	.	.	4	4
24	4	BEPA	Height	1	21.00	.	.	.	21	21
28	1	PIMA	Diameter	3	5.67	4.33	2.08	1.20	4	8
28	1	PIMA	Height	3	20.00	181.00	13.45	7.77	9	35
30	1	PIMA	Diameter	5	5.20	1.70	1.30	0.58	4	7

Appendix B Table 12 (Cont).

Unit no.	Decay	Species	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
30	1	PIMA	Height	5	35.20	45.70	6.76	3.02	24	42
30	2	PIMA	Diameter	1	5.00	.	.	.	5	5
30	2	PIMA	Height	1	20.00	.	.	.	20	20
30	4	PIMA	Diameter	1	4.00	.	.	.	4	4
30	4	PIMA	Height	1	21.00	.	.	.	21	21
31	1	PIMA	Diameter	2	6.00	0.00	0.00	0.00	6	6
31	1	PIMA	Height	2	37.50	112.50	10.61	7.50	30	45
34	1	POTR1	Diameter	9	5.33	2.00	1.41	0.47	4	8
34	1	POTR1	Height	9	42.56	204.03	14.28	4.76	15	56
34	2	POTR1	Diameter	2	5.00	2.00	1.41	1.00	4	6
34	2	POTR1	Height	2	33.50	612.50	24.75	17.50	16	51
34	3	POTR1	Diameter	2	5.50	4.50	2.12	1.50	4	7
34	3	POTR1	Height	2	25.50	60.50	7.78	5.50	20	31
38	1	ABBA	Diameter	1	7.00	.	.	.	7	7
38	1	ABBA	Height	1	46.00	.	.	.	46	46
38	1	POTR1	Diameter	3	4.67	0.33	0.58	0.33	4	5
38	1	POTR1	Height	3	47.00	3.00	1.73	1.00	46	49
38	4	ACRU1	Diameter	1	11.00	.	.	.	11	11
38	4	ACRU1	Height	1	24.00	.	.	.	24	24
40	1	BEPA	Diameter	2	4.00	0.00	0.00	0.00	4	4
40	1	BEPA	Height	2	31.00	512.00	22.63	16.00	15	47
40	1	POBA	Diameter	6	4.67	0.67	0.82	0.33	4	6
40	1	POBA	Height	6	38.67	183.07	13.53	5.52	16	52
40	1	POTR1	Diameter	7	5.71	1.90	1.38	0.52	4	8
40	1	POTR1	Height	7	47.57	330.29	18.17	6.87	16	70
40	2	BEPA	Diameter	1	4.00	.	.	.	4	4
40	2	BEPA	Height	1	8.00	.	.	.	8	8
40	2	POTR1	Diameter	4	4.50	0.33	0.58	0.29	4	5
40	2	POTR1	Height	4	19.25	154.25	12.42	6.21	6	36
45	1	ABBA	Diameter	3	5.00	1.00	1.00	0.58	4	6
45	1	ABBA	Height	3	25.33	280.33	16.74	9.67	6	35
45	1	BEPA	Diameter	4	6.50	3.00	1.73	0.87	5	9
45	1	BEPA	Height	4	19.75	22.25	4.72	2.36	13	23
45	1	POBA	Diameter	1	4.00	.	.	.	4	4
45	1	POBA	Height	1	26.00	.	.	.	26	26
45	1	THOC	Diameter	2	6.00	0.00	0.00	0.00	6	6
45	1	THOC	Height	2	29.00	2.00	1.41	1.00	28	30

Appendix B Table 12 (Cont).

Unit no.	Decay	Species	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
45	2	BEPA	Diameter	1	7.00	.	.	.	7	7
45	2	BEPA	Height	1	13.00	.	.	.	13	13
45	3	LALA	Diameter	2	5.50	0.50	0.71	0.50	5	6
45	3	LALA	Height	2	15.00	8.00	2.83	2.00	13	17
45	3	POTR1	Diameter	1	8.00	.	.	.	8	8
45	3	POTR1	Height	1	6.00	.	.	.	6	6
46	1	ABBA	Diameter	1	5.00	.	.	.	5	5
46	1	ABBA	Height	1	18.00	.	.	.	18	18
46	2	ABBA	Diameter	3	7.33	1.33	1.15	0.67	6	8
46	2	ABBA	Height	3	15.67	9.33	3.06	1.76	13	19
46	2	THOC	Diameter	2	6.50	12.50	3.54	2.50	4	9
46	2	THOC	Height	2	9.50	12.50	3.54	2.50	7	12
46	3	THOC	Diameter	1	5.00	.	.	.	5	5
46	3	THOC	Height	1	8.00	.	.	.	8	8
46	5	LALA	Diameter	1	11.00	.	.	.	11	11
46	5	LALA	Height	1	26.00	.	.	.	26	26
47	1	ABBA	Diameter	2	8.00	2.00	1.41	1.00	7	9
47	1	ABBA	Height	2	7.50	0.50	0.71	0.50	7	8
47	1	THOC	Diameter	5	5.60	4.30	2.07	0.93	4	9
47	1	THOC	Height	5	25.80	65.20	8.07	3.61	19	38
47	2	THOC	Diameter	1	7.00	.	.	.	7	7
47	2	THOC	Height	1	10.00	.	.	.	10	10
48	1	ABBA	Diameter	6	5.00	0.40	0.63	0.26	4	6
48	1	ABBA	Height	6	24.00	78.80	8.88	3.62	8	33
48	2	ABBA	Diameter	1	4.00	.	.	.	4	4
48	2	ABBA	Height	1	15.00	.	.	.	15	15
48	2	PIMA	Diameter	1	8.00	.	.	.	8	8
48	2	PIMA	Height	1	8.00	.	.	.	8	8

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 13. Snag stem density (stems/plot) by ELU and decay[a].

ELU	Decay	Stem density
ED(p)	1	7.8571
ED(p)	2	13
EM(p)	1	6.5652
EM(p)	2	5.4444
EM(p)	3	6
EW(m)	1	11.4545
EW(m)	2	6.5714
EW(m)	3	9
LM(m)	1	5.4375
LM(m)	2	4.6364
LM(m)	3	5.5
LW(m)	2	11.25
LW(m)	3	13.3333
LW(m)	5	15
LW(m)	.	19.5
LW(p)	1	4.5
LW(p)	2	4.25
LW(pm)	1	5.6667
LW(pm)	2	6.7778
LW(pm)	3	6
LW(pm)	5	11
LW(vp)	1	5.5
LW(vp)	2	5
LW(vp)	4	4
MM(m)	1	5.5926
MM(m)	2	6
MM(m)	4	11
MM(p)	1	5.1429
MM(p)	2	5.8571
MW(m)	1	4.6667
MW(m)	2	9
MW(m)	3	4.6364
MW(m)	.	5
MW(p)	1	5.125
MW(p)	2	6
MW(p)	3	5

[a]a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 14. Snags stem density (stems/plot) by ELU, decay and species[a].

ELU	Decay	Species	Stem density	ELU	Decay	Species	Stem density
ED(p)	1	ABBA	6	LW(m)	3	ULRU	24
ED(p)	1	POTR1	9.25	LW(m)	5	FRNI	15
ED(p)	2	ABBA	4	LW(m)	.	FRNI	12
ED(p)	2	BEPA	16	LW(m)	.	TIAM	27
EM(p)	1	ABBA	6.375	LW(p)	1	LALA	4.5
EM(p)	1	POTR1	6.6667	LW(p)	2	LALA	4.25
EM(p)	2	ABBA	4	LW(pm)	1	ABBA	5.5
EM(p)	2	BEPA	4	LW(pm)	1	BEPA	6.5
EM(p)	2	POBA	6	LW(pm)	1	POBA	4
EM(p)	2	POTR1	5.7143	LW(pm)	1	THOC	5.7143
EM(p)	3	POTR1	6	LW(pm)	2	ABBA	6.5
EW(m)	1	FRNI	5.5	LW(pm)	2	BEPA	7
EW(m)	1	PIMA	4	LW(pm)	2	PIMA	8
EW(m)	1	POBA	13.5714	LW(pm)	2	THOC	6.6667
EW(m)	1	POTR1	16	LW(pm)	3	LALA	5.5
EW(m)	2	ABBA	6.5	LW(pm)	3	POTR1	8
EW(m)	2	FRNI	5	LW(pm)	3	THOC	5
EW(m)	2	PIMA	6	LW(pm)	5	LALA	11
EW(m)	2	POBA	8.5	LW(vp)	1	PIMA	5.5
EW(m)	2	POTR1	5	LW(vp)	2	PIMA	5
EW(m)	3	ABBA	9	LW(vp)	4	PIMA	4
LM(m)	1	BEPA	4	MM(m)	1	ABBA	7
LM(m)	1	POBA	5	MM(m)	1	BEPA	4
LM(m)	1	POTR1	5.7143	MM(m)	1	POBA	4.7143
LM(m)	1	UNK	6	MM(m)	1	POTR1	5.9444
LM(m)	2	BEPA	4	MM(m)	2	BEPA	4
LM(m)	2	FRNI	5	MM(m)	2	POTR1	6.5
LM(m)	2	POTR1	4.7143	MM(m)	4	ACRU1	11
LM(m)	2	QUPR	4	MM(p)	1	ABBA	5.1
LM(m)	3	POTR1	5.5	MM(p)	1	PIMA	4
LW(m)	2	FRNI	13	MM(p)	1	POTR1	5.6667
LW(m)	2	POTR1	6	MM(p)	2	ABBA	6
LW(m)	3	FRNI	8	MM(p)	2	BEPA	6

Appendix B Table 14 (Cont).

ELU	Decay	Species	Stem density
MM(p)	2	POTR1	5.5
MW(m)	1	POBA	4.5
MW(m)	1	POTR1	5
MW(m)	2	BEPA	9
MW(m)	3	POTR1	4.6364
MW(m)	.	POTR1	5
MW(p)	1	LALA	5
MW(p)	1	PIMA	5.25
MW(p)	2	LALA	6
MW(p)	3	LALA	5

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 15. Snag stem density (stems/plot) by unit number and decay[a].

Unit no.	Decay	Stem density	Unit no.	Decay	Stem density
1	.	0.33333	21	1	4.66667
1	3	3.66667	21	2	2.33333
2	1	1	22	1	2.66667
2	2	0.33333	22	2	3.66667
3	1	1.66667	22	3	0.66667
3	2	0.33333	23	1	2.33333
4	1	1	23	2	1.33333
4	2	1	24	1	2.33333
4	3	0.33333	24	2	1
5	.	.	28	1	1
6	1	0.33333	30	1	1.66667
6	2	1	30	2	0.33333
7	1	2.66667	30	4	0.33333
7	2	0.66667	31	1	0.66667
7	3	0.33333	32	.	.
8	1	1	34	1	3
8	2	0.33333	34	2	0.66667
9	.	.	34	3	0.66667
11	1	5.33333	38	1	1.33333
13	1	2.66667	38	4	0.33333
13	2	1.33333	39	.	.
16	1	2.33333	40	1	5
16	2	1.66667	40	2	1.66667
17	2	1	45	1	3.33333
17	3	0.66667	45	2	0.33333
18	.	0.66667	45	3	1
18	2	0.33333	46	1	0.33333
18	3	0.33333	46	2	1.66667
18	5	0.33333	46	3	0.33333
19	1	1.66667	46	5	0.33333
19	2	1.66667	47	1	2.33333
20	1	2	47	2	0.33333
20	2	0.66667	48	1	2
20	3	0.33333	48	2	0.66667

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 16. Snag stem density by unit number, decay, and species[a].

Unit no.	Decay	Species	Stem density	Unit no.	Decay	Species	Stem density
1	3	POTR1	3.66667	18	2	POTR1	0.33333
1	.	POTR1	0.33333	18	3	FRNI	0.33333
2	1	POBA	0.66667	18	5	FRNI	0.33333
2	1	POTR1	0.33333	18	.	FRNI	0.33333
2	2	BEPA	0.33333	18	.	TIAM	0.33333
3	1	POTR1	1.66667	19	1	FRNI	0.33333
3	2	POTR1	0.33333	19	1	PIMA	0.33333
4	1	POTR1	1	19	1	POBA	0.66667
4	2	POTR1	1	19	1	POTR1	0.33333
4	3	POTR1	0.33333	19	2	ABBA	0.66667
5	.		.	19	2	FRNI	0.33333
6	1	LALA	0.33333	19	2	PIMA	0.33333
6	2	LALA	1	19	2	POTR1	0.33333
7	1	LALA	1.33333	20	1	FRNI	0.33333
7	1	PIMA	1.33333	20	1	POBA	1.66667
7	2	LALA	0.66667	20	2	POBA	0.66667
7	3	LALA	0.33333	20	3	ABBA	0.33333
8	1	LALA	1	21	1	ABBA	3.33333
8	2	LALA	0.33333	21	1	PIMA	0.33333
9	.		.	21	1	POTR1	1
11	1	POBA	2.33333	21	2	ABBA	1
11	1	POTR1	3	21	2	BEPA	0.66667
13	1	POBA	0.66667	21	2	POTR1	0.66667
13	1	POTR1	1.66667	22	1	ABBA	0.66667
13	1	UNK	0.33333	22	1	POTR1	2
13	2	FRNI	0.66667	22	2	ABBA	0.33333
13	2	POTR1	0.33333	22	2	POBA	0.33333
13	2	QUPR	0.33333	22	2	POTR1	3
16	1	BEPA	0.33333	22	3	POTR1	0.66667
16	1	POTR1	2	23	1	ABBA	1
16	2	BEPA	0.33333	23	1	POTR1	1.33333
16	2	POTR1	1.33333	23	2	ABBA	0.33333
17	2	FRNI	1	23	2	BEPA	1
17	3	FRNI	0.33333	24	1	ABBA	2
17	3	ULRU	0.33333	24	1	POTR1	0.33333

Appendix B Table 16 (Cont).

Unit no.	Decay	Species	Stem density
24	2	ABBA	0.33333
24	2	BEPA	0.33333
24	2	POTR1	0.33333
28	1	PIMA	1
30	1	PIMA	1.66667
30	2	PIMA	0.33333
30	4	PIMA	0.33333
31	1	PIMA	0.66667
32	.		.
34	1	POTR1	3
34	2	POTR1	0.66667
34	3	POTR1	0.66667
38	1	ABBA	0.33333
38	1	POTR1	1
38	4	ACRU1	0.33333
39	.		.
40	1	BEPA	0.66667
40	1	POBA	2
40	1	POTR1	2.33333
40	2	BEPA	0.33333
40	2	POTR1	1.33333
45	1	ABBA	1
45	1	BEPA	1.33333
45	1	POBA	0.33333
45	1	THOC	0.66667
45	2	BEPA	0.33333
45	3	LALA	0.66667
45	3	POTR1	0.33333
46	1	ABBA	0.33333
46	2	ABBA	1
46	2	THOC	0.66667
46	3	THOC	0.33333
46	5	LALA	0.33333
47	1	ABBA	0.66667
47	1	THOC	1.66667
47	2	THOC	0.33333
48	1	ABBA	2
48	2	ABBA	0.33333
48	2	PIMA	0.33333

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 17. Snag area by ELU and decay[a].

ELU	Decay	Area	ELU	Decay	Area
ED(p)	1	129.067	MM(m)	1	16.333
ED(p)	2	206.821	MM(m)	2	4.034
EM(p)	1	17.95	MM(m)	4	2.16
EM(p)	2	9.098	MM(p)	1	102.102
EM(p)	3	1.8	MM(p)	2	67.282
EW(m)	1	110.218	MW(m)	1	4.32
EW(m)	2	21.729	MW(m)	2	5.301
EW(m)	3	5.301	MW(m)	3	16.952
LM(m)	1	14.053	MW(m)	.	1.636
LM(m)	2	3.38	MW(p)	1	14.595
LM(m)	3	0.912	MW(p)	2	4.843
LW(m)	2	37.241	MW(p)	3	1.636
LW(m)	3	46.6			
LW(m)	5	14.726			
LW(m)	.	57.138			
LW(p)	1	5.367			
LW(p)	2	4.778			
LW(pm)	1	13.483			
LW(pm)	2	7.183			
LW(pm)	3	2.454			
LW(pm)	5	1.98			
LW(vp)	1	5.22			
LW(vp)	2	0.409			
LW(vp)	4	0.262			

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 18. Snag area by ELU, decay and species[a].

ELU	Decay	Species	Area	ELU	Decay	Species	Area
ED(p)	1	ABBA	29.845	LW(m)	.	FRNI	9.425
ED(p)	1	POTR1	99.222	LW(m)	.	TIAM	47.713
ED(p)	2	ABBA	4.189	LW(p)	1	LALA	5.367
ED(p)	2	BEPA	202.633	LW(p)	2	LALA	4.778
EM(p)	1	ABBA	5.809	LW(pm)	1	ABBA	6.283
EM(p)	1	POTR1	12.141	LW(pm)	1	BEPA	2.913
EM(p)	2	ABBA	0.524	LW(pm)	1	POBA	0.262
EM(p)	2	BEPA	0.262	LW(pm)	1	THOC	4.025
EM(p)	2	POBA	0.589	LW(pm)	2	ABBA	2.945
EM(p)	2	POTR1	7.7231	LW(pm)	2	BEPA	0.802
EM(p)	3	POTR1	1.7999	LW(pm)	2	PIMA	1.0472
EW(m)	1	FRNI	4.254	LW(pm)	2	THOC	2.3889
EW(m)	1	PIMA	1.047	LW(pm)	3	LALA	0.9981
EW(m)	1	POBA	88.161	LW(pm)	3	POTR1	1.0472
EW(m)	1	POTR1	16.755	LW(pm)	3	THOC	0.4091
EW(m)	2	ABBA	5.825	LW(pm)	5	LALA	1.9799
EW(m)	2	FRNI	1.636	LW(vp)	1	PIMA	5.22
EW(m)	2	PIMA	2.3562	LW(vp)	2	PIMA	0.4091
EW(m)	2	POBA	10.2756	LW(vp)	4	PIMA	0.2618
EW(m)	2	POTR1	1.6362	MM(m)	1	ABBA	0.875
EW(m)	3	ABBA	5.3014	MM(m)	1	BEPA	0.286
LM(m)	1	BEPA	0.449	MM(m)	1	POBA	3.159
LM(m)	1	POBA	2.889	MM(m)	1	POTR1	12.013
LM(m)	1	POTR1	10.21	MM(m)	2	BEPA	0.286
LM(m)	1	UNK	0.505	MM(m)	2	POTR1	3.7485
LM(m)	2	BEPA	0.224	MM(m)	4	ACRU1	2.1598
LM(m)	2	FRNI	0.701	MM(p)	1	ABBA	71.471
LM(m)	2	POTR1	2.23	MM(p)	1	PIMA	4.189
LM(m)	2	QUPR	0.2244	MM(p)	1	POTR1	26.442
LM(m)	3	POTR1	0.9116	MM(p)	2	ABBA	31.94
LW(m)	2	FRNI	34.885	MM(p)	2	BEPA	19.373
LW(m)	2	POTR1	2.3562	MM(p)	2	POTR1	15.9698
LW(m)	3	FRNI	8.9012	MW(m)	1	POBA	2.683
LW(m)	3	ULRU	37.6991	MW(m)	1	POTR1	1.636
LW(m)	5	FRNI	14.7262	MW(m)	2	BEPA	5.301

Appendix B Table 18 (Cont).

ELU	Decay	Species	Area
MW(m)	3	POTR1	16.9515
MW(m)	.	POTR1	1.636
MW(p)	1	LALA	6.676
MW(p)	1	PIMA	7.919
MW(p)	2	LALA	4.843
MW(p)	3	LALA	1.6362

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 19. Snag area by unit number and decay[a].

Unit no.	Decay	Area	Unit no.	Decay	Area
1	3	2.11894	21	1	3.19068
1	.	0.20453	21	2	2.10258
2	1	0.53996	22	1	4.05789
2	2	0.66268	22	2	2.74889
3	1	1.67715	22	3	0.49905
3	2	0.20453	23	1	4.03335
4	1	0.62995	23	2	6.46317
4	2	0.80994	24	1	2.60981
4	3	0.40088	24	2	0.7854
5	.	.	28	1	0.85903
6	1	0.20453	30	1	1.16173
6	2	0.3927	30	2	0.20453
7	1	1.82441	30	4	0.1309
7	2	0.60541	31	1	0.58905
7	3	0.20453	32	.	.
8	1	0.46633	34	1	2.22529
8	2	0.20453	34	2	0.42542
9	.	.	34	3	0.53178
11	1	4.07425	38	1	0.94084
13	1	2.65072	38	4	0.98993
13	2	0.74449	39	.	.
16	1	2.47073	40	1	3.32158
16	2	1.84896	40	2	0.80176
17	2	4.3606	45	1	2.80616
17	3	5.53051	45	2	0.40088
18	2	0.29452	45	3	1.02265
18	3	0.29452	46	1	0.20453
18	5	1.84078	46	2	2.1353
18	.	7.14221	46	3	0.20453
19	1	7.08494	46	5	0.98993
19	2	1.43172	47	1	2.48709
20	1	6.69225	47	2	0.40088
20	2	1.28445	48	1	1.24355
20	3	0.66268	48	2	0.6545

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 20. Snag area by unit number, decay and species[a].

Unit no.	Decay	Species	Area	Unit no.	Decay	Species	Area
1	3	POTR1	2.11894	22	1	ABBA	0.42542
1	.	POTR1	0.20453	22	1	POTR1	3.63247
2	1	POBA	0.33543	22	2	ABBA	0.1309
2	1	POTR1	0.20453	22	2	POBA	0.29452
2	2	BEPA	0.66268	22	2	POTR1	2.32347
3	1	POTR1	1.67715	22	3	POTR1	0.49905
3	2	POTR1	0.20453	23	1	ABBA	0.93266
4	1	POTR1	0.62995	23	1	POTR1	3.10069
4	2	POTR1	0.80994	23	2	ABBA	0.1309
4	3	POTR1	0.40088	23	2	BEPA	6.33227
5	.		.	24	1	ABBA	2.47891
6	1	LALA	0.20453	24	1	POTR1	0.1309
6	2	LALA	0.3927	24	2	ABBA	0.1309
7	1	LALA	0.83449	24	2	BEPA	0.1309
7	1	PIMA	0.98993	24	2	POTR1	0.5236
7	2	LALA	0.60541	28	1	PIMA	0.85903
7	3	LALA	0.20453	30	1	PIMA	1.16173
8	1	LALA	0.46633	30	2	PIMA	0.20453
8	2	LALA	0.20453	30	4	PIMA	0.1309
9	.		.	31	1	PIMA	0.58905
11	1	POBA	1.44808	32	.		.
11	1	POTR1	2.62617	34	1	POTR1	2.22529
13	1	POBA	0.58905	34	2	POTR1	0.42542
13	1	POTR1	1.76715	34	3	POTR1	0.53178
13	1	UNK	0.29452	38	1	ABBA	0.40088
13	2	FRNI	0.40906	38	1	POTR1	0.53996
13	2	POTR1	0.20453	38	4	ACRU1	0.98993
13	2	QUPR	0.1309	39	.		.
16	1	BEPA	0.1309	40	1	BEPA	0.2618
16	1	POTR1	2.33983	40	1	POBA	1.09628
16	2	BEPA	0.1309	40	1	POTR1	1.9635
16	2	POTR1	1.71806	40	2	BEPA	0.1309
17	2	FRNI	4.3606	40	2	POTR1	0.67086
17	3	FRNI	0.81812	45	1	ABBA	0.62995
17	3	ULRU	4.71239	45	1	BEPA	1.45626

Appendix B Table 20 (Cont).

Unit no.	Decay	Species	Area	Unit no.	Decay	Species	Area
18	2	POTR1	0.29452	45	1	POBA	0.1309
18	3	FRNI	0.29452	45	1	THOC	0.58905
18	5	FRNI	1.84078	45	2	BEPA	0.40088
18	.	FRNI	1.1781	45	3	LALA	0.49905
18	.	TIAM	5.96412	45	3	POTR1	0.5236
19	1	FRNI	0.40088	46	1	ABBA	0.20453
19	1	PIMA	0.1309	46	2	ABBA	1.34172
19	1	POBA	4.45877	46	2	THOC	0.79358
19	1	POTR1	2.09439	46	3	THOC	0.20453
19	2	ABBA	0.72813	46	5	LALA	0.98993
19	2	FRNI	0.20453	47	1	ABBA	1.06356
19	2	PIMA	0.29452	47	1	THOC	1.42353
19	2	POTR1	0.20453	47	2	THOC	0.40088
20	1	FRNI	0.1309	48	1	ABBA	1.24355
20	1	POBA	6.56135	48	2	ABBA	0.1309
20	2	POBA	1.28445	48	2	PIMA	0.5236
20	3	ABBA	0.66268				
21	1	ABBA	2.23348				
21	1	PIMA	0.1309				
21	1	POTR1	0.8263				
21	2	ABBA	0.99811				
21	2	BEPA	0.60541				
21	2	POTR1	0.49905				

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 21. Stump diameter (in) and height (ft) means, variances, standard deviations, standard errors, minimums and maximums by ELU[a].

ELU	Diam/Hgt	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
ED(p)	Diameter	1	12	12.42	13.36	3.65	1.05	8	19
ED(p)	Diameter	3	1	15.00	.	.	.	15	15
ED(p)	Height	1	12	1.42	0.81	0.90	0.26	1	4
ED(p)	Height	3	1	4.00	.	.	.	4	4
EM(p)	Diameter	1	6	8.50	17.90	4.23	1.73	6	17
EM(p)	Diameter	2	6	6.00	4.00	2.00	0.82	5	10
EM(p)	Diameter	3	37	8.76	18.30	4.28	0.70	4	24
EM(p)	Height	1	6	3.00	2.00	1.41	0.58	1	5
EM(p)	Height	2	6	1.83	1.37	1.17	0.48	1	4
EM(p)	Height	3	37	1.30	0.49	0.70	0.12	1	4
EW(m)	Diameter	1	5	7.60	8.30	2.88	1.29	4	10
EW(m)	Diameter	2	12	8.75	24.57	4.96	1.43	4	21
EW(m)	Diameter	3	11	11.27	19.42	4.41	1.33	5	18
EW(m)	Height	1	5	2.20	1.20	1.10	0.49	1	4
EW(m)	Height	2	12	1.25	0.39	0.62	0.18	1	3
EW(m)	Height	3	11	1.55	0.87	0.93	0.28	1	4
LM(m)	Diameter	1	6	5.67	0.67	0.82	0.33	5	7
LM(m)	Diameter	2	17	8.41	11.88	3.45	0.84	4	14
LM(m)	Diameter	3	43	10.47	14.73	3.84	0.59	4	21
LM(m)	Height	1	6	2.33	2.67	1.63	0.67	1	5
LM(m)	Height	2	17	1.65	0.49	0.70	0.17	1	3
LM(m)	Height	3	43	1.74	0.91	0.95	0.15	1	5
LW(m)	Diameter	1	1	10.00	.	.	.	10	10
LW(m)	Diameter	2	3	12.33	44.33	6.66	3.84	8	20
LW(m)	Diameter	3	15	11.00	39.00	6.24	1.61	4	24
LW(m)	Height	1	1	4.00	.	.	.	4	4
LW(m)	Height	2	3	1.67	0.33	0.58	0.33	1	2
LW(m)	Height	3	15	2.20	1.46	1.21	0.31	1	4
LW(p)	Diameter	1	1	5.00	.	.	.	5	5
LW(p)	Diameter	2	9	5.33	1.25	1.12	0.37	4	7
LW(p)	Height	1	1	4.00	.	.	.	4	4
LW(p)	Height	2	9	2.44	1.28	1.13	0.38	1	5
LW(pm)	Diameter	1	4	9.00	3.33	1.83	0.91	7	11
LW(pm)	Diameter	2	21	9.19	19.76	4.45	0.97	4	19
LW(pm)	Diameter	3	110	9.28	21.76	4.67	0.44	4	35

Appendix B Table 21 (Cont).

ELU	Diameter/ Height	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
LW(pm)	Height	1	4	1.50	1.00	1.00	0.50	1	3
LW(pm)	Height	2	21	2.14	0.93	0.96	0.21	1	5
LW(pm)	Height	3	110	1.67	0.57	0.76	0.07	1	5
LW(vp)	Diameter	1	8	5.00	1.71	1.31	0.46	4	8
LW(vp)	Diameter	2	9	5.00	2.50	1.58	0.53	4	8
LW(vp)	Diameter	3	8	6.25	8.50	2.92	1.03	4	12
LW(vp)	Height	1	8	1.88	0.41	0.64	0.23	1	3
LW(vp)	Height	2	9	1.67	1.00	1.00	0.33	1	4
LW(vp)	Height	3	8	1.50	2.00	1.41	0.50	1	5
MM(m)	Diameter	1	10	5.40	2.93	1.71	0.54	4	9
MM(m)	Diameter	2	14	8.57	11.65	3.41	0.91	4	15
MM(m)	Diameter	3	29	10.62	27.24	5.22	0.97	4	27
MM(m)	Height	1	10	4.10	72.10	8.49	2.69	1	28
MM(m)	Height	2	14	1.00	0.00	0.00	0.00	1	1
MM(m)	Height	3	29	1.00	0.00	0.00	0.00	1	1
MM(p)	Diameter	1	9	6.00	4.50	2.12	0.71	4	9
MM(p)	Diameter	2	6	5.00	0.40	0.63	0.26	4	6
MM(p)	Diameter	3	4	5.00	2.00	1.41	0.71	4	7
MM(p)	Height	1	9	2.56	2.03	1.42	0.47	1	5
MM(p)	Height	2	6	2.67	1.87	1.37	0.56	1	5
MM(p)	Height	3	4	2.00	4.00	2.00	1.00	1	5
MW(m)	Diameter	1	1	5.00	.	.	.	5	5
MW(m)	Diameter	3	3	9.67	26.33	5.13	2.96	4	14
MW(m)	Height	1	1	2.00	.	.	.	2	2
MW(m)	Height	3	3	3.00	4.00	2.00	1.15	1	5
MW(p)	Diameter	1	1	8.00	.	.	.	8	8
MW(p)	Diameter	2	2	5.50	0.50	0.71	0.50	5	6
MW(p)	Diameter	3	10	5.60	0.93	0.97	0.31	4	7
MW(p)	Height	1	1	2.00	.	.	.	2	2
MW(p)	Height	2	2	2.00	0.00	0.00	0.00	2	2
MW(p)	Height	3	10	2.30	2.01	1.42	0.45	1	5

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 22. Stump diameter (in) and height (ft) means, variances, standard deviations, standard errors, minimums and maximums by unit number and age class[a].

Unit no.	Age class	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
1	1	Diameter	1	5.0	.	.	.	5	5
1	1	Height	1	2.0	.	.	.	2	2
2	3	Diameter	3	9.7	26.33	5.13	2.96	4	14
2	3	Height	3	3.0	4.00	2.00	1.15	1	5
4	3	Diameter	1	18.0	.	.	.	18	18
4	3	Height	1	2.0	.	.	.	2	2
6	1	Diameter	1	5.0	.	.	.	5	5
6	1	Height	1	4.0	.	.	.	4	4
6	2	Diameter	9	5.3	1.25	1.12	0.37	4	7
6	2	Height	9	2.4	1.28	1.13	0.38	1	5
7	1	Diameter	1	8.0	.	.	.	8	8
7	1	Height	1	2.0	.	.	.	2	2
7	2	Diameter	2	5.5	0.50	0.71	0.50	5	6
7	2	Height	2	2.0	0.00	0.00	0.00	2	2
7	3	Diameter	10	5.6	0.93	0.97	0.31	4	7
7	3	Height	10	2.3	2.01	1.42	0.45	1	5
9	1	Diameter	1	5.0	.	.	.	5	5
9	1	Height	1	1.0	.	.	.	1	1
9	2	Diameter	1	15.0	.	.	.	15	15
9	2	Height	1	1.0	.	.	.	1	1
9	3	Diameter	10	13.3	34.46	5.87	1.86	5	27
9	3	Height	10	1.0	0.00	0.00	0.00	1	1
11	1	Diameter	5	5.2	4.70	2.17	0.97	4	9
11	1	Height	5	1.0	0.00	0.00	0.00	1	1
11	2	Diameter	2	5.0	2.00	1.41	1.00	4	6
11	2	Height	2	1.0	0.00	0.00	0.00	1	1
11	3	Diameter	10	7.5	5.39	2.32	0.73	5	12
11	3	Height	10	1.0	0.00	0.00	0.00	1	1
13	1	Diameter	1	5.0	.	.	.	5	5
13	1	Height	1	3.0	.	.	.	3	3
13	2	Diameter	1	9.0	.	.	.	9	9
13	2	Height	1	1.0	.	.	.	1	1
13	3	Diameter	1	14.0	.	.	.	14	14
13	3	Height	1	3.0	.	.	.	3	3
17	3	Diameter	4	15.5	33.00	5.74	2.87	12	24

Appendix B Table 22 (Cont).

Unit no.	Age class	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
17	3	Height	4	2.8	2.25	1.50	0.75	1	4
18	1	Diameter	1	10.0	.	.	.	10	10
18	1	Height	1	4.0	.	.	.	4	4
18	2	Diameter	3	12.3	44.33	6.66	3.84	8	20
18	2	Height	3	1.7	0.33	0.58	0.33	1	2
18	3	Diameter	11	9.4	33.65	5.80	1.75	4	24
18	3	Height	11	2.0	1.20	1.10	0.33	1	4
19	1	Diameter	4	7.3	10.25	3.20	1.60	4	10
19	1	Height	4	2.3	1.58	1.26	0.63	1	4
19	2	Diameter	12	8.8	24.57	4.96	1.43	4	21
19	2	Height	12	1.3	0.39	0.62	0.18	1	3
19	3	Diameter	11	11.3	19.42	4.41	1.33	5	18
19	3	Height	11	1.5	0.87	0.93	0.28	1	4
20	1	Diameter	1	9.0	.	.	.	9	9
20	1	Height	1	2.0	.	.	.	2	2
21	1	Diameter	9	6.0	4.50	2.12	0.71	4	9
21	1	Height	9	2.6	2.03	1.42	0.47	1	5
21	2	Diameter	6	5.0	0.40	0.63	0.26	4	6
21	2	Height	6	2.7	1.87	1.37	0.56	1	5
21	3	Diameter	4	5.0	2.00	1.41	0.71	4	7
21	3	Height	4	2.0	4.00	2.00	1.00	1	5
22	1	Diameter	4	9.5	25.67	5.07	2.53	6	17
22	1	Height	4	2.8	2.92	1.71	0.85	1	5
22	2	Diameter	4	5.0	0.00	0.00	0.00	5	5
22	2	Height	4	2.3	1.58	1.26	0.63	1	4
22	3	Diameter	26	7.7	9.90	3.15	0.62	4	14
22	3	Height	26	1.3	0.62	0.79	0.15	1	4
23	1	Diameter	12	12.4	13.36	3.65	1.05	8	19
23	1	Height	12	1.4	0.81	0.90	0.26	1	4
23	3	Diameter	1	15.0	.	.	.	15	15
23	3	Diameter	2	17.5	84.50	9.19	6.50	11	24
23	3	Height	1	4.0	.	.	.	4	4
23	3	Height	2	1.0	0.00	0.00	0.00	1	1
24	1	Diameter	2	6.5	0.50	0.71	0.50	6	7
24	1	Height	2	3.5	0.50	0.71	0.50	3	4
24	2	Diameter	2	8.0	8.00	2.83	2.00	6	10

Appendix B Table 22 (Cont).

Unit no.	Age class	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
24	2	Height	2	1.0	0.00	0.00	0.00	1	1
24	3	Diameter	8	8.9	8.41	2.90	1.03	5	14
24	3	Height	8	1.3	0.21	0.46	0.16	1	2
28	1	Diameter	3	4.7	0.33	0.58	0.33	4	5
28	1	Height	3	1.3	0.33	0.58	0.33	1	2
28	2	Diameter	6	4.8	1.77	1.33	0.54	4	7
28	2	Height	6	1.3	0.27	0.52	0.21	1	2
28	3	Diameter	5	7.2	11.70	3.42	1.53	4	12
28	3	Height	5	1.8	3.20	1.79	0.80	1	5
30	1	Diameter	4	4.5	0.33	0.58	0.29	4	5
30	1	Height	4	2.3	0.25	0.50	0.25	2	3
30	2	Diameter	2	6.0	8.00	2.83	2.00	4	8
30	2	Height	2	1.5	0.50	0.71	0.50	1	2
30	3	Diameter	2	4.5	0.50	0.71	0.50	4	5
30	3	Height	2	1.0	0.00	0.00	0.00	1	1
31	1	Diameter	1	8.0	.	.	.	8	8
31	1	Height	1	2.0	.	.	.	2	2
31	2	Diameter	1	4.0	.	.	.	4	4
31	2	Height	1	4.0	.	.	.	4	4
31	3	Diameter	1	5.0	.	.	.	5	5
31	3	Height	1	1.0	.	.	.	1	1
34	1	Diameter	2	5.5	0.50	0.71	0.50	5	6
34	1	Height	2	1.0	0.00	0.00	0.00	1	1
34	2	Diameter	6	7.7	10.27	3.20	1.31	4	13
34	2	Height	6	1.5	0.30	0.55	0.22	1	2
34	3	Diameter	22	9.0	14.52	3.81	0.81	4	16
34	3	Height	22	1.1	0.12	0.35	0.07	1	2
38	1	Diameter	4	5.8	2.25	1.50	0.75	4	7
38	1	Height	4	8.8	168.25	12.97	6.49	1	28
38	2	Diameter	11	8.6	8.25	2.87	0.87	6	14
38	2	Height	11	1.0	0.00	0.00	0.00	1	1
38	3	Diameter	9	11.1	29.11	5.40	1.80	4	21
38	3	Height	9	1.0	0.00	0.00	0.00	1	1
39	1	Diameter	1	5.0	.	.	.	5	5
39	1	Height	1	5.0	.	.	.	5	5
40	1	Diameter	2	6.5	0.50	0.71	0.50	6	7
40	1	Height	2	2.0	2.00	1.41	1.00	1	3

Appendix B Table 22 (Cont).

Unit no.	Age class	Diameter/ Height	N	Mean	Var	Std Dev	Std Err	Min	Max
40	2	Diameter	10	8.8	14.84	3.85	1.22	4	14
40	2	Height	10	1.8	0.62	0.79	0.25	1	3
40	3	Diameter	20	11.9	11.50	3.39	0.76	6	21
40	3	Height	20	2.4	0.98	0.99	0.22	1	5
45	1	Diameter	3	8.7	4.33	2.08	1.20	7	11
45	1	Height	3	1.0	0.00	0.00	0.00	1	1
45	2	Diameter	7	7.4	11.29	3.36	1.27	4	12
45	2	Height	7	2.6	1.95	1.40	0.53	1	5
45	3	Diameter	20	5.6	6.99	2.64	0.59	4	15
45	3	Height	20	1.5	0.89	0.95	0.21	1	5
46	1	Diameter	1	10.0	.	.	.	10	10
46	1	Height	1	3.0	.	.	.	3	3
46	2	Diameter	5	5.8	0.20	0.45	0.20	5	6
46	2	Height	5	2.2	0.70	0.84	0.37	1	3
46	3	Diameter	54	9.7	15.53	3.94	0.54	4	20
46	3	Height	54	1.9	0.54	0.74	0.10	1	3
47	2	Diameter	9	12.4	19.03	4.36	1.45	5	19
47	2	Height	9	1.8	0.19	0.44	0.15	1	2
47	3	Diameter	18	12.2	51.36	7.17	1.69	5	35
47	3	Height	18	1.5	0.38	0.62	0.15	1	3
48	3	Diameter	18	9.1	6.22	2.49	0.59	4	15
48	3	Height	18	1.5	0.38	0.62	0.15	1	3

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 23. Stump diameter (in) and height (ft) means, variances, standard deviations, standard errors, minimums and maximums by ELU, species, and age class[a].

ELU	Diameter/ Height	Species	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
ED(p)	Diameter	ABBA	1	1	10.00	.	.	.	10	10
ED(p)	Diameter	BEPA	3	1	15.00	.	.	.	15	15
ED(p)	Diameter	POTR1	1	2	10.00	8.00	2.83	2.00	8	12
ED(p)	Diameter	THOC	1	9	13.22	14.44	3.80	1.27	9	19
ED(p)	Height	ABBA	1	1	2.00	.	.	.	2	2
ED(p)	Height	BEPA	3	1	4.00	.	.	.	4	4
ED(p)	Height	POTR1	1	2	2.50	4.50	2.12	1.50	1	4
ED(p)	Height	THOC	1	9	1.11	0.11	0.33	0.11	1	2
EM(p)	Diameter	ABBA	2	2	8.00	8.00	2.83	2.00	6	10
EM(p)	Diameter	ABBA	3	9	7.44	6.78	2.60	0.87	5	14
EM(p)	Diameter	BEPA	1	1	17.00	.	.	.	17	17
EM(p)	Diameter	BEPA	3	1	8.00	.	.	.	8	8
EM(p)	Diameter	POTR1	1	5	6.80	0.70	0.84	0.37	6	8
EM(p)	Diameter	POTR1	2	4	5.00	0.00	0.00	0.00	5	5
EM(p)	Diameter	POTR1	3	20	9.25	27.78	5.27	1.18	4	24
EM(p)	Diameter	THOC	3	7	9.14	9.14	3.02	1.14	5	14
EM(p)	Height	ABBA	2	2	1.00	0.00	0.00	0.00	1	1
EM(p)	Height	ABBA	3	9	1.11	0.11	0.33	0.11	1	2
EM(p)	Height	BEPA	1	1	2.00	.	.	.	2	2
EM(p)	Height	BEPA	3	1	3.00	.	.	.	3	3
EM(p)	Height	POTR1	1	5	3.20	2.20	1.48	0.66	1	5
EM(p)	Height	POTR1	2	4	2.25	1.58	1.26	0.63	1	4
EM(p)	Height	POTR1	3	20	1.35	0.66	0.81	0.18	1	4
EM(p)	Height	THOC	3	7	1.14	0.14	0.38	0.14	1	2
EW(m)	Diameter	ABBA	2	5	4.80	1.70	1.30	0.58	4	7
EW(m)	Diameter	ABBA	3	2	6.00	2.00	1.41	1.00	5	7
EW(m)	Diameter	FRNI	2	2	17.00	32.00	5.66	4.00	13	21
EW(m)	Diameter	FRNI	3	3	13.67	16.33	4.04	2.33	10	18
EW(m)	Diameter	PIMA	3	3	11.00	28.00	5.29	3.06	7	17
EW(m)	Diameter	POBA	1	1	9.00	.	.	.	9	9
EW(m)	Diameter	POBA	2	1	12.00	.	.	.	12	12
EW(m)	Diameter	POTR1	1	4	7.25	10.25	3.20	1.60	4	10
EW(m)	Diameter	POTR1	2	4	8.75	2.25	1.50	0.75	8	11
EW(m)	Diameter	POTR1	3	3	12.67	12.33	3.51	2.03	9	16
EW(m)	Height	ABBA	2	5	1.00	0.00	0.00	0.00	1	1
EW(m)	Height	ABBA	3	2	1.00	0.00	0.00	0.00	1	1

Appendix B Table 23 (Cont).

ELU	Diameter/ Height	Species	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
EW(m)	Height	FRNI	2	2	2.50	0.50	0.71	0.50	2	3
EW(m)	Height	FRNI	3	3	2.33	2.33	1.53	0.88	1	4
EW(m)	Height	PIMA	3	3	1.00	0.00	0.00	0.00	1	1
EW(m)	Height	POBA	1	1	2.00	.	.	.	2	2
EW(m)	Height	POBA	2	1	1.00	.	.	.	1	1
EW(m)	Height	POTR1	1	4	2.25	1.58	1.26	0.63	1	4
EW(m)	Height	POTR1	2	4	1.00	0.00	0.00	0.00	1	1
EW(m)	Height	POTR1	3	3	1.67	0.33	0.58	0.33	1	2
LM(m)	Diameter	ABBA	2	3	6.00	7.00	2.65	1.53	4	9
LM(m)	Diameter	POTR1	1	6	5.67	0.67	0.82	0.33	5	7
LM(m)	Diameter	POTR1	2	10	8.90	13.88	3.73	1.18	4	14
LM(m)	Diameter	POTR1	3	17	11.29	17.85	4.22	1.02	5	21
LM(m)	Diameter	THOC	2	3	9.67	12.33	3.51	2.03	6	13
LM(m)	Diameter	THOC	3	23	9.91	10.99	3.32	0.69	5	17
LM(m)	Diameter	UNK	2	1	7.00	.	.	.	7	7
LM(m)	Diameter	UNK	3	3	10.00	36.00	6.00	3.46	4	16
LM(m)	Height	ABBA	2	3	2.00	1.00	1.00	0.58	1	3
LM(m)	Height	POTR1	1	6	2.33	2.67	1.63	0.67	1	5
LM(m)	Height	POTR1	2	10	1.70	0.46	0.67	0.21	1	3
LM(m)	Height	POTR1	3	17	1.88	1.61	1.27	0.31	1	5
LM(m)	Height	THOC	2	3	1.33	0.33	0.58	0.33	1	2
LM(m)	Height	THOC	3	23	1.70	0.49	0.70	0.15	1	4
LM(m)	Height	UNK	2	1	1.00	.	.	.	1	1
LM(m)	Height	UNK	3	3	1.33	0.33	0.58	0.33	1	2
LW(m)	Diameter	ABBA	1	1	10.00	.	.	.	10	10
LW(m)	Diameter	ABBA	3	1	5.00	.	.	.	5	5
LW(m)	Diameter	BEPA	3	2	16.50	112.50	10.61	7.50	9	24
LW(m)	Diameter	FRNI	2	2	14.00	72.00	8.49	6.00	8	20
LW(m)	Diameter	FRNI	3	6	9.33	11.07	3.33	1.36	5	14
LW(m)	Diameter	PIGL	3	4	15.50	33.00	5.74	2.87	12	24
LW(m)	Diameter	PIMA	1	8	5.00	1.71	1.31	0.46	4	8
LW(m)	Diameter	PIMA	2	9	5.00	2.50	1.58	0.53	4	8
LW(m)	Diameter	PIMA	3	6	5.17	3.77	1.94	0.79	4	9
LW(m)	Diameter	THOC	2	1	9.00	.	.	.	9	9
LW(m)	Diameter	THOC	3	1	4.00	.	.	.	4	4
LW(m)	Diameter	THOC	3	2	9.50	12.50	3.54	2.50	7	12
LW(m)	Diameter	ULRU	3	1	5.00	.	.	.	5	5

Appendix B Table 23 (Cont).

ELU	Diameter/ Height	Species	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
LW(m)	Height	ABBA	1	1	4.00	.	.	.	4	4
LW(m)	Height	ABBA	3	1	4.00	.	.	.	4	4
LW(m)	Height	BEPA	3	2	2.50	0.50	0.71	0.50	2	3
LW(m)	Height	FRNI	2	2	1.50	0.50	0.71	0.50	1	2
LW(m)	Height	FRNI	3	6	1.17	0.17	0.41	0.17	1	2
LW(m)	Height	PIGL	3	4	2.75	2.25	1.50	0.75	1	4
LW(m)	Height	PIMA	1	8	1.88	0.41	0.64	0.23	1	3
LW(m)	Height	PIMA	2	9	1.67	1.00	1.00	0.33	1	4
LW(m)	Height	PIMA	3	6	1.67	2.67	1.63	0.67	1	5
LW(m)	Height	THOC	2	1	2.00	.	.	.	2	2
LW(m)	Height	THOC	3	2	1.00	0.00	0.00	0.00	1	1
LW(m)	Height	THOC	3	1	3.00	.	.	.	3	3
LW(m)	Height	ULRU	3	1	3.00	.	.	.	3	3
LW(p)	Diameter	LALA	1	1	5.00	.	.	.	5	5
LW(p)	Diameter	LALA	2	8	5.25	1.36	1.16	0.41	4	7
LW(p)	Diameter	PIMA	2	1	6.00	.	.	.	6	6
LW(p)	Height	LALA	1	1	4.00	.	.	.	4	4
LW(p)	Height	LALA	2	8	2.50	1.43	1.20	0.42	1	5
LW(p)	Height	PIMA	2	1	2.00	.	.	.	2	2
LW(pm)	Diameter	ABBA	1	2	10.50	0.50	0.71	0.50	10	11
LW(pm)	Diameter	ABBA	2	1	12.00	.	.	.	12	12
LW(pm)	Diameter	ABBA	3	1	4.00	.	.	.	4	4
LW(pm)	Diameter	BEPA	2	1	5.00	.	.	.	5	5
LW(pm)	Diameter	BEPA	3	6	5.33	1.87	1.37	0.56	4	8
LW(pm)	Diameter	LALA	3	3	5.00	3.00	1.73	1.00	4	7
LW(pm)	Diameter	PIMA	2	1	5.00	.	.	.	5	5
LW(pm)	Diameter	PIMA	3	1	7.00	.	.	.	7	7
LW(pm)	Diameter	PIST	3	1	15.00	.	.	.	15	15
LW(pm)	Diameter	THOC	1	2	7.50	0.50	0.71	0.50	7	8
LW(pm)	Diameter	THOC	2	18	9.50	20.62	4.54	1.07	4	19
LW(pm)	Diameter	THOC	3	98	9.67	21.93	4.68	0.47	4	35
LW(pm)	Height	ABBA	1	2	2.00	2.00	1.41	1.00	1	3
LW(pm)	Height	ABBA	2	1	1.00	.	.	.	1	1
LW(pm)	Height	ABBA	3	1	1.00	.	.	.	1	1
LW(pm)	Height	BEPA	2	1	2.00	.	.	.	2	2
LW(pm)	Height	BEPA	3	6	2.33	1.87	1.37	0.56	1	5
LW(pm)	Height	LALA	3	3	1.00	0.00	0.00	0.00	1	1

Appendix B Table 23 (Cont).

ELU	Diameter/ Height	Species	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
LW(pm)	Height	PIMA	2	1	3.00	.	.	.	3	3
LW(pm)	Height	PIMA	3	1	1.00	.	.	.	1	1
LW(pm)	Height	PIST	3	1	1.00	.	.	.	1	1
LW(pm)	Height	THOC	1	2	1.00	0.00	0.00	0.00	1	1
LW(pm)	Height	THOC	2	18	2.17	0.97	0.99	0.23	1	5
LW(pm)	Height	THOC	3	98	1.67	0.49	0.70	0.07	1	3
LW(vp)	Diameter	PIMA	1	8	5.00	1.71	1.31	0.46	4	8
LW(vp)	Diameter	PIMA	2	9	5.00	2.50	1.58	0.53	4	8
LW(vp)	Diameter	PIMA	3	6	5.17	3.77	1.94	0.79	4	9
LW(vp)	Diameter	THOC	3	2	9.50	12.50	3.54	2.50	7	12
LW(vp)	Height	PIMA	1	8	1.88	0.41	0.64	0.23	1	3
LW(vp)	Height	PIMA	2	9	1.67	1.00	1.00	0.33	1	4
LW(vp)	Height	PIMA	3	6	1.67	2.67	1.63	0.67	1	5
LW(vp)	Height	THOC	3	2	1.00	0.00	0.00	0.00	1	1
MM(m)	Diameter	ABBA	1	2	7.00	0.00	0.00	0.00	7	7
MM(m)	Diameter	ABBA	2	3	11.33	9.33	3.06	1.76	8	14
MM(m)	Diameter	ABBA	3	2	12.50	144.50	12.02	8.50	4	21
MM(m)	Diameter	ACRU1	2	2	7.00	2.00	1.41	1.00	6	8
MM(m)	Diameter	ACRU1	3	1	14.00	.	.	.	14	14
MM(m)	Diameter	BEPA	1	1	4.00	.	.	.	4	4
MM(m)	Diameter	FRAM	2	1	4.00	.	.	.	4	4
MM(m)	Diameter	FRNI	2	5	8.20	6.70	2.59	1.16	6	11
MM(m)	Diameter	FRNI	3	5	10.40	17.30	4.16	1.86	6	15
MM(m)	Diameter	PIGL	3	1	8.00	.	.	.	8	8
MM(m)	Diameter	POBA	1	1	5.00	.	.	.	5	5
MM(m)	Diameter	POBA	2	1	6.00	.	.	.	6	6
MM(m)	Diameter	POTR1	1	3	4.67	0.33	0.58	0.33	4	5
MM(m)	Diameter	POTR1	2	2	10.50	40.50	6.36	4.50	6	15
MM(m)	Diameter	POTR1	3	4	13.50	91.67	9.57	4.79	5	27
MM(m)	Diameter	THOC	1	1	9.00	.	.	.	9	9
MM(m)	Diameter	THOC	3	8	7.63	6.55	2.56	0.91	5	12
MM(m)	Diameter	UNK	1	2	4.00	0.00	0.00	0.00	4	4
MM(m)	Diameter	UNK	3	8	11.75	12.50	3.54	1.25	6	17
MM(m)	Height	ABBA	1	2	14.50	364.50	19.09	13.50	1	28
MM(m)	Height	ABBA	2	3	1.00	0.00	0.00	0.00	1	1
MM(m)	Height	ABBA	3	2	1.00	0.00	0.00	0.00	1	1
MM(m)	Height	ACRU1	2	2	1.00	0.00	0.00	0.00	1	1

Appendix B Table 23 (Cont).

ELU	Diameter/ Height	Species	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
MM(m)	Height	ACRU1	3	1	1.00	.	.	.	1	1
MM(m)	Height	BEPA	1	1	1.00	.	.	.	1	1
MM(m)	Height	FRAM	2	1	1.00	.	.	.	1	1
MM(m)	Height	FRNI	2	5	1.00	0.00	0.00	0.00	1	1
MM(m)	Height	FRNI	3	5	1.00	0.00	0.00	0.00	1	1
MM(m)	Height	PIGL	3	1	1.00	.	.	.	1	1
MM(m)	Height	POBA	1	1	1.00	.	.	.	1	1
MM(m)	Height	POBA	2	1	1.00	.	.	.	1	1
MM(m)	Height	POTR1	1	3	2.33	5.33	2.31	1.33	1	5
MM(m)	Height	POTR1	2	2	1.00	0.00	0.00	0.00	1	1
MM(m)	Height	POTR1	3	4	1.00	0.00	0.00	0.00	1	1
MM(m)	Height	THOC	1	1	1.00	.	.	.	1	1
MM(m)	Height	THOC	3	8	1.00	0.00	0.00	0.00	1	1
MM(m)	Height	UNK	1	2	1.00	0.00	0.00	0.00	1	1
MM(m)	Height	UNK	3	8	1.00	0.00	0.00	0.00	1	1
MM(p)	Diameter	ABBA	1	8	5.88	4.98	2.23	0.79	4	9
MM(p)	Diameter	ABBA	2	4	5.00	0.67	0.82	0.41	4	6
MM(p)	Diameter	ABBA	3	2	5.50	4.50	2.12	1.50	4	7
MM(p)	Diameter	BEPA	3	1	5.00	.	.	.	5	5
MM(p)	Diameter	PIMA	3	1	4.00	.	.	.	4	4
MM(p)	Diameter	POTR1	1	1	7.00	.	.	.	7	7
MM(p)	Diameter	POTR1	2	2	5.00	0.00	0.00	0.00	5	5
MM(p)	Height	ABBA	1	8	2.50	2.29	1.51	0.53	1	5
MM(p)	Height	ABBA	2	4	2.75	2.92	1.71	0.85	1	5
MM(p)	Height	ABBA	3	2	3.00	8.00	2.83	2.00	1	5
MM(p)	Height	BEPA	3	1	1.00	.	.	.	1	1
MM(p)	Height	PIMA	3	1	1.00	.	.	.	1	1
MM(p)	Height	POTR1	1	1	3.00	.	.	.	3	3
MM(p)	Height	POTR1	2	2	2.50	0.50	0.71	0.50	2	3
MW(m)	Diameter	POTR1	1	1	5.00	.	.	.	5	5
MW(m)	Diameter	POTR1	3	2	12.50	4.50	2.12	1.50	11	14
MW(m)	Diameter	UNK	3	1	4.00	.	.	.	4	4
MW(m)	Height	POTR1	1	1	2.00	.	.	.	2	2
MW(m)	Height	POTR1	3	2	4.00	2.00	1.41	1.00	3	5
MW(m)	Height	UNK	3	1	1.00	.	.	.	1	1
MW(p)	Diameter	LALA	1	1	8.00	.	.	.	8	8
MW(p)	Diameter	LALA	2	1	6.00	.	.	.	6	6

Appendix B Table 23 (Cont).

ELU	Diameter/ Height	Species	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
MW(p)	Diameter	PIMA	2	1	5.00	.	.	.	5	5
MW(p)	Diameter	PIMA	3	10	5.60	0.93	0.97	0.31	4	7
MW(p)	Height	LALA	1	1	2.00	.	.	.	2	2
MW(p)	Height	LALA	2	1	2.00	.	.	.	2	2
MW(p)	Height	PIMA	2	1	2.00	.	.	.	2	2
MW(p)	Height	PIMA	3	10	2.30	2.01	1.42	0.45	1	5

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 24. Stump diameter (in) and height (ft) means, variances, standard deviations, standard errors, minimums and maximums by unit number, species and age class[a].

Unit no.	Diameter/ Height	Species	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
1	Diameter	POTR1	1	1	5.00	.	.	.	5	5
1	Height	POTR1	1	1	2.00	.	.	.	2	2
2	Diameter	POTR1	3	2	12.50	4.50	2.12	1.50	11	14
2	Height	POTR1	3	2	4.00	2.00	1.41	1.00	3	5
2	Diameter	UNK	3	1	4.00	.	.	.	4	4
2	Height	UNK	3	1	1.00	.	.	.	1	1
3	Diameter	POTR1	3	2	17.50	84.50	9.19	6.50	11	24
3	Height	POTR1	3	2	1.00	0.00	0.00	0.00	1	1
4	Diameter	POTR1	3	1	18.00	.	.	.	18	18
4	Height	POTR1	3	1	2.00	.	.	.	2	2
5	Diameter	LALA	1	1	8.00	.	.	.	8	8
5	Height	LALA	1	1	2.00	.	.	.	2	2
6	Diameter	LALA	1	1	5.00	.	.	.	5	5
6	Height	LALA	1	1	4.00	.	.	.	4	4
6	Diameter	LALA	2	8	5.25	1.36	1.16	0.41	4	7
6	Height	LALA	2	8	2.50	1.43	1.20	0.42	1	5
6	Diameter	PIMA	2	1	6.00	.	.	.	6	6
6	Height	PIMA	2	1	2.00	.	.	.	2	2
7	Diameter	LALA	2	1	6.00	.	.	.	6	6
7	Height	LALA	2	1	2.00	.	.	.	2	2
7	Diameter	PIMA	2	1	5.00	.	.	.	5	5
7	Height	PIMA	2	1	2.00	.	.	.	2	2
7	Diameter	PIMA	3	10	5.60	0.93	0.97	0.31	4	7
7	Height	PIMA	3	10	2.30	2.01	1.42	0.45	1	5
9	Diameter	POTR1	1	1	5.00	.	.	.	5	5
9	Height	POTR1	1	1	1.00	.	.	.	1	1
9	Diameter	POTR1	2	1	15.00	.	.	.	15	15
9	Height	POTR1	2	1	1.00	.	.	.	1	1
9	Diameter	POTR1	3	3	15.00	124.00	11.14	6.43	5	27
9	Height	POTR1	3	3	1.00	0.00	0.00	0.00	1	1
9	Diameter	UNK	3	7	12.57	8.29	2.88	1.09	8	17
9	Height	UNK	3	7	1.00	0.00	0.00	0.00	1	1
11	Diameter	FRAM	2	1	4.00	.	.	.	4	4
11	Height	FRAM	2	1	1.00	.	.	.	1	1
11	Diameter	PIGL	3	1	8.00	.	.	.	8	8

Appendix B Table 24 (Cont).

Unit no.	Diameter/ Height	Species	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
11	Height	PIGL	3	1	1.00	.	.	.	1	1
11	Diameter	POBA	1	1	5.00	.	.	.	5	5
11	Height	POBA	1	1	1.00	.	.	.	1	1
11	Diameter	POBA	2	1	6.00	.	.	.	6	6
11	Height	POBA	2	1	1.00	.	.	.	1	1
11	Diameter	POTR1	1	1	4.00	.	.	.	4	4
11	Height	POTR1	1	1	1.00	.	.	.	1	1
11	Diameter	THOC	1	1	9.00	.	.	.	9	9
11	Height	THOC	1	1	1.00	.	.	.	1	1
11	Diameter	THOC	3	8	7.63	6.55	2.56	0.91	5	12
11	Height	THOC	3	8	1.00	0.00	0.00	0.00	1	1
11	Diameter	UNK	1	2	4.00	0.00	0.00	0.00	4	4
11	Height	UNK	1	2	1.00	0.00	0.00	0.00	1	1
11	Diameter	UNK	3	1	6.00	.	.	.	6	6
11	Height	UNK	3	1	1.00	.	.	.	1	1
13	Diameter	POTR1	1	1	5.00	.	.	.	5	5
13	Height	POTR1	1	1	3.00	.	.	.	3	3
13	Diameter	POTR1	2	1	9.00	.	.	.	9	9
13	Height	POTR1	2	1	1.00	.	.	.	1	1
13	Diameter	POTR1	3	1	14.00	.	.	.	14	14
13	Height	POTR1	3	1	3.00	.	.	.	3	3
17	Diameter	PIGL	3	4	15.50	33.00	5.74	2.87	12	24
17	Height	PIGL	3	4	2.75	2.25	1.50	0.75	1	4
18	Diameter	ABBA	1	1	10.00	.	.	.	10	10
18	Height	ABBA	1	1	4.00	.	.	.	4	4
18	Diameter	ABBA	3	1	5.00	.	.	.	5	5
18	Height	ABBA	3	1	4.00	.	.	.	4	4
18	Diameter	BEPA	3	2	16.50	112.50	10.61	7.50	9	24
18	Height	BEPA	3	2	2.50	0.50	0.71	0.50	2	3
18	Diameter	FRNI	2	2	14.00	72.00	8.49	6.00	8	20
18	Height	FRNI	2	2	1.50	0.50	0.71	0.50	1	2
18	Diameter	FRNI	3	6	9.33	11.07	3.33	1.36	5	14
18	Height	FRNI	3	6	1.17	0.17	0.41	0.17	1	2
18	Diameter	THOC	2	1	9.00	.	.	.	9	9
18	Height	THOC	2	1	2.00	.	.	.	2	2
18	Diameter	THOC	3	1	4.00	.	.	.	4	4

Appendix B Table 24 (Cont).

Unit no.	Diameter/ Height	Species	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
18	Height	THOC	3	1	3.00	.	.	.	3	3
18	Diameter	ULRU	3	1	5.00	.	.	.	5	5
18	Height	ULRU	3	1	3.00	.	.	.	3	3
19	Diameter	ABBA	2	5	4.80	1.70	1.30	0.58	4	7
19	Height	ABBA	2	5	1.00	0.00	0.00	0.00	1	1
19	Diameter	ABBA	3	2	6.00	2.00	1.41	1.00	5	7
19	Height	ABBA	3	2	1.00	0.00	0.00	0.00	1	1
19	Diameter	FRNI	2	2	17.00	32.00	5.66	4.00	13	21
19	Height	FRNI	2	2	2.50	0.50	0.71	0.50	2	3
19	Diameter	FRNI	3	3	13.67	16.33	4.04	2.33	10	18
19	Height	FRNI	3	3	2.33	2.33	1.53	0.88	1	4
19	Diameter	PIMA	3	3	11.00	28.00	5.29	3.06	7	17
19	Height	PIMA	3	3	1.00	0.00	0.00	0.00	1	1
19	Diameter	POBA	2	1	12.00	.	.	.	12	12
19	Height	POBA	2	1	1.00	.	.	.	1	1
19	Diameter	POTR1	1	4	7.25	10.25	3.20	1.60	4	10
19	Height	POTR1	1	4	2.25	1.58	1.26	0.63	1	4
19	Diameter	POTR1	2	4	8.75	2.25	1.50	0.75	8	11
19	Height	POTR1	2	4	1.00	0.00	0.00	0.00	1	1
19	Diameter	POTR1	3	3	12.67	12.33	3.51	2.03	9	16
19	Height	POTR1	3	3	1.67	0.33	0.58	0.33	1	2
20	Diameter	POBA	1	1	9.00	.	.	.	9	9
20	Height	POBA	1	1	2.00	.	.	.	2	2
21	Diameter	ABBA	1	8	5.88	4.98	2.23	0.79	4	9
21	Height	ABBA	1	8	2.50	2.29	1.51	0.53	1	5
21	Diameter	ABBA	2	4	5.00	0.67	0.82	0.41	4	6
21	Height	ABBA	2	4	2.75	2.92	1.71	0.85	1	5
21	Diameter	ABBA	3	2	5.50	4.50	2.12	1.50	4	7
21	Height	ABBA	3	2	3.00	8.00	2.83	2.00	1	5
21	Diameter	BEPA	3	1	5.00	.	.	.	5	5
21	Height	BEPA	3	1	1.00	.	.	.	1	1
21	Diameter	PIMA	3	1	4.00	.	.	.	4	4
21	Height	PIMA	3	1	1.00	.	.	.	1	1
21	Diameter	POTR1	1	1	7.00	.	.	.	7	7
21	Height	POTR1	1	1	3.00	.	.	.	3	3
21	Diameter	POTR1	2	2	5.00	0.00	0.00	0.00	5	5
21	Height	POTR1	2	2	2.50	0.50	0.71	0.50	2	3

Appendix B Table 24 (Cont).

Unit no.	Diameter/ Height	Species	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
22	Diameter	ABBA	3	8	7.50	7.71	2.78	0.98	5	14
22	Height	ABBA	3	8	1.00	0.00	0.00	0.00	1	1
22	Diameter	BEPA	1	1	17.00	.	.	.	17	17
22	Height	BEPA	1	1	2.00	.	.	.	2	2
22	Diameter	BEPA	3	1	8.00	.	.	.	8	8
22	Height	BEPA	3	1	3.00	.	.	.	3	3
22	Diameter	POTR1	1	3	7.00	1.00	1.00	0.58	6	8
22	Height	POTR1	1	3	3.00	4.00	2.00	1.15	1	5
22	Diameter	POTR1	2	4	5.00	0.00	0.00	0.00	5	5
22	Height	POTR1	2	4	2.25	1.58	1.26	0.63	1	4
22	Diameter	POTR1	3	17	7.76	12.07	3.47	0.84	4	13
22	Height	POTR1	3	17	1.35	0.74	0.86	0.21	1	4
23	Diameter	ABBA	1	1	10.00	.	.	.	10	10
23	Height	ABBA	1	1	2.00	.	.	.	2	2
23	Diameter	BEPA	3	1	15.00	.	.	.	15	15
23	Height	BEPA	3	1	4.00	.	.	.	4	4
23	Diameter	POTR1	1	2	10.00	8.00	2.83	2.00	8	12
23	Height	POTR1	1	2	2.50	4.50	2.12	1.50	1	4
23	Diameter	THOC	1	9	13.22	14.44	3.80	1.27	9	19
23	Height	THOC	1	9	1.11	0.11	0.33	0.11	1	2
24	Diameter	ABBA	2	2	8.00	8.00	2.83	2.00	6	10
24	Height	ABBA	2	2	1.00	0.00	0.00	0.00	1	1
24	Diameter	ABBA	3	1	7.00	.	.	.	7	7
24	Height	ABBA	3	1	2.00	.	.	.	2	2
24	Diameter	POTR1	1	2	6.50	0.50	0.71	0.50	6	7
24	Height	POTR1	1	2	3.50	0.50	0.71	0.50	3	4
24	Diameter	THOC	3	7	9.14	9.14	3.02	1.14	5	14
24	Height	THOC	3	7	1.14	0.14	0.38	0.14	1	2
28	Diameter	PIMA	1	3	4.67	0.33	0.58	0.33	4	5
28	Height	PIMA	1	3	1.33	0.33	0.58	0.33	1	2
28	Diameter	PIMA	2	6	4.83	1.77	1.33	0.54	4	7
28	Height	PIMA	2	6	1.33	0.27	0.52	0.21	1	2
28	Diameter	PIMA	3	3	5.67	8.33	2.89	1.67	4	9
28	Height	PIMA	3	3	2.33	5.33	2.31	1.33	1	5
28	Diameter	THOC	3	2	9.50	12.50	3.54	2.50	7	12
28	Height	THOC	3	2	1.00	0.00	0.00	0.00	1	1
30	Diameter	PIMA	1	4	4.50	0.33	0.58	0.29	4	5

Appendix B Table 24 (Cont).

Unit no.	Diameter/ Height	Species	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
30	Height	PIMA	1	4	2.25	0.25	0.50	0.25	2	3
30	Diameter	PIMA	2	2	6.00	8.00	2.83	2.00	4	8
30	Height	PIMA	2	2	1.50	0.50	0.71	0.50	1	2
30	Diameter	PIMA	3	2	4.50	0.50	0.71	0.50	4	5
30	Height	PIMA	3	2	1.00	0.00	0.00	0.00	1	1
31	Diameter	PIMA	1	1	8.00	.	.	.	8	8
31	Height	PIMA	1	1	2.00	.	.	.	2	2
31	Diameter	PIMA	2	1	4.00	.	.	.	4	4
31	Height	PIMA	2	1	4.00	.	.	.	4	4
31	Diameter	PIMA	3	1	5.00	.	.	.	5	5
31	Height	PIMA	3	1	1.00	.	.	.	1	1
34	Diameter	POTR1	1	2	5.50	0.50	0.71	0.50	5	6
34	Height	POTR1	1	2	1.00	0.00	0.00	0.00	1	1
34	Diameter	POTR1	2	4	6.50	5.67	2.38	1.19	4	9
34	Height	POTR1	2	4	1.75	0.25	0.50	0.25	1	2
34	Diameter	POTR1	3	9	10.11	16.61	4.08	1.36	5	16
34	Height	POTR1	3	9	1.00	0.00	0.00	0.00	1	1
34	Diameter	THOC	2	1	13.00	.	.	.	13	13
34	Height	THOC	2	1	1.00	.	.	.	1	1
34	Diameter	THOC	3	10	7.80	7.96	2.82	0.89	5	12
34	Height	THOC	3	10	1.20	0.18	0.42	0.13	1	2
34	Diameter	UNK	2	1	7.00	.	.	.	7	7
34	Height	UNK	2	1	1.00	.	.	.	1	1
34	Diameter	UNK	3	3	10.00	36.00	6.00	3.46	4	16
34	Height	UNK	3	3	1.33	0.33	0.58	0.33	1	2
38	Diameter	ABBA	1	2	7.00	0.00	0.00	0.00	7	7
38	Height	ABBA	1	2	14.50	364.50	19.09	13.50	1	28
38	Diameter	ABBA	2	3	11.33	9.33	3.06	1.76	8	14
38	Height	ABBA	2	3	1.00	0.00	0.00	0.00	1	1
38	Diameter	ABBA	3	2	12.50	144.50	12.02	8.50	4	21
38	Height	ABBA	3	2	1.00	0.00	0.00	0.00	1	1
38	Diameter	ACRU1	2	2	7.00	2.00	1.41	1.00	6	8
38	Height	ACRU1	2	2	1.00	0.00	0.00	0.00	1	1
38	Diameter	ACRU1	3	1	14.00	.	.	.	14	14
38	Height	ACRU1	3	1	1.00	.	.	.	1	1
38	Diameter	BEPA	1	1	4.00	.	.	.	4	4
38	Height	BEPA	1	1	1.00	.	.	.	1	1

Appendix B Table 24 (Cont).

Unit no.	Diameter/ Height	Species	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
38	Diameter	FRNI	2	5	8.20	6.70	2.59	1.16	6	11
38	Height	FRNI	2	5	1.00	0.00	0.00	0.00	1	1
38	Diameter	FRNI	3	5	10.40	17.30	4.16	1.86	6	15
38	Height	FRNI	3	5	1.00	0.00	0.00	0.00	1	1
38	Diameter	POTR1	1	1	5.00	.	.	.	5	5
38	Height	POTR1	1	1	5.00	.	.	.	5	5
38	Diameter	POTR1	2	1	6.00	.	.	.	6	6
38	Height	POTR1	2	1	1.00	.	.	.	1	1
38	Diameter	POTR1	3	1	9.00	.	.	.	9	9
39	Diameter	POTR1	1	1	5.00	.	.	.	5	5
39	Height	POTR1	1	1	5.00	.	.	.	5	5
40	Diameter	ABBA	2	3	6.00	7.00	2.65	1.53	4	9
40	Height	ABBA	2	3	2.00	1.00	1.00	0.58	1	3
40	Diameter	POTR1	1	2	6.50	0.50	0.71	0.50	6	7
40	Height	POTR1	1	2	2.00	2.00	1.41	1.00	1	3
40	Diameter	POTR1	2	5	10.80	16.70	4.09	1.83	5	14
40	Height	POTR1	2	5	1.80	0.70	0.84	0.37	1	3
40	Diameter	POTR1	3	7	12.43	20.62	4.54	1.72	8	21
40	Height	POTR1	3	7	2.86	1.81	1.35	0.51	1	5
40	Diameter	THOC	2	2	8.00	8.00	2.83	2.00	6	10
40	Height	THOC	2	2	1.50	0.50	0.71	0.50	1	2
40	Diameter	THOC	3	13	11.54	7.60	2.76	0.76	6	17
40	Height	THOC	3	13	2.08	0.41	0.64	0.18	1	4
45	Diameter	ABBA	1	1	11.00	.	.	.	11	11
45	Height	ABBA	1	1	1.00	.	.	.	1	1
45	Diameter	ABBA	2	1	12.00	.	.	.	12	12
45	Height	ABBA	2	1	1.00	.	.	.	1	1
45	Diameter	ABBA	3	1	4.00	.	.	.	4	4
45	Height	ABBA	3	1	1.00	.	.	.	1	1
45	Diameter	BEPA	2	1	5.00	.	.	.	5	5
45	Height	BEPA	2	1	2.00	.	.	.	2	2
45	Diameter	BEPA	3	6	5.33	1.87	1.37	0.56	4	8
45	Height	BEPA	3	6	2.33	1.87	1.37	0.56	1	5
45	Diameter	LALA	3	3	5.00	3.00	1.73	1.00	4	7
45	Height	LALA	3	3	1.00	0.00	0.00	0.00	1	1
45	Diameter	PIMA	2	1	5.00	.	.	.	5	5
45	Height	PIMA	2	1	3.00	.	.	.	3	3

Appendix B Table 24 (Cont).

Unit no.	Diameter/ Height	Species	Age class	N	Mean	Var	Std Dev	Std Err	Min	Max
45	Diameter	PIMA	3	1	7.00	.	.	.	7	7
45	Height	PIMA	3	1	1.00	.	.	.	1	1
45	Diameter	PIST	3	1	15.00	.	.	.	15	15
45	Height	PIST	3	1	1.00	.	.	.	1	1
45	Diameter	THOC	1	2	7.50	0.50	0.71	0.50	7	8
45	Height	THOC	1	2	1.00	0.00	0.00	0.00	1	1
45	Diameter	THOC	2	4	7.50	11.67	3.42	1.71	4	12
45	Height	THOC	2	4	3.00	2.67	1.63	0.82	1	5
45	Diameter	THOC	3	8	4.88	2.70	1.64	0.58	4	8
45	Height	THOC	3	8	1.25	0.21	0.46	0.16	1	2
46	Diameter	ABBA	1	1	10.00	.	.	.	10	10
46	Height	ABBA	1	1	3.00	.	.	.	3	3
46	Diameter	THOC	2	5	5.80	0.20	0.45	0.20	5	6
46	Height	THOC	2	5	2.20	0.70	0.84	0.37	1	3
46	Diameter	THOC	3	54	9.72	15.53	3.94	0.54	4	20
46	Height	THOC	3	54	1.85	0.54	0.74	0.10	1	3
47	Diameter	THOC	2	9	12.44	19.03	4.36	1.45	5	19
47	Height	THOC	2	9	1.78	0.19	0.44	0.15	1	2
47	Diameter	THOC	3	18	12.22	51.36	7.17	1.69	5	35
47	Height	THOC	3	18	1.50	0.38	0.62	0.15	1	3
48	Diameter	THOC	3	18	9.11	6.22	2.49	0.59	4	15
48	Height	THOC	3	18	1.50	0.38	0.62	0.15	1	3

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 25. Stump stem density (stems/plot) by ELU and age class.

ELU	Age class	Stem density
ED(p)	1	4
ED(p)	3	0.33333
EM(p)	1	0.5
EM(p)	2	0.5
EM(p)	3	3.08333
EW(m)	1	0.83333
EW(m)	2	2
EW(m)	3	1.83333
LM(m)	1	0.42857
LM(m)	2	1.21429
LM(m)	3	3.07143
LW(m)	1	0.16667
LW(m)	2	0.5
LW(m)	3	2.5
LW(p)	1	0.16667
LW(p)	2	1.5
LW(pm)	1	0.33333
LW(pm)	2	1.75
LW(pm)	3	9.16667
LW(vp)	1	0.66667
LW(vp)	2	0.75
LW(vp)	3	0.66667
MM(m)	1	0.90909
MM(m)	2	1.27273
MM(m)	3	2.63636
MM(p)	1	3
MM(p)	2	2
MM(p)	3	1.33333
MW(m)	1	0.16667
MW(m)	3	0.5
MW(p)	1	0.16667
MW(p)	2	0.33333
MW(p)	3	1.66667

Appendix B Table 26. Stump stem density (stems/plot) by ELU, age class and species.

ELU	Age class	Species	Stem density	ELU	Age class	Species	Stem density
ED(p)	1	ABBA	0.33333	LW(m)	2	THOC	0.16667
ED(p)	1	POTR1	0.66667	LW(m)	3	ABBA	0.16667
ED(p)	1	THOC	3	LW(m)	3	BEPA	0.33333
ED(p)	3	BEPA	0.33333	LW(m)	3	FRNI	1
EM(p)	1	BEPA	0.08333	LW(m)	3	PIGL	0.66667
EM(p)	1	POTR1	0.41667	LW(m)	3	THOC	0.16667
EM(p)	2	ABBA	0.16667	LW(m)	3	ULRU	0.16667
EM(p)	2	POTR1	0.33333	LW(p)	1	LALA	0.16667
EM(p)	3	ABBA	0.75	LW(p)	2	LALA	1.33333
EM(p)	3	BEPA	0.08333	LW(p)	2	PIMA	0.16667
EM(p)	3	POTR1	1.66667	LW(pm)	1	ABBA	0.16667
EM(p)	3	THOC	0.58333	LW(pm)	1	THOC	0.16667
EW(m)	1	POBA	0.16667	LW(pm)	2	ABBA	0.08333
EW(m)	1	POTR1	0.66667	LW(pm)	2	BEPA	0.08333
EW(m)	2	ABBA	0.83333	LW(pm)	2	PIMA	0.08333
EW(m)	2	FRNI	0.33333	LW(pm)	2	THOC	1.5
EW(m)	2	POBA	0.16667	LW(pm)	3	ABBA	0.08333
EW(m)	2	POTR1	0.66667	LW(pm)	3	BEPA	0.5
EW(m)	3	ABBA	0.33333	LW(pm)	3	LALA	0.25
EW(m)	3	FRNI	0.5	LW(pm)	3	PIMA	0.08333
EW(m)	3	PIMA	0.5	LW(pm)	3	PIST	0.08333
EW(m)	3	POTR1	0.5	LW(pm)	3	THOC	8.16667
LM(m)	1	POTR1	0.42857	LW(vp)	1	PIMA	0.66667
LM(m)	2	ABBA	0.21429	LW(vp)	2	PIMA	0.75
LM(m)	2	POTR1	0.71429	LW(vp)	3	PIMA	0.5
LM(m)	2	THOC	0.21429	LW(vp)	3	THOC	0.16667
LM(m)	2	UNK	0.07143	MM(m)	1	ABBA	0.18182
LM(m)	3	POTR1	1.21429	MM(m)	1	BEPA	0.09091
LM(m)	3	THOC	1.64286	MM(m)	1	POBA	0.09091
LM(m)	3	UNK	0.21429	MM(m)	1	POTR1	0.27273
LW(m)	1	ABBA	0.16667	MM(m)	1	THOC	0.09091
LW(m)	2	FRNI	0.33333	MM(m)	1	UNK	0.18182
MM(m)	2	ABBA	0.27273	MM(m)	2	POBA	0.09091
MM(m)	2	ACRU1	0.18182	MM(m)	2	POTR1	0.18182
MM(m)	2	FRAM	0.09091	MM(m)	3	ABBA	0.18182
MM(m)	2	FRNI	0.45455	MM(m)	3	ACRU1	0.09091

Appendix B Table 26 (Cont).

ELU	Decay	Species	Stem density
MM(m)	3	FRNI	0.45455
MM(m)	3	PIGL	0.09091
MM(m)	3	POTR1	0.36364
MM(m)	3	THOC	0.72727
MM(m)	3	UNK	0.72727
MM(p)	1	ABBA	2.66667
MM(p)	1	POTR1	0.33333
MM(p)	2	ABBA	1.33333
MM(p)	2	POTR1	0.66667
MM(p)	3	ABBA	0.66667
MM(p)	3	BEPA	0.33333
MM(p)	3	PIMA	0.33333
MW(m)	1	POTR1	0.16667
MW(m)	3	POTR1	0.33333
MW(m)	3	UNK	0.16667
MW(p)	1	LALA	0.16667
MW(p)	2	LALA	0.16667
MW(p)	2	PIMA	0.16667
MW(p)	3	PIMA	1.66667

Appendix B Table 27. Stump stem density (stems/plot) by unit number and age class[a].

Unit no.	Age class	Stem density	Unit no.	Age class	Stem density
1	1	0.33333	22	2	1.33333
2	3	1	22	3	8.6667
3	3	0.66667	23	1	4
4	3	0.33333	23	3	0.3333
5	.	.	24	1	0.66667
6	1	0.33333	24	2	0.66667
6	2	3	24	3	2.6667
7	1	0.33333	28	1	1
7	2	0.66667	28	2	2
7	3	3.33333	28	3	1.6667
8	.	.	30	1	1.33333
9	1	0.5	30	2	0.66667
9	2	0.5	30	3	0.6667
9	3	5	31	1	0.33333
11	1	1.66667	31	2	0.33333
11	2	0.66667	31	3	0.3333
11	3	3.3333	32	.	.
13	1	0.33333	34	1	0.66667
13	2	0.33333	34	2	2
13	3	0.3333	34	3	7.3333
16	.	.	38	1	1.33333
17	3	1.3333	38	2	3.66667
18	1	0.33333	38	3	3
18	2	1	39	1	0.33333
18	3	3.6667	40	1	0.66667
19	1	1.33333	40	2	3.33333
19	2	4	40	3	6.6667
19	3	3.6667	45	1	1
20	1	0.33333	45	2	2.33333
21	1	3	45	3	6.6667
21	2	2	46	1	0.33333
21	3	1.3333	46	2	1.66667
22	1	1.33333	46	3	18
			47	2	3
			47	3	6
			48	3	6

[a]a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 28. Stump stem density (stems/plot) by unit number, age class and species[a].

Unit no.	Age class	Species	Stem density	Unit no.	Age class	Species	Stem density
1	1	POTR1	0.33333	18	1	ABBA	0.33333
2	3	POTR1	0.6667	18	2	FRNI	0.66667
2	3	UNK	0.3333	18	2	THOC	0.33333
3	3	POTR1	0.6667	18	3	ABBA	0.33333
4	3	POTR1	0.3333	18	3	BEPA	0.66667
5	.		.	18	3	FRNI	2
6	1	LALA	0.33333	18	3	THOC	0.3333
6	2	LALA	2.66667	18	3	ULRU	0.3333
6	2	PIMA	0.33333	19	1	POTR1	1.33333
7	1	LALA	0.33333	19	2	ABBA	1.66667
7	2	LALA	0.33333	19	2	FRNI	0.66667
7	2	PIMA	0.33333	19	2	POBA	0.33333
7	3	PIMA	3.33333	19	2	POTR1	1.33333
8	.		.	19	3	ABBA	0.66667
9	1	POTR1	0.5	19	3	FRNI	1
9	2	POTR1	0.5	19	3	PIMA	1
9	3	POTR1	1.5	19	3	POTR1	1
9	3	UNK	3.5	20	1	POBA	0.33333
11	1	POBA	0.33333	21	1	ABBA	2.66667
11	1	POTR1	0.33333	21	1	POTR1	0.33333
11	1	THOC	0.33333	21	2	ABBA	1.33333
11	1	UNK	0.66667	21	2	POTR1	0.66667
11	2	FRAM	0.33333	21	3	ABBA	0.66667
11	2	POBA	0.33333	21	3	BEPA	0.33333
11	3	PIGL	0.33333	21	3	PIMA	0.33333
11	3	THOC	2.6667	22	1	BEPA	0.33333
11	3	UNK	0.3333	22	1	POTR1	1
13	1	POTR1	0.33333	22	2	POTR1	1.33333
13	2	POTR1	0.33333	22	3	ABBA	2.66667
13	3	POTR1	0.3333	22	3	BEPA	0.33333
16	.		.	22	3	POTR1	5.6667
17	3	PIGL	1.33333	23	1	ABBA	0.33333
23	1	POTR1	0.66667	40	1	POTR1	0.66667
23	1	THOC	3	40	2	ABBA	1
23	3	BEPA	0.33333	40	2	POTR1	1.66667

Appendix B Table 28 (Cont).

Unit no.	Age class	Species	Stem density	Unit no.	Age class	Species	Stem density
24	1	POTR1	0.66667	40	2	THOC	0.66667
24	2	ABBA	0.66667	40	3	POTR1	2.3333
24	3	ABBA	0.33333	40	3	THOC	4.3333
24	3	THOC	2.3333	45	1	ABBA	0.33333
28	1	PIMA	1	45	1	THOC	0.66667
28	2	PIMA	2	45	2	ABBA	0.33333
28	3	PIMA	1	45	2	BEPA	0.33333
28	3	THOC	0.6667	45	2	PIMA	0.33333
30	1	PIMA	1.33333	45	2	THOC	1.33333
30	2	PIMA	0.66667	45	3	ABBA	0.33333
30	3	PIMA	0.66667	45	3	BEPA	2
31	1	PIMA	0.33333	45	3	LALA	1
31	2	PIMA	0.33333	45	3	PIMA	0.3333
31	3	PIMA	0.33333	45	3	PIST	0.3333
32	.		.	45	3	THOC	2.6667
34	1	POTR1	0.66667	46	1	ABBA	0.33333
34	2	POTR1	1.33333	46	2	THOC	1.66667
34	2	THOC	0.33333	46	3	THOC	18
34	2	UNK	0.33333	47	2	THOC	3
34	3	POTR1	3	47	3	THOC	6
34	3	THOC	3.3333	48	3	THOC	6
34	3	UNK	1				
38	1	ABBA	0.66667				
38	1	BEPA	0.33333				
38	1	POTR1	0.33333				
38	2	ABBA	1				
38	2	ACRU1	0.66667				
38	2	FRNI	1.66667				
38	2	POTR1	0.33333				
38	3	ABBA	0.66667				
38	3	ACRU1	0.33333				
38	3	FRNI	1.66667				
38	3	POTR1	0.3333				
39	1	POTR1	0.33333				

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 29. Stump area by ELU and age class.

ELU	Age class	Area
ED(p)	1	522.813
ED(p)	3	58.905
EM(p)	1	8.558
EM(p)	2	3.862
EM(p)	3	57.203
EW(m)	1	21.075
EW(m)	2	77.82
EW(m)	3	104.196
LM(m)	1	2.749
LM(m)	2	19.537
LM(m)	3	74.725
LW(m)	1	6.545
LW(m)	2	35.67
LW(m)	3	154.527
LW(p)	1	1.636
LW(p)	2	17.41
LW(pm)	1	5.465
LW(pm)	2	35.49
LW(pm)	3	193.879
LW(vp)	1	3.469
LW(vp)	2	4.009
LW(vp)	3	6.087
MM(m)	1	5.676
MM(m)	2	21.063
MM(m)	3	72.007
MM(p)	1	94.248
MM(p)	2	39.793
MM(p)	3	27.751
MW(m)	1	1.636
MW(m)	3	21.795
MW(p)	1	4.189
MW(p)	2	3.992
MW(p)	3	21.075

Appendix B Table 30. Stump area by ELU, age class and species.

ELU	Age class	Species	Area	ELU	Age class	Species	Area
ED(p)	1	ABBA	26.18	LW(m)	3	THOC	1.047
ED(p)	1	POTR1	54.454	LW(m)	3	ULRU	1.636
ED(p)	1	THOC	442.179	LW(p)	1	LALA	1.636
ED(p)	3	BEPA	58.905	LW(p)	2	LALA	15.053
EM(p)	1	BEPA	4.729	LW(p)	2	PIMA	2.356
EM(p)	1	POTR1	3.829	LW(pm)	1	ABBA	3.616
EM(p)	2	ABBA	2.225	LW(pm)	1	THOC	1.849
EM(p)	2	POTR1	1.636	LW(pm)	2	ABBA	2.356
EM(p)	3	ABBA	9.048	LW(pm)	2	BEPA	0.409
EM(p)	3	BEPA	1.047	LW(pm)	2	PIMA	0.409
EM(p)	3	POTR1	36.636	LW(pm)	2	THOC	32.316
EM(p)	3	THOC	10.472	LW(pm)	3	ABBA	0.262
EW(m)	1	POBA	5.301	LW(pm)	3	BEPA	2.945
EW(m)	1	POTR1	15.773	LW(pm)	3	LALA	1.325
EW(m)	2	ABBA	7.985	LW(pm)	3	PIMA	0.802
EW(m)	2	FRNI	39.924	LW(pm)	3	PIST	3.682
EW(m)	2	POBA	9.425	LW(pm)	3	THOC	184.863
EW(m)	2	POTR1	20.486	LW(vp)	1	PIMA	3.469
EW(m)	3	ABBA	4.843	LW(vp)	2	PIMA	4.009
EW(m)	3	FRNI	38.812	LW(vp)	3	PIMA	2.929
EW(m)	3	PIMA	27.423	LW(vp)	3	THOC	3.158
EW(m)	3	POTR1	33.118	MM(m)	1	ABBA	1.749
LM(m)	1	POTR1	2.749	MM(m)	1	BEPA	0.286
LM(m)	2	ABBA	1.711	MM(m)	1	POBA	0.446
LM(m)	2	POTR1	12.861	MM(m)	1	POTR1	1.178
LM(m)	2	THOC	4.278	MM(m)	1	THOC	1.446
LM(m)	2	UNK	0.687	MM(m)	1	UNK	0.571
LM(m)	3	POTR1	34.417	MM(m)	2	ABBA	7.211
LM(m)	3	THOC	35.09	MM(m)	2	ACRU1	1.785
LM(m)	3	UNK	5.217	MM(m)	2	FRAM	0.286
LW(m)	1	ABBA	6.545	MM(m)	2	FRNI	6.48
LW(m)	2	FRNI	30.369	MM(m)	2	POBA	0.643
LW(m)	2	THOC	5.301	MM(m)	2	POTR1	4.659
LW(m)	3	ABBA	1.636	MM(m)	2	FRAM	0.286
LW(m)	3	BEPA	43.001	MM(m)	2	FRNI	6.48
LW(m)	3	FRNI	37.83	MM(m)	2	POBA	0.643
LW(m)	3	PIGL	69.377	MM(m)	2	POTR1	4.659

Appendix B Table 30 (Cont).

ELU	Age class	Species	Area
MM(m)	3	ABBA	8.157
MM(m)	3	ACRU1	3.499
MM(m)	3	FRNI	10.888
MM(m)	3	PIGL	1.142
MM(m)	3	POTR1	17.921
MM(m)	3	THOC	9.121
MM(m)	3	UNK	21.277
MM(p)	1	ABBA	81.42
MM(p)	1	POTR1	12.828
MM(p)	2	ABBA	26.704
MM(p)	2	POTR1	13.09
MM(p)	3	ABBA	17.017
MM(p)	3	BEPA	6.545
MM(p)	3	PIMA	4.189
MW(m)	1	POTR1	1.636
MW(m)	3	POTR1	20.748
MW(m)	3	UNK	1.047
MW(p)	1	LALA	
MW(p)	2	LALA	
MW(p)	2	PIMA	
MW(p)	3	PIMA	

Appendix B Table 31. Stump area by unit number and age class[a].

Unit no.	Age class	Area	Unit no.	Age class	Area
1	1	0.2045	22	3	14.6117
2	3	2.7243	23	1	16.3379
3	3	5.7023	23	3	1.8408
4	3	2.6507	24	1	0.6954
5	.	.	24	2	1.1126
6	1	0.2045	24	3	5.6369
6	2	2.1762	28	1	0.54
7	1	0.5236	28	2	1.219
7	2	0.4991	28	3	2.5035
7	3	2.6344	30	1	0.6709
8	.	.	30	2	0.6545
9	1	0.3068	30	3	0.3354
9	2	2.7612	31	1	0.5236
9	3	25.5132	31	2	0.1309
11	1	1.2599	31	3	0.2045
11	2	0.4254	32	.	.
11	3	4.9987	34	1	0.4991
13	1	0.2045	34	2	3.3052
13	2	0.6627	34	3	17.2215
13	3	1.6035	38	1	1.1372
16	.	.	38	2	7.3876
17	3	8.6721	38	3	10.9956
18	1	0.8181	39	1	0.2045
18	2	4.4588	40	1	0.6954
18	3	10.6438	40	2	7.4286
19	1	1.9717	40	3	24.7646
19	2	9.7275	45	1	1.9144
19	3	13.0245	45	2	3.7143
20	1	0.6627	45	3	6.2177
21	1	2.9452	46	1	0.8181
21	2	1.2435	46	2	1.3826
21	3	0.8672	46	3	48.4901
22	1	3.5834	47	2	12.6482
22	2	0.8181	47	3	29.1415
			48	3	13.09

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 32. Stump area by unit number, age class and species[a].

Unit no.	Age class	Species	Area	Unit no.	Age class	Species	Area
1	1	POTR1	0.2045	18	2	FRNI	3.7961
2	3	POTR1	2.5934	18	2	THOC	0.6627
2	3	UNK	0.1309	18	3	ABBA	0.2045
3	3	POTR1	5.7023	18	3	BEPA	5.3751
4	3	POTR1	2.6507	18	3	FRNI	4.7288
5	.		.	18	3	THOC	0.1309
6	1	LALA	0.2045	18	3	ULRU	0.2045
6	2	LALA	1.8817	19	1	POTR1	1.9717
6	2	PIMA	0.2945	19	2	ABBA	0.9981
7	1	LALA	0.5236	19	2	FRNI	4.9905
7	2	LALA	0.2945	19	2	POBA	1.1781
7	2	PIMA	0.2045	19	2	POTR1	2.5607
7	3	PIMA	2.6344	19	3	ABBA	0.6054
8	.		.	19	3	FRNI	4.8515
9	1	POTR1	0.3068	19	3	PIMA	3.4279
9	2	POTR1	2.7612	19	3	POTR1	4.1397
9	3	POTR1	11.3269	20	1	POBA	0.6627
9	3	UNK	14.1863	21	1	ABBA	2.5444
11	1	POBA	0.2045	21	1	POTR1	0.4009
11	1	POTR1	0.1309	21	2	ABBA	0.8345
11	1	THOC	0.6627	21	2	POTR1	0.4091
11	1	UNK	0.2618	21	3	ABBA	0.5318
11	2	FRAM	0.1309	21	3	BEPA	0.2045
11	2	POBA	0.2945	21	3	PIMA	0.1309
11	3	PIGL	0.5236	22	1	BEPA	2.3644
11	3	THOC	4.1806	22	1	POTR1	1.219
11	3	UNK	0.2945	22	2	POTR1	0.8181
13	1	POTR1	0.2045	22	3	ABBA	4.1233
13	2	POTR1	0.6627	22	3	BEPA	0.5236
13	3	POTR1	1.6035	22	3	POTR1	9.9647
16	.		.	23	1	ABBA	0.8181
17	3	PIGL	8.6721	23	1	POTR1	1.7017
18	1	ABBA	0.8181	40	1	POTR1	0.6954
23	3	BEPA	1.8408	40	2	ABBA	0.9981

Appendix B Table 32 (Cont).

Unit no.	Age class	Species	Area	Unit no.	Age class	Species	Area
23	1	THOC	13.8181	39	1	POTR1	0.2045
24	1	POTR1	0.6954	40	2	POTR1	5.3178
24	2	ABBA	1.1126	40	2	THOC	1.1126
24	3	ABBA	0.4009	40	3	POTR1	9.8584
24	3	THOC	5.236	40	3	THOC	14.9062
28	1	PIMA	0.54	45	1	ABBA	0.9899
28	2	PIMA	1.219	45	1	THOC	0.9245
28	3	PIMA	0.9245	45	2	ABBA	1.1781
28	3	THOC	1.579	45	2	BEPA	0.2045
30	1	PIMA	0.6709	45	2	PIMA	0.2045
30	2	PIMA	0.6545	45	2	THOC	2.1271
30	3	PIMA	0.3354	45	3	ABBA	0.1309
31	1	PIMA	0.5236	45	3	BEPA	1.4726
31	2	PIMA	0.1309	45	3	LALA	0.6627
31	3	PIMA	0.2045	45	3	PIMA	0.4009
32	.		.	45	3	PIST	1.8408
34	1	POTR1	0.4991	45	3	THOC	1.7099
34	2	POTR1	1.5217	46	1	ABBA	0.8181
34	2	THOC	1.3826	46	2	THOC	1.3826
34	2	UNK	0.4009	46	3	THOC	48.4901
34	3	POTR1	8.6148	47	2	THOC	12.6482
34	3	THOC	5.5632	47	3	THOC	29.1415
34	3	UNK	3.0434	48	3	THOC	13.09
38	1	ABBA	0.8018				
38	1	BEPA	0.1309				
38	1	POTR1	0.2045				
38	2	ABBA	3.3052				
38	2	ACRU1	0.8181				
38	2	FRNI	2.9698				
38	2	POTR1	0.2945				
38	3	ABBA	3.7388				
38	3	ACRU1	1.6035				
38	3	FRNI	4.9905				
38	3	POTR1	0.6627				

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 33. Coarse woody debris diameter (in) and length (ft) means, variances, standard deviations, standard errors, minimums and maximums by decay class[a].

ELU	Diam/Length	Decay	N	Mean	Var	Std Dev	Std Err	Min	Max
ED(p)	Diameter	1	5	5.20	1.20	1.10	0.49	4	6
ED(p)	Diameter	2	5	7.80	9.70	3.11	1.39	4	11
ED(p)	Diameter	3	4	6.50	4.33	2.08	1.04	4	9
ED(p)	Diameter	4	4	7.25	6.92	2.63	1.31	5	11
ED(p)	Diameter	5	1	5.00	0.00	0.00	0.00	5	5
ED(p)	Length	1	5	35.20	33.70	5.81	2.60	27	42
ED(p)	Length	2	5	25.20	56.20	7.50	3.35	19	38
ED(p)	Length	3	4	23.75	18.92	4.35	2.17	18	28
ED(p)	Length	4	4	14.25	58.25	7.63	3.82	7	25
ED(p)	Length	5	1	8.00	0.00	0.00	0.00	8	8
EM(p)	Diameter	1	5	5.00	0.00	0.00	0.00	5	5
EM(p)	Diameter	2	11	4.91	0.49	0.70	0.21	4	6
EM(p)	Diameter	3	8	5.38	3.41	1.85	0.65	4	9
EM(p)	Diameter	4	4	6.50	1.00	1.00	0.50	6	8
EM(p)	Length	1	5	34.60	24.30	4.93	2.20	28	39
EM(p)	Length	2	11	26.64	141.25	11.89	3.58	12	49
EM(p)	Length	3	8	21.38	305.70	17.48	6.18	5	59
EM(p)	Length	4	4	13.00	110.67	10.52	5.26	4	24
EW(m)	Diameter	1	6	7.17	25.37	5.04	2.06	4	17
EW(m)	Diameter	2	10	6.30	2.01	1.42	0.45	5	9
EW(m)	Diameter	3	3	7.00	19.00	4.36	2.52	4	12
EW(m)	Diameter	4	6	9.17	18.57	4.31	1.76	4	14
EW(m)	Diameter	5	3	7.00	0.00	0.00	0.00	7	7
EW(m)	Length	1	6	33.67	171.87	13.11	5.35	11	51
EW(m)	Length	2	10	20.50	92.94	9.64	3.05	4	38
EW(m)	Length	3	3	18.00	148.00	12.17	7.02	10	32
EW(m)	Length	4	6	18.33	65.07	8.07	3.29	6	29
EW(m)	Length	5	3	12.00	4.00	2.00	1.15	10	14
LM(m)	Diameter	1	7	4.43	0.95	0.98	0.37	3	6
LM(m)	Diameter	2	14	5.57	1.65	1.28	0.34	4	8
LM(m)	Diameter	3	10	6.10	5.43	2.33	0.74	4	12
LM(m)	Diameter	4	11	7.09	7.49	2.74	0.83	4	12
LM(m)	Diameter	5	2	6.00	8.00	2.83	2.00	4	8
LM(m)	Length	1	7	26.43	14.95	3.87	1.46	21	33
LM(m)	Length	2	14	23.21	127.57	11.29	3.02	4	34
LM(m)	Length	3	10	17.00	144.00	12.00	3.79	2	37
LM(m)	Length	4	11	19.18	215.16	14.67	4.42	4	50
LM(m)	Length	5	2	5.00	0.00	0.00	0.00	5	5
LW(m)	Diameter	1	1	9.00	0.00	0.00	0.00	9	9
LW(m)	Diameter	2	1	4.00	0.00	0.00	0.00	4	4

Appendix B Table 33 (Cont).

ELU	Diam/Length	Decay	N	Mean	Var	Std	Std Err	Min	Max
LW(m)	Diameter	3	10	6.90	7.66	2.77	0.87	4	14
LW(m)	Diameter	4	4	5.00	1.33	1.15	0.58	4	6
LW(m)	Diameter	5	1	16.00	0.00	0.00	0.00	16	16
LW(m)	Length	1	1	42.00	0.00	0.00	0.00	42	42
LW(m)	Length	2	1	19.00	0.00	0.00	0.00	19	19
LW(m)	Length	3	10	21.20	234.40	15.31	4.84	3	55
LW(m)	Length	4	4	13.00	89.33	9.45	4.73	6	26
LW(m)	Length	5	1	16.00	0.00	0.00	0.00	16	16
LW(p)	Diameter	1	2	4.00	0.00	0.00	0.00	4	4
LW(p)	Diameter	2	4	4.00	0.00	0.00	0.00	4	4
LW(p)	Diameter	3	2	4.00	0.00	0.00	0.00	4	4
LW(p)	Diameter	4	2	5.00	0.00	0.00	0.00	5	5
LW(p)	Length	1	2	32.00	0.00	0.00	0.00	32	32
LW(p)	Length	2	4	23.75	70.25	8.38	4.19	17	36
LW(p)	Length	3	2	21.50	84.50	9.19	6.50	15	28
LW(p)	Length	4	2	10.00	8.00	2.83	2.00	8	12
LW(pm)	Diameter	1	4	6.00	2.67	1.63	0.82	4	8
LW(pm)	Diameter	2	9	7.00	9.50	3.08	1.03	4	13
LW(pm)	Diameter	3	11	9.55	44.67	6.68	2.02	3	23
LW(pm)	Diameter	4	8	5.88	3.84	1.96	0.69	4	10
LW(pm)	Diameter	5	10	7.40	13.60	3.69	1.17	4	17
LW(pm)	Length	1	4	42.75	550.92	23.47	11.74	21	75
LW(pm)	Length	2	9	22.89	162.11	12.73	4.24	6	39
LW(pm)	Length	3	11	15.00	79.80	8.93	2.69	6	35
LW(pm)	Length	4	8	16.88	135.55	11.64	4.12	4	37
LW(pm)	Length	5	10	10.50	20.06	4.48	1.42	5	18
LW(vp)	Diameter	1	8	5.00	1.14	1.07	0.38	4	7
LW(vp)	Diameter	2	7	4.71	2.24	1.50	0.57	4	8
LW(vp)	Diameter	3	1	4.00	0.00	0.00	0.00	4	4
LW(vp)	Diameter	4	1	4.00	0.00	0.00	0.00	4	4
LW(vp)	Length	1	8	32.13	251.27	15.85	5.60	6	49
LW(vp)	Length	2	7	22.71	191.24	13.83	5.23	6	47
LW(vp)	Length	3	1	20.00	0.00	0.00	0.00	20	20
LW(vp)	Length	4	1	8.00	0.00	0.00	0.00	8	8
MM(m)	Diameter	1	5	4.60	0.80	0.89	0.40	4	6
MM(m)	Diameter	2	11	4.91	0.89	0.94	0.28	4	7
MM(m)	Diameter	3	11	6.73	4.02	2.00	0.60	5	10
MM(m)	Diameter	4	14	5.00	0.77	0.88	0.23	4	6
MM(m)	Diameter	5	1	6.00	0.00	0.00	0.00	6	6
MM(m)	Length	1	5	27.60	377.30	19.42	8.69	12	61
MM(m)	Length	2	11	30.18	118.96	10.91	3.29	12	45
MM(m)	Length	3	11	55.73	11834.42	108.79	32.80	3	81
MM(m)	Length	4	14	29.43	185.49	13.62	3.64	5	51
MM(m)	Length	5	1	6.00	0.00	0.00	0.00	6	6

Appendix B Table 33(Cont).

ELU	Diam/Length	Decay	N	Mean	Var	Std	Std Err	Min	Max
MM(p)	Diameter	1	1	5.00	0.00	0.00	0.00	5	5
MM(p)	Diameter	2	8	6.63	6.84	2.62	0.92	4	10
MM(p)	Diameter	3	5	6.20	0.70	0.84	0.37	5	7
MM(p)	Diameter	4	3	5.00	3.00	1.73	1.00	4	7
MM(p)	Diameter	5	3	6.67	4.33	2.08	1.20	5	9
MM(p)	Length	1	1	29.00	0.00	0.00	0.00	29	29
MM(p)	Length	2	8	26.63	105.98	10.29	3.64	10	37
MM(p)	Length	3	5	33.20	28.70	5.36	2.40	25	38
MM(p)	Length	4	3	21.00	199.00	14.11	8.14	6	34
MM(p)	Length	5	3	11.33	76.33	8.74	5.04	4	21
MW(m)	Diameter	1	1	11.00	0.00	0.00	0.00	11	11
MW(m)	Diameter	2	3	8.00	13.00	3.61	2.08	5	12
MW(m)	Diameter	3	1	6.00	0.00	0.00	0.00	6	6
MW(m)	Diameter	4	2	6.00	0.00	0.00	0.00	6	6
MW(m)	Diameter	5	1	6.00	0.00	0.00	0.00	6	6
MW(m)	Length	1	1	35.00	0.00	0.00	0.00	35	35
MW(m)	Length	2	3	30.67	282.33	16.80	9.70	16	49
MW(m)	Length	3	1	20.00	0.00	0.00	0.00	20	20
MW(m)	Length	4	2	6.00	8.00	2.83	2.00	4	8
MW(m)	Length	5	1	10.00	0.00	0.00	0.00	10	10
MW(p)	Diameter	1	1	8.00	0.00	0.00	0.00	8	8
MW(p)	Diameter	2	3	4.00	0.00	0.00	0.00	4	4
MW(p)	Diameter	3	6	4.67	0.67	0.82	0.33	4	6
MW(p)	Diameter	4	2	7.00	2.00	1.41	1.00	6	8
MW(p)	Length	1	1	35.00	0.00	0.00	0.00	35	35
MW(p)	Length	2	3	29.67	72.33	8.50	4.91	20	36
MW(p)	Length	3	6	32.17	114.57	10.70	4.37	19	43
MW(p)	Length	4	2	7.00	32.00	5.66	4.00	3	11

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 34. Coarse woody debris stem density by ELU in logs per vegetation plot.

ELU	Density
ED(p)	40743.72
EM(p)	4837.52
EW(m)	18687.2
LM(m)	8530.04
LW(m)	15305.92
LW(p)	5671.85
LW(pm)	9159.37
LW(vp)	2702.46
MM(m)	6526.62
MM(p)	49517.19
MW(m)	6882.37
MW(p)	7841.16

Appendix B Table 35. Coarse woody debris density in logs per vegetation plot by ELU and decay class[a].

ELU	Decay	Density	ELU	Decay	Density
ED(p)	1	5944.72	LW(pm)	5	2894.84
ED(p)	2	8585.41	LW(pm)	.	.
ED(p)	3	7079.81	LW(vp)	1	1071.49
ED(p)	4	4024.5	LW(vp)	2	1183.91
ED(p)	5	5109.28	LW(vp)	3	127.73
ED(p)	.	.	LW(vp)	4	319.33
EM(p)	1	375.61	LW(vp)	.	.
EM(p)	2	1255.94	MM(m)	1	675.31
EM(p)	3	1694.48	MM(m)	2	1202.83
EM(p)	4	1511.49	MM(m)	3	2274.49
EM(p)	.	.	MM(m)	4	1909.5
EW(m)	1	2305.73	MM(m)	5	464.48
EW(m)	2	7252.66	MM(m)	.	.
EW(m)	3	2192.73	MM(p)	1	1409.46
EW(m)	4	4332.78	MM(p)	2	5307.34
EW(m)	5	2603.3	MM(p)	3	6302.18
EW(m)	.	.	MM(p)	4	9791.69
LM(m)	1	590.67	MM(p)	5	6706.53
LM(m)	2	2167.69	MM(p)	.	.
LM(m)	3	2619.67	MW(m)	1	291.96
LM(m)	4	2276.13	MW(m)	2	1225.67
LM(m)	5	875.88	MW(m)	3	510.93
LM(m)	.	.	MW(m)	4	3831.96
LW(m)	1	243.3	MW(m)	5	1021.86
LW(m)	2	537.82	MW(m)	.	.
LW(m)	3	9357.04	MW(p)	1	291.96
LW(m)	4	4529.1	MW(p)	2	1104.43
LW(m)	5	638.66	MW(p)	3	2109.63
LW(m)	.	.	MW(p)	4	4335.14
LW(p)	1	638.66	MW(p)	.	.
LW(p)	2	1858.14			
LW(p)	3	1046.19			
LW(p)	4	2128.87			
LW(p)	.	.			
LW(pm)	1	296.18			
LW(pm)	2	1462.81			
LW(pm)	3	2515.11			
LW(pm)	4	1990.43			

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 36. Coarse woody debris density in logs per vegetation plot by unit number[a].

Unit No.	Density
1	180.19
2	680.1
3	212.89
4	21.65
5	.
6	583.53
7	980.15
8	125.45
9	1093.27
11	530.7
13	797.95
16	1017.87
17	1096.93
18	816.31
19	916.51
20	1419.39
21	1547.41
22	1622.2
23	1273.24
24	562.02
28	763.98
30	336.68
31	250.57
32	.
34	438.23
38	713.95
39	2442.25
40	1297.43
45	1743.81
46	2105.6
47	357.67
48	372.61

[a] a dot (.) indicates either that data was nonexistent, or was unable to be calculated.

Appendix B Table 37. Coarse woody debris density in logs per vegetation plot by unit number and decay class.

Unit No.	Decay	Density	Unit No.	Decay	Density
1	1	36.495	18	2	67.227
1	2	79.832	18	3	456.653
1	3	63.866	18	4	262.01
2	2	73.376	19	1	64.962
2	4	478.99	19	2	160.154
2	5	127.73	19	3	106.443
3	3	212.887	19	4	350.78
4	3	21.649	19	5	234.18
6	2	232.267	20	1	223.254
6	3	85.155	20	2	746.429
6	4	266.11	20	3	167.648
7	1	36.495	20	4	190.82
7	2	138.054	20	5	91.24
7	3	263.704	21	1	44.045
7	4	541.89	21	2	478.354
8	1	79.832	21	3	196.943
8	3	45.619	21	4	305.99
9	3	933.606	21	5	522.08
9	4	159.66	22	1	187.807
11	1	106.443	22	2	470.432
11	2	111.631	22	3	527.547
11	3	168.941	22	4	436.42
11	4	143.68	23	1	185.773
13	1	98.255	23	2	268.294
13	2	664.21	23	3	221.244
13	3	35.481	23	4	438.27
16	1	139.21	23	5	159.66
16	2	168.274	24	2	157.536
16	3	138.545	24	3	85.155
16	4	571.84	24	4	319.33
17	3	712.976	28	1	127.732
17	4	304.12	28	2	476.58
17	5	79.83	28	4	159.66
18	1	30.412	30	1	245.638

Appendix B Table 37 (Cont).

Unit no.	Decay	Density
30	2	27.177
30	3	63.866
31	1	162.376
31	2	88.196
34	1	55.536
34	2	170.009
34	3	150.642
34	4	62.04
38	1	63.866
38	2	271.392
38	3	112.584
38	4	53.22
38	5	212.89
39	1	45.619
39	2	222.39
39	3	1198.8
39	4	464.51
39	5	510.93
40	1	145.15
40	2	207.877
40	3	143.21
40	4	801.19
45	1	41.204
45	2	195.837
45	3	898.1
45	4	437.6
45	5	171.07
46	2	502.818
46	3	198.69
46	4	127.73
46	5	1276.35
47	1	77.856
47	3	85.62
47	4	194.19
48	1	29.03
48	2	32.752
48	3	75.14
48	4	235.7

Appendix B Table 38. Understory cover means by ELU and understory cover class at strata level 0.

ELU	CWD	Litter	Grass	Forbs	Shrubs	Trees	Rocks	Soil	Moss	Slash
ED(p)	0	0.97	0.03	0.33	0.07	0	0	0	0.07	0.10
EM(p)	0.05	0.89	0.22	0.22	0.02	0.01	0	0.03	0.10	0.14
EW(m)	0.05	0.52	0.38	0.33	0.02	0	0	0.18	0.40	0.10
LM(m)	0.02	0.96	0.18	0.20	0.01	0.01	0	0	0.06	0.02
LW(m)	0.02	0.96	0.25	0.08	0	0	0	0	0.27	0.02
LW(p)	0	0.48	0.05	0.20	0.10	0	0	0.03	0.77	0.17
LW(pm)	0.01	0.65	0.31	0.17	0	0	0	0	0.60	0.01
LW(vp)	0.01	0.14	0.07	0.15	0.13	0	0	0	0.92	0.01
MM(m)	0.02	0.87	0.27	0.28	0.01	0	0	0	0.07	0.01
MM(p)	0.03	0.90	0.03	0.17	0	0	0	0	0.28	0.13
MW(m)	0.02	0.93	0.34	0.34	0.02	0	0	0.02	0.02	0.02
MW(p)	0.02	0.25	0.15	0.23	0.07	0	0	0.02	0.85	0.17

Appendix B Table 39. Understory cover means by ELU and understory cover class at strata level 1.

ELU	CWD	Litter	Grass	Forbs	Shrubs	Trees	Rocks	Soil	Moss	Slash
ED(p)	0	0.2	0.3	0.57	0.37	0.1	0	0	0	0
EM(p)	0	0.23	0.3	0.54	0.19	0.2	0	0	0.08	0.21
EW(m)	0.017	0.2	0.6	0.55	0.47	0.2	0	0	0.08	0.13
LM(m)	0	0.09	0.2	0.78	0.25	0.1	0	0	0	0.04
LW(m)	0	0.07	0.7	0.69	0.24	0.1	0	0	0.18	0.02
LW(p)	0	0.17	0.2	0.42	0.55	0.1	0	0	0.32	0.32
LW(pm)	0.003	0	0.4	0.48	0.2	0.2	0	0	0.1	0.01
LW(vp)	0.002	0	0.2	0.36	0.47	0.1	0	0	0.2	0.01
MM(m)	0.01	0.02	0.4	0.80	0.36	0.1	0	0	0	0
MM(p)	0.03	0.09	0	0.26	0	0	0	0	0.01	0.16
MW(m)	0.01	0.07	0.4	0.81	0.33	0	0	0.02	0.02	0.07
MW(p)	0	0.02	0.4	0.33	0.55	0.1	0	0	0.7	0.3

Appendix B Table 40. Understory cover means by ELU and understory cover class at strata level 2.

ELU	CWD	Litter	Grass	Forbs	Shrubs	Trees	Rocks	Soil	Moss	Slash
ED(p)	0	0	0	0.2	0.07	0	0	0	0.03	0.23
EM(p)	0	0	0	0	0.12	0.3	0	0	0	0
EW(m)	0	0	0	0	0.23	0.2	0	0	0	0
LM(m)	0	0	0	0	0.05	0.2	0	0	0	0
LW(m)	0	0	0	0	0.31	0.2	0	0	0	0
LW(p)	0	0	0	0	0.1	0.2	0	0	0	0
LW(pm)	0.002	0	0	0.005	0.08	0.1	0	0	0	0
LW(vp)	0	0	0	0	0.02	0.1	0	0	0	0
MM(m)	0	0	0	0.002	0.22	0.2	0	0	0	0
MM(p)	0	0	0	0	0	0	0	0	0	0
MW(m)	0	0	0	0	0.48	0	0	0	0	0
MW(p)	0	0	0	0	0.03	0	0	0	0	0

Appendix B Table 41. Understory cover means by ELU and understory cover class at strata level 3.

ELU	CWD	Litter	Grass	Forbs	Shrubs	Trees	Rocks	Soil	Moss	Slash
ED(p)	0	0	0	0	0.03	0.3	0	0	0	0.03
EM(p)	0	0	0	0	0.07	0.4	0	0	0	0
EW(m)	0	0	0	0	0.08	0.3	0	0	0	0
LM(m)	0	0	0	0	0.04	0.3	0	0	0	0
LW(m)	0	0	0	0	0.3	0.2	0	0	0	0
LW(p)	0	0	0	0	0.03	0.1	0	0	0	0
LW(pm)	0.002	0	0	0	0.05	0.2	0	0	0	0
LW(vp)	0	0	0	0	0.03	0.1	0	0	0	0
MM(m)	0	0	0	0	0.09	0.2	0	0	0	0
MM(p)	0.01	0	0	0	0	0	0	0	0	0
MW(m)	0	0	0	0	0.36	0.1	0	0	0	0
MW(p)	0	0	0	0	0.03	0.1	0	0	0	0

Appendix B Table 42. Understory cover means by ELU and understory cover class at strata level 4.

ELU	CWD	Litter	Grass	Forbs	Shrubs	Trees	Rocks	Soil	Moss	Slash
ED(p)	0	0	0	0	0.03	0.3	0	0	0	0
EM(p)	0	0	0	0	0.03	0.3	0	0	0	0
EW(m)	0	0	0	0	0.13	0.2	0	0	0	0
LM(m)	0	0	0	0	0.02	0.3	0	0	0	0
LW(m)	0	0	0	0	0.13	0.2	0	0	0	0
LW(p)	0	0	0	0	0	0.1	0	0	0	0
LW(pm)	0	0	0	0	0.02	0.4	0	0	0	0
LW(vp)	0	0	0	0	0.04	0.1	0	0	0	0
MM(m)	0	0	0	0	0.02	0.1	0	0	0	0
MM(p)	0	0	0	0	0	0	0	0	0	0.01
MW(m)	0	0	0	0	0.08	0.1	0	0	0	0
MW(p)	0	0	0	0	0.03	0.1	0	0	0	0

Appendix B Table 43. Understory cover means by ELU and understory cover class at strata level 5.

ELU	CWD	Litter	Grass	Forbs	Shrubs	Trees	Rocks	Soil	Moss	Slash
ED(p)	0	0	0	0	0.03	0.3	0	0	0	0
EM(p)	0	0	0	0	0.03	0.3	0	0	0	0
EW(m)	0	0	0	0	0.03	0.2	0	0	0	0
LM(m)	0	0	0	0	0.01	0.3	0	0	0	0
LW(m)	0	0	0	0	0.07	0.2	0	0	0	0
LW(p)	0	0	0	0	0.02	0.1	0	0	0	0
LW(pm)	0	0	0	0	0.01	0.4	0	0	0	0
LW(vp)	0	0	0	0	0.01	0.2	0	0	0	0
MM(m)	0	0	0	0	0.01	0.1	0	0	0	0
MM(p)	0	0	0	0	0	0	0	0	0	0
MW(m)	0	0	0	0	0.01	0.1	0	0	0	0
MW(p)	0	0	0	0	0.02	0.1	0	0	0	0

Appendix B Table 44. Understory cover means by unit number and understory cover class at strata level 0.

Unit no.	CWD	Litter	Grass	Forbs	Shrubs	Trees	Rocks	Soil	Moss	Slash
1	0	0.9	0.2	0.43	0.1	0	0	0.07	0	0.1
2	0	0.9	0.38	0.32	0	0	0	0	0.03	0
3	0	0.9	0.2	0.27	0.07	0	0	0.1	0.03	0.2
4	0	0.9	0.43	0.13	0	0	0	0	0	0.1
5	0	0	0.27	0.03	0.03	0	0	0.03	0.97	0
6	0	0.6	0.07	0.13	0.1	0	0	0.07	0.87	0.1
7	0	0.5	0.03	0.43	0.1	0	0	0	0.73	0.3
8	0	0.4	0.03	0.27	0.1	0	0	0	0.67	0.2
9	0	0.5	0.28	0.32	0	0	0	0	0.08	0
11	0	1	0.18	0.27	0.01	0	0	0	0.04	0
13	0	1	0.5	0.57	0	0	0	0	0	0.1
16	0	1	0.1	0.37	0.1	0	0	0	0.07	0
17	0	1	0.19	0.04	0	0	0	0	0.12	0
18	0	0.9	0.35	0.15	0	0	0	0	0.52	0.1
19	0.1	0.5	0.3	0.23	0.03	0	0	0.13	0.5	0.2
20	0	0.5	0.47	0.43	0	0	0	0.23	0.3	0
21	0	0.9	0.03	0.17	0	0	0	0	0.28	0.1
22	0.2	0.8	0.17	0.33	0	0	0	0	0.2	0.1
23	0	1	0.03	0.33	0.07	0	0	0	0.07	0.1
24	0	0.9	0.07	0.13	0	0	0	0.03	0.17	0.1
28	0	0.2	0.05	0.1	0.03	0	0	0	0.9	0
30	0	0.1	0.08	0.18	0.25	0	0	0	0.95	0
31	0	0.1	0.05	0.24	0.14	0	0	0	0.97	0
32	0	0.2	0.09	0.13	0.14	0	0	0	0.89	0
34	0	0.7	0.05	0.04	0	0	0	0	0.01	0
38	0	1	0.35	0.25	0	0	0	0	0.09	0
39	0	1	0.33	0.27	0.07	0	0	0	0.17	0
40	0	0.9	0.3	0.23	0.07	0.1	0	0	0.23	0.1
45	0	0.6	0.29	0.11	0.01	0	0	0	0.63	0
46	0	0.8	0.11	0.06	0	0	0	0	0.63	0
47	0	0.5	0.49	0.27	0.01	0	0	0.01	0.59	0
48	0	0.7	0.52	0.34	0	0	0	0	0.47	0

Appendix B Table 45. Understory cover means by unit number and understory cover class at strata level 1.

Unit no.	CWD	Litter	Grass	Forbs	Shrubs	Trees	Rocks	Soil	Moss	Slash
1	0	0.23	0.3	0.667	0.5	0.03	0	0.07	0	0.23
2	0.01	0.02	0.39	0.859	0.27	0.01	0	0	0.022	0.02
3	0	0.2	0.3	0.6	0.27	0.23	0	0	0.067	0.23
4	0	0.07	0.4	0.733	0.23	0.17	0	0	0	0.07
5	0	0.03	0.83	0.1	0.53	0.07	0	0	0.967	0.07
6	0	0.17	0.3	0.367	0.47	0.17	0	0	0.433	0.3
7	0	0	0.03	0.567	0.57	0.07	0	0	0.433	0.53
8	0	0.17	0.07	0.467	0.63	0.1	0	0	0.2	0.33
9	0	0.01	0.33	0.799	0.31	0.24	0	0	0	0
11	0.01	0	0.42	0.838	0.38	0.1	0	0	0.006	0.01
13	0	0.27	0.33	0.633	0.33	0.13	0	0	0	0.2
16	0	0.27	0.23	0.767	0.67	0.2	0	0	0	0
17	0	0.03	0.64	0.766	0.25	0.06	0	0	0.006	0
18	0	0.15	0.68	0.554	0.21	0.11	0	0	0.478	0.07
19	0.03	0.3	0.53	0.533	0.4	0.2	0	0	0.167	0.2
20	0	0.1	0.6	0.567	0.53	0.1	0	0	0	0.07
21	0.03	0.09	0.04	0.261	0	0.01	0	0	0.011	0.16
22	0	0.2	0.2	0.433	0.17	0.1	0	0	0.067	0.27
23	0	0.2	0.27	0.567	0.37	0.13	0	0	0	0.23
24	0	0.47	0.13	0.4	0.1	0.27	0	0	0.167	0.27
28	0	0	0.43	0.474	0.17	0.13	0	0	0.058	0
30	0.01	0	0.11	0.239	0.57	0.05	0	0	0.478	0.02
31	0	0.02	0.08	0.185	0.54	0.05	0	0	0.098	0.01
32	0	0	0.1	0.478	0.8	0.24	0	0	0.25	0.03
34	0	0	0.12	0.583	0.17	0.04	0	0	0	0
38	0.01	0	0.37	0.787	0.34	0.12	0	0	0.005	0
39	0	0.3	0.33	0.7	0.53	0.1	0	0	0	0.07
40	0	0.37	0.4	0.333	0.17	0.1	0	0	0	0.1
45	0	0.01	0.59	0.623	0.28	0.04	0	0	0.175	0.01
46	0	0	0.22	0.282	0.16	0.34	0	0	0.032	0
47	0.01	0	0.42	0.597	0.25	0.11	0	0	0.117	0
48	0	0.02	0.48	0.5	0.1	0.33	0	0	0.109	0.04

Appendix B Table 46. Understory cover means by unit number and understory cover class at strata level 2.

Unit no.	CWD	Litter	Grass	Forbs	Shrubs	Trees	Rocks	Soil	Moss	Slash
1	0	0	0	0	0.5	0	0	0	0	0
2	0	0	0	0	0.47	0	0	0	0	0
3	0	0	0	0	0.1	0.2	0	0	0	0
4	0	0	0	0	0.3	0.1	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0.1	0	0	0	0
7	0	0	0	0	0.07	0	0	0	0	0
8	0	0	0	0	0.2	0.2	0	0	0	0
9	0	0	0	0.01	0.15	0.2	0	0	0	0
11	0	0	0	0	0.16	0.1	0	0	0	0
13	0	0	0	0	0.2	0.2	0	0	0	0.33
16	0	0	0	0	0.2	0.3	0	0	0	0
17	0	0	0	0	0.44	0.2	0	0	0	0
18	0	0	0.01	0	0.1	0.2	0	0	0	0
19	0	0	0	0	0.13	0.2	0	0	0	0
20	0	0	0	0	0.33	0.1	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0.03	0.3	0	0	0	0
23	0	0	0	0	0.2	0.1	0	0	0	0
24	0	0	0	0	0.03	0.5	0	0	0	0
28	0	0	0	0	0.06	0.1	0	0	0	0
30	0	0	0	0	0	0.1	0	0	0	0
31	0	0	0	0	0	0.1	0	0	0	0
32	0	0	0	0	0	0.1	0	0	0	0
34	0	0	0	0	0.02	0.1	0	0	0	0
38	0	0	0	0	0.31	0.2	0	0	0	0
39	0	0	0	0	0.2	0.3	0	0	0	0
40	0	0	0	0	0	0.3	0	0	0	0
45	0	0	0.01	0.01	0.11	0.1	0	0	0	0
46	0	0	0	0	0.07	0.1	0	0	0	0
47	0	0	0	0.01	0.1	0.1	0	0	0	0
48	0	0	0	0	0.02	0.2	0	0	0	0

Appendix B Table 47. Understory cover means by unit number and understory cover class at strata level 3.

Unit no.	CWD	Litter	Grass	Forbs	Shrubs	Trees	Rocks	Soil	Moss	Slash
1	0	0	0	0	0.37	0	0	0	0	0
2	0	0	0	0	0.36	0.1	0	0	0	0
3	0	0	0	0	0.17	0.2	0	0	0	0
4	0	0	0	0	0.1	0.2	0	0	0	0
5	0	0	0	0	0	0.1	0	0	0	0
6	0	0	0	0	0	0.1	0	0	0	0
7	0	0	0	0	0.07	0.1	0	0	0	0
8	0	0	0	0	0.07	0.1	0	0	0	0
9	0	0	0	0	0.03	0.2	0	0	0	0
11	0	0	0	0	0.08	0.1	0	0	0	0
13	0	0	0	0	0.1	0.3	0	0	0	0
16	0	0	0	0	0.1	0.2	0	0	0	0
17	0	0	0	0	0.37	0.2	0	0	0	0
18	0	0	0	0	0.17	0.3	0	0	0	0
19	0	0	0	0	0.07	0.3	0	0	0	0
20	0	0	0	0	0.1	0.3	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0.5	0	0	0	0
23	0	0	0	0	0.03	0.3	0	0	0	0
24	0	0	0	0	0	0.5	0	0	0	0
28	0	0	0	0	0.09	0.1	0	0	0	0
30	0	0	0	0	0	0.1	0	0	0	0
31	0	0	0	0	0	0.1	0	0	0	0
32	0	0	0	0	0	0.1	0	0	0	0
34	0	0	0	0	0	0.1	0	0	0	0
38	0	0	0	0	0.14	0.2	0	0	0	0
39	0	0	0	0	0.2	0.5	0	0	0	0
40	0	0	0	0	0	0.3	0	0	0	0
45	0	0	0	0	0.06	0.2	0	0	0	0
46	0	0	0	0	0.06	0.3	0	0	0	0
47	0	0	0	0	0.06	0.1	0	0	0	0
48	0	0	0	0	0	0.2	0	0	0	0

Appendix B Table 48. Understory cover means by unit number and understory cover class at strata level 4.

Unit no.	CWD	Litter	Grass	Forbs	Shrubs	Trees	Rocks	Soil	Moss	Slash
1	0	0	0	0	0.27	0.1	0	0	0	0
2	0	0	0	0	0.02	0.1	0	0	0	0
3	0	0	0	0	0.03	0.2	0	0	0	0
4	0	0	0	0	0.07	0.2	0	0	0	0
5	0	0	0	0	0	0.1	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0.07	0.1	0	0	0	0
8	0	0	0	0	0	0.2	0	0	0	0
9	0	0	0	0	0	0.2	0	0	0	0
11	0	0	0	0	0.02	0.1	0	0	0	0
13	0	0	0	0	0	0.2	0	0	0	0
16	0	0	0	0	0.07	0.2	0	0	0	0
17	0	0	0	0	0.16	0.2	0	0	0	0
18	0	0	0	0	0.1	0.3	0	0	0	0
19	0	0	0	0	0.07	0.2	0	0	0	0
20	0	0	0	0	0.2	0.2	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0.5	0	0	0	0
23	0	0	0	0	0.03	0.3	0	0	0	0
24	0	0	0	0	0	0.4	0	0	0	0
28	0	0	0	0	0.1	0.1	0	0	0	0
30	0	0	0	0	0	0.1	0	0	0	0
31	0	0	0	0	0	0.1	0	0	0	0
32	0	0	0	0	0	0.1	0	0	0	0
34	0	0	0	0	0	0.1	0	0	0	0
38	0	0	0	0	0.02	0.1	0	0	0	0
39	0	0	0	0	0.2	0.4	0	0	0	0
40	0	0	0	0	0	0.5	0	0	0	0
45	0	0	0	0	0	0.4	0	0	0	0
46	0	0	0	0	0.05	0.5	0	0	0	0
47	0	0	0	0	0.01	0.2	0	0	0	0
48	0	0	0	0	0	0.4	0	0	0	0

Appendix B Table 49. Understory cover means by unit number and understory cover class at strata level 5.

Unit no.	CWD	Litter	Grass	Forbs	Shrubs	Trees	Rocks	Soil	Moss	Slash
1	0	0	0	0	0.03	0	0	0	0	0
2	0	0	0	0	0	0.1	0	0	0	0
3	0	0	0	0	0.07	0.3	0	0	0	0
4	0	0	0	0	0.03	0.1	0	0	0	0
5	0	0	0	0	0	0.1	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0.03	0.1	0	0	0	0
8	0	0	0	0	0.03	0.1	0	0	0	0
9	0	0	0	0	0	0.1	0	0	0	0
11	0	0	0	0	0	0.1	0	0	0	0
13	0	0	0	0	0	0.1	0	0	0	0
16	0	0	0	0	0.07	0.1	0	0	0	0
17	0	0	0	0	0.09	0.2	0	0	0	0
18	0	0	0	0	0.04	0.2	0	0	0	0
19	0	0	0	0	0	0.2	0	0	0	0
20	0	0	0	0	0.07	0.1	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0.5	0	0	0	0
23	0	0	0	0	0.03	0.3	0	0	0	0
24	0	0	0	0	0	0.4	0	0	0	0
28	0	0	0	0	0.04	0.2	0	0	0	0
30	0	0	0	0	0	0.1	0	0	0	0
31	0	0	0	0	0	0.3	0	0	0	0
32	0	0	0	0	0	0.3	0	0	0	0
34	0	0	0	0	0	0.2	0	0	0	0
38	0	0	0	0	0	0.2	0	0	0	0
39	0	0	0	0	0.13	0.5	0	0	0	0
40	0	0	0	0	0	0.6	0	0	0	0
45	0	0	0	0	0	0.5	0	0	0	0
46	0	0	0	0	0.02	0.6	0	0	0	0
47	0	0	0	0	0	0.3	0	0	0	0
48	0	0	0	0	0	0.3	0	0	0	0

Appendix B Table 50. Percent canopy cover summary by ELU. Tallveg is percent canopy cover above 4.88 m, and allveg is percent canopy cover when any cover at all was detected.

ELU	Allveg=1	Tallveg=1
ED(p)	0.80	0.67
EM(p)	0.93	0.85
EW(m)	0.83	0.70
LM(m)	0.88	0.78
LW(m)	0.87	0.67
LW(p)	0.80	0.77
LW(pm)	0.80	0.58
LW(vp)	0.52	0.48
MM(m)	0.84	0.78
MM(p)	0.73	0.73
MW(m)	0.97	0.90
MW(p)	0.73	0.70

Appendix B Table 51. Percent canopy cover summary by unit number. Tallveg is percent canopy cover above 4.88 m, and allveg is percent canopy cover when any cover at all was detected.

Unit No	Allveg=1	Tallveg=1
1	0.80	0.80
2	0.67	0.60
3	0.67	0.67
4	0.93	0.87
5	0.67	0.53
6	0.67	0.47
7	0.87	0.73
8	1.00	0.60
9	0.73	0.67
11	0.93	0.73
13	0.93	0.87
16	1.00	0.93
17	0.93	0.67
18	0.80	0.67
19	0.60	0.53
20	0.47	0.47
21	0.67	0.60
22	0.33	0.33
23	1.00	0.93
24	0.87	0.80
28	0.93	0.80
30	0.93	0.87
31	0.73	0.73
32	0.73	0.73
34	0.73	0.60
38	0.93	0.93
39	0.87	0.80
40	0.87	0.87
45	0.87	0.73
46	0.93	0.73
47	0.87	0.80
48	0.80	0.67

Appendix B Table 52. Mean soil moisture and pH by ELU.

ELU	Moisture	pH
ED(p)	49.7	6.5
EM(p)	38.5	6.2
EW(m)	48.3	6.5
LM(m)	56.7	6.2
LW(m)	63.7	6.6
LW(p)	46.8	6.3
LW(pm)	47.8	7.2
LW(vp)	56.4	5.3
MM(m)	47.5	6.6
MM(p)	37.5	5.8
MW(m)	49.6	6.2
MW(p)	53.3	6.0

Appendix B Table 53. Mean soil moisture and pH by unit number.

Unit No	Moisture	pH
1	42.67	6.17
2	58.33	6.20
3	31.67	5.13
4	21.67	6.67
5	50.67	5.90
6	51.67	6.43
7	56.00	6.13
8	42.00	6.20
9	59.67	5.67
11	48.00	6.53
13	53.33	6.27
16	56.67	6.43
17	65.33	6.37
18	59.33	6.53
19	55.00	6.23
20	41.67	6.67
21	45.00	5.70
22	56.67	6.30
23	49.67	6.47
24	44.00	6.53
28	56.67	5.97
30	56.33	5.07
31	50.00	5.87
32	68.33	5.03
34	59.33	6.07
38	60.67	6.33
39	50.67	6.27
40	66.00	6.07
45	55.00	7.03
46	53.33	6.50
47	56.50	6.35
48	43.67	6.57

Appendix B Table 54. Results of all correlations by ELU.

			S-W			No. indiv.						S-W			No. indiv		
			n	r	p	n	r	p				n	r	p	n	r	p
Small trees	Diameter		12	-0.03	0.93	12	-0.30	0.34	Stumps by age class								
	Height		12	0.27	0.40	12	0.06	0.84		Diameter	Age class 1	12	0.38	0.22	12	0.37	0.24
	Stem density		12	0.12	0.71	12	0.49	0.11			Age class 2	10	0.50	0.14	10	0.35	0.33
											Age class 3	11	0.72	0.013*	11	0.50	0.12
Small trees by species	Diameter	ABBA	10	0.74	0.015	10	0.70	0.025									
		ACRU1	8	-0.07	0.87	8	-0.18	0.67		Height	Age class 1	12	0.38	0.22	12	0.08	0.79
		BEPA	6	-0.77	0.07	6	-0.60	0.21			Age class 2	10	0.08	0.83	10	-0.11	0.76
		FRNI	8	0.12	0.78	8	0.24	0.57			Age class 3	11	0.18	0.59	11	0.18	0.59
		LALA	4	0.20	0.80	4	0.80	0.20									
		PIGL	5	0.40	0.50	5	0.10	0.87		Stem density	Age class 1	12	0.37	0.23	12	0.50	0.10
		PIMA	5	-0.80	0.10	5	-0.60	0.28			Age class 2	10	0.61	0.06	10	0.29	0.42

Appendix B Table 54 (Cont).

		S-W			No. indiv.						S-W			No. indiv		
		n	r	p	n	r	p				n	r	p	n	r	p
	POBA	7	0.13	0.79	7	0.29	0.53			Age class 3	11	-0.22	0.52	11	-0.17	0.61
	POTR1	8	-0.57	0.14	8	-0.47	0.24									
	QUMA	3	0.50	0.67	3	-1.00	<0.001		Area	Age class 1	12	0.28	0.37	12	0.56	0.056
	THOC	6	-0.14	0.79	6	-0.66	0.16			Age class 2	10	0.47	0.17	10	0.30	0.40
	ULRU	7	0.25	0.59	7	0.36	0.43			Age class 3	11	0.31	0.36	11	0.15	0.65
Height	ABBA	10	0.73	0.016	10	0.64	0.048	Stumps								
	ACRU1	8	0.05	0.91	8	-0.14	0.74	by age class	Diameter							
	BEPA	6	-0.26	0.62	6	0.09	0.87	and species	Age class 1	ABBA	5	-0.56	0.32	5	-0.41	0.49
	FRNI	8	0.60	0.12	8	0.64	0.09			POTR1	7	0.46	0.29	7	0.86	0.014*
	LALA	4	0.40	0.60	4	1.00	<0.001			THOC	3	1.00	<0.001	3	1.00	<0.001
	PIGL	5	0.30	0.62	5	0.30	0.62									
	PIMA	5	-0.60	0.28	5	-0.30	0.62		Age class 2	ABBA	6	-0.54	0.27	6	-0.94	0.005*
	POBA	7	0.14	0.76	7	0.50	0.25			FRNI	3	-0.50	0.67	3	1.00	<0.001
	POTR1	8	-0.60	0.12	8	-0.50	0.21			PIMA	4	0.77	0.23	4	0.77	0.23
	QUMA	3	0.50	0.67	3	-1.00	<0.001			POTR1	5	0.10	0.87	5	-0.12	0.80
	THOC	6	-0.09	0.87	6	-0.43	0.40			THOC	3	0.50	0.67	3	-0.50	0.67
	ULRU	7	0.14	0.76	7	0.39	0.38									

Appendix B Table 54 (cont).

			S-W			No. indiv.		
			n	r	p	n	r	p
	Stem density	ABBA	10	-0.37	0.29	10	0.12	0.75
		ACRU1	8	0.43	0.29	8	0.88	0.004*
		BEPA	6	0.78	0.07	6	0.75	0.08
		FRNI	8	0.52	0.18	8	0.40	0.32
		LALA	4	0.00	1.00	4	0.80	0.20
		PIGL	5	0.82	0.09	5	0.97	0.005
		PIMA	5	-0.40	0.50	5	-0.30	0.62
		POBA	7	0.36	0.43	7	0.14	0.76
		POTR1	8	0.14	0.74	8	0.00	1.00
		QUMA	3	-0.50	0.67	3	-0.50	0.67
		THOC	6	0.06	0.91	6	-0.38	0.46
		ULRU	7	0.05	0.91	7	0.45	0.31
Large trees								
	DBH		12	0.30	0.34	12	0.67	0.017*
	Height		12	-0.01	0.98	12	0.06	0.86
	Stem density		12	-0.19	0.56	12	-0.51	0.09

		S-W			No. indiv		
		n	r	p	n	r	p
Age class 3	ABBA	6	0.43	0.40	6	0.26	0.62
	BEPA	5	0.20	0.75	5	0.00	1.00
	FRNI	3	0.50	0.67	3	0.50	0.67
	PIMA	5	0.00	1.00	5	0.10	0.87
	POTR1	5	0.90	0.037*	5	-0.10	0.87
	THOC	6	-0.26	0.62	6	0.03	0.96
Height							
Age class 1	ABBA	5	-0.10	0.87	5	-0.21	0.74
	POTR1	7	0.14	0.76	7	0.20	0.67
	THOC	3	0.87	0.33	3	0.87	0.33
Age class 2	ABBA	6	0.51	0.30	6	0.37	0.47
	FRNI	3	-0.50	0.67	3	1.00	<0.001
	PIMA	4	0.63	0.37	4	-0.32	0.68
	POTR1	5	0.05	0.93	5	-0.10	0.87
	THOC	3	-1.00	0.00	3	-1.00	0.00
Age class 3	ABBA	6	0.15	0.77	6	0.21	0.69
	BEPA	5	0.30	0.62	5	0.40	0.50

Appendix B Table 54 (Cont).

			S-W			No. indiv.					S-W			No. indiv		
			n	r	p	n	r	p			n	r	p	n	r	p
Large trees										FRNI	3	-0.50	0.67	3	1.00	<0.001
by species	DBH	ABBA	9	-0.17	0.67	9	-0.15	0.70		PIMA	5	-0.78	0.12	5	-0.22	0.72
		ACRU1	5	0.50	0.39	5	0.40	0.50		POTR1	5	-0.40	0.50	5	-0.10	0.87
		BEPA	8	0.40	0.32	8	0.17	0.69		THOC	6	0.17	0.74	6	0.41	0.42
		FRNI	7	-0.11	0.82	7	-0.36	0.43								
		LALA	5	0.10	0.87	5	-0.30	0.62	Stem density							
		PIGL	5	0.21	0.74	5	0.41	0.49	Age class 1	ABBA	5	0.87	0.054	5	0.72	0.17
		PIMA	6	0.09	0.87	6	0.54	0.27		POTR1	7	0.31	0.50	7	0.95	0.001*
		POBA	8	-0.19	0.65	8	0.33	0.42		THOC	3	0.50	0.67	3	0.50	0.67
		POTR1	9	0.78	0.013	9	0.88	0.002*								
		THOC	4	0.80	0.20	4	0.40	0.60	Age class 2	ABBA	6	0.94	0.005*	6	0.60	0.21
		ULRU	3	-0.50	0.67	3	-0.50	0.67		FRNI	3	0.87	0.33	3	-0.87	0.33
										PIMA	4	-0.63	0.37	4	0.32	0.68
	Height	ABBA	9	0.08	0.83	9	-0.35	0.36		POTR1	5	-0.10	0.87	5	0.82	0.09
		ACRU1	5	0.20	0.75	5	0.00	1.00		THOC	3	-0.50	0.67	3	-0.50	0.67
		BEPA	8	0.52	0.81	8	0.38	0.35								
		FRNI	7	0.21	0.64	7	0.00	1.00	Age class 3	ABBA	6	0.37	0.47	6	0.71	0.11
		LALA	5	0.20	0.75	5	-0.40	0.50		BEPA	5	-0.22	0.72	5	-0.45	0.45
		PIGL	5	0.80	0.10	5	0.10	0.87		FRNI	3	-1.00	0.00	3	0.50	0.67
		PIMA	6	0.03	0.96	6	0.43	0.40		PIMA	5	-0.46	0.43	5	0.36	0.52

Appendix B Table 54 (Cont).

		S-W			No. indiv.					S-W			No. indiv		
		n	r	p	n	r	p			n	r	p	n	r	p
	POBA	8	0.40	0.32	8	0.76	0.028		POTR1	5	-0.40	0.50	5	0.60	0.28
	POTR1	9	0.30	0.43	9	0.53	0.14		THOC	6	0.23	0.66	6	-0.09	0.87
	THOC	4	1.00	0.00	4	0.80	0.20								
	ULRU	3	0.50	0.67	3	-1.00	<0.001	Area							
								Age class 1	ABBA	5	0.60	0.28	5	0.80	0.10
Stem density	ABBA	9	0.48	0.19	9	0.73	0.025		POTR1	7	0.46	0.29	7	0.86	0.014*
	ACRU1	5	0.30	0.62	5	-0.30	0.62		THOC	3	0.50	0.67	3	0.50	0.67
	BEPA	8	-0.36	0.38	8	-0.55	0.16								
	FRNI	7	0.59	0.16	7	0.74	0.058	Age class 2	ABBA	6	0.71	0.11	6	0.14	0.79
	LALA	5	0.10	0.87	5	0.00	1.00		FRNI	3	-0.50	0.67	3	1.00	<0.001
	PIGL	5	0.20	0.75	5	-0.10	0.87		PIMA	4	-0.40	0.60	4	0.40	0.60
	PIMA	6	-0.60	0.21	6	-0.14	0.79		POTR1	5	0.50	0.39	5	0.80	0.10
	POBA	8	-0.05	0.91	8	0.07	0.87		THOC	3	-1.00	0.00	3	-1.00	<0.001
	POTR1	9	0.15	0.70	9	-0.10	0.80								
	THOC	4	0.40	0.60	4	-0.20	0.80	Age class 3	ABBA	6	0.66	0.16	6	0.54	0.27
	ULRU	3	-1.00	0.00	3	0.50	0.67		BEPA	5	0.80	0.10	5	0.50	0.39
									FRNI	3	-0.50	0.67	3	1.00	0.00
Snag									PIMA	5	0.30	0.63	5	0.90	0.037

Appendix B Table 54 (Cont).

	Diameter		12	0.11	0.74	12	0.27	0.40
	Height		12	-0.15	0.63	12	0.15	0.63
	Stem density		12	0.03	0.93	12	0.27	0.40
	Area		12	0.36	0.26	12	0.46	0.13
Snags by decay	Diameter	Decay 1	11	-0.04	0.92	11	0.39	0.23
		Decay 2	12	-0.01	0.97	12	-0.06	0.85
		Decay 3	7	0.41	0.36	7	0.40	0.38
	Height	Decay 1	11	-0.11	0.75	11	0.38	0.25
		Decay 2	12	0.60	0.04	12	0.49	0.10
		Decay 3	7	0.56	0.19	7	0.04	0.94
	Stem density	Decay 1	11	0.35	0.28	11	0.41	0.21
		Decay 2	12	0.48	0.12	12	0.73	0.007*
		Decay 3	7	-0.22	0.64	7	-0.65	0.12
	Area	Decay 1	11	0.43	0.19	11	0.78	0.005*
		Decay 2	12	0.35	0.27	12	0.46	0.13
		Decay 3	7	0.25	0.59	7	-0.21	0.64

		POTR1	5	-0.70	0.19	5	0.50	0.39
		THOC	6	-0.03	0.96	6	-0.03	0.96
Stumps by species	Diameter	ABBA	8	0.02	0.96	8	-0.40	0.32
		BEPA	6	0.03	0.96	6	0.31	0.54
		FRNI	3	-0.50	0.67	3	1.00	<0.001
		LALA	3	-0.50	0.67	3	0.50	0.67
		PIMA	6	0.23	0.66	6	0.17	0.74
		POTR1	7	0.13	0.79	7	-0.07	0.88
		THOC	7	0.21	0.64	7	0.39	0.38
	Height	ABBA	8	0.36	0.38	8	-0.34	0.42
		BEPA	6	0.09	0.87	6	0.44	0.38
		FRNI	3	-0.50	0.67	3	1.00	<0.001
		LALA	3	0.50	0.67	3	1.00	<0.001
		PIMA	6	-0.26	0.61	6	-0.62	0.19
		POTR1	7	0.04	0.94	7	-0.11	0.82
		THOC	7	-0.13	0.79	7	0.02	0.97
	Stem density	ABBA	8	0.02	0.96	8	-0.40	0.32
		BEPA	6	-0.03	0.96	6	0.31	0.54

Appendix B Table 54 (Cont).

			S-W			No. indiv.		
			n	r	p	n	r	p
Snags	Diameter							
by decay	Decay 1	ABBA	5	-0.10	0.87	5	-0.20	0.75
and species		BEPA	3	-0.87	0.33	3	-0.87	0.33
		PIMA	4	-0.95	0.051	4	-0.95	0.051
		POBA	5	0.70	0.19	5	1.00	<0.001
		POTR1	7	0.21	0.64	7	0.68	0.09
	Decay 2	ABBA	5	-0.47	0.42	5	-0.32	0.60
		BEPA	7	0.22	0.63	7	0.00	1.00
		FRNI	3	-0.87	0.33	3	-0.87	0.33
		PIMA	3	0.50	0.67	3	-0.50	0.67
		POTR1	6	-0.03	0.96	6	-0.94	0.005*
	Height							
	Decay 1	ABBA	5	0.00	1.00	5	0.10	0.87
		BEPA	3	0.50	0.67	3	1.00	<0.001
		PIMA	4	-0.74	0.26	4	-0.74	0.26
		POBA	5	0.60	0.28	5	0.90	0.037
		POTR1	7	-0.43	0.34	7	0.07	0.88
	Decay 2	ABBA	5	0.20	0.75	5	0.60	0.28

				S-W			No. indiv		
				n	r	p	n	r	p
			FRNI	3	-0.50	0.67	3	1.00	<0.001
			LALA	3	-0.50	0.67	3	0.50	0.67
			PIMA	6	0.23	0.66	6	0.17	0.74
			POTR1	7	0.13	0.79	7	-0.07	0.88
			THOC	7	0.21	0.64	7	0.39	0.38
	Area								
			ABBA	8	0.81	0.015*	8	0.33	0.42
			BEPA	6	0.54	0.27	6	0.77	0.07
			FRNI	3	-0.50	0.67	3	1.00	<0.001
			LALA	3	0.50	0.67	3	1.00	<0.001
			PIMA	6	-0.31	0.54	6	0.54	0.27
			POTR1	7	0.25	0.59	7	0.93	0.003*
			THOC	7	0.57	0.18	7	0.36	0.43
CWD									
	Diameter			12	-0.01	0.98	12	-0.07	0.83
	Length			12	0.00	1.00	12	0.02	0.95
	Stem density			12	0.41	0.18	12	0.50	0.10
CWD by decay	Diameter	Decay 1		12	-0.42	0.17	12	-0.26	0.41

Appendix B Table 54 (Cont).

		S-W			No. indiv.		
		n	r	p	n	r	p
	BEPA	7	0.64	0.12	7	0.21	0.64
	FRNI	3	0.50	0.67	3	0.50	0.67
	PIMA	3	-1.00	0.00	3	-0.50	0.67
	POTR1	6	-0.14	0.79	6	-0.83	0.042
Decay 3	POTR1	4	1.00	0.00	4	0.80	0.20
Stem density							
Decay 1	ABBA	5	0.31	0.61	5	0.41	0.49
	BEPA	3	-1.00	0.00	3	-0.50	0.67
	PIMA	4	-0.80	0.20	4	-1.00	<0.001
	POBA	5	0.90	0.037	5	0.90	0.037
	POTR1	7	0.25	0.59	7	0.05	0.91
Decay 2	ABBA	5	0.45	0.45	5	0.22	0.72
	BEPA	7	0.70	0.08	7	0.27	0.56
	FRNI	3	-0.50	0.67	3	-0.50	0.67
	PIMA	3	0.87	0.33	3	0.87	0.33
	POTR1	6	-0.09	0.87	6	-0.03	0.96
Decay 3	POTR1	4	0.40	0.60	4	0.20	0.80

			S-W			No. indiv		
			n	r	p	n	r	p
		Decay 2	12	0.16	0.62	12	0.08	0.79
		Decay 3	12	0.17	0.59	12	0.09	0.78
		Decay 4	12	0.10	0.77	12	0.57	0.053
		Decay 5	8	-0.54	0.17	8	-0.37	0.37
	Length	Decay 1	12	-0.36	0.25	12	-0.28	0.38
		Decay 2	12	0.06	0.85	12	-0.20	0.54
		Decay 3	12	0.41	0.19	12	0.16	0.62
		Decay 4	12	0.48	0.11	12	0.40	0.20
		Decay 5	8	-0.19	0.65	8	-0.05	0.91
	Stem density	Decay 1	12	0.53	0.08	12	0.58	0.046
		Decay 2	12	0.64	0.024	12	0.66	0.019*
		Decay 3	12	0.40	0.20	12	0.45	0.14
		Decay 4	12	0.43	0.16	12	0.51	0.09
		Decay 5	8	0.31	0.46	8	0.29	0.49
Canopy	Allveg=1		12	0.07	0.83	12	0.04	0.90
	Allveg=0		12	-0.07	0.83	12	-0.04	0.90
	Tallveg=1		12	0.25	0.43	12	0.11	0.73
	Tallveg=0		12	-0.25	0.43	12	-0.11	0.73

Appendix B Table 54 (Cont).

			S-W			No. indiv.					S-W			No. indiv		
			n	r	p	n	r	p			n	r	p	n	r	p
	Area								Strata	S=5	12	0.02	0.94	12	0.45	0.14
	Decay 1	ABBA	5	0.50	0.39	5	0.60	0.28		T=5	12	-0.38	0.22	12	-0.01	0.98
		BEPA	3	-1.00	0.00	3	-0.50	0.67								
		PIMA	4	-0.60	0.40	4	-0.80	0.20		S=4	12	-0.42	0.18	12	-0.01	0.97
		POBA	5	0.90	0.037	5	0.90	0.037		T=4	12	0.03	0.93	12	0.20	0.54
		POTR1	7	0.71	0.07	7	0.71	0.07		H=4	12	0.31	0.33	12	0.22	0.50
	Decay 2	ABBA	5	0.60	0.28	5	0.50	0.39		C=3	12	0.04	0.91	12	-0.15	0.64
		BEPA	7	0.54	0.22	7	0.14	0.76		S=3	12	-0.08	0.79	12	-0.25	0.43
		FRNI	3	-0.50	0.67	3	-0.50	0.67		T=3	12	0.07	0.83	12	0.50	0.10
		PIMA	3	1.00	0.00	3	0.50	0.67		H=3	12	0.39	0.21	12	0.48	0.11
		POTR1	6	0.20	0.70	6	-0.49	0.33								
										C=2	12	-0.31	0.33	12	-0.48	0.11
	Decay 3	POTR1	4	-0.20	0.80	4	-0.40	0.60		L=2	12	0.22	0.50	12	-0.22	0.50
										G=2	12	-0.24	0.45	12	-0.36	0.25
Snags										F=2	12	0.21	0.51	12	-0.06	0.84
by species	Diameter	ABBA	6	-0.43	0.40	6	-0.14	0.79		S=2	12	0.10	0.75	12	-0.15	0.63
		BEPA	7	0.22	0.63	7	0.00	1.00		T=2	12	0.01	0.97	12	0.11	0.73
		FRNI	3	-0.50	0.67	3	-0.50	0.67		M=2	12	0.39	0.21	12	0.48	0.11
		LALA	3	-0.50	0.67	3	-1.00	0.00		H=2	12	0.28	0.37	12	0.49	0.11
		PIMA	5	-0.70	0.19	5	-0.90	0.037								
		POBA	6	0.43	0.40	6	0.94	0.005*		C=1	12	0.07	0.82	12	-0.19	0.56
		POTR1	9	0.13	0.73	9	0.35	0.36		L=1	12	0.54	0.07	12	0.81	0.001*
										G=1	12	-0.32	0.31	12	-0.19	0.56

Appendix B Table 54 (Cont).

		S-W			No. indiv.					S-W			No. indiv		
		n	r	p	n	r	p			n	r	p	n	r	p
Height	ABBA	6	0.31	0.54	6	-0.09	0.87		F=1	12	0.17	0.60	12	-0.02	0.95
	BEPA	7	0.93	0.003*	7	0.75	0.052		S=1	12	0.02	0.95	12	-0.01	0.97
	FRNI	3	0.50	0.67	3	0.50	0.67		T=1	12	-0.02	0.96	12	0.01	0.97
	LALA	3	-0.50	0.67	3	0.50	0.67		O=1	12	-0.13	0.68	12	-0.39	0.21
	PIMA	5	-0.10	0.87	5	0.30	0.62		M=1	12	-0.45	0.14	12	-0.43	0.16
	POBA	6	0.66	0.16	6	0.60	0.21		H=1	12	-0.01	0.97	12	0.14	0.66
	POTR1	9	0.02	0.97	9	-0.03	0.93								
									C=0	12	-0.16	0.62	12	0.17	0.60
Stem density	ABBA	6	-0.43	0.40	6	-0.14	0.79		L=0	12	0.40	0.20	12	0.42	0.17
	BEPA	7	0.22	0.63	7	0.00	1.00		G=0	12	-0.31	0.32	12	-0.36	0.25
	FRNI	3	-0.50	0.67	3	-0.50	0.67		F=0	12	0.26	0.42	12	0.26	0.42
	LALA	3	-0.50	0.67	3	-1.00	0.00		S=0	12	-0.12	0.70	12	-0.01	0.97
	PIMA	5	-0.70	0.19	5	-0.90	0.037		T=0	12	-0.29	0.35	12	0.04	0.91
	POBA	6	0.43	0.40	6	0.94	0.005*		O=0	12	-0.07	0.82	12	-0.03	0.92
	POTR1	9	0.13	0.73	9	0.35	0.36		M=0	12	-0.34	0.29	12	-0.25	0.43
									H=0	12	0.25	0.43	12	0.52	0.09
Area	ABBA	6	0.54	0.27	6	0.66	0.16								
	BEPA	7	0.57	0.18	7	0.32	0.48	Soil	Moisture	12	-0.41	0.18	12	-0.39	0.21
	FRNI	3	-0.50	0.67	3	-0.50	0.67		pH	12	0.34	0.28	12	0.07	0.83
	LALA	3	-0.50	0.67	3	0.50	0.67								
	PIMA	5	-0.50	0.39	5	0.10	0.87	Overall density		12	0.54	0.07	12	0.36	0.25

Appendix B Table 54 (Cont).

			S-W			No. indiv.		
			n	r	p	n	r	p
		POBA	6	0.94	0.005*	6	0.71	0.11
		POTR1	9	0.57	0.11	9	0.55	0.13
Stumps	Diameter		12	0.16	0.62	12	0.36	0.26
	Height		12	0.07	0.83	12	-0.31	0.32
	Stem density		12	0.16	0.62	12	0.36	0.26
	Area		12	0.31	0.32	12	0.38	0.22

Appendix B Table 55. Results of all correlations by unit number.

			S-W			No. indiv.						S-W			No. indiv.		
			n	r	p	n	r	p				n	r	p	n	r	p
Large trees									Stumps								
	DBH		32	-0.07	0.71	32	0.31	0.08		DBH		28	0.04	0.842	28	0.02	0.939
	Height		32	0.21	0.25	32	0.14	0.44		Height		28	-0.2	0.217	28	0.08	0.671
	Stem density		32	0.18	0.32	32	-0.19	0.29		Stem density		28	0.11	0.584	28	0.1	0.613
										Area		28	0.12	0.535	28	0.09	0.661
Large trees by species	DBH	ABBA	23	-0.32	0.13	23	-0.17	0.43									
		ACRU1	6	-0.09	0.87	6	-0.43	0.40	Stumps by age class								
		BEPA	16	0.39	0.14	16	-0.08	0.77		DBH	Age class 1	22	-0	0.919	22	0.27	0.224
		FRNI	10	-0.43	0.21	10	-0.65	0.043			Age class 2	19	0.28	0.253	19	0.18	0.472
		LALA	8	-0.32	0.43	8	-0.40	0.32			Age class 3	24	0.16	0.449	24	0.07	0.734
		PIGL	7	0.27	0.55	7	0.40	0.37									
		PIMA	10	0.04	0.92	10	0.53	0.11		Height	Age class 1	22	-0.1	0.638	22	0.24	0.276
		POBA	19	-0.15	0.53	19	-0.05	0.85			Age class 2	19	-0.2	0.482	19	0.2	0.414

Appendix B Table 55 (Cont).

		S-W			No. indiv.						S-W			No. indiv.		
		n	r	p	n	r	p				n	r	p	n	r	p
	POTR1	19	0.00	0.99	19	0.63	<0.001			Age class 3	24	-0.1	0.667	24	0.3	0.15
	THOC	7	0.61	0.14	7	0.39	0.38									
	ULRU	5	0.32	0.60	6	-0.79	0.11		Stem density	Age class 1	22	0.09	0.699	22	0.15	0.516
										Age class 2	19	-0.1	0.727	19	0.21	0.39
Height										Age class 3	24	0.14	0.502	24	0.09	0.678
	ABBA	23	0.08	0.70	23	-0.34	0.12									
	ACRU1	6	0.77	0.07	6	-0.03	0.96		Area	Age class 1	22	-0	0.88	22	0.22	3332
	BEPA	16	0.39	0.13	16	0.41	0.12			Age class 2	19	0.11	0.652	19	0.23	0.348
	FRNI	10	0.04	0.91	10	-0.53	0.12			Age class 3	24	0.18	0.4	24	0.04	0.869
	LALA	8	-0.24	0.57	8	-0.40	0.32									
	PIGL	7	0.32	0.48	7	-0.07	0.88	Stumps by age class and species								
	PIMA	10	-0.03	0.93	10	0.51	0.13		Diameter							
	POBA	19	0.38	0.11	19	0.30	0.21		Age class 1	ABBA	6	-0.4	0.439	6	-0.15	0.774
	POTR1	19	0.28	0.25	19	0.16	0.52			PIMA	3	0.5	0.667	3	-0.5	0.667
	THOC	7	0.49	0.27	7	0.54	0.22			POTR1	13	-0	0.898	13	0.77	0.002*

Appendix B Table 55 (Cont).

			S-W			No. indiv.		
			n	r	p	n	r	p
		ULRU	5	0.60	0.28	6	-0.50	0.39
	Stem density							
		ABBA	23	0.21	0.33	23	0.69	0.0003*
		ACRU1	6	0.90	0.015	6	-0.03	0.96
		BEPA	16	-0.10	0.71	16	-0.18	0.50
		FRNI	10	-0.10	0.78	10	-0.09	0.80
		LALA	8	0.60	0.12	8	0.17	0.69
		PIGL	7	-0.36	0.43	7	-0.76	0.0487
		PIMA	10	-0.79	0.007*	10	-0.43	0.21
		POBA	19	-0.48	0.038*	19	-0.02	0.93
		POTR1	19	0.21	0.38	19	-0.57	0.01
		THOC	7	0.07	0.88	7	-0.14	0.76
		ULRU	5	-0.16	0.80	6	0.79	0.11
Small trees								
	Diameter		32	0.26	0.15	32	-0.28	0.12
	Height		32	0.28	0.12	32	-0.26	0.14

		S-W			No. indiv.		
		n	r	p	n	r	p
	THOC	3	1	0.0001	3	0.5	0.667
Age class 2	ABBA	6	-0.4	0.397	6	-0.77	0.072
	FRNI	3	0.5	0.667	3	1	0.0001
	PIMA	6	0.26	0.612	6	0.79	0.059
	POTR1	8	0.11	0.8	8	-0.04	0.933
	THOC	6	0.71	0.111	6	0.14	0.787
Age class 3	ABBA	7	0.07	0.879	7	-0.14	0.76
	BEPA	5	0.2	0.747	5	0	1
	FRNI	3	-0.5	0.667	3	0.5	0.667
	PIMA	7	0	1	7	0	1
	POTR1	10	-0.2	0.58	10	-0.13	0.726
	THOC	10	-0.7	0.03	10	-0.07	0.855
Height							
Age class 1	ABBA	6	-0.1	0.787	6	-0.37	0.469
	PIMA	3	0.5	0.667	3	1	0.0001

Appendix B Table 55 (Cont).

			S-W			No. indiv.		
			n	r	p	n	r	p
	Stem density		32	-0.11	0.54	32	0.35	0.05*
Small trees by species	Diameter	ABBA	24	0.41	0.05	24	0.45	0.026*
		ACRU1	17	0.28	0.28	17	-0.09	0.72
		BEPA	10	-0.62	0.054*	10	-0.09	0.80
		FRNI	18	-0.11	0.67	18	0.00	1.00
		LALA	7	0.39	0.38	7	0.36	0.43
		PIGL	6	-0.58	0.23	6	-0.35	0.50
		PIMA	10	-0.19	0.59	10	-0.49	0.15
		POBA	10	-0.09	0.81	10	-0.18	0.63
		POTR1	16	0.17	0.53	16	-0.41	0.11
		QUMA	3	1.00	0.00	3	-0.50	0.67
		THOC	11	0.23	0.49	11	-0.59	0.06
		ULRU	13	-0.01	0.97	13	-0.18	0.55
	Height	ABBA	24	0.34	0.10	24	0.32	0.12

		S-W			No. indiv.		
		n	r	p	n	r	p
	POTR1	13	-0.4	0.158	13	0.12	0.69
	THOC	3	0.87	0.333	3	0.87	0.333
Age class 2	ABBA	6	0.17	0.749	6	0.54	0.268
	FRNI	3	0.5	0.667	3	1	0.0001
	PIMA	6	0.7	0.125	6	0.06	0.913
	POTR1	8	-0.1	0.811	8	0.55	0.162
	THOC	6	-0.3	0.544	6	-0.6	0.208
Age class 3	ABBA	7	0.16	0.736	7	0.18	0.704
	BEPA	5	0.7	0.188	5	0.4	0.505
	FRNI	3	0.5	0.667	3	1	0.0001
	PIMA	7	-0.7	0.101	7	-0.4	0.373
	POTR1	10	-0.4	0.294	10	0.12	0.744
	THOC	10	0.02	0.967	10	0.58	0.079
Stem density							

Appendix B Table 55 (Cont).

		S-W			No. indiv					S-W			No. indiv		
		n	r	p	n	r	p			n	r	p	n	r	p
	ACRU1	17	0.29	0.26	17	-0.18	0.49	Age class 1	ABBA	6	0.27	0.604	6	-0.07	0.899
	BEPA	10	-0.13	0.73	10	0.21	0.56		PIMA	3	-0.5	0.667	3	0.5	0.667
	FRNI	18	-0.16	0.53	18	0.25	0.32		POTR1	13	-0.1	0.746	13	0.58	0.036
	LALA	7	0.32	0.48	7	0.50	0.25		THOC	3	0.5	0.667	3	1	0.0001
	PIGL	6	-0.66	0.16	6	-0.03	0.96								
	PIMA	10	-0.15	0.68	10	-0.35	0.33	Age class 2	ABBA	6	0.64	0.173	6	0.52	0.288
	POBA	10	-0.16	0.65	10	0.20	0.58		FRNI	3	-0.9	0.333	3	-0.87	0.333
	POTR1	16	0.15	0.58	16	-0.50	0.046*		PIMA	6	-0.8	0.034	6	-0.51	0.305
	QUMA	3	1.00	<0.001	3	-0.50	0.67		POTR1	8	-0.5	0.258	8	0.83	0.01*
	THOC	11	0.06	0.86	11	-0.57	0.07		THOC	6	-0.7	0.125	6	-0.75	0.084
	ULRU	13	0.17	0.58	13	-0.03	0.92								
								Age class 3	ABBA	7	0.69	0.083	7	0.42	0.343
Stem density	ABBA	24	-0.05	0.83	24	-0.11	0.61		BEPA	5	-0.9	0.041	5	-0.89	0.041
	ACRU1	17	0.29	0.26	17	0.26	0.31		FRNI	3	0.5	0.667	3	-0.5	0.667
	BEPA	10	0.15	0.67	10	0.31	0.39		PIMA	7	-0.5	0.29	7	0.19	0.688
	FRNI	18	0.19	0.44	18	0.55	0.017*		POTR1	10	0.34	0.339	10	0.6	0.065
	LALA	7	-0.41	0.36	7	0.59	0.16		THOC	10	-0.1	0.762	10	0.07	0.841
	PIGL	6	0.09	0.86	6	0.27	0.60								
	PIMA	10	-0.43	0.21	10	-0.44	0.20	Area							

Appendix B Table 55 (Cont).

			S-W			No. indiv.		
			n	r	p	n	r	p
		POBA	10	-0.32	0.36	10	-0.16	0.66
		POTR1	16	-0.29	0.27	16	-0.06	0.82
		QUMA	3	<0.001	1.00	3	-0.87	0.33
		THOC	11	-0.23	0.49	11	-0.25	0.46
		ULRU	13	-0.44	0.14	13	-0.12	0.70
Snags								
	Diameter		28	-0.16	0.42	28	-0.05	0.78
	Height		28	-0.03	0.87	28	0.19	0.33
	Stem density		28	0.30	0.12	28	0.40	0.037*
	Area		28	0.20	0.30	28	0.37	.0543*
Snags by decay	Diameter	Decay 1	25	0.16	0.44	25	0.14	0.51
		Decay 2	23	-0.23	0.30	23	-0.43	0.042
		Decay 3	10	-0.23	0.52	10	-0.26	0.46
	Height	Decay 1	25	-0.12	0.57	25	0.25	0.22

		S-W			No. indiv.		
		n	r	p	n	r	p
Age class 1	ABBA	6	0.15	0.774	6	0.39	0.439
	PIMA	3	-0.5	0.667	3	0.5	0.667
	POTR1	13	-0.1	0.835	13	0.74	0.004*
	THOC	3	-1	0.0001	3	-0.5	0.667
Age class 2	ABBA	6	-0.3	0.538	6	-0.81	0.05
	FRNI	3	0.5	0.667	3	1	0.0001
	PIMA	6	-0.6	0.257	6	-0.09	0.87
	POTR1	8	-0.1	0.867	8	0.48	0.233
	THOC	6	-0.3	0.466	6	0.19	0.603
Age class 3	ABBA	7	0.5	0.253	7	0.25	0.589
	BEPA	5	-0.1	0.873	5	-0.2	0.747
	FRNI	3	0.5	0.667	3	1	0.0001
	PIMA	7	-0.2	0.645	7	0.21	0.645
	POTR1	10	0.36	0.31	10	0.52	0.128
	THOC	10	-0.3	0.623	10	-0.83	0.042

Appendix B Table 55 (Cont).

			S-W			No. indiv.		
			n	r	p	n	r	p
		Decay 2	23	0.26	0.23	23	0.35	0.10
		Decay 3	10	0.61	0.059	10	-0.10	0.78
	Stem density	Decay 1	25	0.31	0.13	25	0.27	0.18
		Decay 2	23	0.08	0.73	23	0.46	0.026*
		Decay 3	10	0.61	0.06	10	-0.32	0.37
	Area	Decay 1	25	0.35	0.09	25	0.37	0.07
		Decay 2	23	-0.07	0.75	23	0.18	0.41
		Decay 3	10	0.46	0.19	10	-0.56	0.09
Snags by decay and species	Diameter							
	Decay 1	ABBA	9	-0.27	0.48	9	-0.29	0.45
		BEPA	3	0.87	0.33	3	-0.87	0.33
		LALA	3	-0.87	0.33	3	0.87	0.33
		PIMA	6	-0.58	0.23	6	-0.87	0.024
		POBA	7	0.57	0.18	7	0.46	0.29
		POTR1	14	0.50	0.07	14	0.37	0.20

			S-W			No. indiv.		
			n	r	p	n	r	p
Stumps	by species							
	Diameter	ABBA	10	-0.2	0.662	10	-0.71	0.021
		BEPA	6	0.43	0.397	6	0.43	0.397
		FRNI	3	0.5	0.667	3	1	0.0001
		LALA	3	-0.5	0.667	3	0.5	0.667
		PIMA	8	0.26	0.528	8	0.2	0.629
		POBA	3	-1	0.0001	3	1	0.0001
		POTR1	16	-0.2	0.457	16	0.1	0.725
		THOC	11	-0.3	0.377	11	0.18	0.593
	Height	ABBA	10	-0.1	0.748	10	-0.31	0.377
		BEPA	6	0.62	0.191	6	0.53	0.28
		FRNI	3	0.5	0.667	3	1	0.0001
		LALA	3	0.5	0.667	3	1	0.0001
		PIMA	8	-0.3	0.526	8	-0.48	0.227
		POBA	3	0	1	3	0	1
		POTR1	16	-0.4	0.137	16	0.28	0.287
		THOC	11	-0.1	0.693	11	0.4	0.228

Appendix B Table 55 (Cont).

		S-W			No. indiv.		
		n	r	p	n	r	p
Decay 2	ABBA	7	-0.67	0.10	7	-0.02	0.97
	BEPA	7	0.37	0.41	7	-0.19	0.69
	FRNI	3	-0.87	0.33	3	-0.87	0.33
	LALA	3	-0.50	0.67	3	-0.50	0.67
	PIMA	3	1.00	<0.001	3	-0.50	0.67
	POTR1	11	-0.19	0.58	11	-0.38	0.25
Decay 3	POTR1	5	-0.87	0.054*	5	-0.36	0.55
Height							
Decay 1	ABBA	9	0.23	0.55	9	0.38	0.31
	BEPA	3	-1.00	<0.001	3	1.00	<0.001
	LALA	3	-0.50	0.67	3	-0.50	0.67
	PIMA	6	0.06	0.91	6	-0.12	0.83
	POBA	7	-0.07	0.88	7	0.21	0.64
	POTR1	14	-0.52	0.056*	14	-0.03	0.93
Decay 2	ABBA	7	0.14	0.76	7	0.50	0.25
	BEPA	7	0.50	0.25	7	0.07	0.88

			S-W			No. indiv.		
			n	r	p	n	r	p
	Stem density	ABBA	10	0.29	0.416	10	0.1	0.786
		BEPA	6	-0.5	0.355	6	-0.37	0.47
		FRNI	3	-0.5	0.667	3	-1	0.0001
		LALA	3	1	0.0001	3	0.5	0.667
		PIMA	8	-0.9	0.001*	8	-0.52	0.188
		POBA	3	0.87	0.333	3	-0.87	0.333
		POTR1	16	0.29	0.275	16	0.38	0.141
		THOC	11	-0.1	0.692	11	0.01	0.968
	Area	ABBA	10	0.27	0.455	10	-0.34	0.336
		BEPA	6	0.37	0.469	6	0.31	0.544
		FRNI	3	0.5	0.667	3	1	0.0001
		LALA	3	0.5	0.667	3	1	0.0001
		PIMA	8	-0.5	0.16	8	-0.02	0.955
		POBA	3	-1	0.0001	3	1	0.0001
		POTR1	16	0.03	0.914	16	0.35	0.178
		THOC	11	-0.2	0.601	11	0.26	0.433
CWD	Diameter		30	0.06	0.735	30	0.71	0.708
	Length		30	0.27	0.153	30	-0.12	0.526

Appendix B Table 55 (Cont).

		S-W			No. indiv.		
		n	r	p	n	r	p
	FRNI	3	1.00	<0.001	3	0.50	0.67
	LALA	3	0.87	0.33	3	0.00	1.00
	PIMA	3	-0.50	0.67	3	-0.50	0.67
	POTR1	11	0.03	0.94	11	-0.45	0.17
Decay 3	POTR1	5	0.60	0.28	5	0.50	0.39
Stem density							
Decay 1	ABBA	9	0.43	0.25	9	0.55	0.12
	BEPA	3	0.50	0.67	3	-0.50	0.67
	LALA	3	-0.50	0.67	3	-0.50	0.67
	PIMA	6	-0.81	0.05	6	-0.52	0.29
	POBA	7	0.22	0.63	7	0.11	0.81
	POTR1	14	0.26	0.36	14	-0.04	0.88
Decay 2	ABBA	7	-0.58	0.17	7	-0.02	0.97
	BEPA	7	0.80	0.03	7	0.49	0.26
	FRNI	3	-0.50	0.67	3	-1.00	<0.001
	LALA	3	-0.50	0.67	3	1.00	<0.001
	PIMA	3	blank		3		

			S-W			No. indiv.		
			n	r	p	n	r	p
	Stem density		30	-0.1	0.684	30	0.29	0.122
CWD by decay	Diameter	Decay 1	22	0.07	0.75	22	0.2	0.369
		Decay 2	24	0.35	0.092	24	-0.05	0.832
		Decay 3	27	-0	0.865	27	-0.05	0.818
		Decay 4	23	0.08	0.711	23	0.52	0.011
		Decay 5	10	-0	0.919	10	-0.25	0.482
	Length							
		Decay 1	22	0.23	0.305	22	0.13	0.554
		Decay 2	24	0.05	0.81	24	-0.08	0.698
		Decay 3	27	0.22	0.266	27	-0.24	0.227
		Decay 4	23	0.34	0.115	23	-0.02	0.925
		Decay 5	10	0.13	0.726	10	-0.26	0.467
	Stem density							
		Decay 1	22	-0.2	0.281	22	0.06	0.787
		Decay 2	24	0.07	0.762	24	0.11	0.596
		Decay 3	27	-0.1	0.606	27	0.1	0.607

Appendix B Table 55 (Cont).

		S-W			No. indiv		
		n	r	p	n	r	p
	POTR1	11	-0.20	0.55	11	0.25	0.45
Decay 3	POTR1	5	0.95	0.014*	5	0.26	0.67
Area							
Decay 1	ABBA	9	0.22	0.58	9	0.33	0.38
	BEPA	3	0.50	0.67	3	-0.50	0.67
	LALA	3	-0.50	0.67	3	-0.50	0.67
	PIMA	6	-0.81	0.05	6	-0.52	0.29
	POBA	7	0.39	0.38	7	0.43	0.34
	POTR1	14	0.53	0.051	14	0.27	0.35
Decay 2	ABBA	7	-0.63	0.13	7	-0.10	0.83
	BEPA	7	0.41	0.36	7	-0.04	0.94
	FRNI	3	-0.50	0.67	3	-1.00	0.00
	LALA	3	-1.00	<0.001	3	0.50	0.67
	PIMA	3	1.00	<0.001	3	-0.50	0.67
	POTR1	11	-0.34	0.31	11	0.11	0.75
Decay 3	POTR1	5	0.70	0.19	5	-0.30	0.62

		S-W			No. indiv		
		n	r	p	n	r	p
	Decay 4	23	-0.2	0.278	23	0.5	0.016*
	Decay 5	10	-0.1	0.701	10	0.33	0.347
Canopy	Allveg=1	32	0.31	0.089	32	0.1	0.574
	Allveg=0	32	-0.3	0.089	32	-0.1	0.574
	Tallveg=1	32	0.31	0.081	32	0.16	0.374
	Tallveg=0	32	-0.3	0.081	32	-0.16	0.374
Strata	C=0	32	-0.1	0.484	32	0.29	0.103
	L=0	32	0.16	0.37	32	0.07	0.721
	G=0	32	0.04	0.812	32	-0.18	0.336
	F=0	32	0.39	0.029*	32	0.07	0.696
	S=0	32	-0.2	0.243	32	0.06	0.762
	T=0	32	-0.1	0.554	32	0.05	0.77
	O=0	32	0.18	0.323	32	0.09	0.615
	M=0	32	-0.3	0.105	32	-0.1	0.588
	H=0	32	0.23	0.197	32	0.68	0.0001*
	C=1	32	-0.2	0.355	32	-0.13	0.48
	L=1	32	0.32	0.073	32	0.6	0.0003*
	G=1	32	0.04	0.816	32	-0.27	0.141

Appendix B Table 55 (Cont).

			S-W			No. indiv				S-W			No. indiv	
		n	r	p	n	r	p		n	r	p	n	r	p
Snags by species								F=1	32	0.08	0.683	32	-0.31	0.084
Diameter	ABBA	11	-0.55	0.08	11	-0.35	0.30	S=1	32	-0.1	0.672	32	-0.1	0.584
	BEPA	7	0.37	0.41	7	-0.19	0.69	T=1	32	0	0.987	32	0.08	0.645
	FRNI	5	-0.50	0.39	5	-0.20	0.75	O=1	32	0.24	0.18	32	-0.15	0.426
	LALA	5	-0.80	0.10	5	-0.80	0.10	M=1	32	-0.1	0.472	32	-0.05	0.796
	PIMA	7	0.05	0.91	7	-0.74	0.058	H=1	32	0.34	0.053	32	0.61	0.0002*
	POBA	8	0.54	0.17	8	0.48	0.23	C=2	32	-0.1	0.711	32	-0.26	0.146
	POTR1	17	0.14	0.58	17	0.29	0.25	L=2	32	0.23	0.205	32	-0.24	0.183
	THOC	3	0.00	1.00	3	0.87	0.33	G=2	32	0.06	0.749	32	-0.01	0.974
								F=2	32	0.12	0.512	32	-0.33	0.067
Height	ABBA	11	0.13	0.71	11	0.38	0.25	S=2	32	0.12	0.504	32	-0.24	0.187
	BEPA	7	0.50	0.25	7	0.68	0.09	T=2	32	0.08	0.682	32	0.28	0.124
	FRNI	5	0.70	0.19	5	0.40	0.50	H=2	32	0.32	0.071	32	0.24	0.193
	LALA	5	0.20	0.75	5	0.30	0.62							
	PIMA	7	-0.43	0.34	7	-0.14	0.76	C=3	32	0.09	0.633	32	0.04	0.84
	POBA	8	-0.45	0.26	8	0.14	0.74	S=3	32	-0.1	0.631	32	-0.26	0.144
	POTR1	17	-0.28	0.27	17	-0.17	0.51	T=3	32	0.05	0.802	32	0.44	0.012*
	THOC	3	1.00	0.00	3	-0.50	0.67	H=3	32	0.2	0.262	32	0.26	0.146

Appendix B Table 55 (Cont).

		S-W			No. indiv.					S-W			No. indiv.		
		n	r	p	n	r	p			n	r	p	n	r	p
Stem density	ABBA	11	0.23	0.50	11	0.34	0.31		S=4	32	-0.3	0.13	32	-0.08	0.676
	BEPA	7	0.42	0.35	7	0.13	0.78		T=4	32	-0	0.942	32	0.27	0.142
	FRNI	5	-0.36	0.55	5	-0.36	0.55		H=4	32	0.15	0.425	32	0.22	0.218
	LALA	5	0.36	0.55	5	0.72	0.17								
	PIMA	7	-0.87	0.01*	7	-0.15	0.76		S=5	32	-0.2	0.337	32	0.02	0.92
	POBA	8	-0.01	0.98	8	-0.02	0.95		T=5	32	-0.3	0.057*	32	0.07	0.718
	POTR1	17	0.27	0.30	17	0.16	0.53								
	THOC	3	-0.50	0.67	3	-0.50	0.67	Soil	pH	32	0.12	0.521	32	-0.04	0.817
									Moisture	32	-0.3	0.137	32	-0.1	0.599
Area	ABBA	11	-0.1	0.709	11	0.2	0.555								
	BEPA	7	0.43	0.337	7	-0.11	0.819								
	FRNI	5	-0.5	0.391	5	-0.2	0.747								
	LALA	5	-0.5	0.391	5	0.3	0.624								
	PIMA	7	0.79	0.036*	7	-0.43	0.337								
	POBA	8	0.1	0.823	8	0.29	0.493								
	POTR1	17	0.33	0.195	17	0.37	0.141								
	THOC	3	-0.5	0.667	3	-0.5	0.667								

Appendix B Table 56. Total number of herps found in timed searches by species.

ELU	Species	No.
ED(p)	Wood frog	8
ED(p) Total		8
EM(p)	American toad	6
	Spring peeper	1
	Wood frog	3
EM(p) Total		10
EW(m)	American toad	3
	Wood frog	3
EW(m) Total		6
LM(m)	American toad	3
	Spring peeper	2
	Wood frog	24
LM(m) Total		29
LW(m)	American toad	1
LW(m) Total		1
LW(p)	Boreal chorus frog	1
	Wood frog	1
LW(p) Total		2
LW(pm)	American toad	3
	Wood frog	4
LW(pm) Total		7
LW(vp)	None	
LW(vp) Total		
MM(m)	American toad	2
	Spring peeper	1
	Wood frog	3
MM(m) Total		6
MM(p)	American toad	5
	Spring peeper	1
	Wood frog	1
MM(p) Total		7
MW(m)	Boreal chorus frog	1
MW(m) Total		1
MW(p)	American toad	2
	Wood frog	2
MW(p) Total		4
Grand Total		81

Appendix B Table 57. Total number of herps found in plot searches by species.

ELU	Species	No.
ED(p)	American toad	1
	Blue-spotted salamander	1
	Wood frog	1
ED(p) Total		3
EM(p)	American toad	3
	Wood frog	1
EM(p) Total		4
EW(m)	None	0
EW(m) Total		0
LM(m)	American toad	7
	Wood frog	7
LM(m) Total		14
LW(m)	American toad	1
	Wood frog	2
LW(m) Total		3
LW(p)	American toad	8
	Spring peeper	3
	Wood frog	1
LW(p) Total		12
LW(pm)	American toad	1
LW(pm) Total		1
LW(vp)	None	0
LW(vp) Total		0
MM(m)	Wood frog	2
MM(m) Total		2
MM(p)	American toad	2
	Wood frog	3
MM(p) Total		5
MW(m)	American toad	3
MW(m) Total		3
MW(p)	American toad	2
	Wood frog	1
MW(p) Total		3
Grand Total		50

Appendix B Table 58. Total number of herps found in traps by species.

ELU	Species	No.	ELU	Species	No.
ED(p)	American toad	11	LW(pm) Total		29
	Blue-spotted salamander	5	LW(vp)	American toad	39
	Unk. frog sp.	2		Wood frog	6
	Wood frog	36	LW(vp) Total		45
ED(p) Total		54	MM(m)	American toad	12
EM(p)	American toad	69		Blue-spotted salamander	1
	Blue-spotted salamander	1		Spring peeper	1
	Spring peeper	1		Wood frog	17
	Wood frog	31	MM(m) Total		31
EM(p) Total		102	MM(p)	American toad	21
EW(m)	American toad	66		Blue-spotted salamander	1
	N. leopard frog	1		Wood frog	11
	Wood frog	34	MM(p) Total		33
EW(m) Total		101	MW(m)	American toad	13
LM(m)	American toad	49		Spring peeper	1
	Blue-spotted salamander	1		Wood frog	2
	E. garter snake	1	MW(m) Total		16
	Spring peeper	2	MW(p)	American toad	26
	Wood frog	105		Wood frog	7
LM(m) Total		158	MW(p) Total		33
LW(m)	American toad	13	Grand Total		675
	Spring peeper	1			
	Wood frog	25			
LW(m) Total		39			
LW(p)	American toad	19			
	Blue-spotted salamander	1			
	Wood frog	14			
LW(p) Total		34			
LW(pm)	American toad	21			
	Blue-spotted salamander	1			
	N. leopard frog	1			
	Wood frog	6			

Appendix B Table 59. Total number of herps found in incidental sightings by species.

ELU	Species	No.
ED(p)	American toad	6
	Blue-spotted salamander	2
	Wood frog	27
ED(p) Total		35
EM(p)	American toad	24
	Spring peeper	3
	Unk. frog sp.	1
	Wood frog	21
EM(p) Total		49
EW(m)	American toad	7
	Spring peeper	1
	Wood frog	7
EW(m) Total		15
LM(m)	American toad	18
	N. leopard frog	1
	Wood frog	49
LM(m) Total		68
LW(m)	American toad	5
	Wood frog	5
LW(m) Total		10
LW(p)	American toad	9
	Spring peeper	1
	Wood frog	9
LW(p) Total		19
LW(pm)	American toad	19
	Blue-spotted salamander	1
	E. garter snake	1
	Wood frog	9
LW(pm) Total		30
LW(vp)	American toad	5
	E. garter snake	1
	Spring peeper	1
	Wood frog	1
LW(vp) Total		8
MM(m)	American toad	6
	E. garter snake	2
	N. leopard frog	1
	Spring peeper	1
	Wood frog	8
MM(m) Total		18
MM(p)	American toad	7
	Spring peeper	1
	Wood frog	1
MM(p) Total		9
MW(m)	American toad	4
	Wood frog	2
MW(m) Total		6
MW(p)	American toad	4
	Wood frog	8
MW(p) Total		12
Grand Total		279

Appendix B Table 60. Eigenvalues of the correlation matrix for ELUs.

	Eigenvalue	Difference	Proportion	Cumulative
PRIN1	14.2551	6.05411	0.263984	0.263984
PRIN2	8.2010	0.97777	0.151871	0.415855
PRIN3	7.2233	0.79377	0.133764	0.549618
PRIN4	6.4295	2.17743	0.119065	0.668683
PRIN5	4.2521	.	0.078742	0.747425

Appendix B Table 61. Eigenvalues of the correlation matrix for unit numbers.

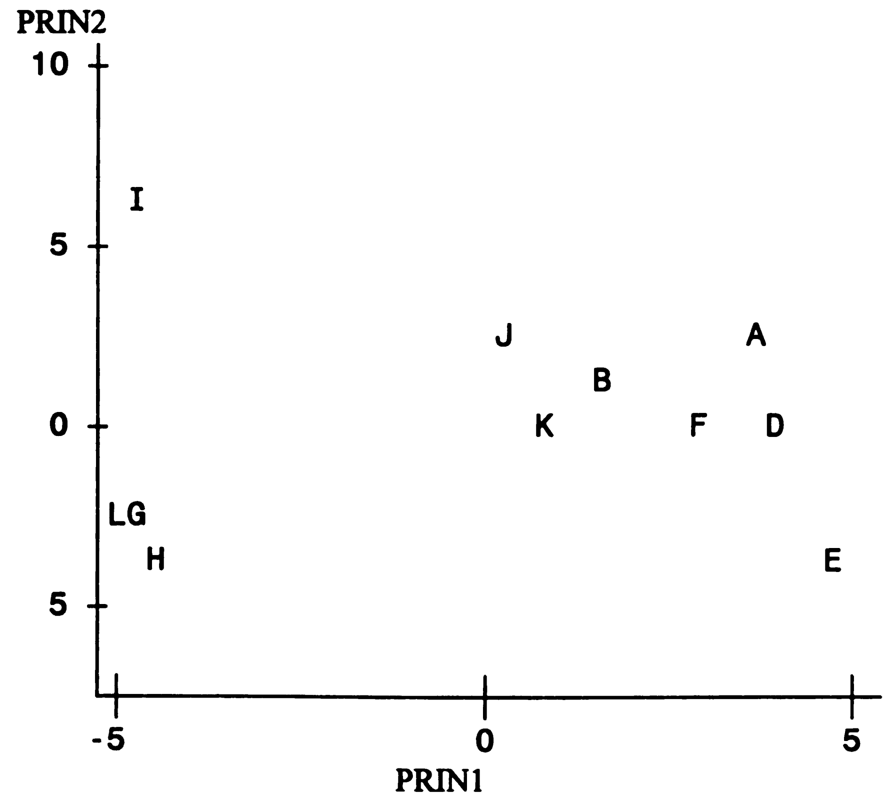
	Eigenvalue	Difference	Proportion	Cumulative
PRIN1	9.28790	2.8278	0.201911	0.201911
PRIN2	6.45911	2.11840	0.140416	0.342326
PRIN3	4.34071	0.54303	0.094363	0.436690
PRIN4	3.79769	0.50303	0.082558	0.519248
PRIN5	3.29466	0.76601	0.071623	0.590871
PRIN6	2.52865	0.23272	0.054971	0.645842
PRIN7	2.29593	0.41267	0.049911	0.695753
PRIN8	1.88326	.	0.040940	0.736694

Appendix B Table 62. ELUs and corresponding symbols for principal components analyses graphs.

ELU	Symbol
ED(p)	A
EM(p)	B
LM(m)	C
EW(m)	D
LW(m)	E
LW(pm)	F
LW(p)	G
LW(vp)	H
MM(p)	I
MM(m)	J
MW(m)	K
MW(p)	L

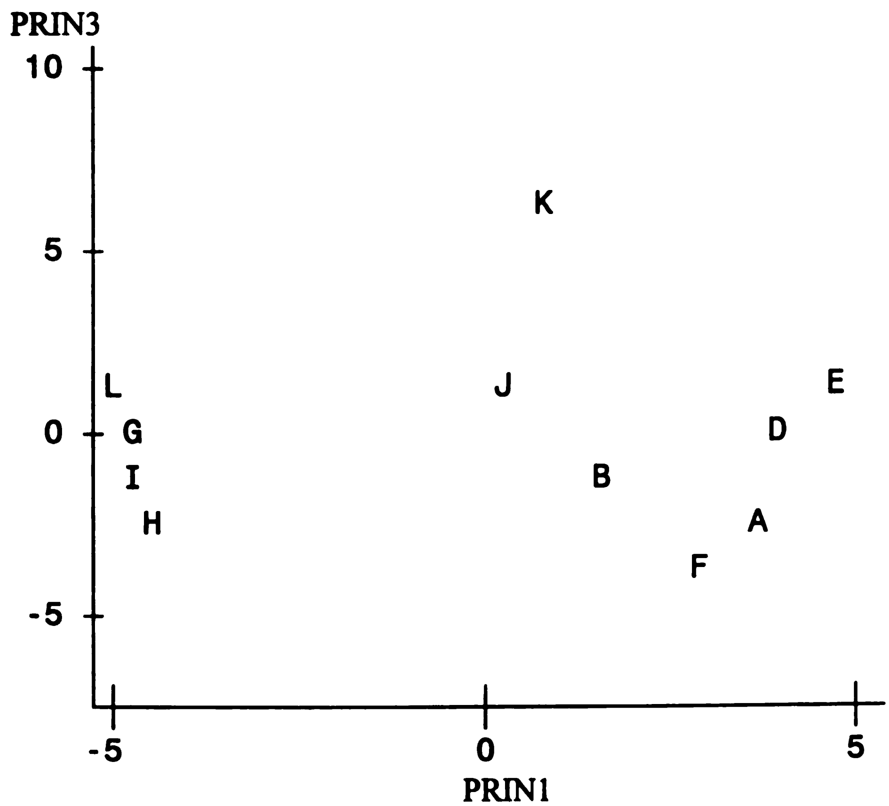
Appendix B Table 63. Unit numbers and given symbols for principal componenets analyses graphs by unit number.

Unit no.	Symbol	Unit no.	Symbol
1	A	40	3
2	B	45	4
3	C	46	5
4	D	47	6
5	E	48	7
6	F		
7	G		
8	H		
9	I		
11	J		
13	K		
16	L		
17	M		
18	N		
19	O		
20	P		
21	Q		
22	R		
23	S		
24	T		
28	U		
30	V		
31	W		
32	X		
34	Y		
38	Z		
39	2		



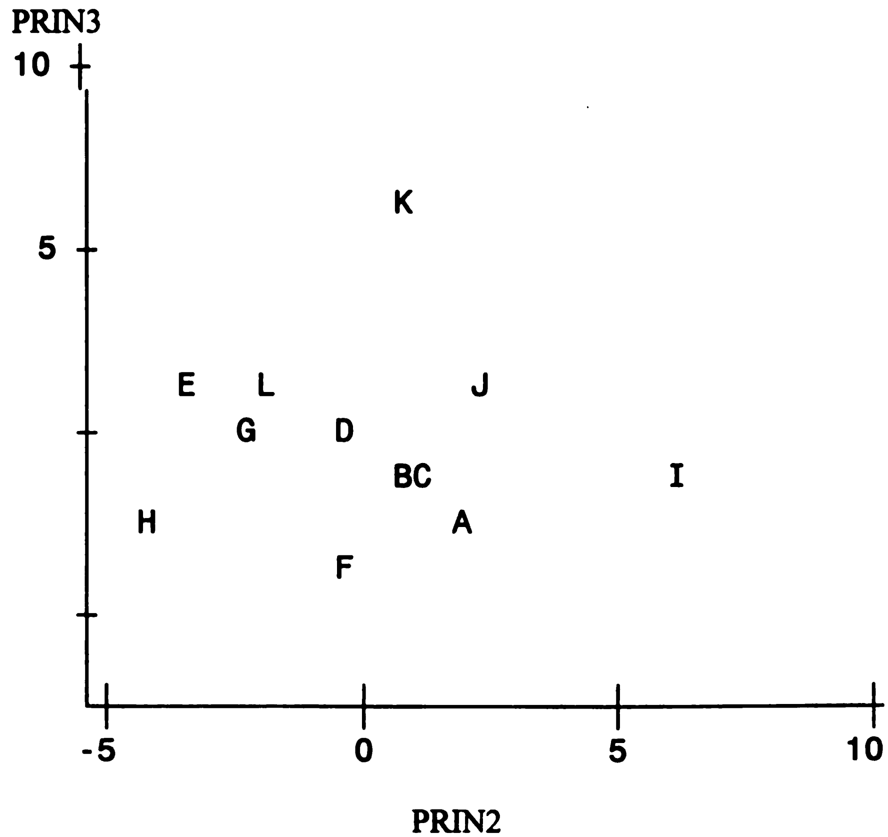
Observation C is hidden behind observation B.

Appendix B Figure 1. Plot of the first two principal components by ELU: PRIN2*PRIN1. See Appendix B Table 60 for ELUs corresponding with symbols.

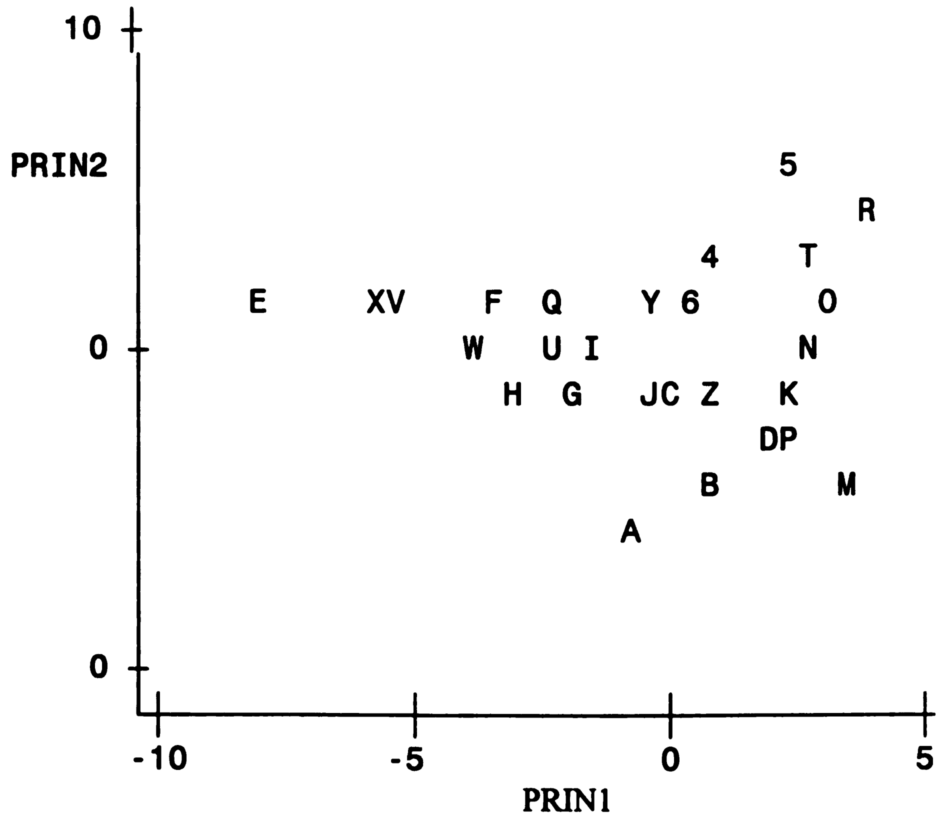


Observation C is hidden behind observation B.

Appendix B Figure 2. Plot of the first and third principal components by ELU: PRIN3*PRIN1. See Appendix B Table 60 for ELUs corresponding with symbols.

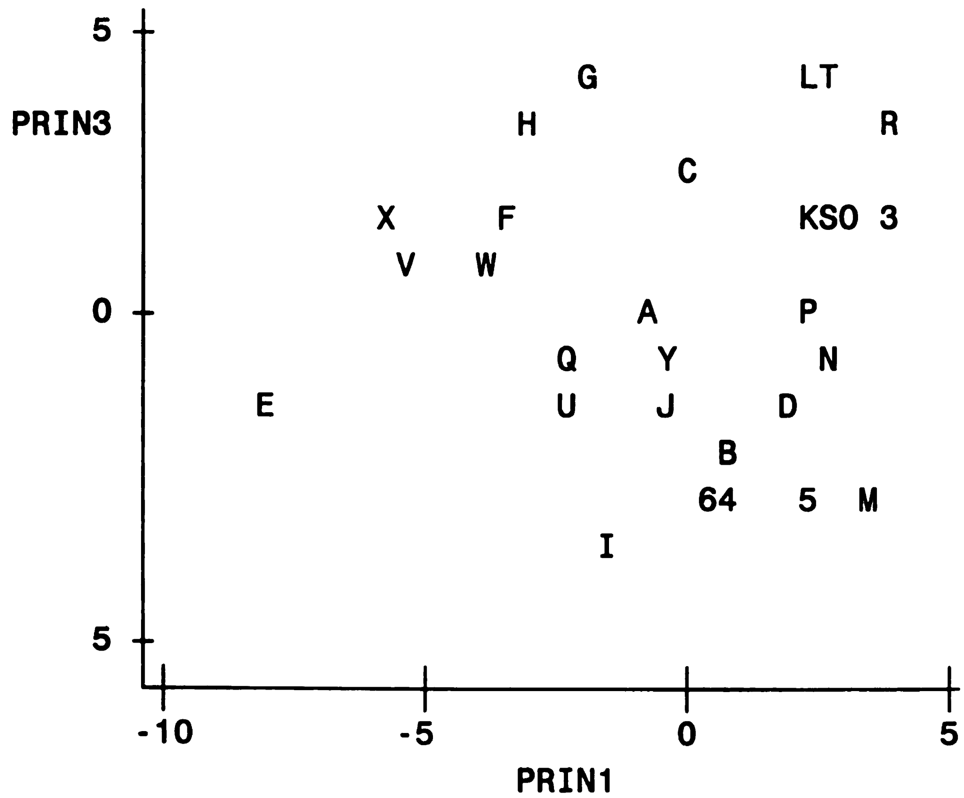


Appendix B Figure 3. Plot of the second and third principal components by ELU: PRIN3*PRIN2. See Appendix B Table 60 for ELUs corresponding with symbols.



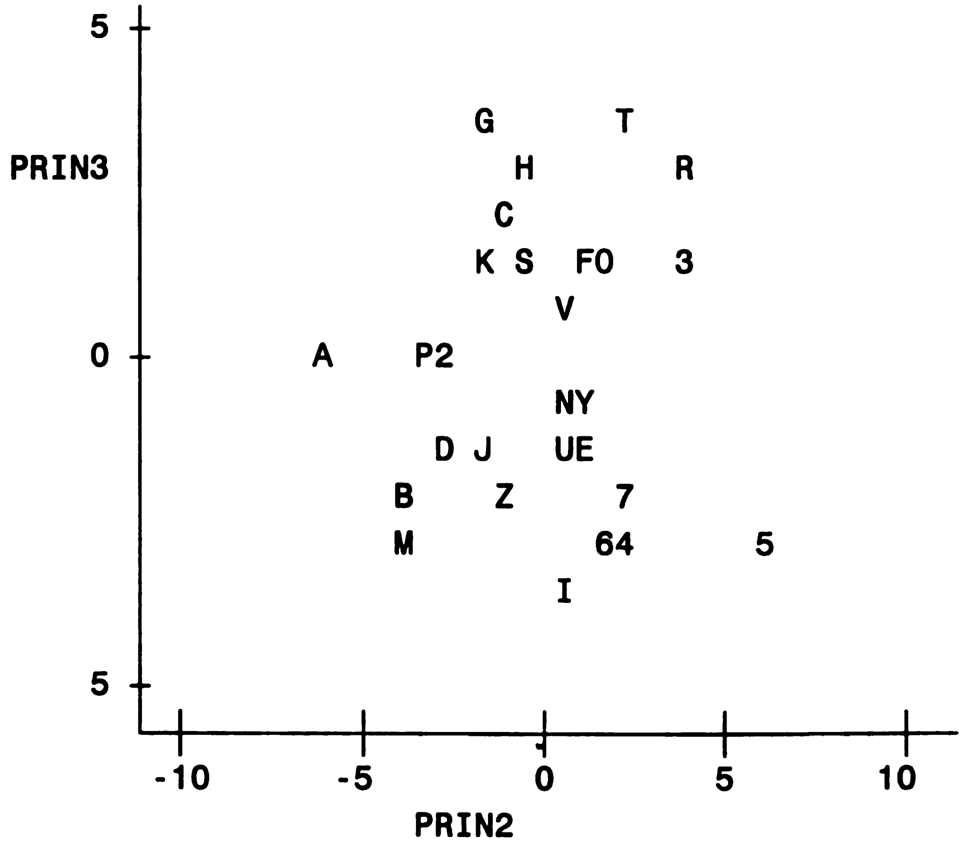
5 observations hidden.

Appendix B Figure 4. Plot of first two principal components by unit number: PRIN2*PRIN1. See Appendix B Table 61 for unit numbers associated with symbols.



3 observations hidden.

Appendix B Figure 5. Plot of the first and third principal components by unit number: PRIN3*PRIN1. See Appendix B Table 61 for unit numbers associated with symbols.



4 observations hidden.

Appendix B Figure 6. Plot of the second and third principal components by unit number: PRIN3*PRIN2. See Appendix B Table 61 for unit numbers associated with symbols.