

Utah State University

DigitalCommons@USU

---

Aspen Bibliography

Aspen Research

---

6-30-2003

## Some environmental relationships of undergrowth species in aspen communities of the Intermountain west

W F. Mueggler

Follow this and additional works at: [https://digitalcommons.usu.edu/aspen\\_bib](https://digitalcommons.usu.edu/aspen_bib)



Part of the [Agriculture Commons](#), [Ecology and Evolutionary Biology Commons](#), [Forest Sciences Commons](#), [Genetics and Genomics Commons](#), and the [Plant Sciences Commons](#)

---

### Recommended Citation

W.F. Mueggler. 2003. Some environmental relationships of undergrowth species in aspen communities of the Intermountain West. File report. Rocky mountain research station.

This Report is brought to you for free and open access by the Aspen Research at DigitalCommons@USU. It has been accepted for inclusion in Aspen Bibliography by an authorized administrator of DigitalCommons@USU. For more information, please contact [digitalcommons@usu.edu](mailto:digitalcommons@usu.edu).



SOME ENVIRONMENTAL RELATIONSHIPS OF UNDERGROWTH SPECIES IN ASPEN  
COMMUNITIES OF THE INTERMOUNTAIN WEST

*by: W.F. Mueggler*

FILE REPORT

June 30, 2003

Rocky Mountain Research Station  
U.S. Forest Service  
RWU 4301

SOME ENVIRONMENTAL RELATIONSHIPS OF UNDERGROWTH SPECIES IN ASPEN  
COMMUNITIES OF THE INTERMOUNTAIN WEST

*by: W.F. Mueggler*

FILE REPORT

June 30, 2003

Rocky Mountain Research Station  
U.S. Forest Service  
RWU 4301

# SOME ENVIRONMENTAL RELATIONSHIPS OF UNDERGROWTH SPECIES IN ASPEN COMMUNITIES OF THE INTERMOUNTAIN WEST

## \*\*\* OUTLINE \*\*\*

**INTRODUCTION:** This analysis results from an opportunity to explore plant/environmental relationships from data collected for a different purpose. Origin of the data is a study designed to develop an aspen community-type classification for southern Idaho, western Wyoming, Utah, and Nevada which resulted in the publication "Aspen Community Types of the Intermountain Region" GTR INT-250 by W.F. Mueggler (1988).

**DATA:** Total stands examined = 2137;

Biomass Production: 533 (only 430 on soil parent material)

Canopy Cover: Elev. = 2135

Aspect = 2129

Latitude = 2137

Soil = 1553

**Environmental:** elevation (ft), topographic aspect (NE, SE, SW, NW), Latitude (from 37 to 45 degrees north), and soil parent materials (granitic, volcanic, sandstone, limestone, and quartzite)

**Plant Species:** Over 550 encountered in the study, of which only 184 were considered important in the development of the habitat type classification. Of these, 56 species were selected for determining environmental relationships. (Constancy of these ranged from 2 % [*Festuca thurberi*] to 73 % [*Symphoricarpos oreophilus*].

**Plant Measurements:** Percent canopy cover of each species was determined by ocular estimates within a single 1/13 acre (0.03 ha) macro-plot in each examined stand. Biomass production on the 533 intensively sampled stands was determined for vegetation classes (graminoids, forbs, shrubs, annuals) by a combination of estimation and clipping current year's growth of shrubs below 5 ft (1.5 m) height, graminoids, and forbs on three sets of micro-plots randomly distributed on a macro-plot. Each set of micro-plots consisted of a cluster of five circular 5.4 ft<sup>2</sup> (0.5 m<sup>2</sup>) plots on which current growth of four were estimated as a percentage of the fifth, which was then clipped. An estimated correction was applied at the time of sampling to adjust the weights for sampling either before or after peak standing crop, and for obvious animal use. Production data were expressed as air-dry pounds per acre.

ANALYSIS: Each environmental factors was divided into either 4 or 5 categories spanning the range of the factor. The over-all mean of the specie's canopy cover was then computed along with standard error, percent constancy, and the mean cover for plots in which the species occurred. Mean total biomass production and standard error was similarly computed for each category as well as biomass means and standard errors for the major vegetation classes. Neither covariance nor multiple regression analyses were attempted. However, I recognize that serious interactions between between elevation, exposure, and latitude occur that were not evaluated here. The only interactions marginally examined was that between the effects of elevation at different latitudes on 19 of the more prominent species.

RESULTS: The results are presented both in the form of a general tabular summary of what appear to be general relationships, *and as detailed graphs accompanied by associated statical data showing means, standard errors, significance of differences at  $P < .05$  level, as well as species constancy and means on the plots where the species occurs.*

TABLES:

- A. Species used in this analysis and their overall percent constancy.
- B. Total annual undergrowth biomass production most likely greatest under the various environmental categories.
- C. Species most likely to occur at given latitudinal categories in degrees N.
- D. Species most likely to occur at given elevation categories.
- E. Species most likely to occur on given topographic aspect categories.
- F. Species most likely to occur on given soil parent materials
- G. Selected species most likely to occur at given elevation categories at different latitudes.

A. Species used in this analysis and their overall percent constancy:

SHRUBS:	%	GRAMINOIDS:	%
<i>Amelanchier alnifolia</i>	34	<i>Agropyron trachycaulum</i> *	3
<i>Artemisia tridentata</i>	10	<i>Bromus anomalus</i>	7
<i>Berberis repens</i>	37	<i>Bromus carinatus</i> *	43
<i>Juniperus communis</i>	16	<i>Calamagrostis rubescens</i>	15
<i>Pachistima myrsinites</i>	14	<i>Carex geyeri</i>	15
<i>Prunus virginiana</i>	22	<i>Carex rossii</i>	15
<i>Riibes montigenum</i>	3	<i>Elymus glaucus</i>	38
<i>Rosa woodsii</i> *	32	<i>Festuca thurberi</i>	2
<i>Sambucus racemosa</i>	9	<i>Poa fendleriana</i>	6
<i>Shepherdia canadensis</i>	7	<i>Poa pratensis</i>	33
<i>Symphoricarpos oreophilus</i>	73	<i>Sitanion hystrix</i>	6
		<i>Stipa occidentalis</i>	23
		<i>Trisetum spicatum</i>	8

(Cont'd)

FORBS:	%		%
<i>Agastache urticifolia</i>	27	<i>Lupinus argenteus</i>	30
<i>Antennaria microphylla</i>	9	<i>Mertensia arizonica</i> *	11
<i>Aquilegia coerulea</i>	10	<i>Osmorhiza chilensis</i> *	40
<i>Arnica cordifolia</i>	12	<i>Osmorhiza occidentalis</i>	19
<i>Aster engelmannii</i>	18	<i>Perideridia gairdneri</i>	10
<i>Astragalus miser</i>	13	<i>Penstemon watsonii</i>	5
<i>Castilleja miniata</i>	11	<i>Polemonium foliosissimum</i>	9
<i>Delphinium occidentale</i>	12	<i>Rudbeckia occidentalis</i>	23
<i>Erigeron speciosus</i>	13	<i>Senecio serra</i>	24
<i>Frageria vesca</i> *	23	<i>Smilacina stellata</i>	18
<i>Fraseria speciosa</i>	13	<i>Taraxicum officinale</i>	49
<i>Geranium richardsonii</i>	5	<i>Thalictrum fendleri</i>	54
<i>Geranium viscosissimum</i> *	36	<i>Trifolium longipes</i>	4
<i>Hackelia floribunda</i>	25	<i>Valeriana occidentalis</i>	25
<i>Heracleum lanatum</i>	4	<i>Vicia americana</i>	15
<i>Ligusticum filicinum</i>	6	<i>Wyethia amplexicaulis</i>	4

\* Note: The constancy data for some of these species is somewhat less than those shown on Table 2 in Mueggler 1988 because the latter include closely related taxon.

B. Total annual undergrowth biomass production most likely greatest under the various environmental categories.

('+ = most ; - = least; [blank] = indeterminate)

	<i>LATITUDE</i> (in degrees N)			
	<i>37 to 39</i> (Southern Utah & Nevada)	<i>39 to 41</i> (Central Utah & Nevada)	<i>41 to 43</i> (Northern Utah & Nevada)	<i>43 to 45</i> (Southern Idaho & western Wyoming)
TOTAL PRODUCTION	-		'+	
GRAMINOID PRODUCTION	-	-		'+
FORB PRODUCTION	-		'+	
SHRUB PRODUCTION	-	'+		

	<i>ELEVATION</i> (in feet)			
	<i>5,200-6,999</i>	<i>7,000-7,999</i>	<i>8,000-8,999</i>	<i>9,000-10,500</i>
TOTAL PRODUCTION	'+	'+		-
GRAMINOID PRODUCTION	'+			-
FORB PRODUCTION		'+		-
SHRUB PRODUCTION		'+		-

	<i>ASPECT</i>			
	<i>Northeast</i>	<i>Southeast</i>	<i>Southwest</i>	<i>Northwest</i>
TOTAL PRODUCTION				
GRAMINOID PRODUCTION				-
FORB PRODUCTION				
SHRUB PRODUCTION	'+	-	-	'+

	<i>SOIL PARENT MATERIAL</i>				
	<i>Granitic</i>	<i>Volcanic</i>	<i>Sandstone</i>	<i>Limestone</i>	<i>Quartzite</i>
TOTAL PRODUCTION		-	'+	'+	
GRAMINOID PRODUCTION			'+		-
FORB PRODUCTION		-	'+	'+	
SHRUB PRODUCTION	-	-		'+	



C. Species most likely to occur at given latitudinal categories in degrees N.  
 ('+ = most likely; - = least likely; [blank] = indeterminate)

	<i>LATITUDE</i> (in degrees N)			
	<i>37 to 39</i> (Southern Utah) (& Nevada)	<i>39 to 41</i> (Central Utah) (& Nevada)	<i>41 to 43</i> (Northern Utah) (& Nevada)	<i>43 to 45</i> (Southern Idaho &) (western Wyoming)
<b>SHRUBS</b>				
<i>Amelanchier alnifolia</i>	-			'+
<i>Artemisia tridentata</i>		'+		
<i>Berberis repens</i>			-	'+
<i>Juniperus communis</i>	'+	'+		-
<i>Pachistima myrsinites</i>	-		'+	'+
<i>Prunus virginiana</i>	-		'+	'+
<i>Ribes montigenum</i>		'+		-
<i>Rosa woodsii</i>				'+
<i>Sambucus racemosa</i>		'+		-
<i>Shepherdia canadensis</i>	-	-		'+
<i>Symphoricarpos oreophilus</i>		'+	'+	-
<b>GRAMINOIDS</b>				
<i>Agropyron trachycaulum</i>			'+	-
<i>Bromus anomalus</i>	'+	-	-	-
<i>Bromus carinatus</i>		'+	'+	-
<i>Calamagrostis rubescens</i>	-	-		'+
<i>Carex geyeri</i>				
<i>Sitanion hystrix</i>	'+	-	-	-
<i>Stipa occidentalis</i>	'+	'+		-
<i>Trisetum spicatum</i>				'+

(Cont'd)

	LATITUDE (in degrees N)			
	37 to 39 (Southern Utah & Nevada)	39 to 41 (Central Utah & Nevada)	41 to 43 (Northern Utah & Nevada)	43 to 45 (Southern Idaho & western Wyoming)
<b>FORBS</b>				
<i>Agastache urticifolia</i>	-	'+	'+	
<i>Anatennaria microphylla</i>				
<i>Aquilegia coerulea</i>	-	'+	-	
<i>Arnica cordifolia</i>	-	-		'+
<i>Aster engelmannii</i>	-	'+	'+	'+
<i>Astragalus miser</i>		'+	-	'+
<i>Castilleja miniata</i>	-	'+	'+	'+
<i>Delphinium occidentale</i>	'+	-	-	'+
<i>Erigeron speciosus</i>	-		'+	
<i>Frageria vesca</i>	-	-	-	'+
<i>Fraseria speciosa</i>				
<i>Geranium richardsonii</i>	-	'+	-	'+
<i>Geranium viscosissimum</i>	-			'+
<i>Hackelia floribunda</i>	-		'+	
<i>Heracleum lanatum</i>	-	'+		'+
<i>Ligusticum filicinum</i>	-	-		'+
<i>Lupinus argenteus</i>	-	-	-	'+
<i>Mertensia arizonica</i>		'+		-
<i>Osmorhiza chilensis</i>	-		'+	'+
<i>Osmorhiza occidentalis</i>	-	-	'+	
<i>Perideridia gairdneri</i>	-	-	-	'+
<i>Penstemon watsonii</i>		'+		-
<i>Polemonium foliosissimum</i>	-	'+		-

(Cont'd)

*LATITUDE* (in degrees N)

	<i>37 to 39</i> (Southern Utah & Nevada)	<i>39 to 41</i> (Central Utah & Nevada)	<i>41 to 43</i> (Northern Utah & Nevada)	<i>43 to 45</i> (Southern Idaho & western Wyoming)
<i>Rudbeckia occidentalis</i>	-	'+	'+	'+
<i>Senecio serra</i>	-		'+	
<i>Smilacina stellata</i>	-	'+		
<i>Taraxicum officinale</i>	'+		-	
<i>Thalictrum fendleri</i>	-		'+	'+
<i>Trifolium longipes</i>	'+	-	-	'+
<i>Valeriana occidentalis</i>	-	'+	'+	
<i>Wyethia amplexicaulis</i>	-	-	'+	

D. Species most likely to occur at given elevation categories.  
 ('+ = most likely; - = least likely; [blank] = indeterminate)

	<i>ELEVATION</i> (in feet)			
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
<b>SHRUBS</b>				
<i>Amelanchier alnifolia</i>	'+		-	-
<i>Artemisia tridentata</i>	-		'+	'+
<i>Berberis repens</i>				
<i>Juniperus communis</i>	-	-	'=	
<i>Pachystima myrsinites</i>		'+		-
<i>Ribes montigenum</i>	-		'+	'+
<i>Prunus virginiana</i>	'+			-
<i>Rosa woodsii</i>	'+			-
<i>Sambucus racemosa</i>	'+			-
<i>Shepherdia canadensis</i>		'+		-
<i>Symphoricarpos oreophilus</i>		'+		-
<b>GRAMINOIDS</b>				
<i>Agropyron trachycaulum</i>				
<i>Bromus anomalus</i>	-	-		'+
<i>Bromus carinatus</i>	-	'+	'+	'+
<i>Calamagrostis rubescens</i>	'+		-	-
<i>Carex geyeri</i>				
<i>Carex rossii</i>	-	-		'+
<i>Elymus glaucus</i>	'+			-
<i>Festuca thurberi</i>	-	-		'+
<i>Poa fendleri</i>	-		'+	'+
<i>Poa pratensis</i>	'+			-
<i>Sitanion hysterix</i>	-	-	'+	'+
<i>Trisetum spicatum</i>	-		'+	'+

FORBS	ELEVATION (in feet)			
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
<i>Agastache urticifolia</i>		'+		-
<i>Antennaria microphylla</i>	-	-	'+	
<i>Aquilegia coerulea</i>			'+	
<i>Arnica cordifolia</i>	'+			
<i>Aster engelmanni</i>		'+		-
<i>Astragalus miser</i>	-		'+	'+
<i>Castilleja miniata</i>				
<i>Delphinium occidentale</i>	-			'+
<i>Erigeron speciosus</i>	'+			-
<i>Fragaria vesca</i>	'+			-
<i>Frasera speciosa</i>				
<i>Geranium richardsonii</i>	-		'+	
<i>Geranium viscosissimum</i>	'+			-
<i>Hackelia floribunda</i>		'+	'+	-
<i>Heracleum lanatum</i>		'+	'+	-
<i>Ligusticum filicinium</i>	'+	'+	'+	-
<i>Lupinus argenteus</i>	'+			
<i>Mertensia arizonica</i>	-	-	'+	
<i>Osmorhiza chilensis</i>	'+		-	-
<i>Osmorhiza occidentalis</i>	-	'+	-	-
<i>Perideridia gairdneri</i>	'+		-	-
<i>Penstemon watsonii</i>		-		'+
<i>Polemonium foliosissimum</i>	-	'+		

(Cont'd)

	<i>ELEVATION</i> (in feet)			
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
<i>Rudbeckia occidentalis</i>		‘+	‘+	-
<i>Senecio serra</i>	‘+	‘+		-
<i>Smilacina stellata</i>	‘+	‘+	-	-
<i>Taraxicum officinale</i>		-	‘+	
<i>Thalictrum fendleri</i>	‘+	‘+		-
<i>Trifolium longipes</i>	-	-	‘+	‘+
<i>Valeriana occidentalis</i>		‘+		-
<i>Vicia americana</i>	-			‘+
<i>Wyethia occidentalis</i>	‘+		-	-

E. Species most likely to occur on given topographic aspect categories.  
 ('+ = most likely; - = least likely; [blank] = indeterminate)

	<i>ASPECT</i>			
	<i>Northeast</i>	<i>Southeast</i>	<i>Southwest</i>	<i>Northwest</i>
<b>SHRUBS</b>				
<i>Amelanchier alonifolia</i>				
<i>Artemisia tridentata</i>	-		'+	-
<i>Berberis repens</i>				
<i>Juniperus communis</i>	'+			-
<i>Pachistima myrsinites</i>		'+	-	
<i>Prunus virginiana</i>	-	'+	'+	-
<i>Ribes montigenum</i>				
<i>Rosa woodsii</i>		'+	-	-
<i>Sambucus racemosa</i>				
<i>Shepherdia canadensis</i>	'+	-	-	'+
<i>Symphoricarpos oreophilus</i>		-		
<b>GRAMINOIDS</b>				
<i>Agropyron trachycaulum</i>				
<i>Bromus anomalus</i>			'+	
<i>Bromus carinatus</i>			'+	
<i>Calamagrostis rubescens</i>	-	'+	'+	-
<i>Carex geyeri</i>				
<i>Carex rossii</i>	-	-	'+	
<i>Elymus glaucus</i>	'+	'+	'+	-
<i>Festuca thurberi</i>	'+			-
<i>Poa fendleriana</i>		'+		
<i>Poa pratensis</i>		'+		-
<i>Sitanion hysterix</i>		'+		

(Cont'd)

	<i>ASPECT</i>			
	<i>Northeast</i>	<i>Southeast</i>	<i>Southwest</i>	<i>Northwest</i>
<i>Stipa occidentalis</i>	-		'+	-
<i>Trisetum spicatum</i>				
<b>FORBS</b>				
<i>Agastache urticifolia</i>				
<i>Antennaria microphylla</i>	'+	'+		-
<i>Aquilegia coerulea</i>	'+	-	-	'+
<i>Arnica cordifolia</i>		-		'+
<i>Aster engelmannii</i>				
<i>Astragalus miser</i>	'+	'+		-
<i>Castilleja miniata</i>			-	'+
<i>Delphinium occidentale</i>	'+	'+	'+	-
<i>Erigeron speciosus</i>		'+		-
<i>Fragaria vesca</i>				
<i>Fraseria speciosa</i>	'+	-	-	'+
<i>Geranium richardsonii</i>				
<i>Geranium viscosissimum</i>	'+	'+	'+	-
<i>Hackelia floribunda</i>				'+
<i>Heracleum lanatum</i>				
<i>Ligusticum filicinum</i>				
<i>Lupinus argenteus</i>		'+	'+	-
<i>Mertensia arizonica</i>			'+	-
<i>Osmorhiza chilensis</i>		-	-	'+
<i>Osmorhiza occidentalis</i>		-		'+
<i>Perideridia gairdneri</i>	-	'+	'+	
<i>Penstemon watsonii</i>		-		'+
<i>Polemonium foliosissimum</i>				

(Cont'd)



	<i>ASPECT</i>			
	<i>Northeast</i>	<i>Southeast</i>	<i>Southwest</i>	<i>Northwest</i>
<i>Rudbeckia occidentalis</i>	'+		'+	-
<i>Senecio serra</i>				
<i>Smilacina stellata</i>	'+	'+		-
<i>Taraxicum officinale</i>	'+			-
<i>Thalictrum fendleri</i>	-			'+
<i>Trifolium longipes</i>		'+	-	-
<i>Valeriana occidentalis</i>	'+	-		'+
<i>Vicia americana</i>				
<i>Wyethia amplexicaulis</i>				-

F. Species most likely to occur on given soil parent materials.  
 ('+ = most likely; - = least likely; [blank] = indeterminate)

**SOIL PARENT MATERIAL**

<b>SHRUBS</b>	<i>Granitic</i>	<i>Volcanic</i>	<i>Sandstone</i>	<i>Limestone</i>	<i>Quartzite</i>
<i>Amelanchier alnifolia</i>	-	-		'+	'+
<i>Artemisia tridentata</i>	-	'+	'+		'+
<i>Berberis repens</i>	'+	-	'+	'+	-
<i>Juniperus communis</i>	-	-	'+	'+	-
<i>Pachistima myrsinites</i>		-	'+	'+	'+
<i>Prunus virginiana</i>		-	'+	-	
<i>Ribes montigenum</i>	'+	-	-	'+	-
<i>Rosa wodsii</i>		'+			
<i>Sambucus racemosa</i>		-		'+	
<i>Shepherdia canadensis</i>	-	-	'+	'+	
<i>Symphoricarpos oreophilus</i>		-	'+	'+	
<b>GRAMINOIDS</b>					
<i>Agropyron trachycaulum</i>	-		-		'+
<i>Bromus anomalus</i>	'+	'+	-	-	
<i>Bromus carinatus</i>	'+	-	'+	'+	
<i>Calamagrostis rubescens</i>	-		'+	-	-
<i>Carex geyeri</i>			'+		
<i>Carex rossii</i>		'+	-	-	'+
<i>Elymus glaucus</i>			'+		
<i>Festuca thurberi</i>	'+	'+	-	-	-
<i>Poa fendleriana</i>		'+	-	-	'+
<i>Poa pratensis</i>					
<i>Sitanion hystrix</i>		'+	-		-

(Cont'd)

**SOIL PARENT MATERIAL**

	<i>Granitic</i>	<i>Volcanic</i>	<i>Sandstone</i>	<i>Limestone</i>	<i>Quartzite</i>
<i>Stipa occidentalis</i>	‘+			-	-
<i>Trisetum spicatum</i>	-	-	‘+	-	‘+
<b>FORBS</b>					
<i>Agastache urticifolia</i>		-	‘+	‘+	‘+
<i>Antennaria microphylla</i>	‘+		‘+		
<i>Aquilegia coerulea</i>	-	-	‘+	‘+	
<i>Arnica cordifolia</i>	-	‘+			
<i>Aster engelmannii</i>		-	‘+	‘+	
<i>Astragalus miser</i>	-		‘+	-	-
<i>Castilleja miniata</i>					
<i>Delphinium occidentale</i>	-	-	‘+	‘+	-
<i>Erigeron speciosus</i>					
<i>Fragaria vesca</i>		-	‘+		
<i>Frasera speciosa</i>				‘+	
<i>Geranium richardsonii</i>		-	‘+	‘+	
<i>Geranium viscosissimum</i>				‘+	
<i>Hackelia floribunda</i>	‘+	‘+	-	-	
<i>Heracleum lanatum</i>	-	-	‘+	-	-
<i>Ligusticum filicinum</i>	-	-	‘+	‘+	-
<i>Lupinus argenteus</i>					-
<i>Mertensia arizonica</i>		-			
<i>Osmorhiza chilensis</i>	‘+			-	
<i>Osmorhiza occidentalis</i>	-	-	-		‘+
<i>Perideridia gairdneri</i>	-	-	‘+	‘+	
<i>Penstemon watsonii</i>		‘+	-	-	‘+

**SOIL PARENT MATERIAL**

	<i>Granitic</i>	<i>Volcanic</i>	<i>Sandstone</i>	<i>Limestone</i>	<i>Quartzite</i>
<i>Polemonium foliosissimum</i>	-	-	‘+	‘+	
<i>Rudbeckia occidentalis</i>		-	‘+		
<i>Senecio serra</i>	-	-			‘+
<i>Smilacina stellata</i>	‘+				-
<i>Taraxicum offinale</i>	‘+			‘+	-
<i>Thalictrum fendleri</i>					‘+
<i>Trifolium longipes</i>	-				-
<i>Valeriana occidentalis</i>	-	-	‘+	‘+	‘+
<i>Vicia americana</i>			‘+	‘+	-
<i>Wyethia amplexicaulis</i>	-	-	-	-	‘+

F. Selected species most likely to occur at given elevation categories at different latitudes.  
 ('+ = most likely; - = least likely; [blank] = indeterminate)

SHRUBS	ELEVATION (in feet)			
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
<i>Amelanchier alnifolia</i>				
37 to 39 deg. latitude	-	'+		-
39 to 43 deg. latitude	'+		-	-
43 to 45 deg. latitude	'+		-	-
<i>Berberis repens</i>				
37 to 39 deg. latitude	-	'+	'+	
39 to 43 deg. latitude				
43 to 45 deg. latitude			-	'+
<i>Prunus virginiana</i>				
37 to 39 deg. latitude	-	'+		-
39 to 43 deg. latitude	'+			-
43 to 45 deg. latitude	'+		-	-
<i>Rosa woodsii</i>				
37 to 39 deg. latitude		'+		-
39 to 43 deg. latitude	'+	'+		-
43 to 45 deg. latitude	'+	'+	-	-
<i>Symphoricarpos oreophilus</i>				
37 to 39 deg. latitude	-	'+	'+	-
39 to 43 deg. latitude		'+		-
43 to 45 deg. latitude	'+	'+		-

(Cont'd)

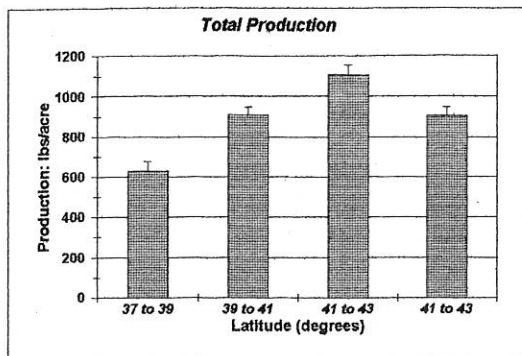
GRAMINOIDS	ELEVATION (in feet)			
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
<i>Bromus carinatus</i>				
37 to 39 deg. latitude	-	-		'+
39 to 43 deg. latitude	-	-		'+
43 to 45 deg. latitude		'+		-
<i>Elymus glaucus</i>				
37 to 39 deg. latitude	-	-	'+	'+
39 to 43 deg. latitude	'+		-	-
43 to 45 deg. latitude				'+
<i>Stipa occidentalis</i>				
37 to 39 deg. latitude	-		'+	'+
39 to 43 deg. latitude	-		'+	
43 to 45 deg. latitude	'+	-	-	-
<b>FORBS</b>				
<i>Agastache urticifolia</i>				
37 to 39 deg. latitude	-	'+		
39 to 43 deg. latitude		'+		-
43 to 45 deg. latitude		'+	'+	-
<i>Geranium viscosissimum</i>				
37 to 39 deg. latitude	-	'+		-
39 to 43 deg. latitude	'+			-
43 to 45 deg. latitude		'+	'+	-
<i>Hackelia floribunda</i>				
37 to 39 deg. latitude	-	'+	-	-
39 to 43 deg. latitude			'+	-
43 to 45 deg. latitude	-		'+	-
<i>Lupinus argenteus</i>				
37 to 39 deg. latitude	-	'+		
39 to 43 deg. latitude			'+	-
43 to 45 deg. latitude	'+			-
<i>Osmorhiza chilensis</i>				
37 to 39 deg. latitude	-		'+	'+
39 to 43 deg. latitude	'+			-
43 to 45 deg. latitude	'+			-

(Cont'd)

	ELEVATION (in feet)			
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
<i>Osmorhiza occidentalis</i>				
37 to 39 deg. latitude	-	‘+		‘+
39 to 43 deg. latitude		‘+		
43 to 45 deg. latitude		‘+	‘+	-
<i>Rudbeckia occidentalis</i>				
37 to 39 deg. latitude				
39 to 43 deg. latitude			‘+	-
43 to 45 deg. latitude			‘+	-
<i>Senecio serra</i>				
37 to 39 deg. latitude	-	‘+	-	
39 to 43 deg. latitude	‘+			-
43 to 45 deg. latitude	-			-
<i>Smilacina stellata</i>				
37 to 39 deg. latitude	-	‘+		
39 to 43 deg. latitude	‘+		-	
43 to 45 deg. latitude	‘+			-
<i>Thalictrum fendleri</i>				
37 to 39 deg. latitude	-	‘+	‘+	‘+
39 to 43 deg. latitude			-	
43 to 45 deg. latitude			‘+	
<i>Valeriana occidentalis</i>				
37 to 39 deg. latitude	-	-		‘+
39 to 43 deg. latitude		‘+		-
43 to 45 deg. latitude		‘+		-

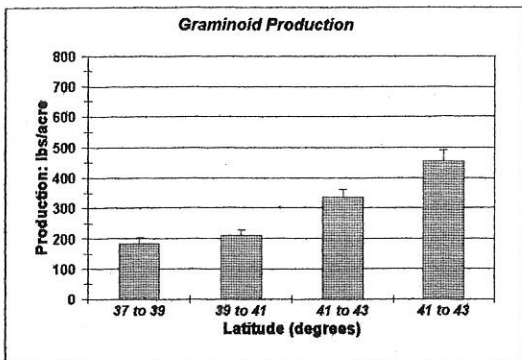
**INT-ASPEN CLASSIFICATION DATA:  
PRODUCTION/ENVIRONMENTAL RELATIONSHIPS**

**GEOGRAPHICAL LATITUDE**



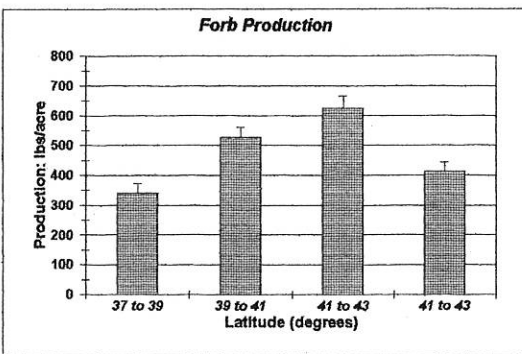
**TOTAL PRODUCTION: LBS/ACRE  
(Latitude in degrees)**

	37 to 39	39 to 41	41 to 43	41 to 43
Mean	630	909	1109	905
(signif. different)	a	b	c	b
Standard Error	47	39	46	42
n	104	187	139	103



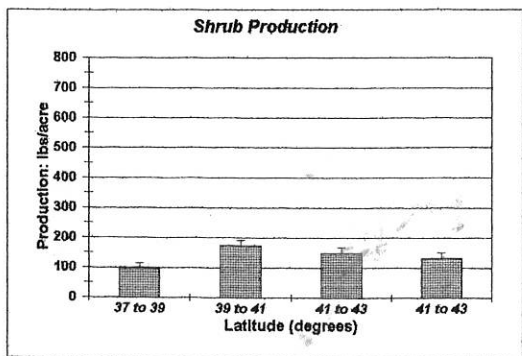
**GRAMINOID PRODUCTION: LBS/ACRE  
(Latitude in degrees)**

	37 to 39	39 to 41	41 to 43	41 to 43
Mean	184.22	209.41	335.84	454.55
(signif. different)	a	a	b	c
Standard Error	20.03	19.67	25.74	36.42
n	105	187	139	69



**FORB PRODUCTION: LBS/ACRE  
(Latitude in degrees)**

	37 to 39	39 to 41	41 to 43	41 to 43
Mean	339.88	526.38	625.09	413.31
(signif. different)	a	b	c	d
Standard Error	31.43	34.53	40.18	29.88
n	105	187	139	69



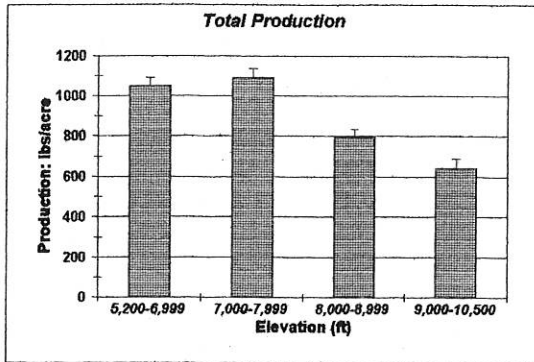
**SHRUB PRODUCTION: LBS/ACRE  
(Latitude in degrees)**

	37 to 39	39 to 41	41 to 43	41 to 43
Mean	97.81	173.02	148.03	130.56
(signif. different)	a	b	b,c	c
Standard Error	16.07	18.09	18.86	20.02
n	105	187	139	69

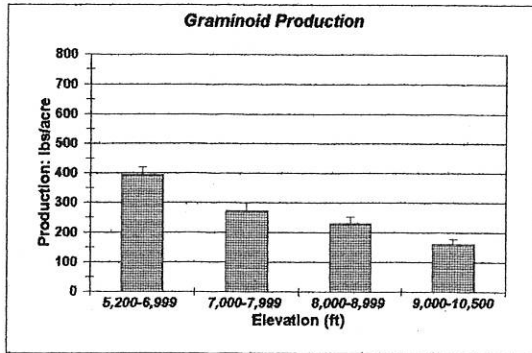


**INT-ASPEN CLASSIFICATION DATA:  
PRODUCTION/ENVIRONMENTAL RELATIONSHIPS**

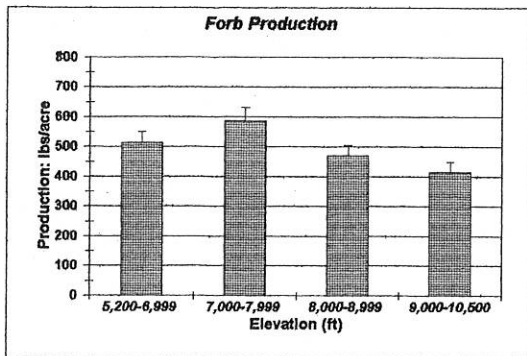
**ELEVATION**



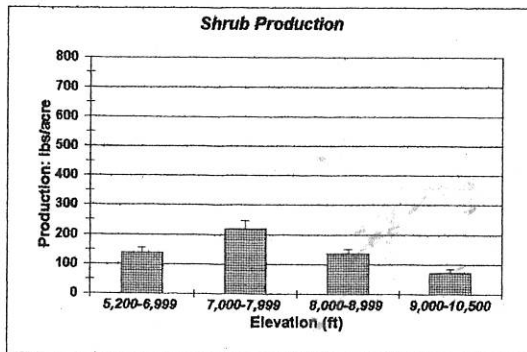
		TOTAL PRODUCTION (LBS/ACRE) ELEVATION (ft)			
		5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean		1048.05	1088.72	794.80	640.04
(signif. different)		a	a	b	c
Standard Error		42.29	47.21	38.30	47.75
n		140	128	167	98



		GRAMINOID PRODUCTION: LBS/ACRE ELEVATION (ft)			
		5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean		394.98	273.94	230.19	159.56
(signif. different)		a	b	b	c
Standard Error		24.53	27.51	23.88	19.20
n		140	118	146	96



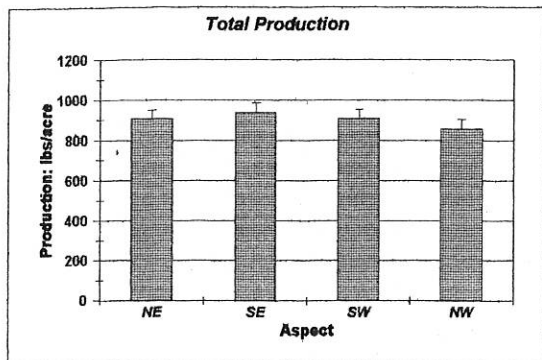
		FORB PRODUCTION: LBS/ACRE ELEVATION (ft)			
		5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean		512.76	586.80	470.66	414.40
(signif. different)		a	b	a,c	c
Standard Error		38.32	44.61	34.02	34.17
n		140	118	146	96



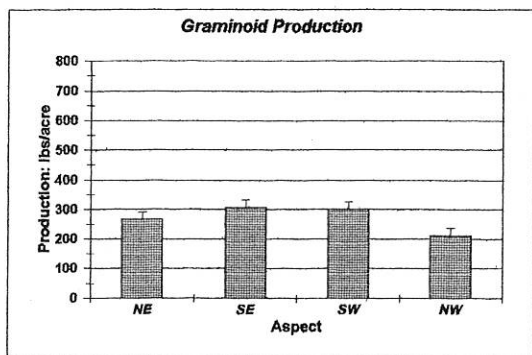
		SHRUB PRODUCTION: LBS/ACRE ELEVATION (ft)			
		5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean		139.54	219.49	136.44	71.40
(signif. different)		a	b	a	c
Standard Error		15.79	26.72	16.31	13.97
n		140	118	146	96

**INT-ASPEN CLASSIFICATION DATA:  
PRODUCTION/ENVIRONMENTAL RELATIONSHIPS**

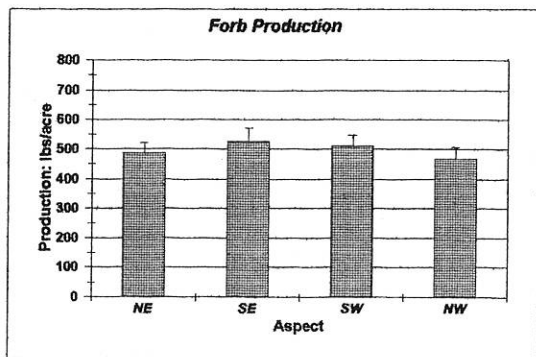
**ASPECT**



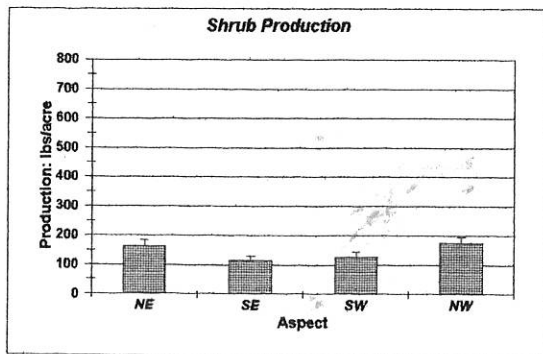
TOTAL PRODUCTION (LBS/ACRE)				
	NE	SE	SW	NW
Mean	907	935	909	858
(signif. different)	a	a	a	a
Standard Error	44	49	43	47
n	144	137	139	114



GRAMINOID PRODUCTION: LBS/ACRE				
	NE	SE	SW	NW
Mean	266.77	307.14	298.85	211.07
(signif. different)	a	a	a	b
Standard Error	24.63	25.09	25.60	27.20
n	139	125	125	111



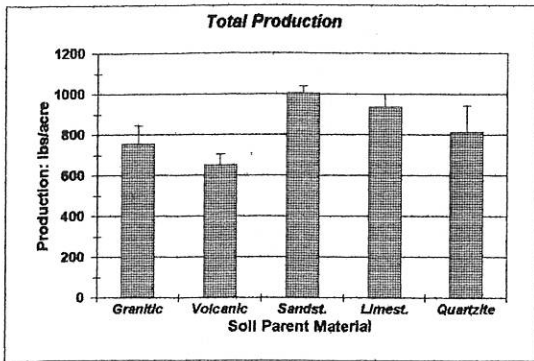
FORB PRODUCTION: LBS/ACRE				
	NE	SE	SW	NW
Mean	488.27	525.75	512.04	467.88
(signif. different)	a	a	a	a
Standard Error	33.81	46.22	35.30	38.77
n	139	125	125	111



SHRUB PRODUCTION: LBS/ACRE				
	NE	SE	SW	NW
Mean	161.58	115.07	126.44	176.24
(signif. different)	a,c	b	b,c	a
Standard Error	23.31	14.00	18.15	19.06
n	139	125	125	111

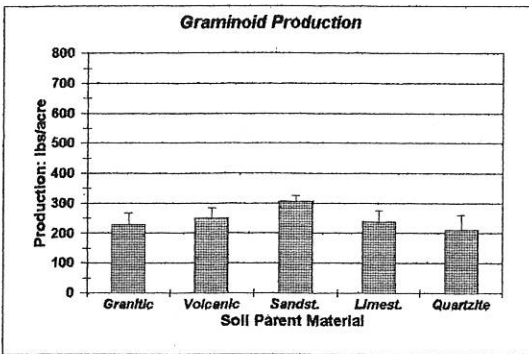
**INT-ASPEN CLASSIFICATION DATA:  
PRODUCTION/ENVIRONMENTAL RELATIONSHIPS**

**SOIL**



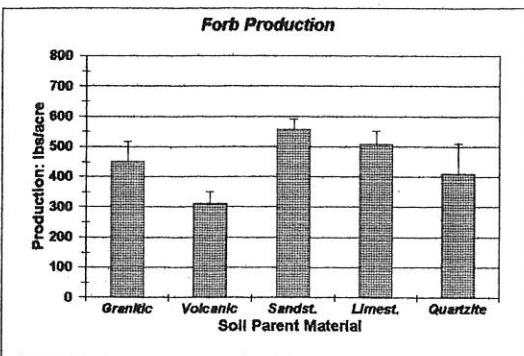
**TOTAL PRODUCTION (LBS/ACRE)  
SOIL PARENT MATERIAL**

	Granitic	Volcanic	Sandst.	Limest.	Quartzite
Mean	755	651	1004	936	812
(signif. different)	a	a	b	b,c	a,c
Standard Error	89	53	34	66	133
n	46	51	242	77	14



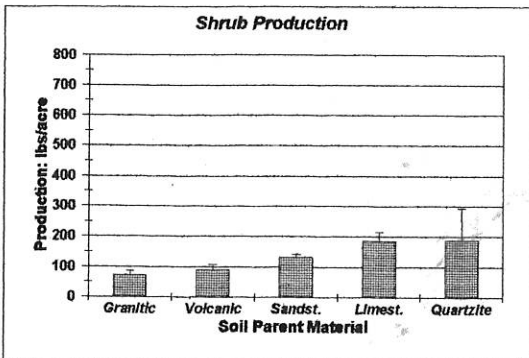
**GRAMINOID PRODUCTION  
SOIL PARENT MATERIAL**

	Granitic	Volcanic	Sandst.	Limest.	Quartzite
Mean	227.74	250.86	305.43	239.58	212.39
(signif. different)	a	a	b	a	a
Standard Error	39.26	33.09	19.95	36.96	48.12
n	46	51	229	76	14



**FORB PRODUCTION  
SOIL PARENT MATERIAL**

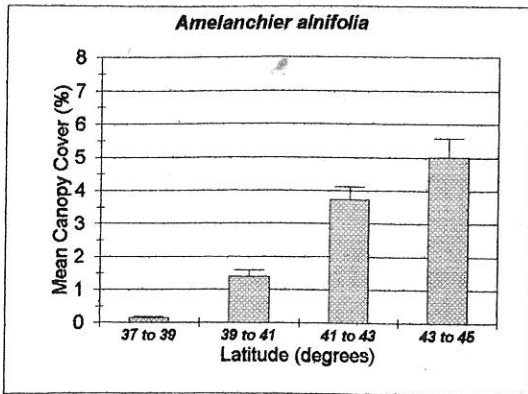
	Granitic	Volcanic	Sandst.	Limest.	Quartzite
Mean	451.37	312.08	558.07	507.54	411.32
(signif. different)	a	b	c	a,c	a,b
Standard Error	64.71	39.24	31.49	45.97	99.37
n	46	51	242	77	14



**SHRUB PRODUCTION  
SOIL PARENT MATERIAL**

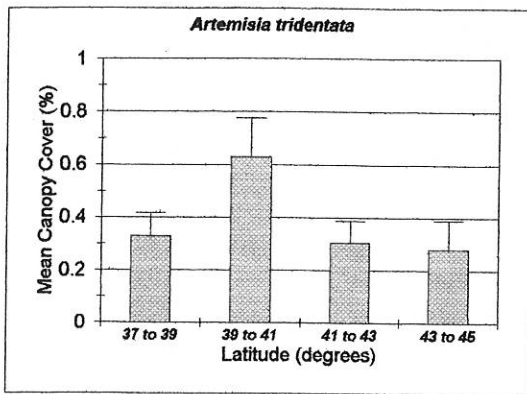
	Granitic	Volcanic	Sandst.	Limest.	Quartzite
Mean	71.18	88.43	131.37	185.51	188.32
(signif. different)	a	a	b	c	b,c
Standard Error	15.21	19.75	11.23	30.62	105.16
n	46	51	229	76	14

## INT-ASPEN CLASSIFICATION DATA: SPECIES/ LATITUDE RELATIONSHIP



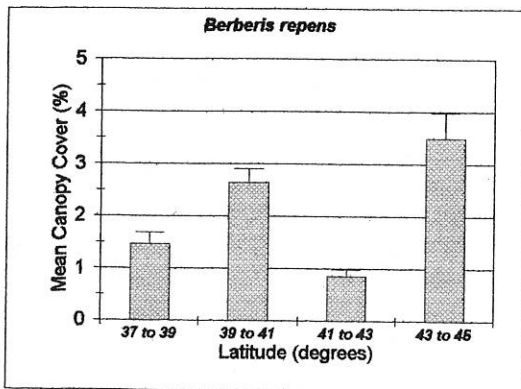
**Amelanchier alnifolia Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.13	1.39	3.73	5.00
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.05	0.20	0.39	0.57
<b>n</b>	431	760	568	378
<b>% Constancy</b>	10	29	52	46
<b>Mean Where Present</b>	1.41	4.85	7.22	10.80



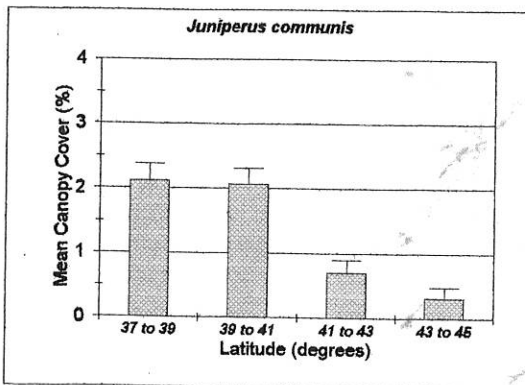
**Artemisia tridentata Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.33	0.63	0.31	0.28
<b>(signif. different)</b>	a	b	a	a
<b>Standard Error</b>	0.09	0.15	0.08	0.11
<b>n</b>	431	760	568	378
<b>% Constancy</b>	9	10	12	8
<b>Mean Where Present</b>	3.55	6.14	2.55	3.66



**Berberis repens Canopy Cover (%)**  
(Latitude in degrees)

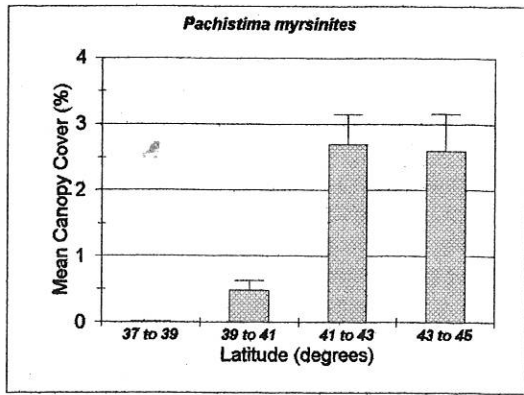
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	1.46	2.64	0.85	3.49
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.22	0.25	0.13	0.50
<b>n</b>	431	760	568	378
<b>% Constancy</b>	31	41	29	46
<b>Mean Where Present</b>	4.70	6.52	2.94	7.58



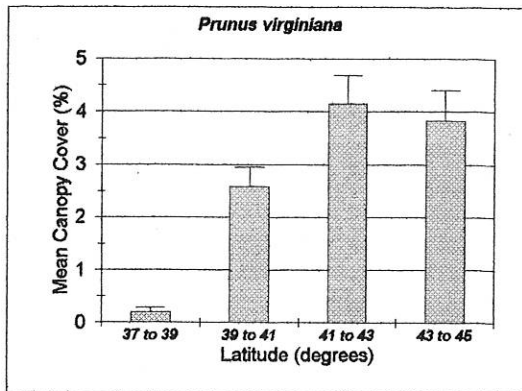
**Juniperus communis Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	2.11	2.07	0.70	0.31
<b>(signif. different)</b>	a	a	b	c
<b>Standard Error</b>	0.26	0.24	0.20	0.17
<b>n</b>	431	760	568	378
<b>% Constancy</b>	33	20	5	6
<b>Mean Where Present</b>	6.33	10.20	14.69	5.64

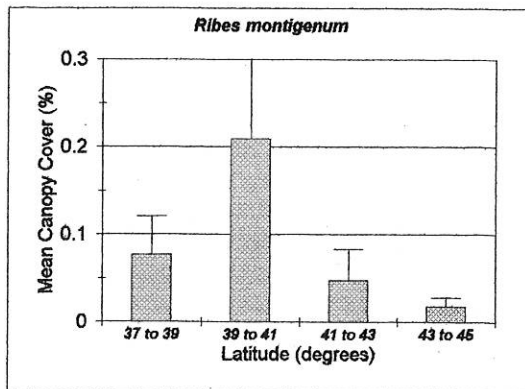
## SPECIES/ LATITUDE RELATIONSHIP



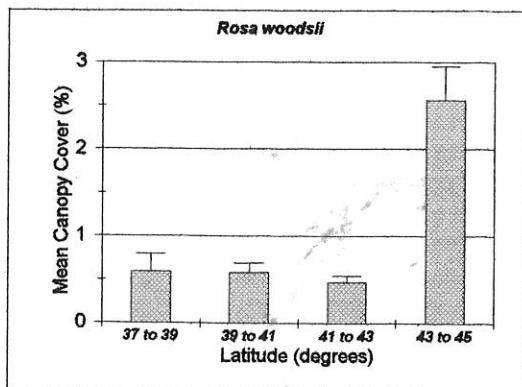
	Pachistima myrsinites Canopy Cover (%)			
	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.01	0.48	2.69	2.60
<b>(signif. different)</b>	a	b	c	c
<b>Standard Error</b>	0.00	0.15	0.45	0.56
<b>n</b>	431	760	568	378
<b>% Constancy</b>	2	12	20	20
<b>Mean Where Present</b>	0.40	4.00	13.31	12.92



	Prunus virginiana Canopy Cover (%)			
	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.20	2.59	4.15	3.83
<b>(signif. different)</b>	a	b	c	c
<b>Standard Error</b>	0.09	0.36	0.54	0.58
<b>n</b>	431	760	568	378
<b>% Constancy</b>	3	21	30	30
<b>Mean Where Present</b>	5.69	12.29	13.70	12.60

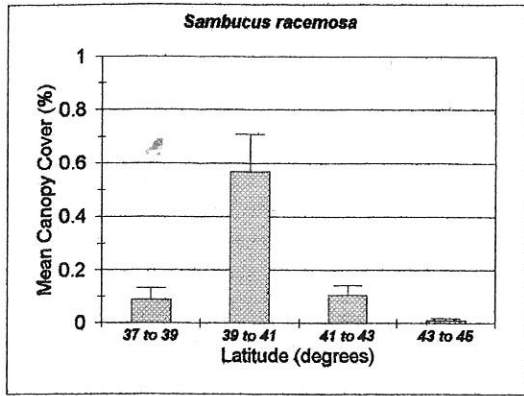


	Ribes montigenum Canopy Cover (%)			
	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.08	0.21	0.05	0.02
<b>(signif. different)</b>	a, b	a	b, c	c
<b>Standard Error</b>	0.04	0.10	0.04	0.01
<b>n</b>	431	760	568	378
<b>% Constancy</b>	2	4	2	2
<b>Mean Where Present</b>	3.31	5.30	2.99	0.85

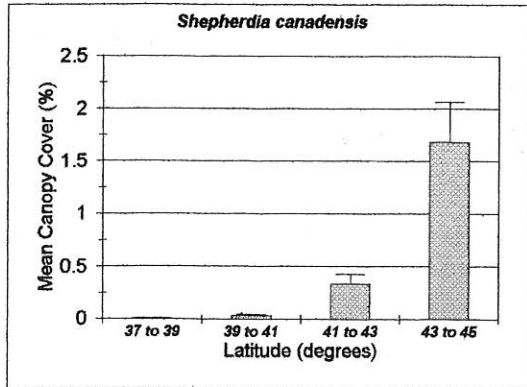


	Rosa woodsii Canopy Cover (%)			
	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.59	0.58	0.47	2.56
<b>(signif. different)</b>	a	a	a	b
<b>Standard Error</b>	0.21	0.11	0.07	0.39
<b>n</b>	431	760	568	378
<b>% Constancy</b>	23	32	36	39
<b>Mean Where Present</b>	2.60	1.84	1.30	6.53

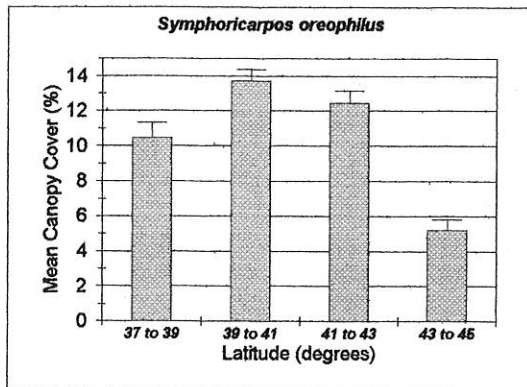
## SPECIES/ LATITUDE RELATIONSHIP



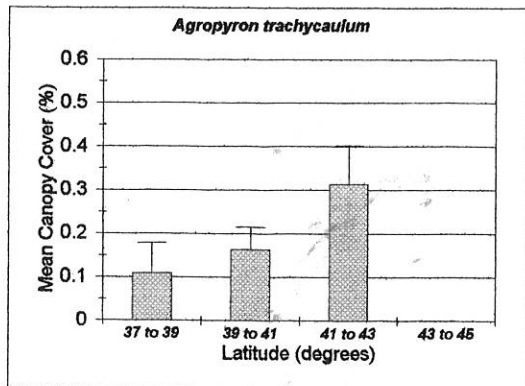
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.09	0.57	0.11	0.01
<b>(signif. different)</b>	a	b	a	c
<b>Standard Error</b>	0.04	0.14	0.04	0.01
<b>n</b>	431	760	568	378
<b>% Constancy</b>	5	15	8	1
<b>Mean Where Present</b>	1.81	3.75	1.36	1.20



	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.002	0.030	0.331	1.683
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.001	0.010	0.093	0.379
<b>n</b>	431	760	568	378
<b>% Constancy</b>	1	3	7	20
<b>Mean Where Present</b>	0.30	1.15	4.82	8.26

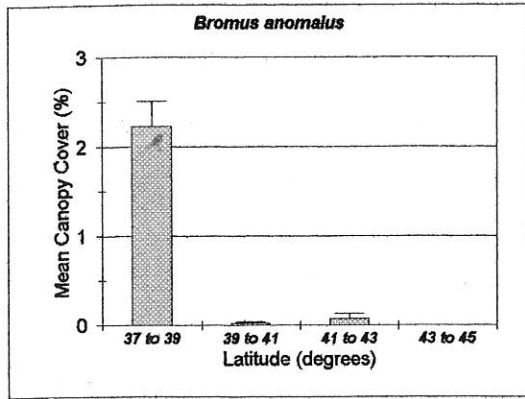


	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	10.46	13.70	12.47	5.20
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.87	0.66	0.69	0.63
<b>n</b>	431	760	568	378
<b>% Constancy</b>	68	78	83	51
<b>Mean Where Present</b>	15.29	17.58	15.10	10.14

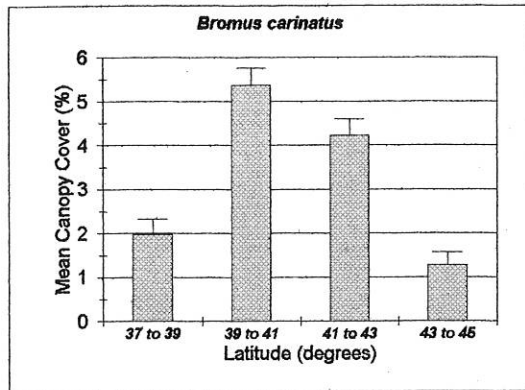


	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.11	0.16	0.31	0.00
<b>(signif. different)</b>	a	a	b	c
<b>Standard Error</b>	0.07	0.05	0.09	0.00
<b>n</b>	431	760	568	378
<b>% Constancy</b>	1	3	6	0
<b>Mean Where Present</b>	11.75	4.96	5.38	0.00

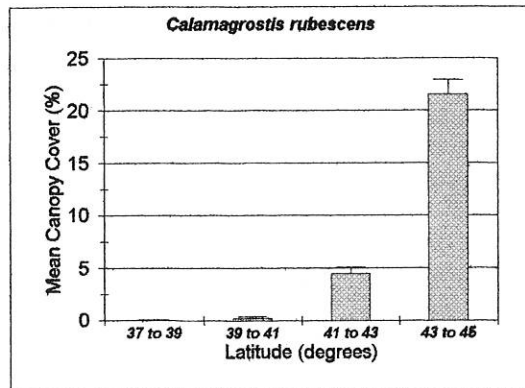
## SPECIES/ LATITUDE RELATIONSHIP



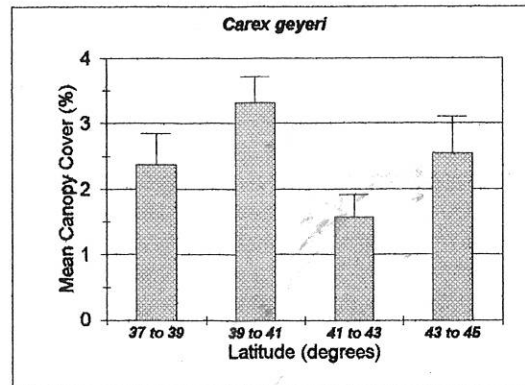
	Bromus anomalus Canopy Cover (%)			
	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
Overall Mean	2.23	0.03	0.08	<0.01
(signif. different)	a	b	b	c
Standard Error	0.28	0.01	0.06	0.00
n	431	760	568	378
% Constancy	30	1	1	<1
Mean Where Present	7.33	1.83	6.31	0.30



	Bromus carinatus Canopy Cover (%)			
	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
Overall Mean	1.97	5.37	4.22	1.28
(signif. different)	a	b	c	d
Standard Error	0.35	0.39	0.39	0.28
n	431	760	568	378
% Constancy	23	51	56	32
Mean Where Present	8.68	10.48	7.59	4.03

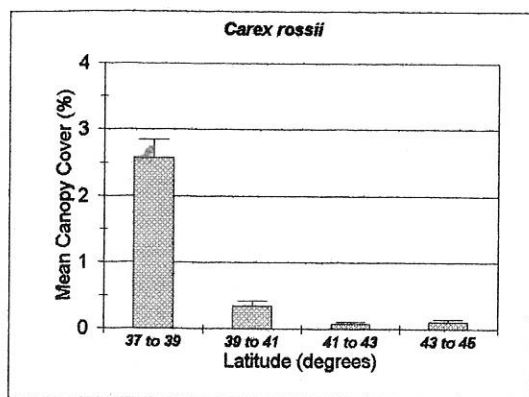


	Calamagrostis rubescens Canopy Cover (%)			
	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
Overall Mean	0.00	0.19	4.43	21.54
(signif. different)	a	b	c	d
Standard Error	0.00	0.13	0.60	1.42
n	431	760	568	378
% Constancy	<1	<1	16	60
Mean Where Present	1.05	72.50	27.06	35.87



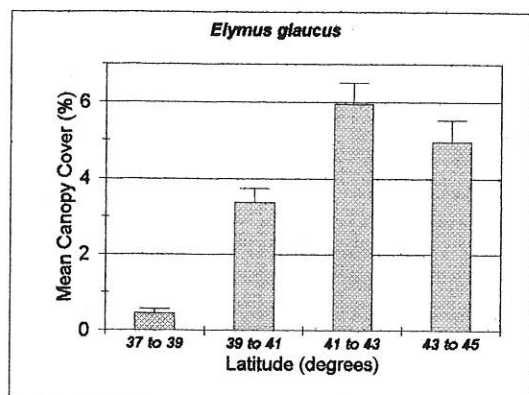
	Carex geyeri Canopy Cover (%)			
	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
Overall Mean	2.37	3.32	1.57	2.55
(signif. different)	a	b	c	a, b
Standard Error	0.48	0.40	0.34	0.56
n	431	760	568	378
% Constancy	11	21	11	14
Mean Where Present	21.27	15.75	13.71	18.50

## SPECIES/ LATITUDE RELATIONSHIP



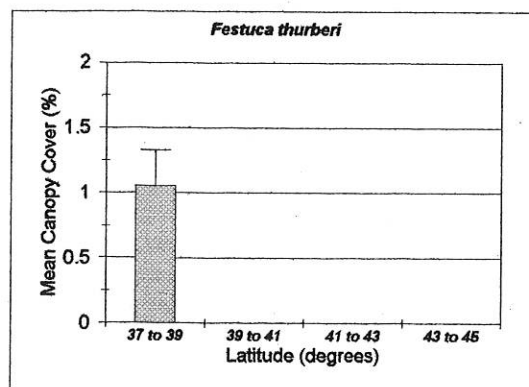
**Carex rossii Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	2.57	0.34	0.08	0.11
<b>(signif. different)</b>	a	b	c	c
<b>Standard Error</b>	0.28	0.08	0.02	0.04
<b>n</b>	431	760	568	378
<b>% Constancy</b>	44	7	6	12
<b>Mean Where Present</b>	5.87	4.73	1.31	0.91



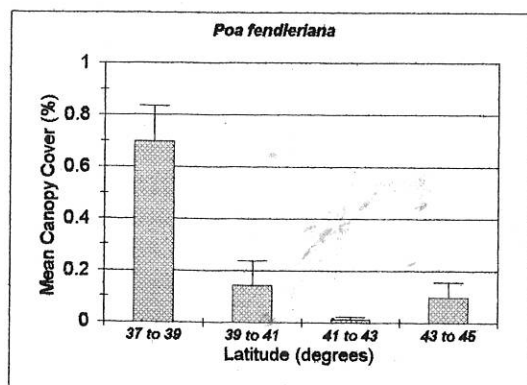
**Elymus glaucus Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.44	3.37	5.95	4.95
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.12	0.37	0.56	0.58
<b>n</b>	431	760	568	378
<b>% Constancy</b>	8	33	51	61
<b>Mean Where Present</b>	5.70	9.97	11.73	8.10



**Festuca thurberi Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	1.05406032	0	0	0
<b>(signif. different)</b>	a	b	b	b
<b>Standard Error</b>	0.27400389	0	0	0
<b>n</b>	431	760	568	378
<b>% Constancy</b>	12	0	0	0
<b>Mean Where Present</b>	9.09	0	0	0

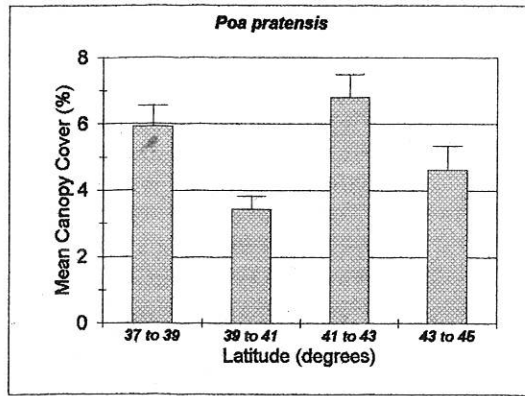


**Poa fendleriana Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.70	0.14	0.01	0.10
<b>(signif. different)</b>	a	b	c	b
<b>Standard Error</b>	0.14	0.09	0.01	0.06
<b>n</b>	431	760	568	378
<b>% Constancy</b>	23	3	1	2
<b>Mean Where Present</b>	3.03	5.40	2.43	4.02

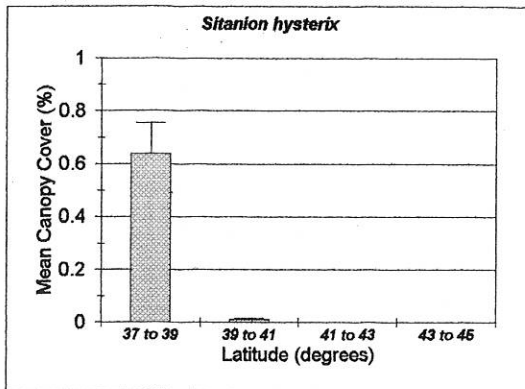


## SPECIES/ LATITUDE RELATIONSHIP



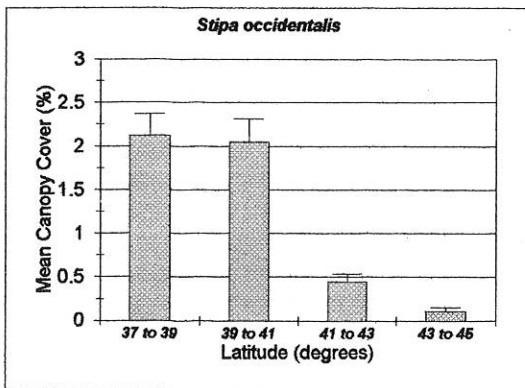
***Poa pratensis* Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	5.93	3.43	6.80	4.62
<b>(signif. different)</b>	a	b	a	c
<b>Standard Error</b>	0.62	0.39	0.69	0.73
<b>n</b>	431	760	568	378
<b>% Constancy</b>	40	27	42	24
<b>Mean Where Present</b>	14.85	12.65	16.29	19.39



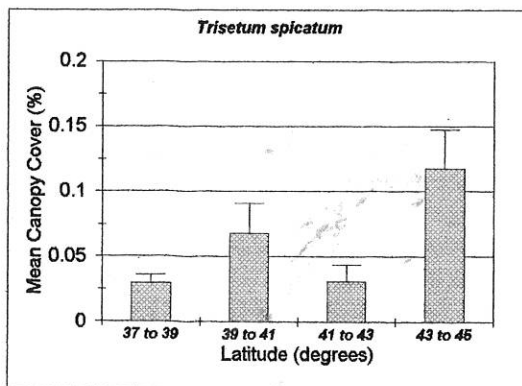
***Sitanion hystrix* Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.64	0.01	0.00	0.00
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.11	0.00	0.00	0.00
<b>n</b>	431	760	568	378
<b>% Constancy</b>	26	1	<1	0
<b>Mean Where Present</b>	2.44	1.03	0.30	0.00



***Stipa occidentalis* Canopy Cover (%)**  
(Latitude in degrees)

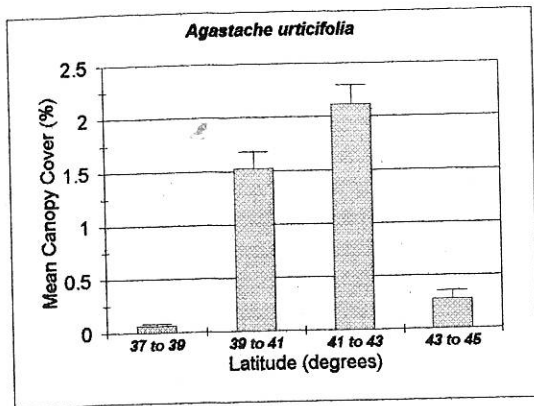
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	2.12	2.05	0.44	0.11
<b>(signif. different)</b>	a	a	b	c
<b>Standard Error</b>	0.25	0.26	0.10	0.04
<b>n</b>	431	760	568	378
<b>% Constancy</b>	43	29	12	5
<b>Mean Where Present</b>	4.94	6.95	3.70	2.14



***Trisetum spicatum* Canopy Cover (%)**  
(Latitude in degrees)

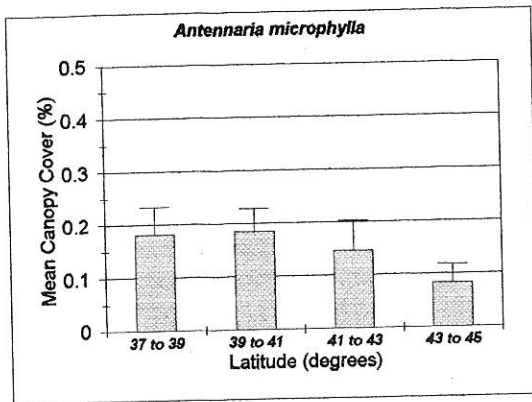
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.03	0.07	0.03	0.12
<b>(signif. different)</b>	a	b	a	c
<b>Standard Error</b>	0.01	0.02	0.01	0.03
<b>n</b>	431	760	568	378
<b>% Constancy</b>	8	7	4	13
<b>Mean Where Present</b>	0.35	0.94	0.71	0.93

# SPECIES/ LATITUDE RELATIONSHIP



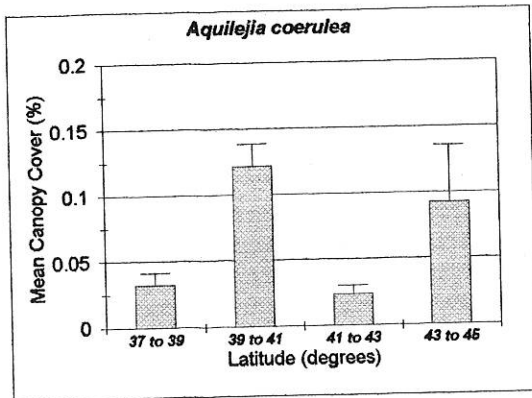
**Agastache urticifolia Canopy Cover (%)**

	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.06	1.52	2.12	0.28
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.02	0.16	0.18	0.08
<b>n</b>	431	760	568	378
<b>% Constancy</b>	3	28	54	12
<b>Mean Where Present</b>	1.85	5.50	3.94	2.26



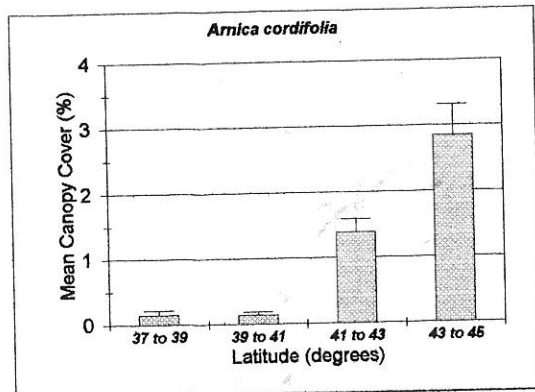
**Antennaria microphylla Canopy Cover (%)**

	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.18	0.19	0.15	0.08
<b>(signif. different)</b>	a	a	a, b	b
<b>Standard Error</b>	0.05	0.04	0.06	0.04
<b>n</b>	431	760	568	378
<b>% Constancy</b>	13	10	6	7
<b>Mean Where Present</b>	1.37	1.87	2.44	1.17



**Aquilegia coerulea Canopy Cover (%)**

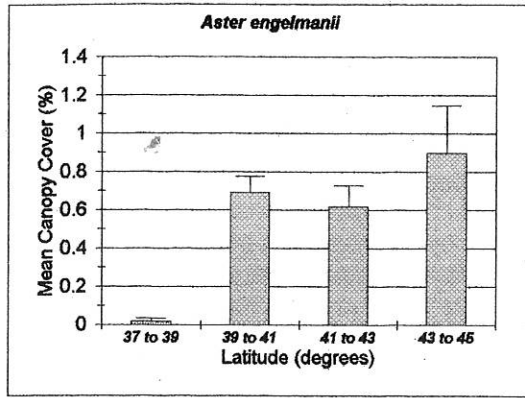
	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.03	0.12	0.02	0.09
<b>(signif. different)</b>	a	b	a	b
<b>Standard Error</b>	0.01	0.02	0.01	0.04
<b>n</b>	431	760	568	378
<b>% Constancy</b>	7	18	5	6
<b>Mean Where Present</b>	0.44	0.67	0.47	0.63



**Arnica cordifolia Canopy Cover (%)**

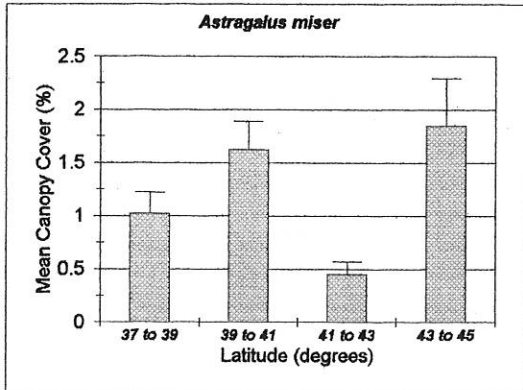
	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.14	0.14	1.38	2.84
<b>(signif. different)</b>	a	a	b	c
<b>Standard Error</b>	0.07	0.04	0.21	0.47
<b>n</b>	431	760	568	378
<b>% Constancy</b>	4	4	18	29
<b>Mean Where Present</b>	3.59	3.25	7.76	9.95

## SPECIES/ LATITUDE RELATIONSHIP



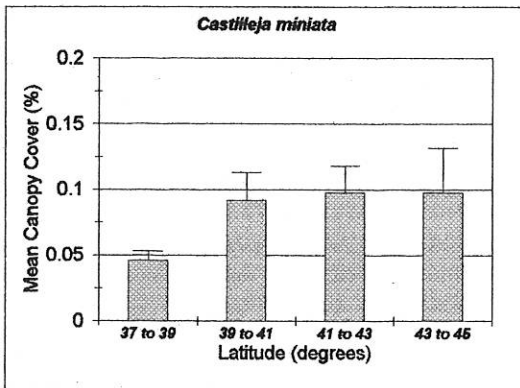
***Aster engelmannii* Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.02	0.69	0.62	0.90
<b>(signif. different)</b>	a	b	b	b
<b>Standard Error</b>	0.02	0.09	0.11	0.25
<b>n</b>	431	760	568	378
<b>% Constancy</b>	1	24	23	20
<b>Mean Where Present</b>	0.43	2.88	2.74	4.40



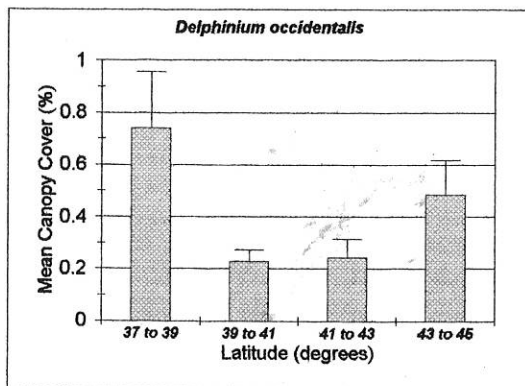
***Astragalus miser* Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	1.02	1.62	0.45	1.85
<b>(signif. different)</b>	a	b	c	b
<b>Standard Error</b>	0.20	0.26	0.13	0.45
<b>n</b>	431	760	568	378
<b>% Constancy</b>	18	12	6	19
<b>Mean Where Present</b>	5.73	13.86	7.24	9.96



***Castilleja miniata* Canopy Cover (%)**  
(Latitude in degrees)

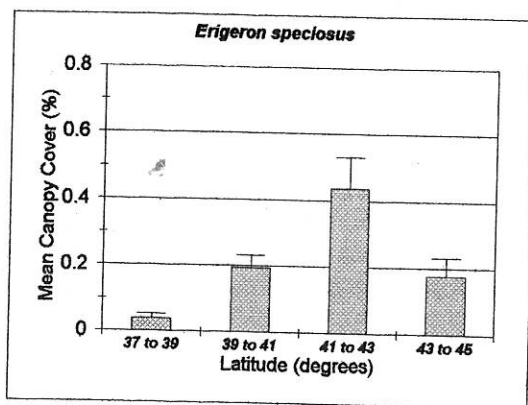
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.05	0.09	0.10	0.10
<b>(signif. different)</b>	a	b	b	b
<b>Standard Error</b>	0.01	0.02	0.02	0.03
<b>n</b>	431	760	568	378
<b>% Constancy</b>	14	11	11	6
<b>Mean Where Present</b>	0.33	0.87	0.87	1.60



***Delphinium occidentale* Canopy Cover (%)**  
(Latitude in degrees)

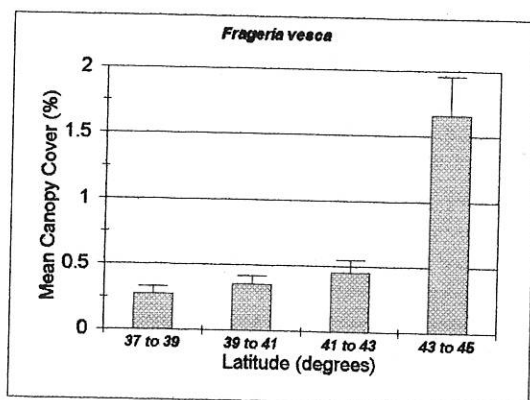
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.74	0.23	0.24	0.48
<b>(signif. different)</b>	a	b	b	a
<b>Standard Error</b>	0.22	0.05	0.07	0.13
<b>n</b>	431	760	568	378
<b>% Constancy</b>	6	11	14	16
<b>Mean Where Present</b>	11.80	1.98	1.79	3.10

## SPECIES/ LATITUDE RELATIONSHIP



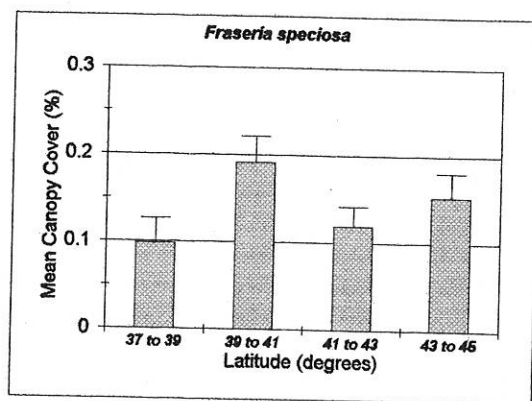
**Erigeron speciosus Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
Overall Mean	0.04	0.19	0.44	0.18
(signif. different)	a	b	c	b
Standard Error	0.01	0.04	0.09	0.06
n	431	760	568	378
% Constancy	5	14	17	11
Mean Where Present	0.73	1.34	2.59	1.56



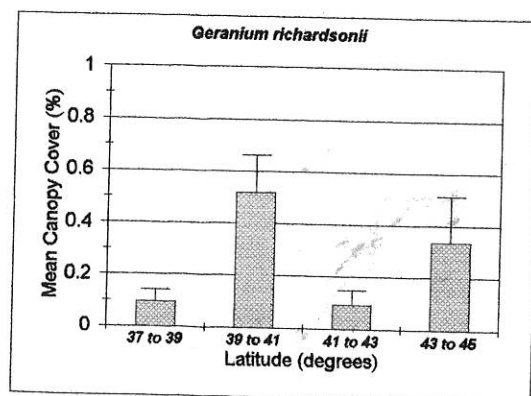
**Frageria vesca Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
Overall Mean	0.27	0.35	0.45	1.66
(signif. different)	a	a, b	b	c
Standard Error	0.06	0.06	0.10	0.30
n	431	760	568	378
% Constancy	19	17	19	25
Mean Where Present	1.46	2.12	2.38	3.46



**Frasieria speciosa Canopy Cover (%)**  
(Latitude in degrees)

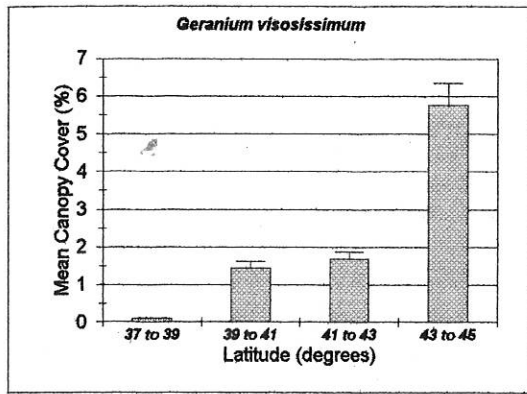
	37 to 39	39 to 41	41 to 43	43 to 45
Overall Mean	0.10	0.19	0.12	0.15
(signif. different)	a	b, c	a	c
Standard Error	0.03	0.03	0.02	0.03
n	431	760	568	378
% Constancy	10	11	12	18
Mean Where Present	0.96	1.18	1.00	0.84



**Geranium richardsonii Canopy Cover (%)**  
(Latitude in degrees)

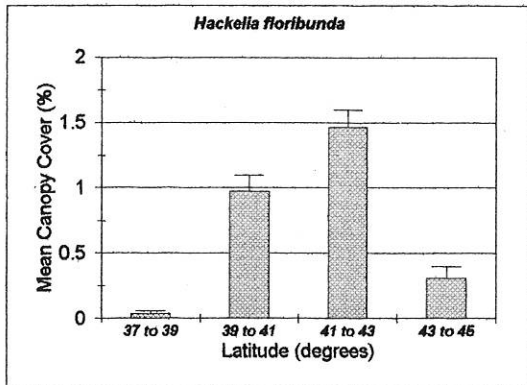
	37 to 39	39 to 41	41 to 43	43 to 45
Overall Mean	0.09	0.52	0.09	0.33
(signif. different)	a	b	a	b
Standard Error	0.05	0.14	0.06	0.18
n	431	760	568	378
% Constancy	4	9	1	3
Mean Where Present	2.55	5.80	8.67	10.55

## SPECIES/ LATITUDE RELATIONSHIP



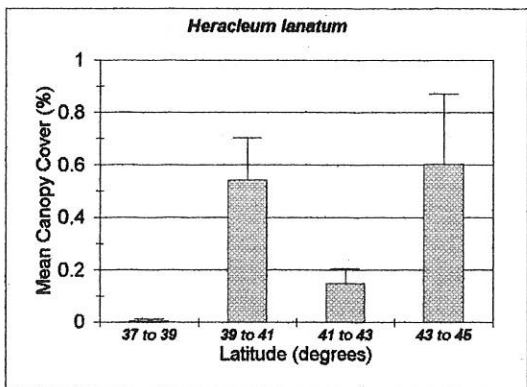
**Geranium viscosissimum Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.08	1.44	1.69	5.77
<b>(signif. different)</b>	a	b	b	c
<b>Standard Error</b>	0.03	0.18	0.18	0.57
<b>n</b>	431	760	568	378
<b>% Constancy</b>	9	34	43	60
<b>Mean Where Present</b>	0.86	4.20	3.95	9.64



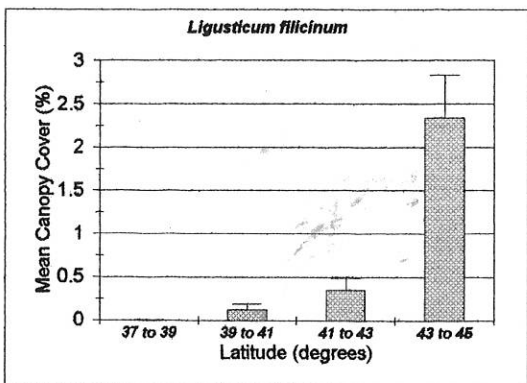
**Hackelia floribunda Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.04	0.97	1.46	0.31
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.02	0.12	0.13	0.09
<b>n</b>	431	760	568	378
<b>% Constancy</b>	1	32	43	12
<b>Mean Where Present</b>	2.53	3.09	3.39	2.48



**Heracleum lanatum Canopy Cover (%)**  
(Latitude in degrees)

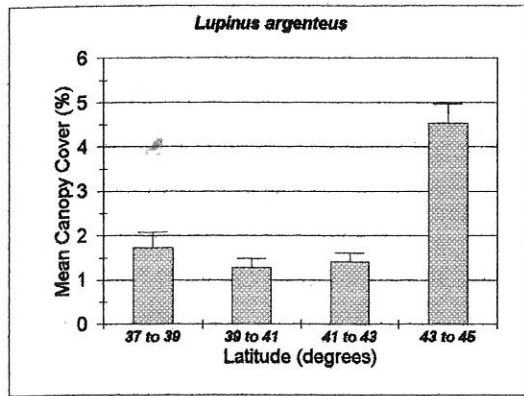
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.01	0.54	0.15	0.60
<b>(signif. different)</b>	a	b	c	b
<b>Standard Error</b>	0.00	0.16	0.06	0.27
<b>n</b>	431	760	568	378
<b>% Constancy</b>	<1	6	3	4
<b>Mean Where Present</b>	1.15	8.58	4.95	15.19



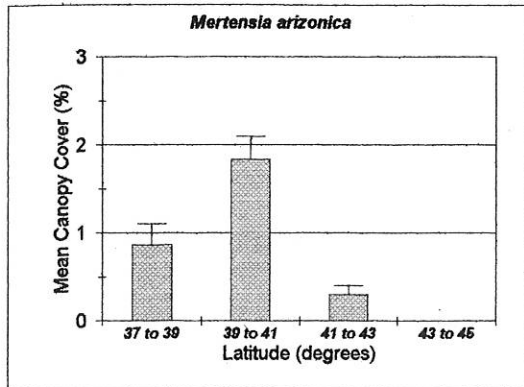
**Ligusticum filicinum Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	<0.01	0.12	0.35	2.34
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.00	0.06	0.14	0.50
<b>n</b>	431	760	568	378
<b>% Constancy</b>	2	3	4	17
<b>Mean Where Present</b>	0.18	4.07	8.01	13.82

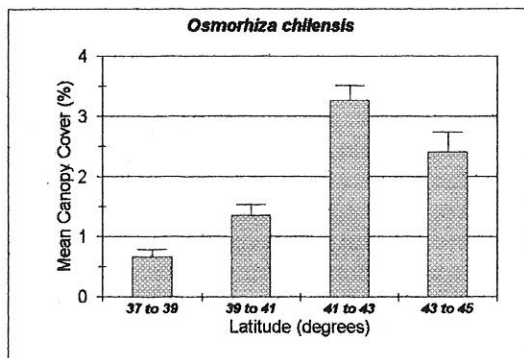
## SPECIES/ LATITUDE RELATIONSHIP



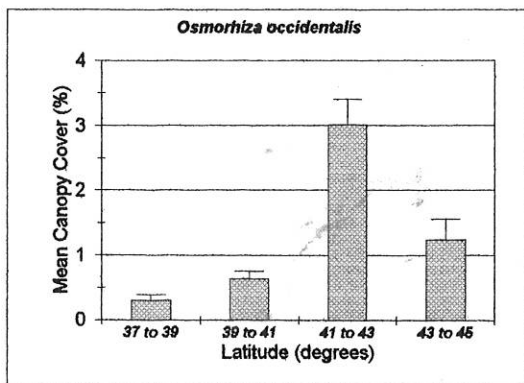
	37 to 39	39 to 41	41 to 43	43 to 45
Overall Mean	1.72	1.28	1.41	4.53
(signif. different)	a	a	a	b
Standard Error	0.36	0.20	0.20	0.44
n	431	760	568	378
% Constancy	19	20	26	68
Mean Where Present	9.06	6.42	5.49	6.66



	37 to 39	39 to 41	41 to 43	43 to 45
Overall Mean	0.86	1.83	0.30	0.00
(signif. different)	a	b	c	d
Standard Error	0.24	0.26	0.10	0.00
n	431	760	568	378
% Constancy	16	19	5	0
Mean Where Present	5.47	9.47	6.11	0.00

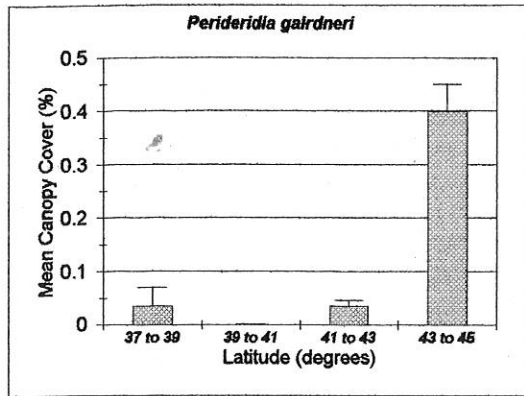


	37 to 39	39 to 41	41 to 43	43 to 45
Overall Mean	0.66	1.36	3.27	2.40
(signif. different)	a	b	c	d
Standard Error	0.13	0.18	0.25	0.33
n	431	760	568	378
% Constancy	21	35	61	40
Mean Where Present	3.15	3.85	5.36	5.94



	37 to 39	39 to 41	41 to 43	43 to 45
Overall Mean	0.30	0.64	3.01	1.24
(signif. different)	a	b	c	d
Standard Error	0.09	0.11	0.39	0.33
n	431	760	568	378
% Constancy	8	17	32	15
Mean Where Present	3.61	3.82	9.31	8.08

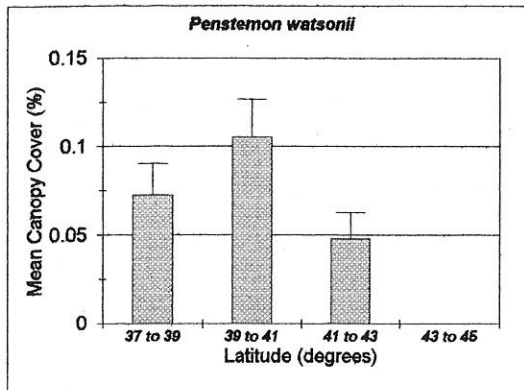
## SPECIES/ LATITUDE RELATIONSHIP



***Perideridia gairdneri* Canopy Cover (%)**

(Latitude in degrees)

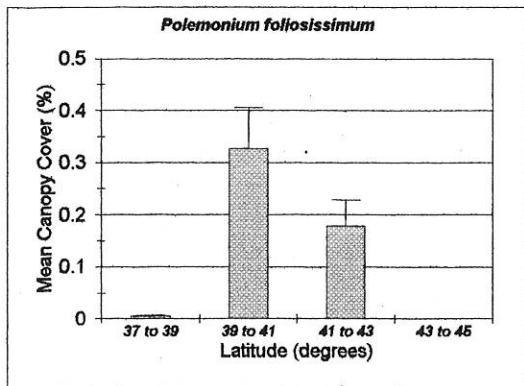
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.03	<0.01	0.04	0.40
<b>(signif. different)</b>	a	a	b	c
<b>Standard Error</b>	0.03	0.00	0.01	0.05
<b>n</b>	431	760	568	378
<b>% Constancy</b>	<1	<1	7	45
<b>Mean Where Present</b>	15.00	0.40	0.51	0.89



***Penstemon watsonii* Canopy Cover (%)**

(Latitude in degrees)

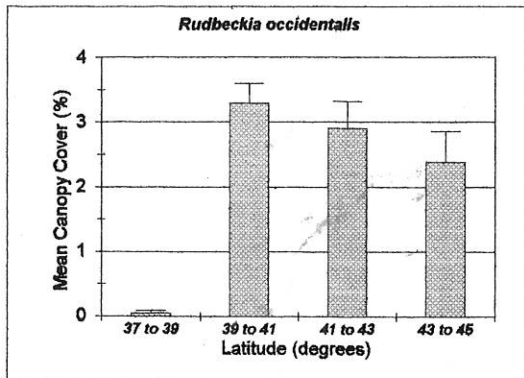
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.07	0.11	0.05	0.00
<b>(signif. different)</b>	a, b	a	b	c
<b>Standard Error</b>	0.02	0.02	0.01	0.00
<b>n</b>	431	760	568	378
<b>% Constancy</b>	7	8	3	0
<b>Mean Where Present</b>	1.08	1.34	1.70	0.00



***Polemonium foliosissimum* Canopy Cover (%)**

(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.01	0.33	0.18	0.00
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.00	0.08	0.05	0.00
<b>n</b>	431	760	568	378
<b>% Constancy</b>	2	17	10	0
<b>Mean Where Present</b>	0.28	1.96	1.77	0.00

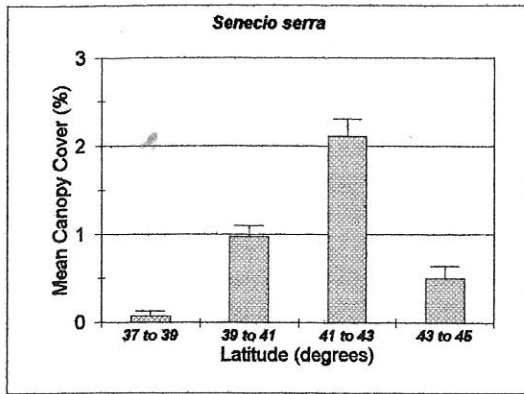


***Rudbeckia occidentalis* Canopy Cover (%)**

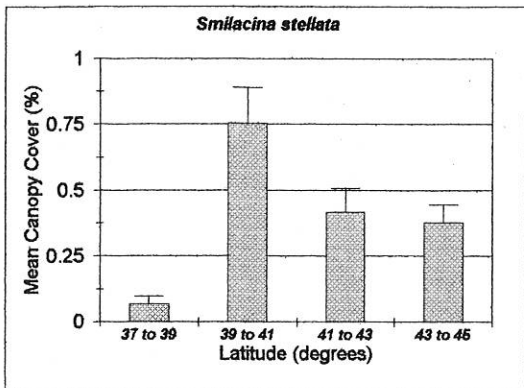
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.05	3.29	2.90	2.39
<b>(signif. different)</b>	a	b	b, d	d
<b>Standard Error</b>	0.03	0.31	0.41	0.46
<b>n</b>	431	760	568	378
<b>% Constancy</b>	1	35	27	16
<b>Mean Where Present</b>	4.34	9.30	10.91	15.29

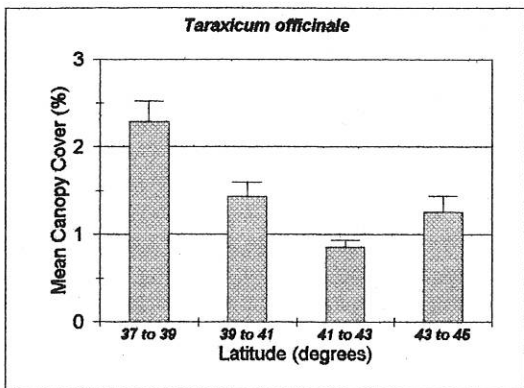
## SPECIES/ LATITUDE RELATIONSHIP



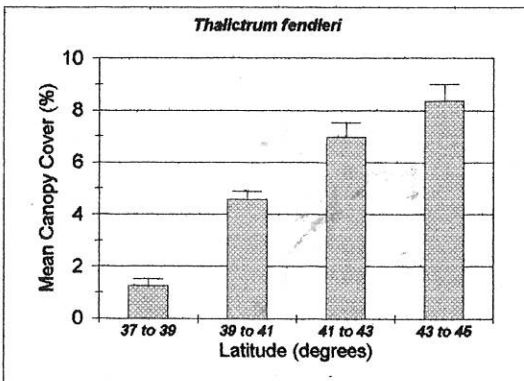
	SESE CANOPY COVER (%)			
	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.07	0.97	2.11	0.50
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.06	0.12	0.20	0.14
<b>n</b>	431	760	568	378
<b>% Constancy</b>	<1	25	46	19
<b>Mean Where Present</b>	15.00	3.96	4.62	2.69



	Smilacina stellata Canopy Cover (%)			
	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.07	0.75	0.42	0.38
<b>(signif. different)</b>	a	b	c	c
<b>Standard Error</b>	0.03	0.14	0.09	0.07
<b>n</b>	431	760	568	378
<b>% Constancy</b>	6	25	14	25
<b>Mean Where Present</b>	1.10	3.05	3.00	1.49



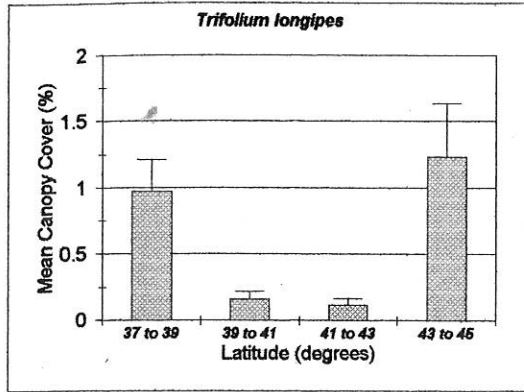
	Taraxicum officinale Canopy Cover			
	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	2.29	1.43	0.85	1.26
<b>(signif. different)</b>	a	b	c	b
<b>Standard Error</b>	0.23	0.17	0.09	0.18
<b>n</b>	431	760	568	378
<b>% Constancy</b>	68	37	50	51
<b>Mean Where Present</b>	3.36	3.90	1.71	2.47



	Thalictrum fendleri Canopy Cover (%)			
	(Latitude in degrees)			
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	1.25	4.56	6.94	8.35
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.26	0.34	0.58	0.64
<b>n</b>	431	760	568	378
<b>% Constancy</b>	28	53	62	72
<b>Mean Where Present</b>	4.44	8.62	11.17	11.65

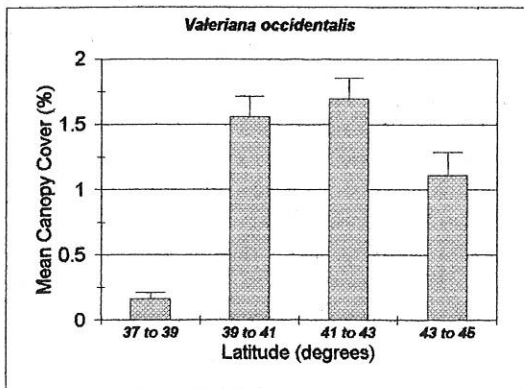


## SPECIES/ LATITUDE RELATIONSHIP



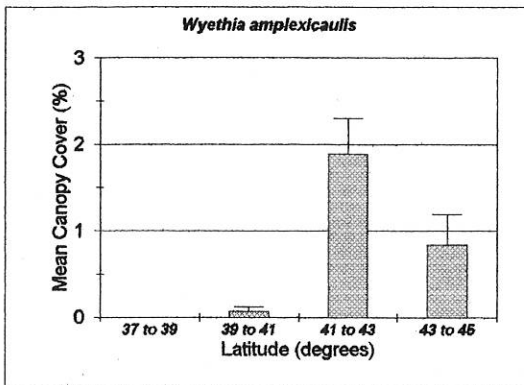
***Trifolium longipes* Canopy Cover (%)**  
(Latitude in degrees)

	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.97	0.16	0.12	1.23
<b>(signif. different)</b>	a	b	b	a
<b>Standard Error</b>	0.24	0.06	0.05	0.40
<b>n</b>	431	760	568	378
<b>% Constancy</b>	10	2	2	6
<b>Mean Where Present</b>	9.48	7.49	6.59	20.28



***Valeriana occidentalis* Canopy Cover (%)**  
(Latitude in degrees)

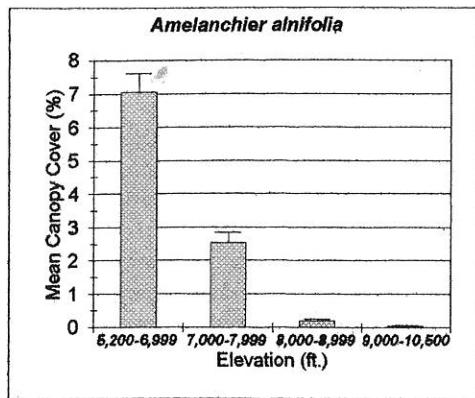
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.16	1.56	1.69	1.11
<b>(signif. different)</b>	a	b	b	c
<b>Standard Error</b>	0.05	0.16	0.16	0.18
<b>n</b>	431	760	568	378
<b>% Constancy</b>	6	26	36	27
<b>Mean Where Present</b>	2.84	6.10	4.64	4.07



***Wyethia amplexicaulis* Canopy Cover (%)**  
(Latitude in degrees)

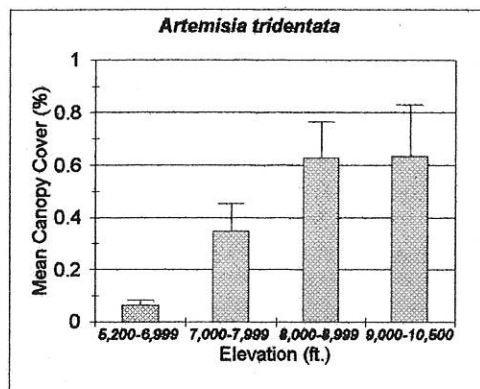
	37 to 39	39 to 41	41 to 43	43 to 45
<b>Overall Mean</b>	0.00	0.07	1.89	0.84
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.00	0.05	0.41	0.35
<b>n</b>	431	760	568	378
<b>% Constancy</b>	0	1	10	9
<b>Mean Where Present</b>	0.00	7.56	19.89	9.36

**INT-ASPEN CLASSIFICATION DATA:  
SPECIES/ ELEVATION RELATIONSHIP**



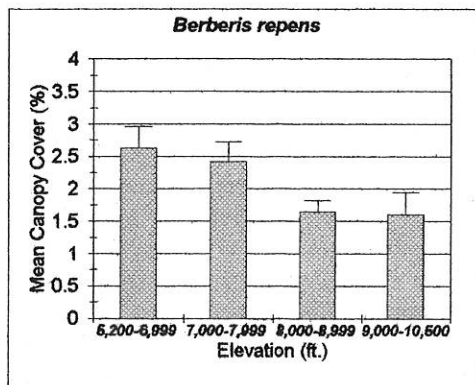
**Amelanchier alnifolia Canopy Cover (%)**  
(Elevation in feet)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	7.05	2.54	0.20	0.03
(signif. different)	a	b	c	d
Standard Error	0.56	0.30	0.05	0.01
n	494	587	709	345
% Constancy	69	47	13	5
Mean Where Present	10.21	5.39	1.53	0.64



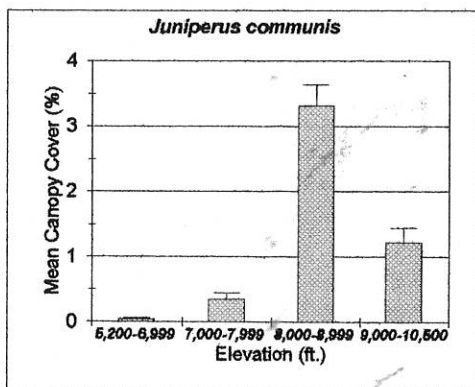
**Artemisia tridentata Canopy Cover (%)**  
(Elevation in feet)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.06	0.35	0.63	0.64
(signif. different)	a	b	c	c
Standard Error	0.02	0.10	0.14	0.19
n	494	587	709	345
% Constancy	7	9	13	11
Mean Where Present	0.91	3.87	4.82	5.77



**Berberis repens Canopy Cover (%)**  
(Elevation in feet)

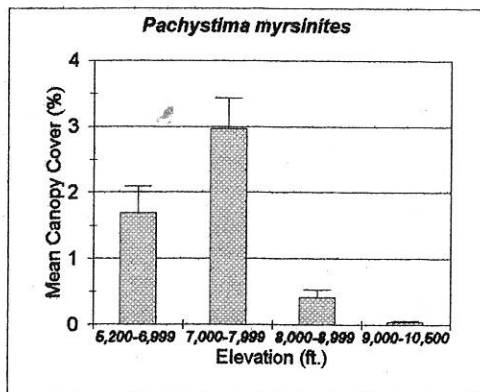
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	2.63	2.42	1.64	1.60
(signif. different)	a	a	b	b
Standard Error	0.33	0.30	0.18	0.35
n	494	587	709	345
% Constancy	49	39	33	25
Mean Where Present	5.37	6.20	4.96	6.41



**Juniperus communis Canopy Cover (%)**  
(Elevation in feet)

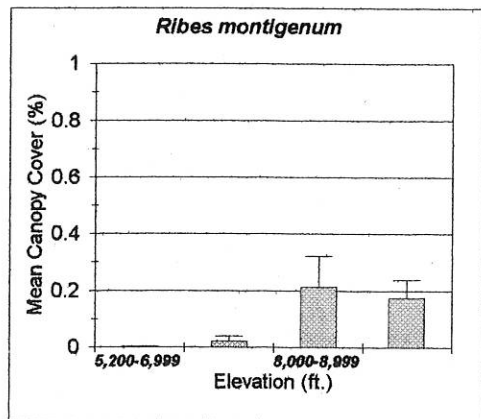
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.04	0.35	3.32	1.22
(signif. different)	a	b	c	d
Standard Error	0.02	0.09	0.32	0.22
n	494	587	709	345
% Constancy	2	7	30	23
Mean Where Present	1.84	4.95	11.05	5.29

# SPECIES/ ELEVATION RELATIONSHIP



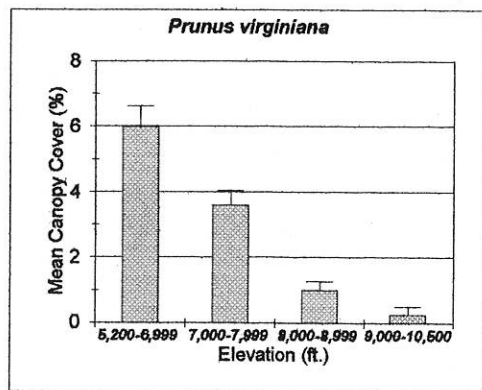
**Pachystima myrsinites Canopy Cover (%)**  
(Elevation in feet)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	1.69	2.96	0.41	0.04
(signif. different)	a	b	c	d
Standard Error	0.40	0.47	0.12	0.02
n	494	587	709	345
% Constancy	17	22	9	5
Mean Where Present	9.97	13.46	4.56	0.83



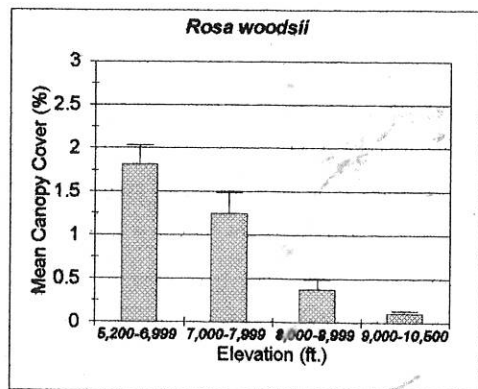
**Ribes montigenum Canopy Cover (%)**  
(Elevation in feet)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.002	0.021	0.213	0.176
(signif. different)	a	a	b	b
Standard Error	0.001	0.017	0.109	0.062
n	494	587	709	345
% Constancy	1	1	3	7
Mean Where Present	0.24	2.15	7.11	2.51



**Prunus virginiana Canopy Cover (%)**  
(Elevation in feet)

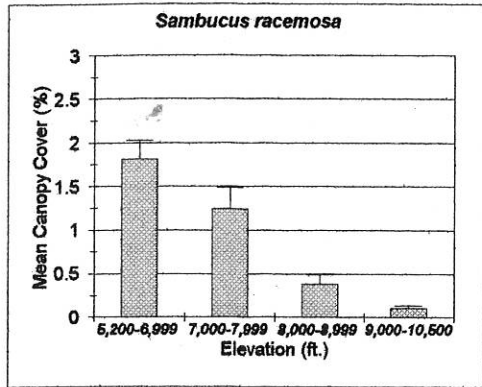
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	6.00	3.58	1.00	0.25
(signif. different)	a	b	c	d
Standard Error	0.62	0.46	0.27	0.25
n	494	587	709	345
% Constancy	45	30	8	1
Mean Where Present	13.33	11.93	12.46	25.01



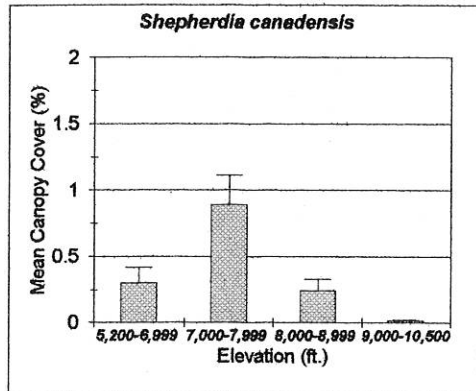
**Rosa woodsii Canopy Cover (%)**  
(Elevation in feet)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	1.81	1.24	0.38	0.10
(signif. different)	a	b	c	d
Standard Error	0.22	0.24	0.12	0.03
n	494	587	709	345
% Constancy	52	36	25	13
Mean Where Present	3.49	3.46	1.52	0.80

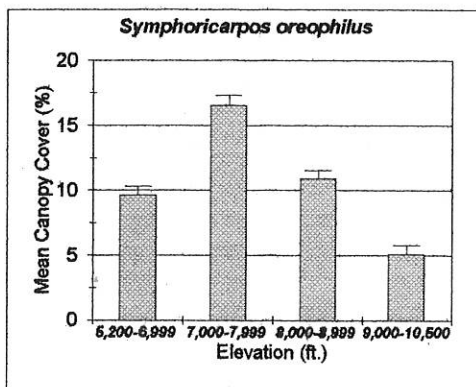
## SPECIES/ ELEVATION RELATIONSHIP



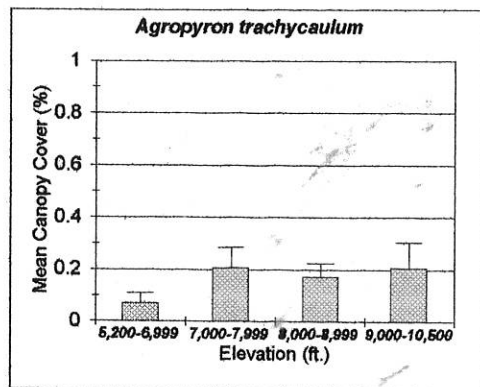
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.02	0.16	0.43	0.36
(signif. different)	a	b	c	c
Standard Error	0.01	0.05	0.14	0.11
n	494	587	709	345
% Constancy	3	7	12	11
Mean Where Present	0.76	2.25	3.58	3.26



	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.30	0.89	0.24	0.01
(signif. different)	a	b	a	d
Standard Error	0.12	0.22	0.09	0.01
n	494	587	709	345
% Constancy	5	11	6	1
Mean Where Present	5.99	8.09	4.06	1.39

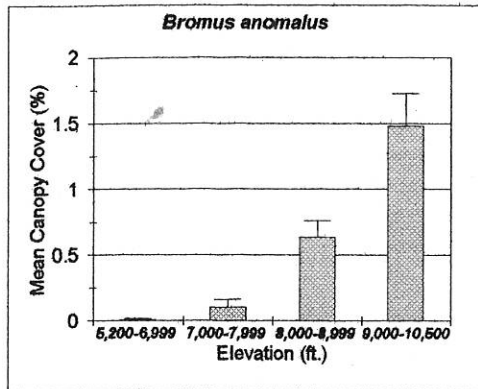


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	9.65	16.54	10.90	5.11
(signif. different)	a	b	c	d
Standard Error	0.68	0.79	0.63	0.70
n	494	587	709	345
% Constancy	69	87	73	53
Mean Where Present	13.98	19.02	14.93	9.65

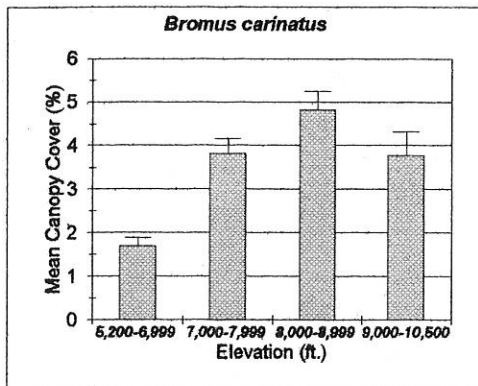


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.07	0.21	0.17	0.21
(signif. different)	a	b	b	b
Standard Error	0.04	0.08	0.05	0.10
n	494	587	709	345
% Constancy	2	3	4	3
Mean Where Present	3.50	6.88	4.30	6.86

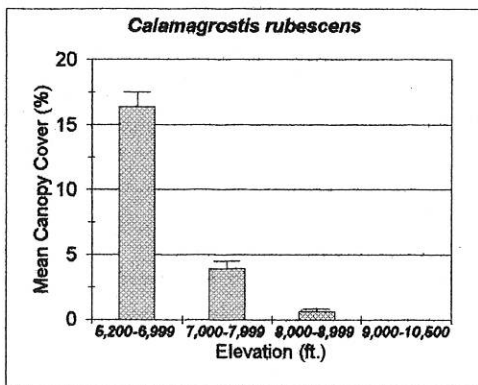
## SPECIES/ ELEVATION RELATIONSHIP



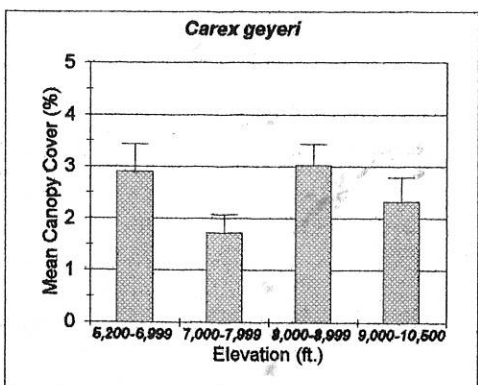
<b>Bromus anomalus Canopy Cover (%)</b> (Elevation in feet)				
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
<b>Mean</b>	0.01	0.10	0.64	1.48
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.01	0.06	0.13	0.24
<b>n</b>	494	587	709	345
<b>% Constancy</b>	1	1	9	21
<b>Mean Where Present</b>	0.79	10.32	7.06	7.03



<b>Bromus carinatus Canopy Cover (%)</b> (Elevation in feet)				
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
<b>Mean</b>	1.70	3.82	4.82	3.78
<b>(signif. different)</b>	a	b	c	b
<b>Standard Error</b>	0.19	0.33	0.43	0.54
<b>n</b>	494	587	709	345
<b>% Constancy</b>	45	49	43	32
<b>Mean Where Present</b>	3.77	7.80	11.20	11.80

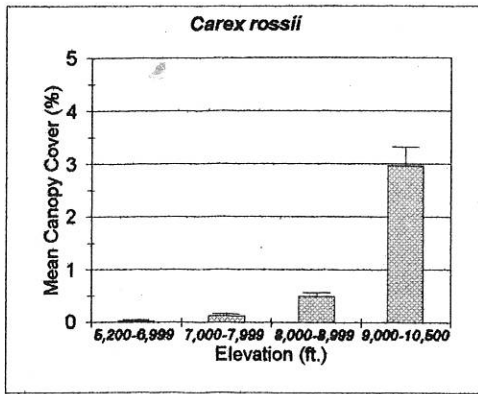


<b>Calamagrostis rubescens Canopy Cover (%)</b> (Elevation in feet)				
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
<b>Mean</b>	16.37	3.91	0.60	0.00
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	1.14	0.58	0.22	0.00
<b>n</b>	494	587	709	345
<b>% Constancy</b>	46	13	2	<1
<b>Mean Where Present</b>	35.59	30.07	30.08	0.02



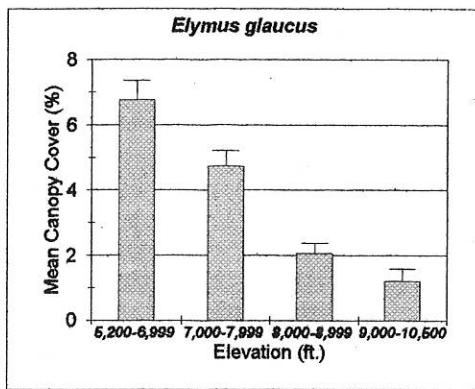
<b>Carex geyeri Canopy Cover (%)</b> (Elevation in feet)				
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
<b>Mean</b>	2.90	1.72	3.03	2.32
<b>(signif. different)</b>	a	b	a	a, b
<b>Standard Error</b>	0.52	0.35	0.40	0.47
<b>n</b>	494	587	709	345
<b>% Constancy</b>	14	13	18	15
<b>Mean Where Present</b>	20.75	13.21	16.82	15.49

**SPECIES/ ELEVATION RELATIONSHIP**  
(Elevation in ft.)



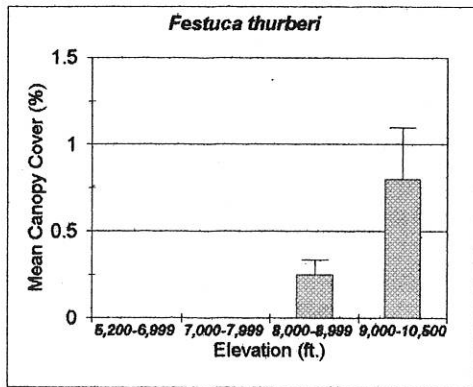
**Carex rossii Canopy Cover (%)**  
(Elevation in feet)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.03	0.12	0.48	2.96
(signif. different)	a	b	c	d
Standard Error	0.02	0.03	0.08	0.35
n	494	587	709	345
% Constancy	2	9	16	42
Mean Where Present	1.34	1.32	3.02	7.05



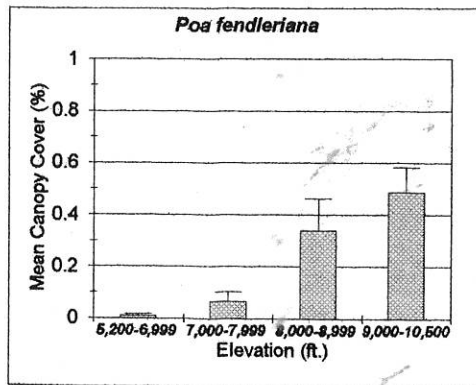
**Elymus glaucus Canopy Cover (%)**  
(Elevation in feet)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	6.76	4.74	2.06	1.22
(signif. different)	a	b	c	d
Standard Error	0.59	0.47	0.31	0.37
n	494	587	709	345
% Constancy	62	48	27	12
Mean Where Present	10.91	9.87	7.62	10.14



**Festuca thurberi Canopy Cover (%)**  
(Elevation in feet)

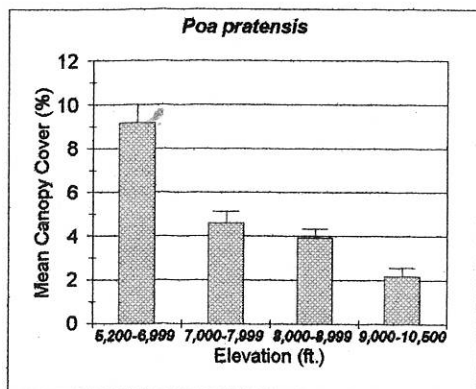
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.00	0.00	0.25	0.80
(signif. different)	a	a	b	c
Standard Error	0.00	0.00	0.08	0.30
n	494	587	709	345
% Constancy	0	0	23	25
Mean Where Present	0.00	0.00	14.01	10.15



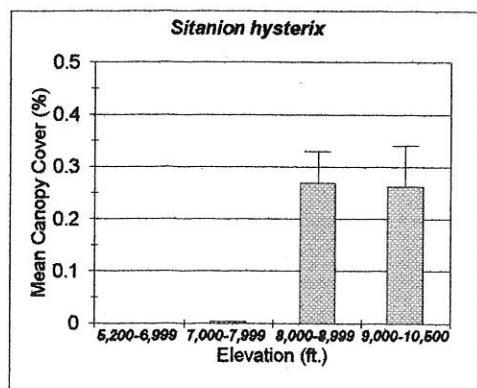
**Poa fendleriana Canopy Cover (%)**  
(Elevation in feet)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.01	0.06	0.34	0.49
(signif. different)	a	b	c	c
Standard Error	0.01	0.04	0.12	0.10
n	494	587	709	345
% Constancy	<1	2	8	16
Mean Where Present	5.00	3.23	4.23	3.04

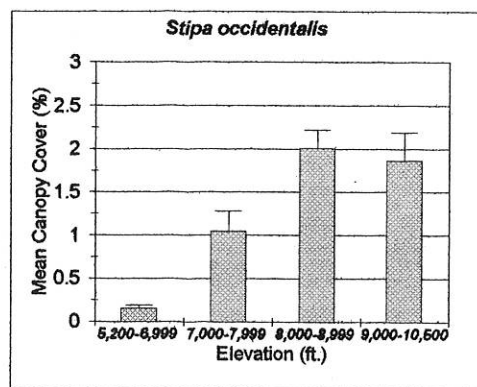
## SPECIES/ ELEVATION RELATIONSHIP



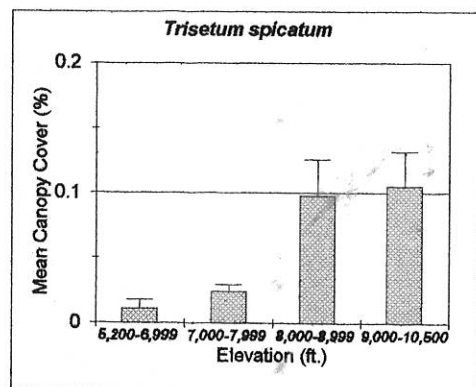
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	9.19	4.59	3.93	2.16
(signif. different)	a	b	b	c
Standard Error	0.82	0.56	0.41	0.41
n	494	587	709	345
% Constancy	51	30	28	26
Mean Where Present	18.02	15.30	14.04	8.32



	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.000	0.003	0.269	0.263
(signif. different)	a	b	c	c
Standard Error	0.000	0.001	0.061	0.078
n	494	587	709	345
% Constancy	0	<1	9	14
Mean Where Present	0.00	3.00	2.99	1.88

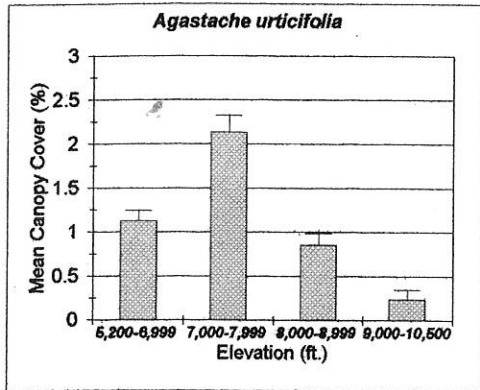


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.15	1.05	2.01	1.87
(signif. different)	a	b	c	c
Standard Error	0.04	0.23	0.21	0.33
n	494	587	709	345
% Constancy	8	16	33	38
Mean Where Present	1.85	6.54	6.09	4.91

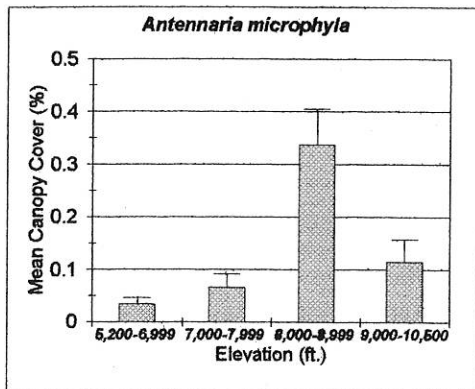


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.01	0.02	0.10	0.11
(signif. different)	a	b	c	c
Standard Error	0.01	0.01	0.03	0.03
n	494	587	709	345
% Constancy	1	4	10	16
Mean Where Present	1.11	0.60	0.98	0.66

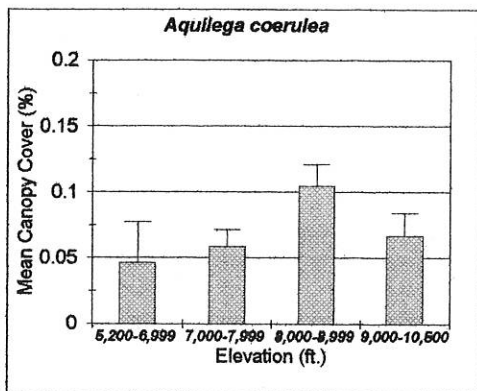
## SPECIES/ ELEVATION RELATIONSHIP



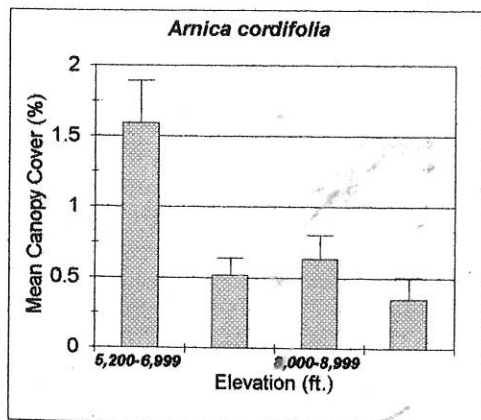
	6,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	1.12	2.13	0.85	0.24
(signif. different)	a	b	c	d
Standard Error	0.12	0.19	0.14	0.11
n	494	587	709	345
% Constancy	35	44	16	9
Mean Where Present	3.20	4.84	5.32	2.64



	6,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.03	0.07	0.34	0.11
(signif. different)	a	a, b	c	b
Standard Error	0.01	0.03	0.07	0.04
n	494	587	709	345
% Constancy	5	3	15	12
Mean Where Present	0.66	2.17	2.25	0.95



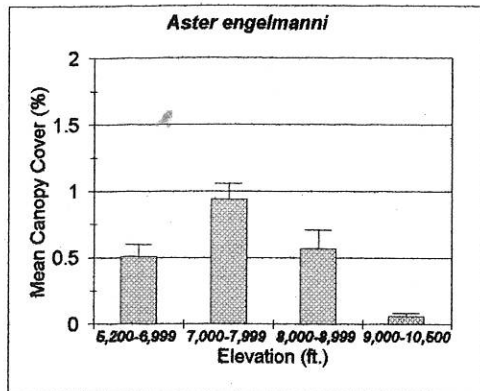
	6,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.05	0.06	0.10	0.07
(signif. different)	a	a	b	a
Standard Error	0.03	0.01	0.02	0.02
n	494	587	709	345
% Constancy	2	10	16	12
Mean Where Present	2.31	0.59	0.65	0.56



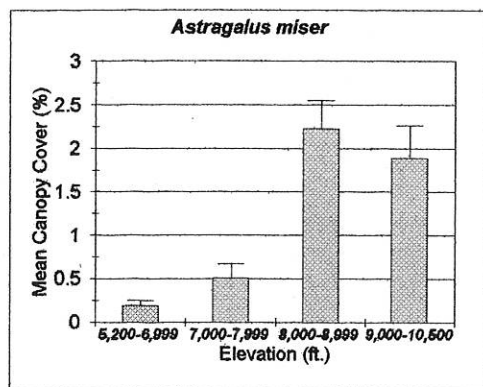
	6,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	1.60	0.52	0.64	0.35
(signif. different)	a	b,c	b	c
Standard Error	0.29	0.12	0.16	0.15
% Constancy	17	9	14	6
Mean Where Present	9.39	6.06	7.39	5.78



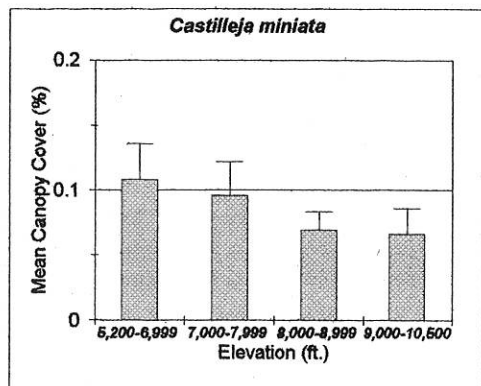
# SPECIES/ ELEVATION RELATIONSHIP



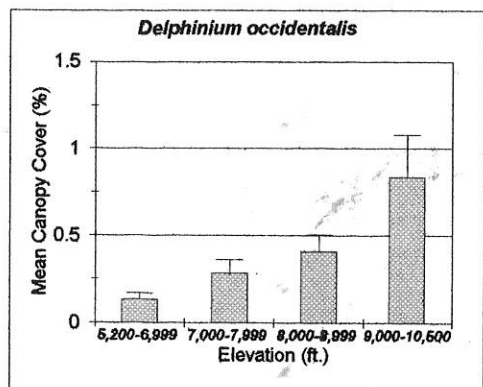
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.51	0.93	0.57	0.06
(signif. different)	a	b	a	c
Standard Error	0.09	0.13	0.14	0.02
n	494	587	709	345
% Constancy	16	28	18	5
Mean Where Present	3.18	3.34	3.15	1.17



	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.19	0.51	2.23	1.89
(signif. different)	a	b	c	c
Standard Error	0.05	0.16	0.33	0.38
n	494	587	709	345
% Constancy	6	8	19	17
Mean Where Present	3.19	6.36	11.72	11.10

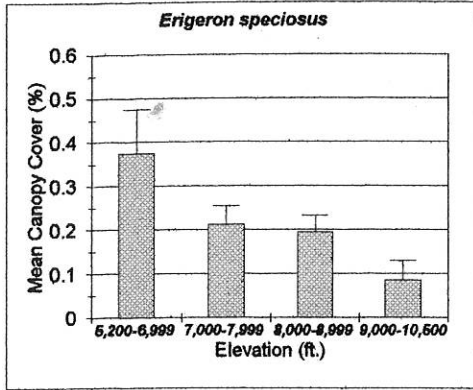


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.11	0.10	0.07	0.07
(signif. different)	a	ab	b	b
Standard Error	0.03	0.03	0.01	0.02
n	494	587	709	345
% Constancy	11	9	11	13
Mean Where Present	0.98	1.06	0.63	0.51

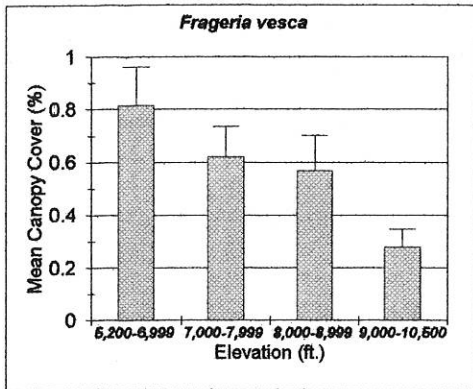


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.13	0.29	0.41	0.84
(signif. different)	a	b	b	c
Standard Error	0.04	0.08	0.10	0.24
n	494	587	709	345
% Constancy	10	13	12	11
Mean Where Present	1.33	2.20	3.42	7.60

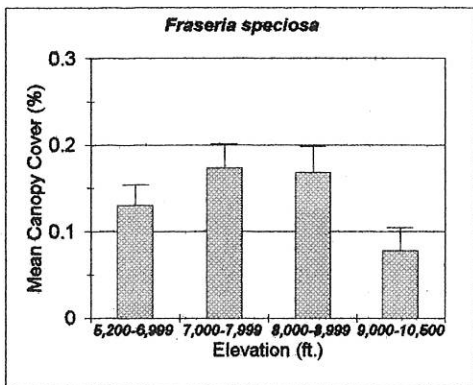
## SPECIES/ ELEVATION RELATIONSHIP



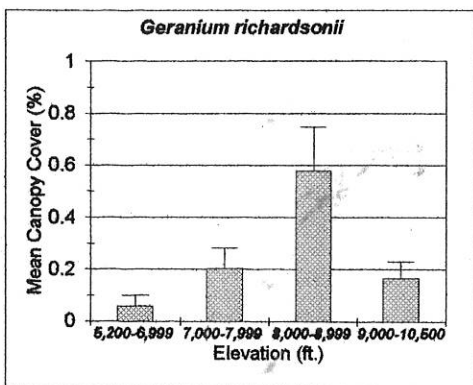
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.37	0.21	0.19	0.09
(signif. different)	a	b	b	c
Standard Error	0.10	0.04	0.04	0.05
n	494	587	709	345
% Constancy	14	15	13	7
Mean Where Present	2.67	1.42	1.50	1.22



	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	0.82	0.62	0.57	0.28
(signif. different)	a	a, b	b	c
Standard Error	0.15	0.11	0.13	0.07
n	494	587	709	345
% Constancy	29	25	21	17
Mean Where Present	2.81	2.49	2.70	1.64

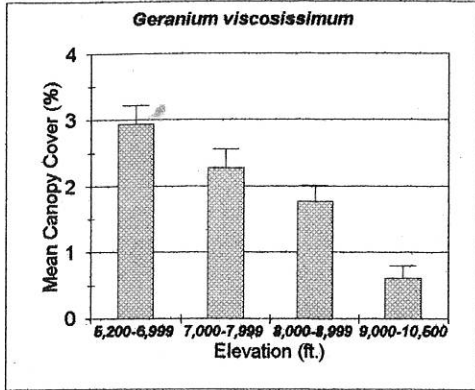


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	0.13	0.17	0.17	0.08
(signif. different)	a	a	a	b
Standard Error	0.02	0.03	0.03	0.03
n	494	587	709	345
% Constancy	14	16	14	7
Mean Where Present	0.93	1.08	1.20	1.12

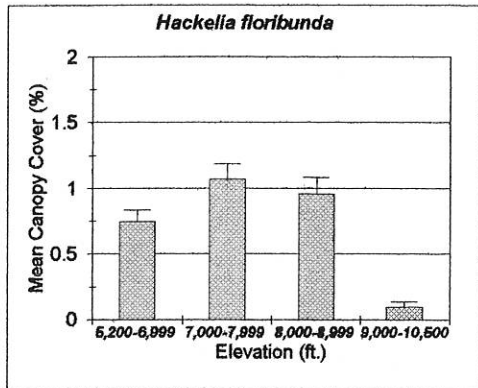


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	0.06	0.20	0.58	0.17
(signif. different)	a	b	c	b
Standard Error	0.04	0.08	0.17	0.06
n	494	587	709	345
% Constancy	<1	4	8	5
Mean Where Present	10.00	5.08	7.21	3.34

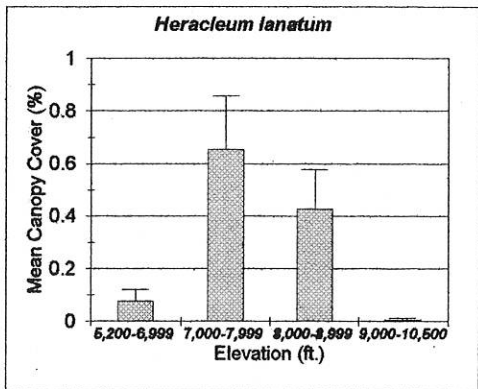
# SPECIES/ ELEVATION RELATIONSHIP



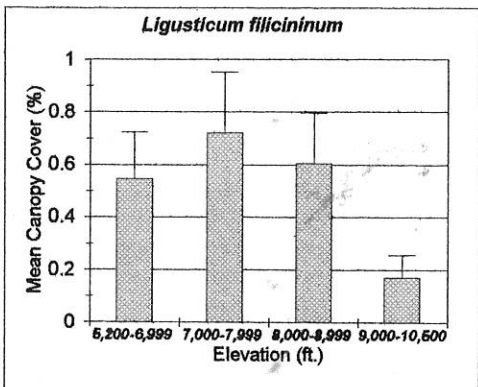
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
<b>Overall Mean</b>	2.94	2.28	1.76	0.61
<b>(signif. different)</b>	a	b	c	d
<b>Standard Error</b>	0.28	0.28	0.25	0.19
<b>n</b>	494	587	709	345
<b>% Constancy</b>	46	42	35	12
<b>Mean Where Present</b>	6.38	5.42	5.04	5.07



	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
<b>Overall Mean</b>	0.74	1.07	0.95	0.10
<b>(signif. different)</b>	a	b	b	c
<b>Standard Error</b>	0.09	0.12	0.13	0.04
<b>n</b>	494	587	709	345
<b>% Constancy</b>	25	37	24	6
<b>Mean Where Present</b>	2.98	2.88	3.97	1.61

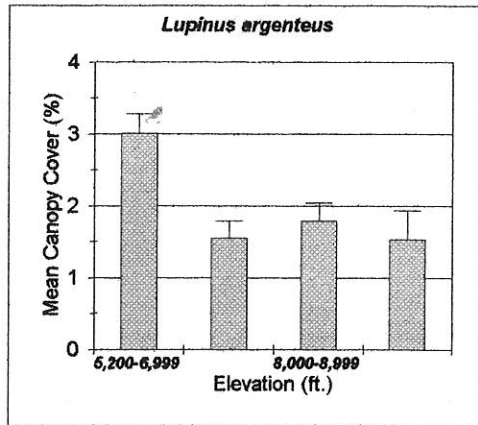


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
<b>Overall Mean</b>	0.08	0.65	0.43	0.01
<b>(signif. different)</b>	a	b	b	c
<b>Standard Error</b>	0.04	0.20	0.15	0.01
<b>n</b>	494	587	709	345
<b>% Constancy</b>	2	7	3	1
<b>Mean Where Present</b>	3.80	9.34	14.23	0.67

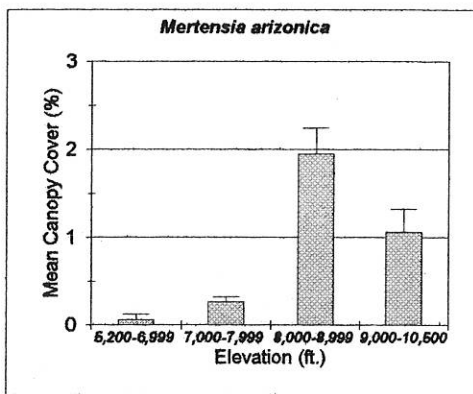


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
<b>Overall Mean</b>	0.55	0.72	0.60	0.17
<b>(signif. different)</b>	a	a	a	b
<b>Standard Error</b>	0.18	0.23	0.19	0.09
<b>n</b>	494	587	709	345
<b>% Constancy</b>	6	5	6	7
<b>Mean Where Present</b>	9.09	14.42	10.08	2.42

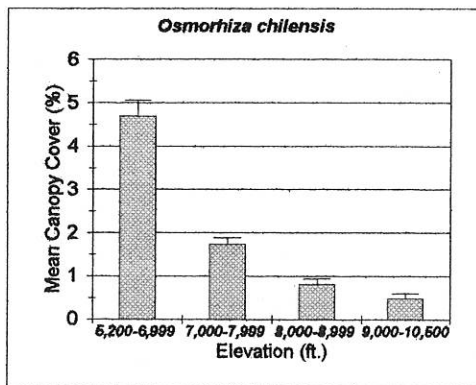
## SPECIES/ ELEVATION RELATIONSHIP



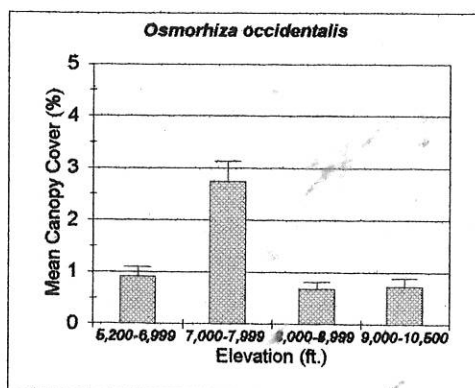
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	3.01	1.55	1.79	1.53
(signif. different)	a	b	b	b
Standard Error	0.27	0.24	0.26	0.40
n	494	587	709	345
% Constancy	45	29	25	19
Mean Where Present	6.68	5.34	7.15	8.04



	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	0.06	0.27	1.95	1.06
(signif. different)	a	b	c	d
Standard Error	0.06	0.06	0.30	0.26
n	494	587	709	345
% Constancy	1	9	18	17
Mean Where Present	6.32	2.96	10.82	6.25

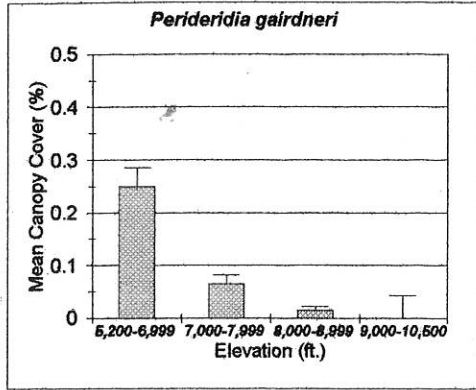


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	4.69	1.73	0.81	0.48
(signif. different)	a	b	c	d
Standard Error	0.38	0.16	0.13	0.12
n	494	587	709	345
% Constancy	66	44	27	23
Mean Where Present	7.10	3.94	3.00	2.09

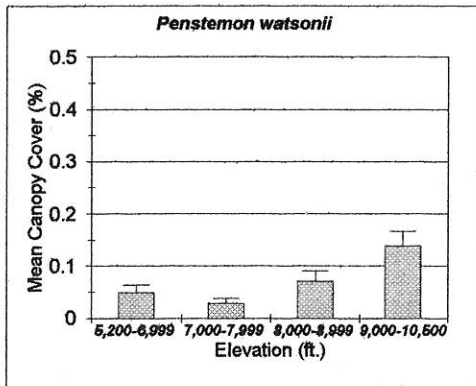


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	0.91	2.73	0.68	0.72
(signif. different)	a	b	a	a
Standard Error	0.18	0.39	0.14	0.17
n	494	587	709	345
% Constancy	16	24	25	17
Mean Where Present	7.10	3.94	3.00	2.09

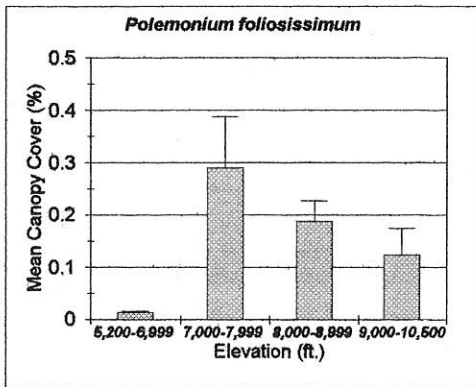
# SPECIES/ ELEVATION RELATIONSHIP



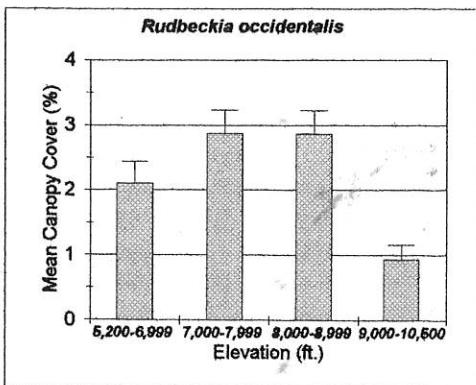
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	0.25	0.06	0.01	0.00
(signif. different)	a	b	c	b, c
Standard Error	0.04	0.02	0.01	0.04
n	494	587	709	345
% Constancy	33	6	2	0
Mean Where Present	0.76	1.08	0.73	0.00



	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	0.05	0.03	0.07	0.14
(signif. different)	a, b	b	a	c
Standard Error	0.02	0.01	0.02	0.03
n	494	587	709	345
% Constancy	3	2	5	12
Mean Where Present	1.61	1.41	1.42	1.15

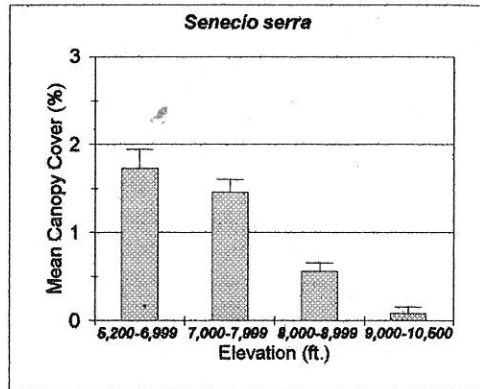


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	0.01	0.29	0.19	0.12
(signif. different)	a	b	b, c	c
Standard Error	0.00	0.10	0.04	0.05
n	494	587	709	345
% Constancy	4	11	12	8
Mean Where Present	0.31	2.64	1.56	1.53

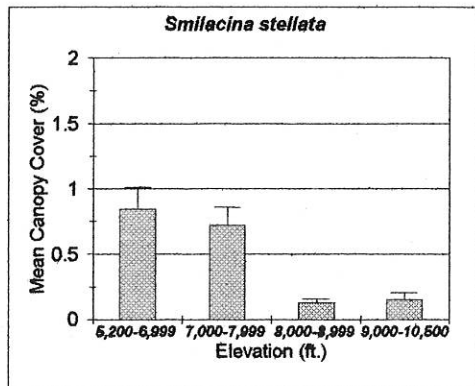


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	2.10	2.87	2.86	0.93
(signif. different)	a	b	b	c
Standard Error	0.34	0.36	0.36	0.22
n	494	587	709	345
% Constancy	21	30	23	11
Mean Where Present	9.99	9.56	12.45	8.49

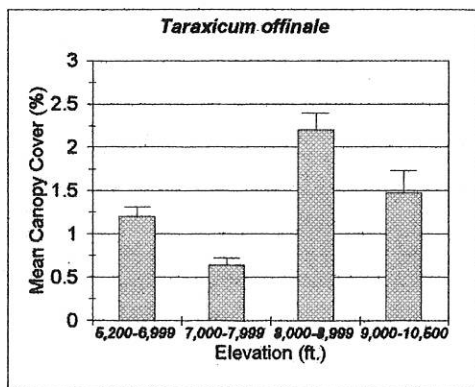
## SPECIES/ ELEVATION RELATIONSHIP



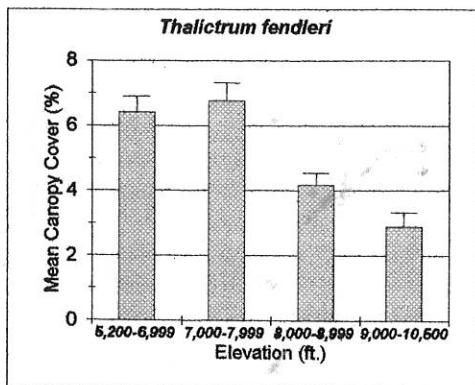
	Senecio serra Canopy Cover (%)			
	(Elevation in feet)			
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	1.73	1.46	0.56	0.08
(signif. different)	a	a	b	c
Standard Error	0.22	0.15	0.10	0.07
n	494	587	709	345
% Constancy	37	37	16	2
Mean Where Present	4.68	3.94	3.52	4.17



	Smilacina stellata Canopy Cover (%)			
	(Elevation in feet)			
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	0.84	0.72	0.13	0.15
(signif. different)	a	a	b	b
Standard Error	0.17	0.13	0.03	0.06
n	494	587	709	345
% Constancy	26	20	12	11
Mean Where Present	3.25	3.62	1.05	1.35

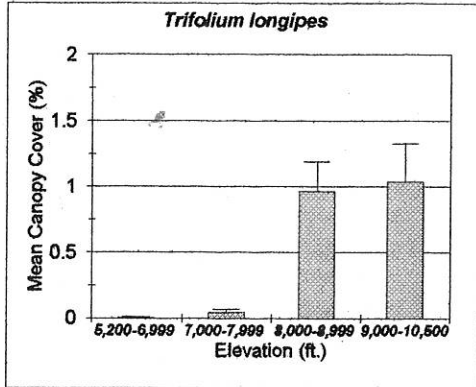


	Taraxicum officinale Canopy Cover			
	(Elevation in feet)			
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	1.20	0.64	2.20	1.47
(signif. different)	a	b	c	a
Standard Error	0.11	0.08	0.20	0.26
n	494	587	709	345
% Constancy	58	38	50	54
Mean Where Present	2.07	1.68	4.40	2.73

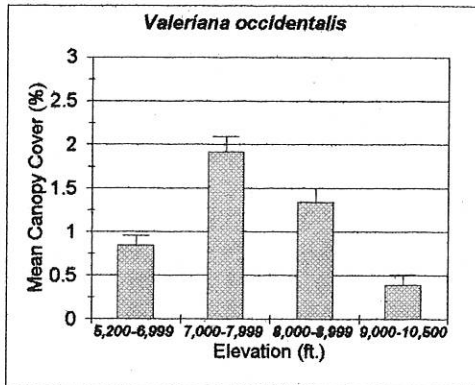


	Thalictrum fendleri Canopy Cover (%)			
	(Elevation in feet)			
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	6.41	6.76	4.17	2.90
(signif. different)	a	a	b	c
Standard Error	0.49	0.55	0.37	0.42
n	494	587	709	345
% Constancy	62	63	48	38
Mean Where Present	10.33	10.72	8.69	7.62

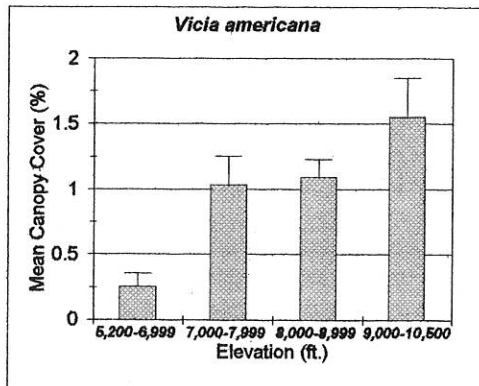
# SPECIES/ ELEVATION RELATIONSHIP



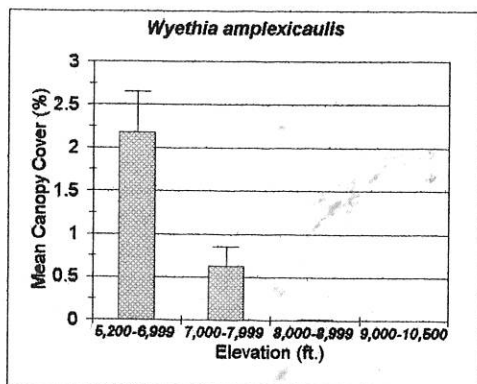
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	0.01	0.04	0.96	1.04
(signif. different)	a	b	c	c
Standard Error	0.00	0.02	0.23	0.29
n	494	587	709	345
% Constancy	1	1	8	8
Mean Where Present	0.51	4.43	12.04	12.97



	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	0.85	1.92	1.35	0.39
(signif. different)	a	b	c	d
Standard Error	0.11	0.18	0.16	0.12
n	494	587	709	345
% Constancy	25	37	23	9
Mean Where Present	3.40	5.18	5.85	4.36

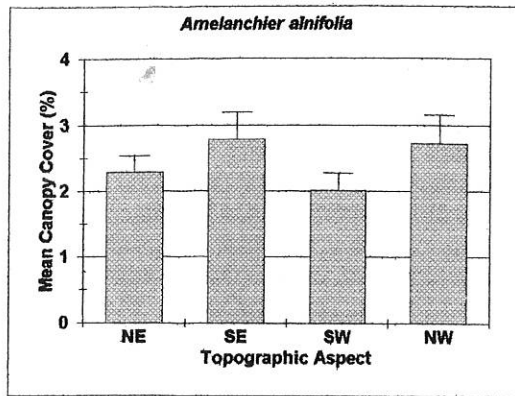


	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	0.25	1.03	1.09	1.55
(signif. different)	a	b	b	c
Standard Error	0.10	0.22	0.14	0.30
n	494	587	709	345
% Constancy	6	13	23	22
Mean Where Present	4.24	7.95	4.74	7.04



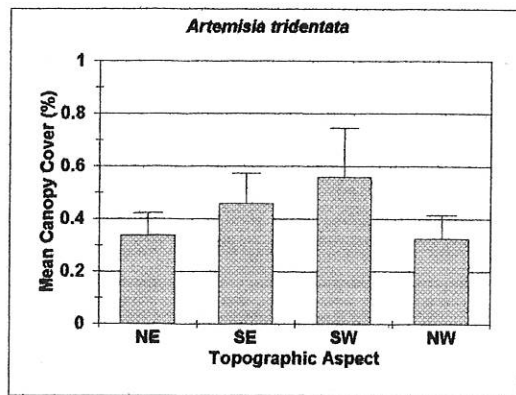
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Overall Mean	2.18	0.62	0.01	0.00
(signif. different)	a	b	c	d
Standard Error	0.47	0.24	0.00	0.00
n	494	587	709	345
% Constancy	11	6	1	0
Mean Where Present	19.80	10.36	0.63	0.00

**INT-ASPEN CLASSIFICATION DATA:  
SPECIES/ ASPECT RELATIONSHIP**



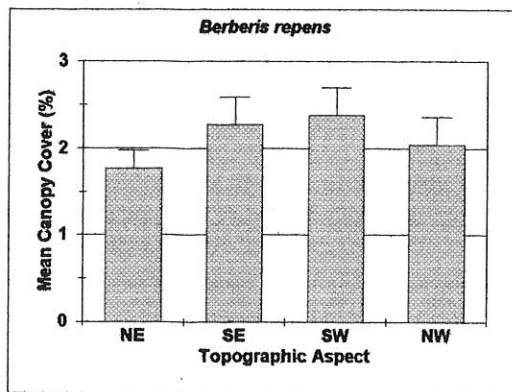
**Amelanchier alnifolia Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	2.28	2.78	2.01	2.72
(signif. different)	a, b	b	a	b
Standard Error	0.26	0.41	0.27	0.44
n	36	36	30	33
% Constancy	735	485	525	384
Mean Where Present	6.34	7.72	6.69	8.25



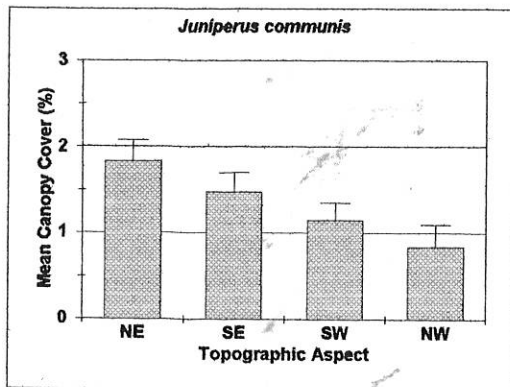
**Artemisia tridentata Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	0.34	0.46	0.56	0.33
(signif. different)	a	a	a	a
Standard Error	0.09	0.11	0.19	0.09
n	8	13	12	8
% Constancy	735	485	525	384
Mean Where Present	4.22	3.54	4.67	4.07



**Berberis repens Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	1.77	2.27	2.38	2.04
(signif. different)	a	b	b	a, b
Standard Error	0.21	0.32	0.32	0.32
n	35	40	36	37
% Constancy	735	485	525	384
Mean Where Present	5.04	5.67	6.62	5.51

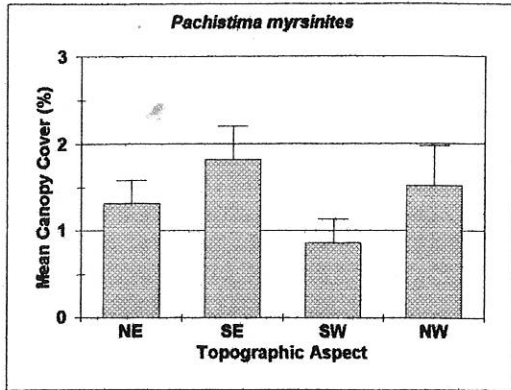


**Juniperus communis Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	1.83	1.47	1.15	0.84
(signif. different)	a	a, b	b, c	c
Standard Error	0.24	0.23	0.20	0.26
n	18	20	14	10
% Constancy	735	485	525	384
Mean Where Present	10.19	7.37	8.23	8.37

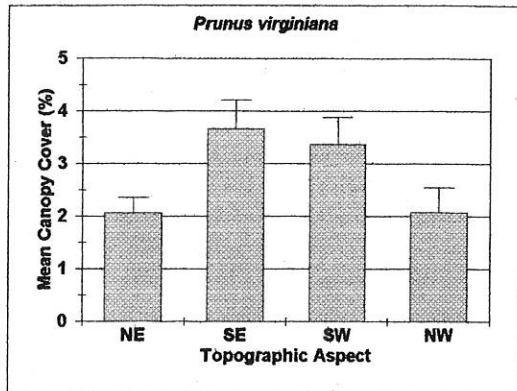


## SPECIES/ ASPECT RELATIONSHIP



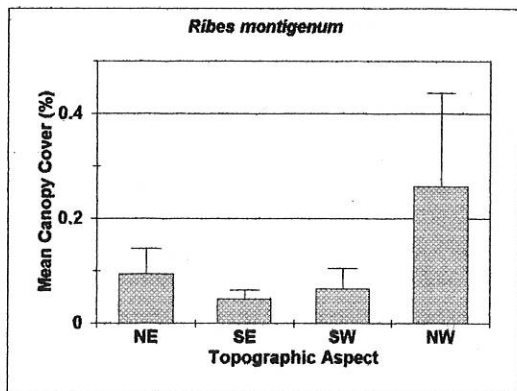
**Pachistima myrsinites Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	1.31	1.81	0.86	1.52
(signif. different)	a, b	b	a	b
Standard Error	0.26	0.39	0.27	0.46
n	14	14	11	17
% Constancy	735	485	525	384
Mean Where Present	9.38	12.95	7.82	8.95



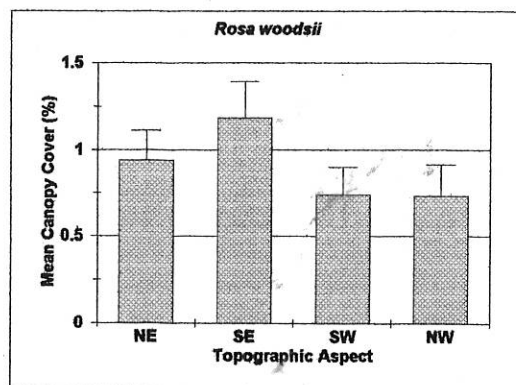
**Prunus virginiana Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	2.06	3.66	3.37	2.07
(signif. different)	a	b	b	a
Standard Error	0.29	0.55	0.51	0.47
n	19	23	22	19
% Constancy	735	485	525	384
Mean Where Present	10.86	15.91	15.32	10.92



**Ribes montigenum Canopy Cover (%)**

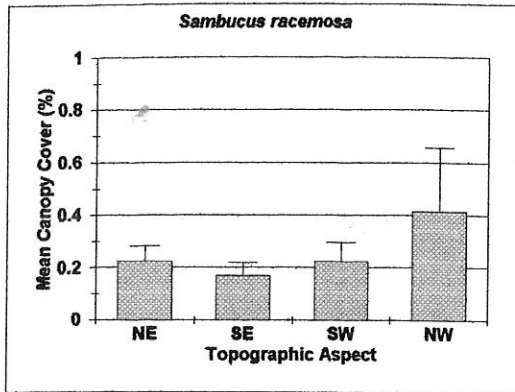
	Aspect			
	NE	SE	SW	NW
Overall Mean	0.09	0.05	0.07	0.26
(signif. different)	a	a	a	a
Standard Error	0.05	0.02	0.04	0.18
n	2	3	3	3
% Constancy	735	485	525	384
Mean Where Present	4.68	1.53	2.18	8.72



**Rosa woodsii Canopy Cover (%)**

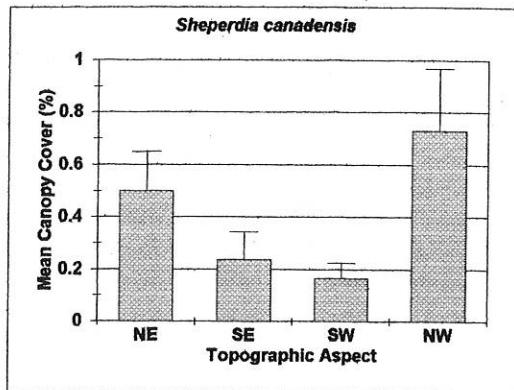
	Aspect			
	NE	SE	SW	NW
Overall Mean	0.94	1.18	0.74	0.73
(signif. different)	a, b	b	a	a
Standard Error	0.18	0.21	0.16	0.18
n	35	34	30	29
% Constancy	735	485	525	384
Mean Where Present	2.68	3.48	2.46	2.53

## SPECIES/ ASPECT RELATIONSHIP



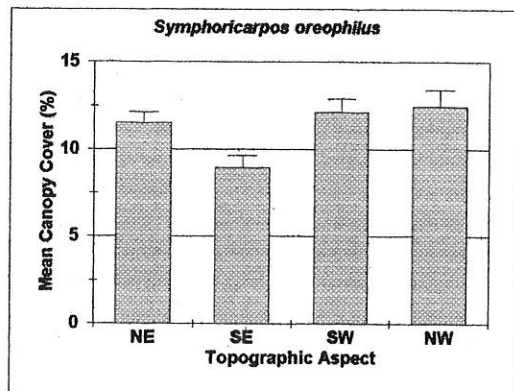
**Sambucus racemosa Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	0.22	0.17	0.22	0.42
(signif. different)	a	a	a	a
Standard Error	0.06	0.05	0.07	0.24
n	8	8	10	8
% Constancy	735	485	525	384
Mean Where Present	2.78	2.11	2.24	5.19



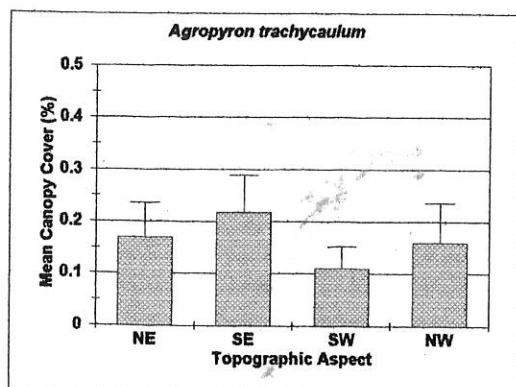
**Shepherdia canadensis Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	0.50	0.24	0.16	0.73
(signif. different)	a	b	b	a
Standard Error	0.15	0.11	0.06	0.24
n	7	6	5	9
% Constancy	735	485	525	384
Mean Where Present	7.14	3.93	3.28	8.10



**Symphoricarpos oreophilus Canopy Cover (%)**

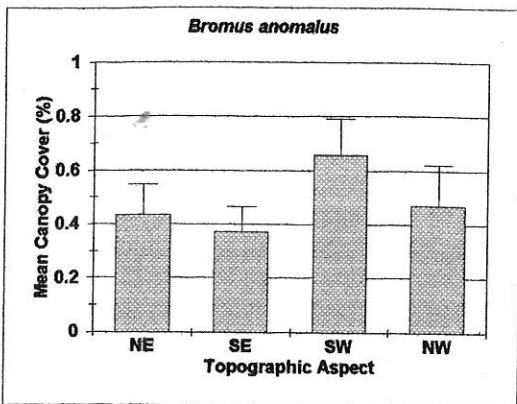
	Aspect			
	NE	SE	SW	NW
Overall Mean	11.51	8.94	12.13	12.45
(signif. different)	a	b	a	a
Standard Error	0.63	0.68	0.77	0.94
n	73	68	71	79
% Constancy	735	485	525	384
Mean Where Present	15.77	13.14	17.08	15.77



**Agropyron trachycaulum Canopy Cover (%)**

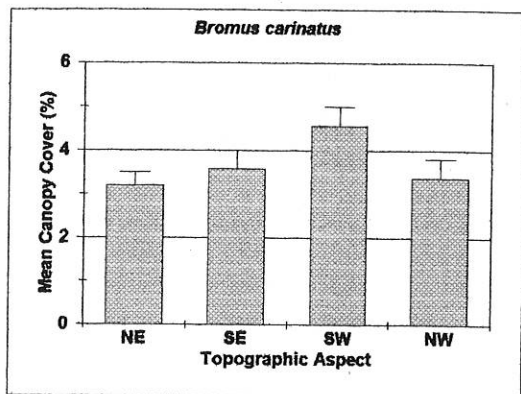
	Aspect			
	NE	SE	SW	NW
Overall Mean	0.17	0.22	0.11	0.16
(signif. different)	a	a	a	a
Standard Error	0.07	0.07	0.04	0.08
n	2	4	3	4
% Constancy	735	485	525	384
Mean Where Present	8.45	5.44	3.66	4.00

## SPECIES/ ASPECT RELATIONSHIP



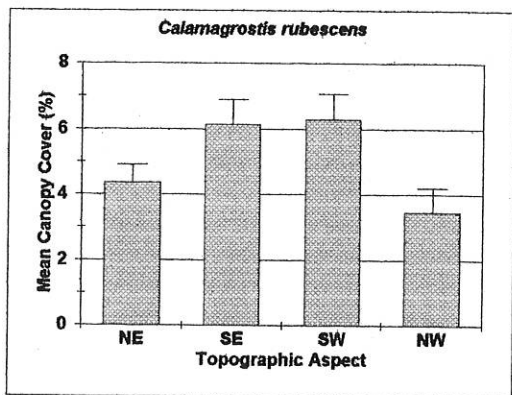
**Bromus anomalus Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	0.43	0.37	0.66	0.47
(signif. different)	a	a	b	ab
Standard Error	0.11	0.09	0.13	0.15
n	7	7	8	6
% Constancy	735	485	525	384
Mean Where Present	6.18	5.32	8.22	7.85



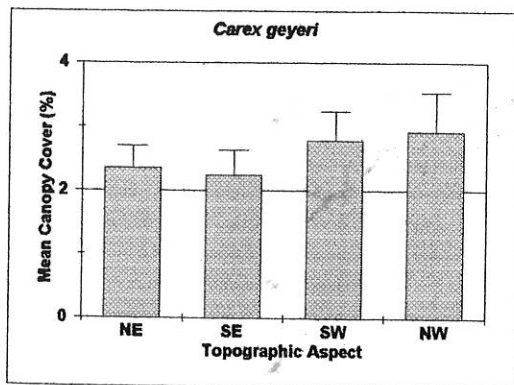
**Bromus carinatus Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	3.19	3.57	4.56	3.36
(signif. different)	a	a	b	a
Standard Error	0.30	0.43	0.45	0.44
n	41	42	47	44
% Constancy	735	485	525	384
Mean Where Present	7.78	8.50	9.69	7.64



**Calamagrostis rubescens Canopy Cover (%)**

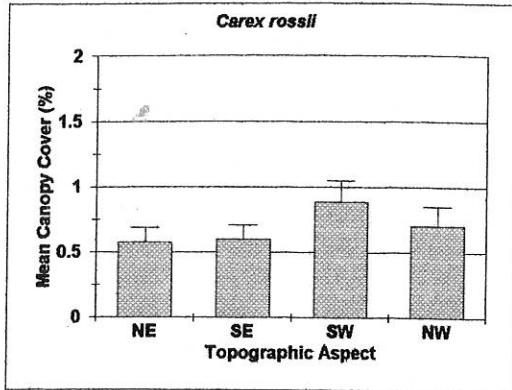
	Aspect			
	NE	SE	SW	NW
Overall Mean	4.36	6.13	6.29	3.46
(signif. different)	a	b	b	a
Standard Error	0.54	0.77	0.78	0.73
n	13	19	18	10
% Constancy	735	485	525	384
Mean Where Present	33.56	32.24	34.92	34.63



**Carex geyeri Canopy Cover (%)**

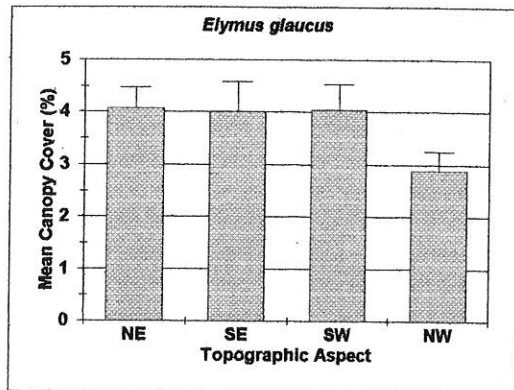
	Aspect			
	NE	SE	SW	NW
Overall Mean	2.34	2.24	2.77	2.91
(signif. different)	a	a	a	a
Standard Error	0.35	0.39	0.47	0.61
n	15	14	17	14
% Constancy	735	485	525	384
Mean Where Present	15.63	15.98	16.30	20.80

## SPECIES/ ASPECT RELATIONSHIP



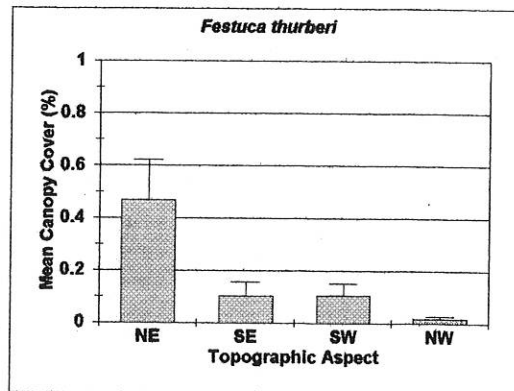
*Carex rossii* Canopy Cover (%)

	Aspect			
	NE	SE	SW	NW
Overall Mean	0.57	0.60	0.88	0.70
(signif. different)	a	a	b	a, b
Standard Error	0.11	0.11	0.17	0.15
n	14	19	14	15
% Constancy	735	485	525	384
Mean Where Present	4.09	3.17	6.31	4.69



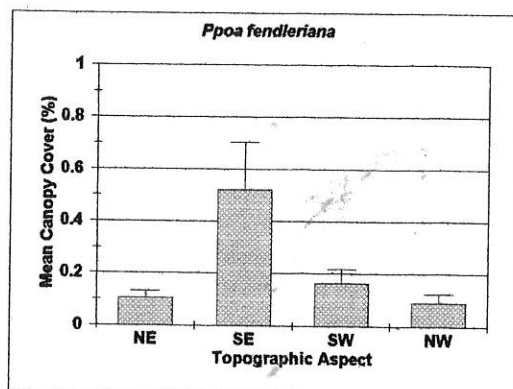
*Elymus glaucus* Canopy Cover (%)

	Aspect			
	NE	SE	SW	NW
Overall Mean	4.06	4.00	4.04	2.89
(signif. different)	a	a	a	b
Standard Error	0.41	0.58	0.50	0.37
n	37	32	36	48
% Constancy	735	485	525	384
Mean Where Present	10.98	12.51	11.21	6.02



*Festuca thurberi* Canopy Cover (%)

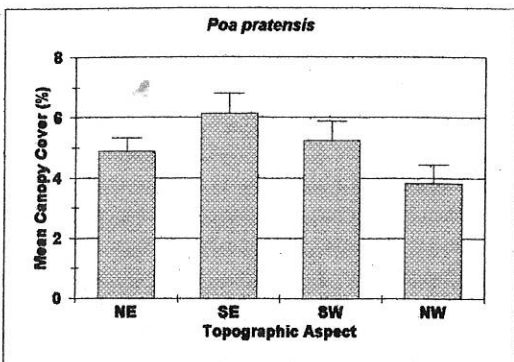
	Aspect			
	NE	SE	SW	NW
Overall Mean	0.47	0.10	0.10	0.02
(signif. different)	a	b	b	c
Standard Error	0.15	0.05	0.05	0.01
n	3	3	2	1
% Constancy	735.00	485.00	525.00	384.00
Mean Where Present	14.33	3.85	6.04	2.03



*Poa fendleriana* Canopy Cover (%)

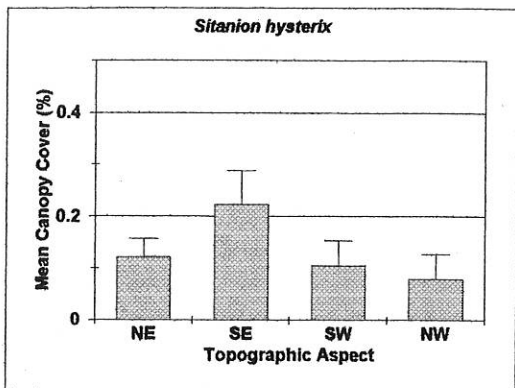
	Aspect			
	NE	SE	SW	NW
Overall Mean	0.10	0.52	0.16	0.09
(signif. different)	a	b	a	a
Standard Error	0.03	0.18	0.05	0.03
n	6	9	5	4
% Constancy	735	485	525	384
Mean Where Present	1.73	5.78	3.28	2.25

## SPECIES/ ASPECT RELATIONSHIP



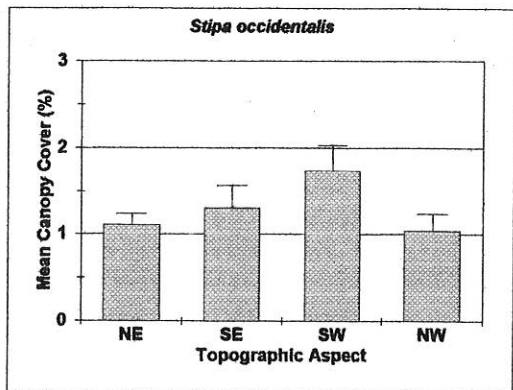
*Poa pratensis* Canopy Cover (%)

	Aspect			
	NE	SE	SW	NW
Overall Mean	4.86	6.13	5.24	3.82
(signif. different)	a	b	a, b	c
Standard Error	0.46	0.67	0.63	0.62
n	34	36	31	33
% Constancy	735	485	525	384
Mean Where Present	14.31	17.04	16.89	11.58



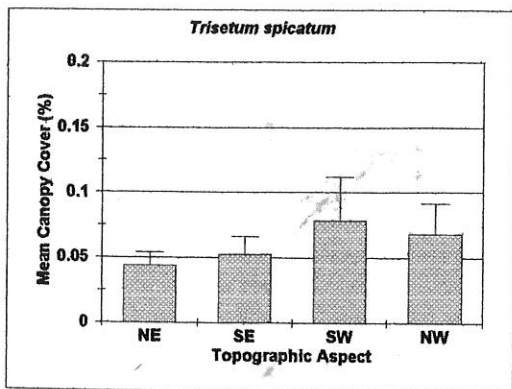
*Sitanion hystrix* Canopy Cover (%)

	Aspect			
	NE	SE	SW	NW
Overall Mean	0.12	0.22	0.10	0.08
(signif. different)	a	b	a	a
Standard Error	0.03	0.06	0.05	0.05
n	6	9	4	3
% Constancy	735	485	525	384
Mean Where Present	2.03	2.48	2.62	2.64



*Stipa occidentalis* Canopy Cover (%)

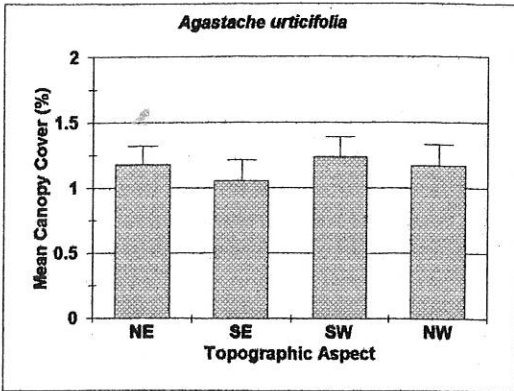
	Aspect			
	NE	SE	SW	NW
Overall Mean	1.11	1.31	1.73	1.03
(signif. different)	a, b	b	b	a
Standard Error	0.13	0.26	0.30	0.20
n	24	22	25	19
% Constancy	735	485	525	384
Mean Where Present	4.61	5.94	6.91	5.44



*Trisetum spicatum* Canopy Cover (%)

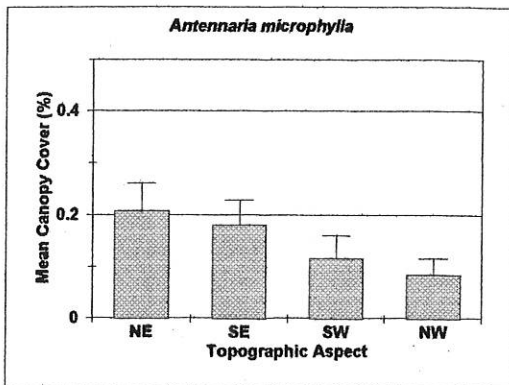
	Aspect			
	NE	SE	SW	NW
Overall Mean	0.04	0.05	0.08	0.07
(signif. different)				
Standard Error	0.01	0.01	0.03	0.02
n	7	8	8	7
% Constancy	735	485	525	384
Mean Where Present	0.63	0.65	0.98	0.98

## SPECIES/ ASPECT RELATIONSHIP



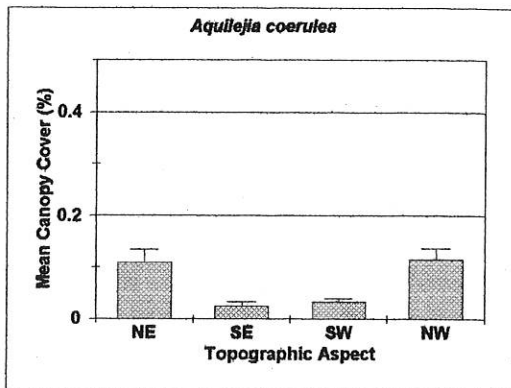
*Agastache urticifolia* Canopy Cover (%)

	Aspect			
	NE	SE	SW	NW
Overall Mean	1.18	1.05	1.23	1.17
(signif. different)	a	a	a	a
Standard Error	0.14	0.16	0.16	0.16
n	26	26	26	31
% Constancy	735	485	525	384
Mean Where Present	4.52	4.05	4.75	3.77



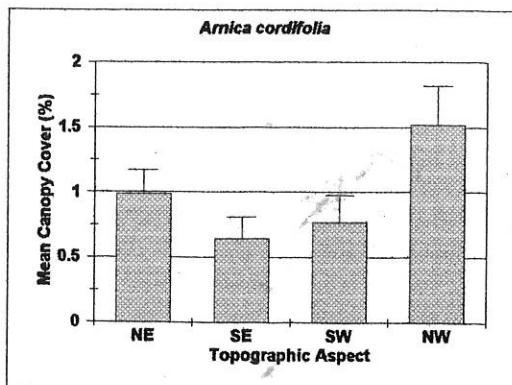
*Antennaria microphylla* Canopy Cover (%)

	Aspect			
	NE	SE	SW	NW
Overall Mean	0.21	0.18	0.12	0.09
(signif. different)	a	a, b	b, c	c
Standard Error	0.05	0.05	0.05	0.03
n	10	10	7	8
% Constancy	735	485	525	384
Mean Where Present	2.07	1.80	1.65	1.06



*Aquilegia coerulea* Canopy Cover (%)

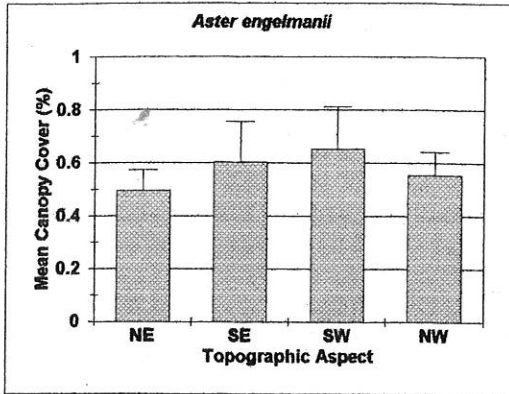
	Aspect			
	NE	SE	SW	NW
Overall Mean	0.11	0.02	0.03	0.12
(signif. different)	a	b	b	a
Standard Error	0.03	0.01	0.01	0.02
n	13	4	9	16
% Constancy	735	485	525	384
Mean Where Present	0.84	0.61	0.37	0.72



*Arnica cordifolia* Canopy Cover (%)

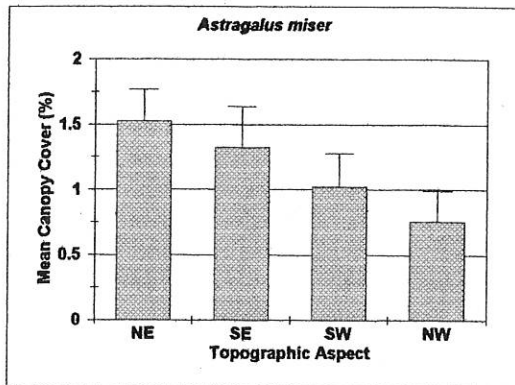
	Aspect			
	NE	SE	SW	NW
Overall Mean	0.99	0.65	0.77	1.52
(signif. different)	0.18	0.16	0.21	0.31
Standard Error	a	b	a, b	c
n	12	4	9	20
% Constancy	735	485	525	384
Mean Where Present	8.23	16.13	8.58	7.58

## SPECIES/ ASPECT RELATIONSHIP



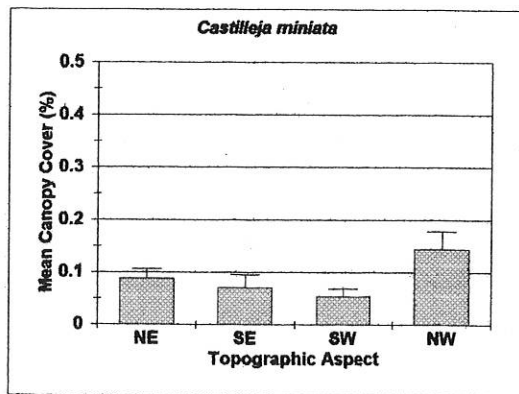
**Aster engelmannii Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	0.50	0.60	0.65	0.55
(signif. different)	a	a	a	a
Standard Error	0.08	0.16	0.16	0.09
n	17	18	17	23
% Constancy	735	485	525	384
Mean Where Present	2.92	3.34	3.84	2.41



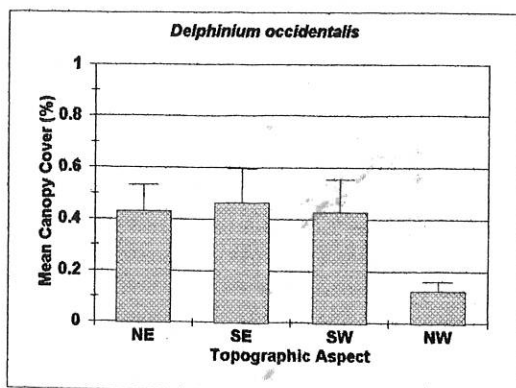
**Astragalus miser Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	1.52	1.32	1.02	0.76
(signif. different)	a	a, b	b, c	c
Standard Error	0.25	0.31	0.25	0.24
n	15	11	11	11
% Constancy	735	485	525	384
Mean Where Present	10.15	12.03	9.30	6.88



**Castilleja miniata Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	0.09	0.07	0.05	0.14
(signif. different)	a	a, b	b	c
Standard Error	0.02	0.03	0.01	0.03
n	12	7	9	15
% Constancy	735	485	525	384
Mean Where Present	0.73	1.00	0.59	0.96

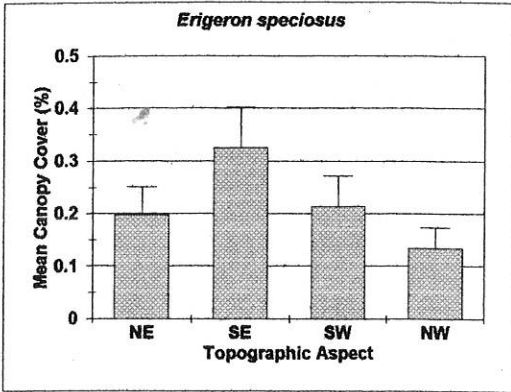


**Delphinium occidentale Canopy Cover (%)**

(Latitude in degrees)

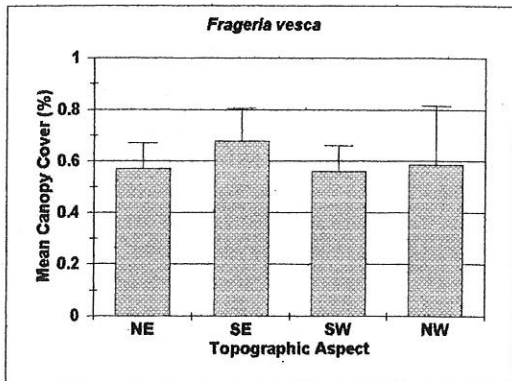
	Aspect			
	NE	SE	SW	NW
Overall Mean	0.43	0.46	0.43	0.12
(signif. different)	a	a	a	b
Standard Error	0.10	0.13	0.12	0.03
n	13	12	12	9
% Constancy	735	485	525	384
Mean Where Present	3.31	3.84	3.57	1.37

## SPECIES/ ASPECT RELATIONSHIP



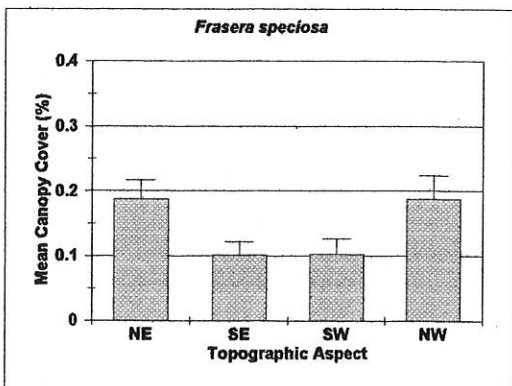
**Erigeron speciosus Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
<b>Overall Mean</b>	0.20	0.33	0.21	0.13
<b>(signif. different)</b>	a	b	a, b	a
<b>Standard Error</b>	0.05	0.08	0.06	0.04
<b>n</b>	12	13	15	11
<b>% Constancy</b>	735	485	525	384
<b>Mean Where Present</b>	1.65	2.50	1.43	1.22



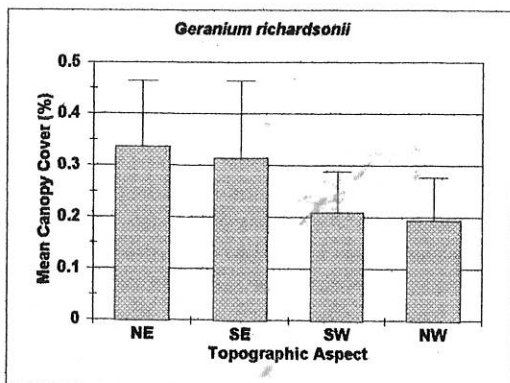
**Fragaria vesca Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
<b>Overall Mean</b>	0.57	0.68	0.56	0.59
<b>(signif. different)</b>	a	a	a	a
<b>Standard Error</b>	0.10	0.13	0.10	0.23
<b>n</b>	23	25	22	22
<b>% Constancy</b>	735	485	525	384
<b>Mean Where Present</b>	2.48	2.71	2.54	2.66



**Fraseria speciosa Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
<b>Overall Mean</b>	0.19	0.10	0.10	0.19
<b>(signif. different)</b>	a	b	b	a
<b>Standard Error</b>	0.03	0.02	0.02	0.04
<b>n</b>	7	11	11	17
<b>% Constancy</b>	735	485	525	384
<b>Mean Where Present</b>	2.68	0.92	0.93	1.10

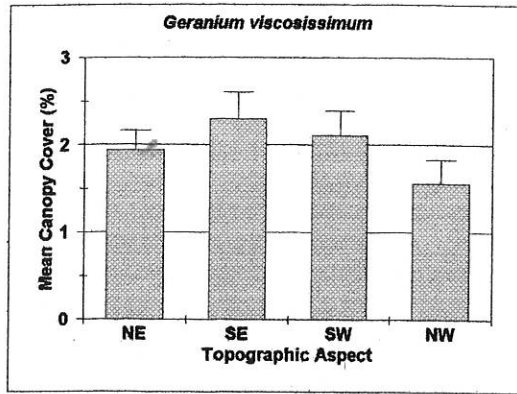


**Geranium richardsonii Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
<b>Overall Mean</b>	0.34	0.31	0.21	0.19
<b>(signif. different)</b>	a	a	a	a
<b>Standard Error</b>	0.13	0.15	0.08	0.08
<b>n</b>	4	4	4	8
<b>% Constancy</b>	735	485	525	384
<b>Mean Where Present</b>	8.42	7.86	5.21	2.42

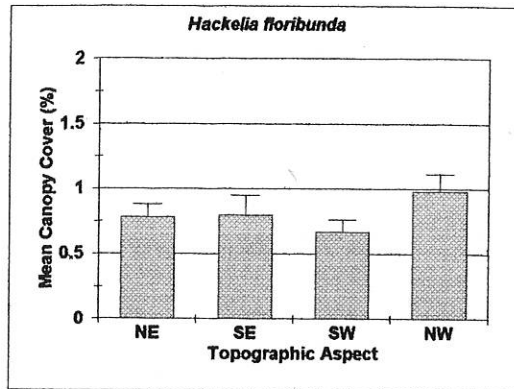


## SPECIES/ ASPECT RELATIONSHIP



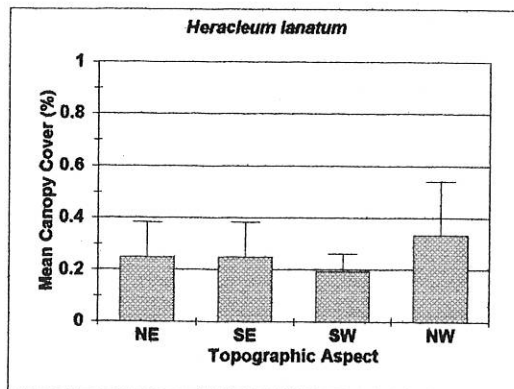
**Geranium viscosissimum Canopy Cover (%)**

	NE	SE	SW	NW
Overall Mean	1.94	2.30	2.11	1.56
(signif. different)	a, b	b	b	a
Standard Error	0.22	0.30	0.28	0.28
n	36	38	36	33
% Constancy	735	485	525	384
Mean Where Present	5.40	6.05	5.86	4.72



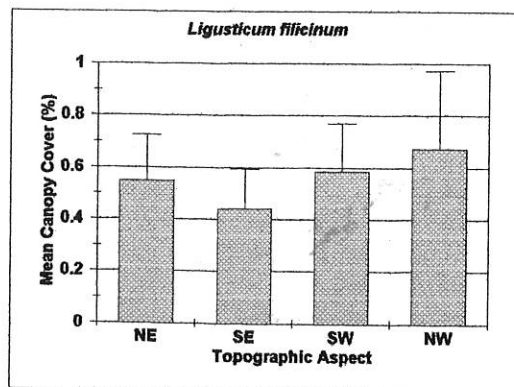
**Hackelia floribunda Canopy Cover (%)**

	NE	SE	SW	NW
Overall Mean	0.78	0.80	0.67	0.98
(signif. different)	a, b	a, b	a	b
Standard Error	0.10	0.15	0.10	0.13
n	24	22	26	30
% Constancy	735	485	525	384
Mean Where Present	3.27	3.62	2.57	3.27



**Heracleum lanatum Canopy Cover (%)**

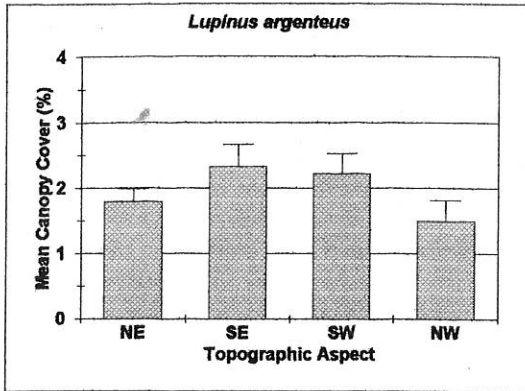
	NE	SE	SW	NW
Overall Mean	0.25	0.25	0.19	0.33
(signif. different)	a	a	a	a
Standard Error	0.13	0.13	0.07	0.21
n	5	3	3	3
% Constancy	735	485	525	384
Mean Where Present	4.97	8.29	6.42	11.11



**Ligusticum filicinum Canopy Cover (%)**

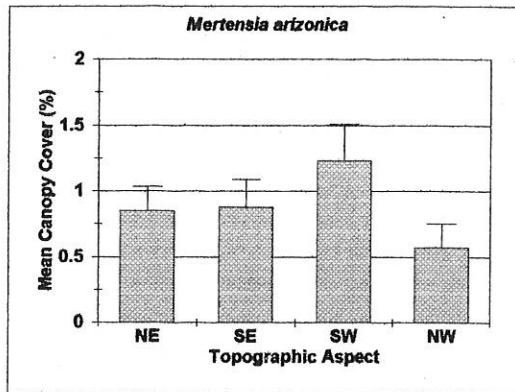
	NE	SE	SW	NW
Overall Mean	0.55	0.44	0.58	0.67
(signif. different)	a	a	a	a
Standard Error	0.18	0.16	0.18	0.30
n	4	6	7	6
% Constancy	735	485	525	384
Mean Where Present	13.65	7.33	8.35	11.21

## SPECIES/ ASPECT RELATIONSHIP



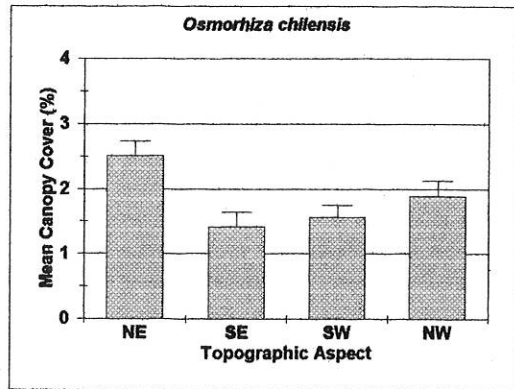
**Lupinus argenteus Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	1.79	2.32	2.21	1.49
(signif. different)	a, c	b	a, b	c
Standard Error	0.20	0.34	0.31	0.31
n	30	34	32	22
% Constancy	735	485	525	384
Mean Where Present	5.96	6.82	6.91	6.79



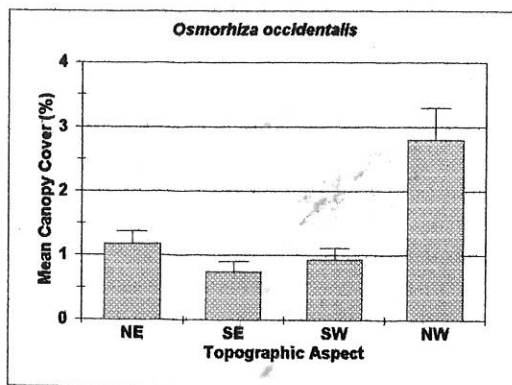
**Mertensia arizonica Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	0.85	0.88	1.23	0.57
(signif. different)	a, b	a, b	b	a
Standard Error	0.19	0.21	0.28	0.18
n	10	12	14	11
% Constancy	735	485	525	384
Mean Where Present	8.49	7.31	8.79	5.21



**Osmorhiza chilensis Canopy Cover (%)**

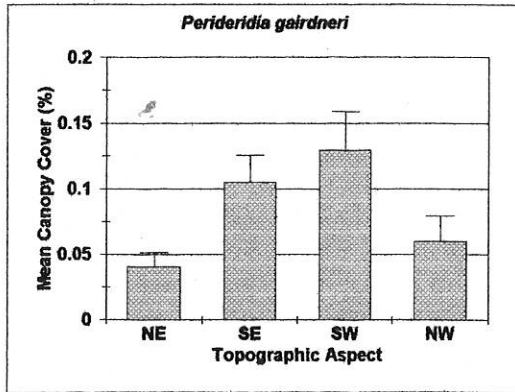
	Aspect			
	NE	SE	SW	NW
Overall Mean	2.50	1.41	1.56	1.89
(signif. different)	a	b	b, c	c
Standard Error	0.23	0.22	0.19	0.23
n	45	32	37	46
% Constancy	735	485	525	384
Mean Where Present	5.56	4.42	4.23	4.10



**Osmorhiza occidentalis Canopy Cover (%)**

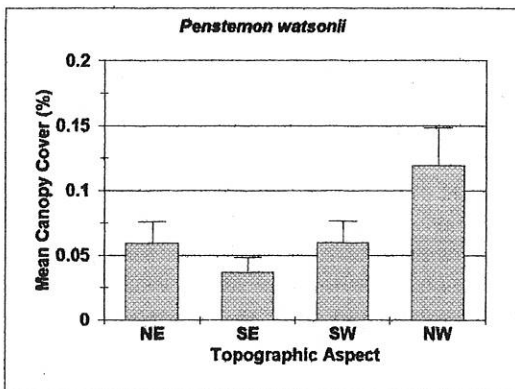
	Aspect			
	NE	SE	SW	NW
Overall Mean	1.17	0.75	0.94	2.79
(signif. different)	a	b	a, b	c
Standard Error	0.21	0.16	0.17	0.50
n	16	17	20	25
% Constancy	735	485	525	384
Mean Where Present	7.31	4.39	4.69	11.17

## SPECIES/ ASPECT RELATIONSHIP



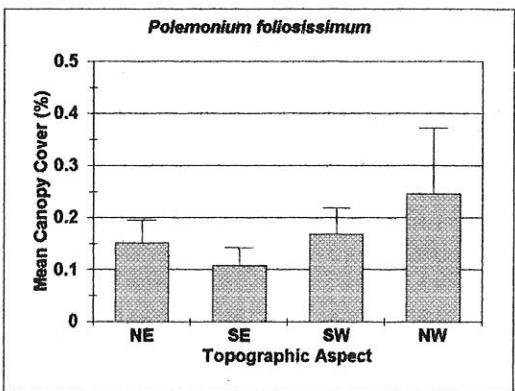
*Perideridia gairdneri* Canopy Cover (%)

	Aspect			
	NE	SE	SW	NW
<b>Overall Mean</b>	0.04	0.10	0.13	0.06
<b>(signif. different)</b>	a	b	b	a
<b>Standard Error</b>	0.01	0.02	0.03	0.02
<b>n</b>	6	14	13	8
<b>% Constancy</b>	735	485	525	384
<b>Mean Where Present</b>	0.68	0.75	1.00	0.75



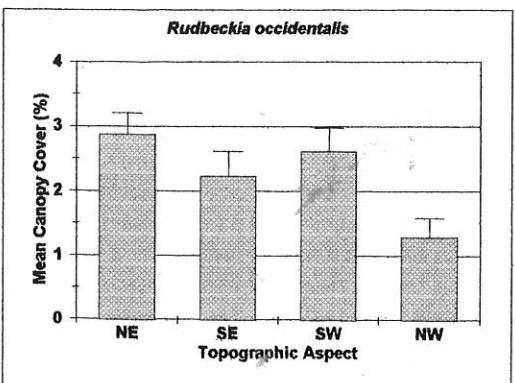
*Penstemon watsonii* Canopy Cover (%)

	Aspect			
	NE	SE	SW	NW
<b>Overall Mean</b>	0.06	0.04	0.06	0.12
<b>(signif. different)</b>	a	a	a	b
<b>Standard Error</b>	0.02	0.01	0.02	0.03
<b>n</b>	5	4	5	7
<b>% Constancy</b>	735	485	525	384
<b>Mean Where Present</b>	1.18	0.93	1.20	1.70



*Polemonium foliosissimum* Canopy Cover (%)

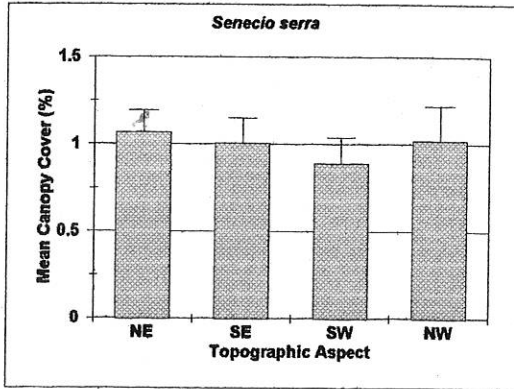
	Aspect			
	NE	SE	SW	NW
<b>Overall Mean</b>	0.15	0.11	0.17	0.25
<b>(signif. different)</b>	a	a	a	a
<b>Standard Error</b>	0.04	0.03	0.05	0.13
<b>n</b>	8	8	9	11
<b>% Constancy</b>	735	485	525	384
<b>Mean Where Present</b>	1.89	1.35	1.87	2.23



*Rudbeckia occidentalis* Canopy Cover (%)

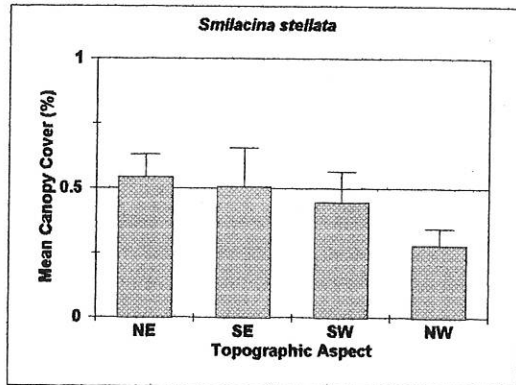
	Aspect			
	NE	SE	SW	NW
<b>Overall Mean</b>	2.87	2.22	2.61	1.28
<b>(signif. different)</b>	a	b	a, b	c
<b>Standard Error</b>	0.33	0.39	0.37	0.29
<b>n</b>	24	20	25	21
<b>% Constancy</b>	735	485	525	384
<b>Mean Where Present</b>	11.97	11.12	10.43	6.12

## SPECIES/ ASPECT RELATIONSHIP



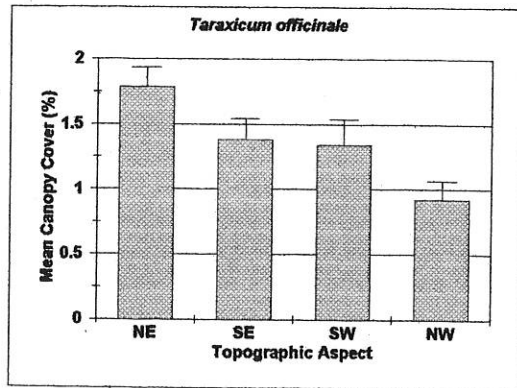
**Senecio serra Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
<b>Overall Mean</b>	1.07	1.01	0.89	1.02
<b>(signif. different)</b>	a	a	a	a
<b>Standard Error</b>	0.13	0.14	0.15	0.20
<b>n</b>	26	24	23	24
<b>% Constancy</b>	735	485	525	384
<b>Mean Where Present</b>	4.11	4.19	3.87	4.25



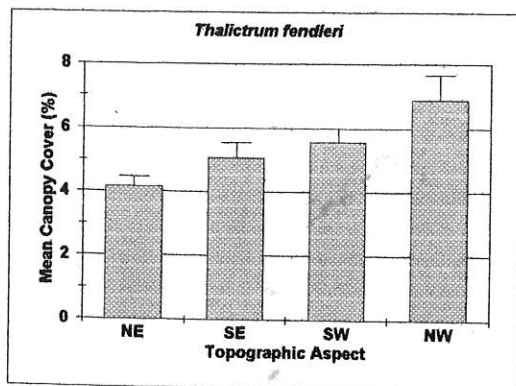
**Smilacina stellata Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
<b>Overall Mean</b>	0.54	0.50	0.44	0.28
<b>(signif. different)</b>	a	a	a, b	b
<b>Standard Error</b>	0.09	0.15	0.12	0.06
<b>n</b>	19	22	17	15
<b>% Constancy</b>	735	485	525	384
<b>Mean Where Present</b>	2.85	2.29	2.61	1.86



**Taraxicum officinale Canopy Cover**

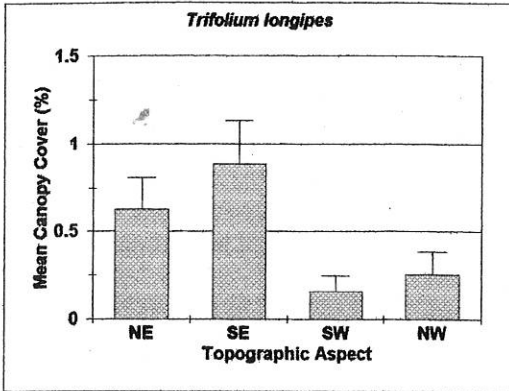
	Aspect			
	NE	SE	SW	NW
<b>Overall Mean</b>	1.78	1.38	1.34	0.92
<b>(signif. different)</b>	a	b	b	c
<b>Standard Error</b>	0.15	0.16	0.20	0.15
<b>n</b>	50	50	47	50
<b>% Constancy</b>	735	485	525	384
<b>Mean Where Present</b>	3.57	2.76	2.85	1.84



**Thalictrum fendleri Canopy Cover (%)**

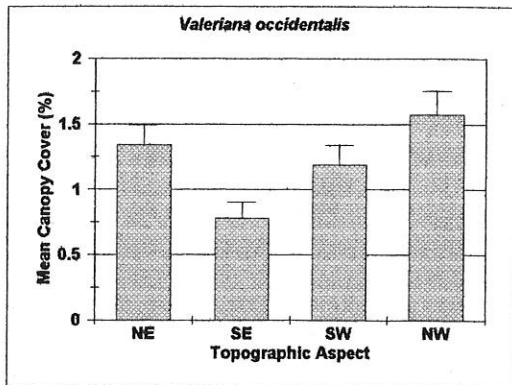
	Aspect			
	NE	SE	SW	NW
<b>Overall Mean</b>	4.13	5.05	5.55	6.88
<b>(signif. different)</b>	a	b	b	c
<b>Standard Error</b>	0.33	0.49	0.44	0.76
<b>n</b>	51	52	55	58
<b>% Constancy</b>	735	485	525	384
<b>Mean Where Present</b>	8.10	9.71	10.10	11.85

## SPECIES/ ASPECT RELATIONSHIP



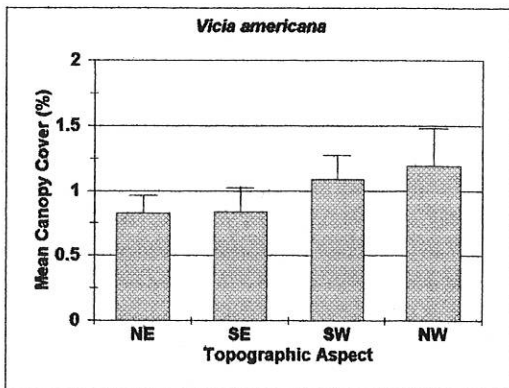
**Trifolium longipes Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	0.63	0.88	0.16	0.25
(signif. different)	a	a	b	b
Standard Error	0.18	0.25	0.09	0.13
n	4	8	2	3
% Constancy	735	485	525	384
Mean Where Present	15.67	11.05	7.83	8.49



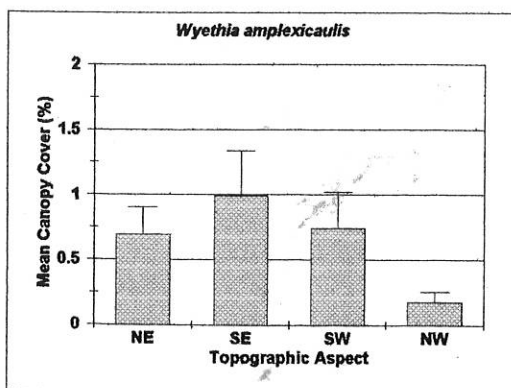
**Valeriana occidentalis Canopy Cover (%)**

	Aspect			
	NE	SE	SW	NW
Overall Mean	1.34	0.78	1.19	1.57
(signif. different)	a c	b	a	c
Standard Error	0.15	0.12	0.16	0.18
n	26	18	23	34
% Constancy	735	485	525	384
Mean Where Present	5.16	4.35	5.16	4.63



**Vicia americana Canopy Cover (%)**

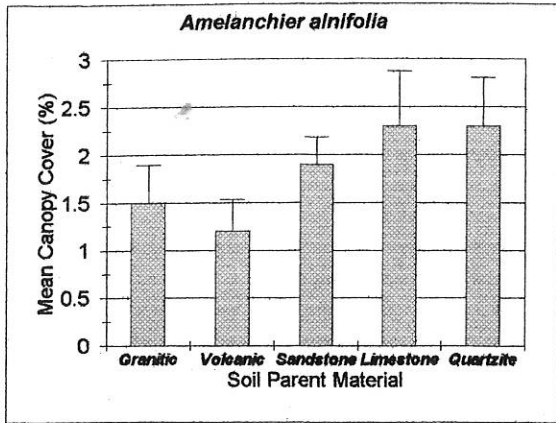
	Aspect			
	NE	SE	SW	NW
Overall Mean	0.82	0.84	1.09	1.19
(signif. different)	a	a	a	a
Standard Error	0.14	0.18	0.18	0.29
n	15	14	18	20
% Constancy	735	485	525	384
Mean Where Present	5.49	5.97	6.04	5.93



**Wyethia amplexicaulis Canopy Cover (%)**

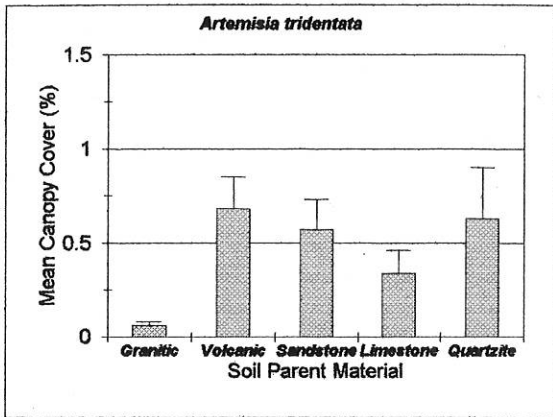
	Aspect			
	NE	SE	SW	NW
Overall Mean	0.69	0.99	0.74	0.18
(signif. different)	a	a	a	b
Standard Error	0.21	0.35	0.28	0.08
n	5	6	4	2
% Constancy	735	485	525	384
Mean Where Present	13.81	16.51	18.58	8.76

**INT-ASPEN CLASSIFICATION DATA:  
SPECIES/ SOIL PARENT MATERIAL RELATIONSHIP**



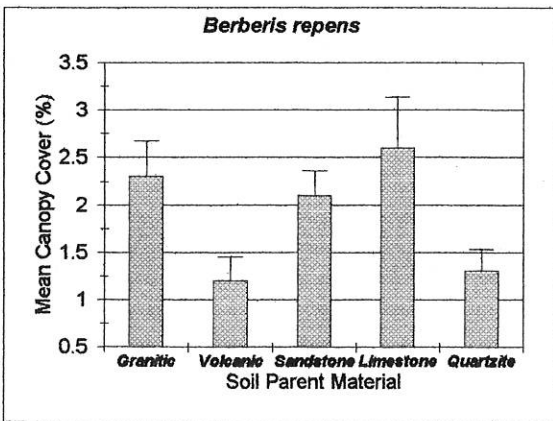
**Amelanchier alnifolia Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	1.5	1.2	1.9	2.3	2.3
(signif. different)	a,c	a	c	c	c
Standard Error	0.4	0.33	0.28	0.57	0.51
% Constancy	28	17	34	30	33
n	247	283	625	169	229
Mean Where Present	5.30	7.08	5.65	7.73	6.90



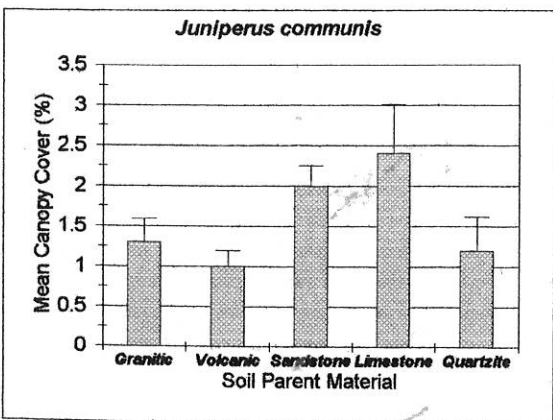
**Artemisia tridentata Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.06	0.68	0.57	0.34	0.63
(signif. different)	a	b	b, c	c	b, c
Standard Error	0.02	0.17	0.16	0.12	0.27
% Constancy	8	15	9	12	11
n	247	283	625	169	229
Mean Where Present	0.91	4.57	6.05	2.89	5.34



**Berberis repens Canopy Cover (%)**

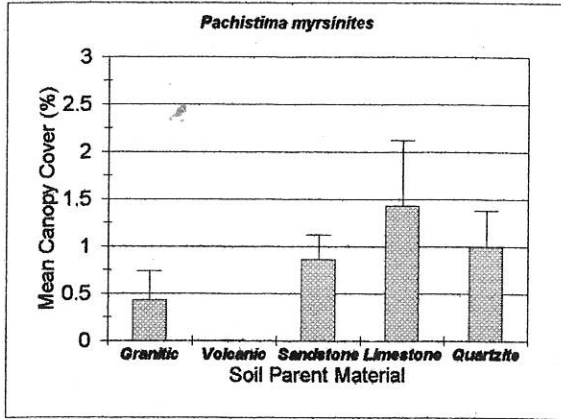
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	2.3	1.2	2.1	2.6	1.3
(signif. different)	a	b	a	a	b
Standard Error	0.37	0.25	0.26	0.54	0.23
n	247	283	625	169	229
% Constancy	38	27	35	43	37
Mean Where Present	6.22	4.52	6.03	6.16	3.32



**Juniperus communis Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	1.3	1	2	2.4	1.2
(signif. different)	a	a	b	b	a
Standard Error	0.29	0.2	0.25	0.61	0.42
% Constancy	17	20	18	21	14
n	247	283	625	169	229
Mean Where Present	7.53	4.84	10.69	11.21	8.86

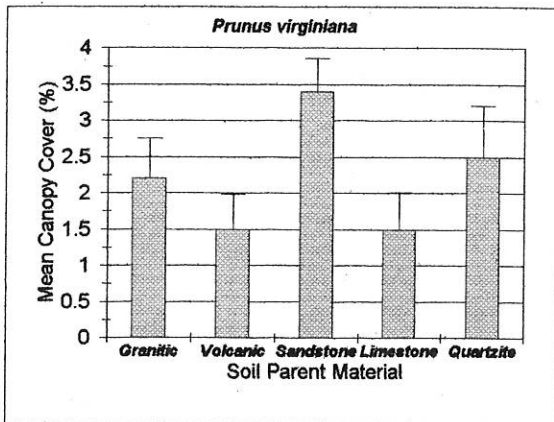
# SPECIES/ SOIL PARENT MATERIAL RELATIONSHIP



**Pachistima myrsinites Canopy Cover (%)**

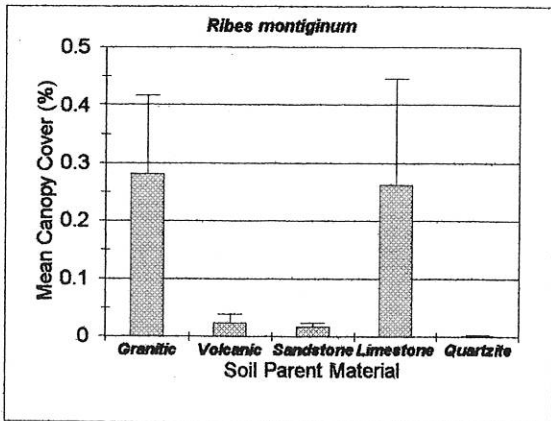
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.43	0.001	0.86	1.43	1
(signif. different)	a	b	a, c	c	a, c
Standard Error	0.31	0.001	0.26	0.69	0.38
% Constancy	2	T	14	19	14
n	247	283	625	169	229
Mean Where Present	17.55	0.30	6.09	7.55	7.37

(note: granitic had one stand with 75% c.c.)



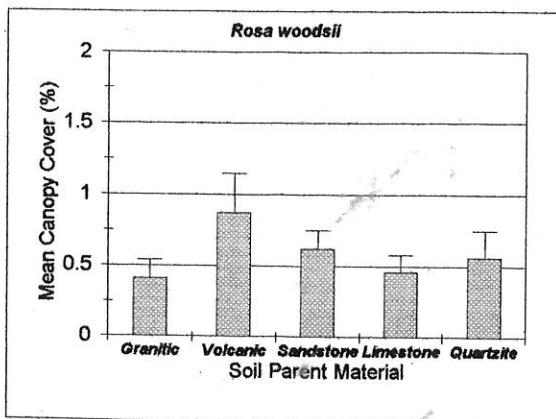
**Prunus virginiana Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	2.2	1.5	3.4	1.5	2.5
(signif. different)	a, b	b	c, d	a, b	a, d
Standard Error	0.55	0.48	0.46	0.51	0.71
% Constancy	19	8	25	18	18
n	247	283	625	169	229
Mean Where Present	11.75	20.04	13.54	8.31	14.20



**Ribes montigenum Canopy Cover (%)**

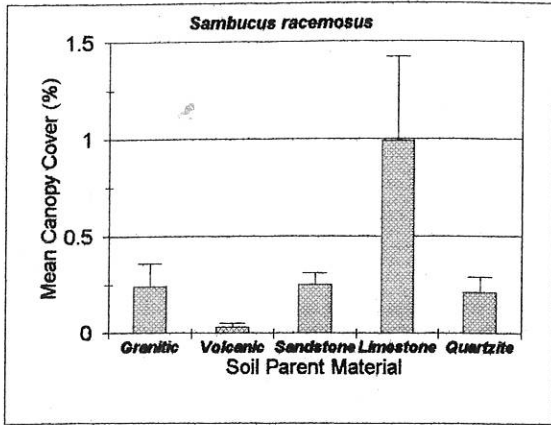
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.28	0.02	0.02	0.26	0.00
(signif. different)	a	b	b	a	c
Standard Error	0.14	0.01	0.01	0.18	0.00
% Constancy	4	2	3	4	<1
n	247	283	625	169	229
Mean Where Present	6.33	0.96	0.66	7.38	0.30



**Rosa woodsii Canopy Cover (%)**

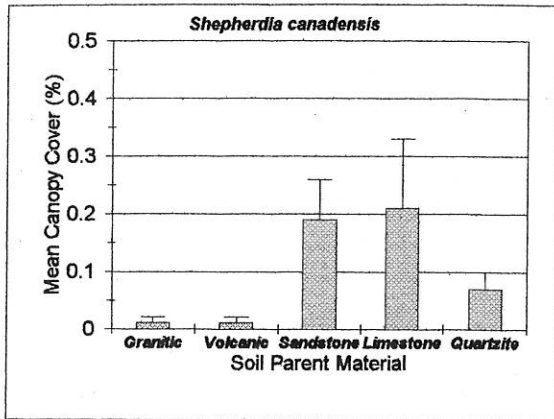
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.41	0.87	0.62	0.46	0.56
(signif. different)	a	b	a, b	a	a, b
Standard Error	0.13	0.28	0.13	0.12	0.19
% Constancy	22	24	37	37	21
n	247	283	625	169	229
Mean Where Present	1.83	3.59	1.67	1.24	2.70

# SPECIES/ SOIL PARENT MATERIAL RELATIONSHIP



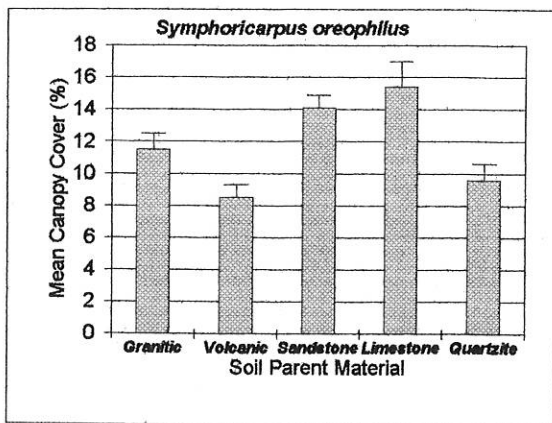
**Sambucus racemosa Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.24	0.03	0.25	0.99	0.21
(signif. different)	a	b	a	c	a
Standard Error	0.12	0.02	0.06	0.43	0.08
% Constancy	7	2	14	15	10
n	247	283	625	169	229
Mean Where Present	3.29	1.37	1.84	6.72	2.11



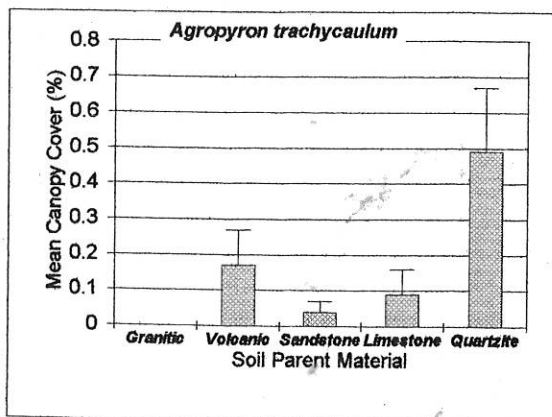
**Shepherdia canadensis Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.01	0.01	0.19	0.21	0.07
(signif. different)	a	a	b c	b c	c
Standard Error	0.01	0.01	0.07	0.12	0.03
% Constancy	2	1	5	6	5
n	247	283	625	169	229
Mean Where Present	0.78	0.80	3.55	3.59	1.37



**Symphoricarpos oreophilus Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	11.5	8.5	14.1	15.4	9.6
(signif. different)	a	b	c	c	b
Standard Error	1	0.8	0.8	1.6	1
% Constancy	76	67	78	82	71
n	247	283	625	169	229
Mean Where Present	15.11	12.64	18.04	18.82	13.47

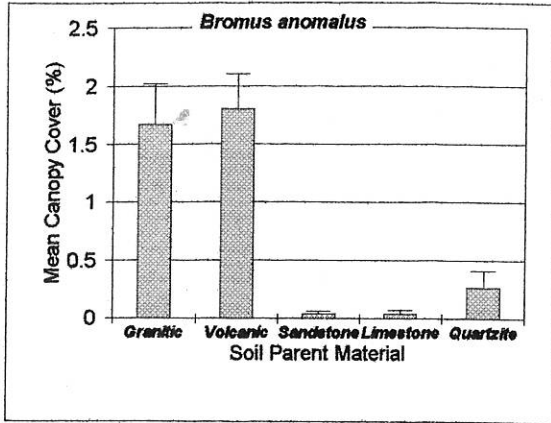


**Agropyron trachycaulum Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0	0.17	0.04	0.09	0.49
(signif. different)	a	b	b	b	c
Standard Error	0	0.1	0.03	0.07	0.18
% Constancy	0	1	<1	2	10
n	247	283	625	169	229
Mean Where Present	0.00	11.75	4.86	4.83	4.87

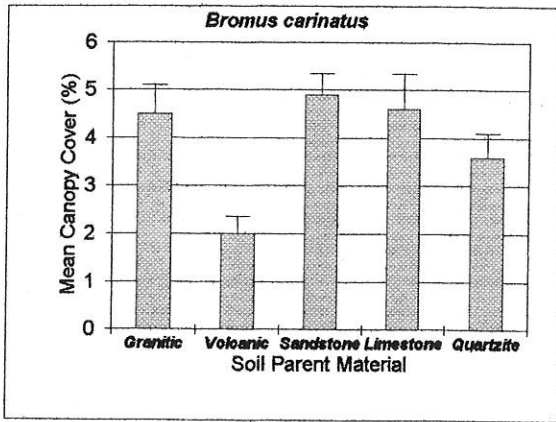


# SPECIES/ SOIL PARENT MATERIAL RELATIONSHIP



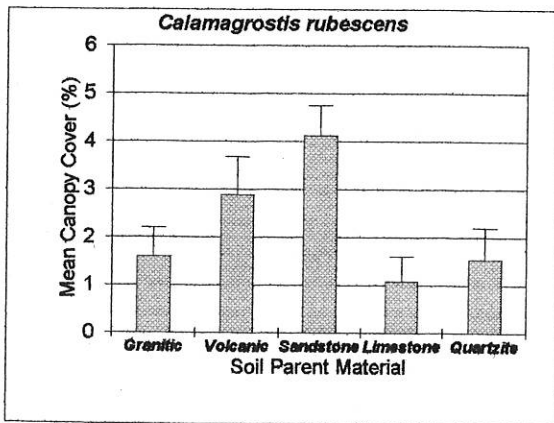
**Bromus anomalus Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	1.67	1.8	0.04	0.04	0.27
(signif. different)	a	a	b	b	c
Standard Error	0.35	0.3	0.02	0.03	0.14
% Constancy	19	26	1	5	5
n	247	283	625	169	229
Mean Where Present	8.99	6.98	2.99	0.93	6.09



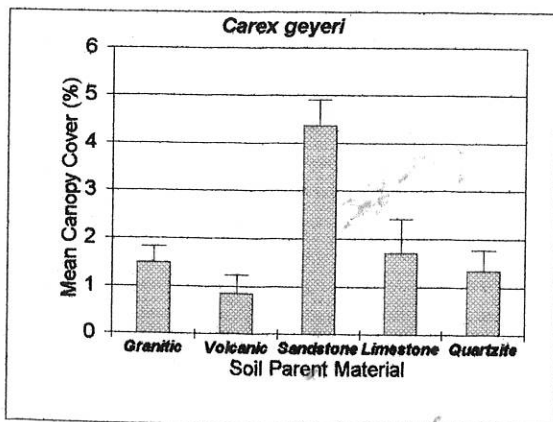
**Bromus carinatus Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	4.5	2	4.9	4.6	3.6
(signif. different)	a	b	a	a, c	c
Standard Error	0.6	0.36	0.43	0.73	0.5
% Constancy	46	26	52	48	42
n	247	283	625	169	229
Mean Where Present	9.94	7.68	9.62	8.77	8.50



**Calamagrostis rubescens Canopy Cover (%)**

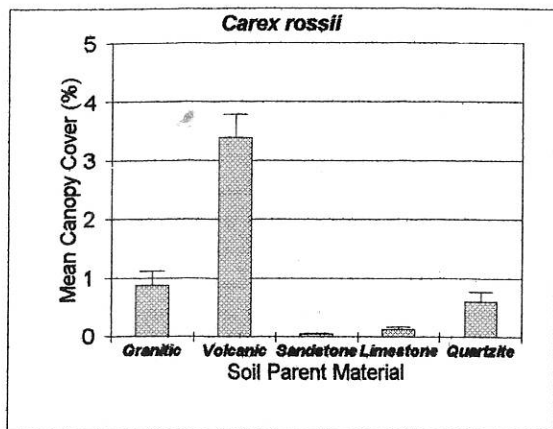
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	1.58	2.87	4.12	1.07	1.53
(signif. different)	a	b	b	a	a
Standard Error	0.62	0.81	0.63	0.53	0.66
% Constancy	3	6	10	5	5
n	247	283	625	169	229
Mean Where Present	48.91	50.77	42.90	20.11	31.85



**Carex geyeri Canopy Cover (%)**

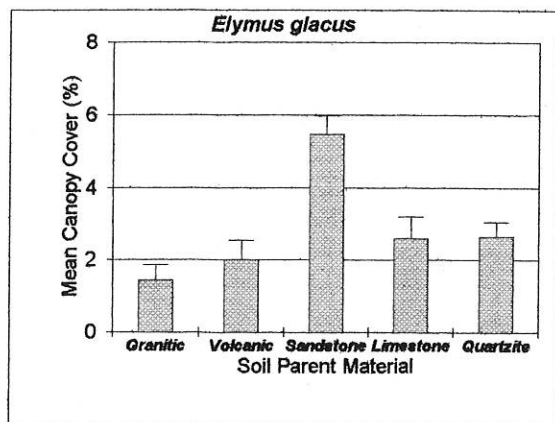
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	1.49	0.84	4.36	1.70	1.35
(signif. different)	a	b	c	a	a, b
Standard Error	0.34	0.39	0.54	0.71	0.42
% Constancy	15	2	22	14	11
n	247	283	625	169	229
Mean Where Present	10.20	39.72	19.62	11.92	12.34

# SPECIES/ SOIL PARENT MATERIAL RELATIONSHIP



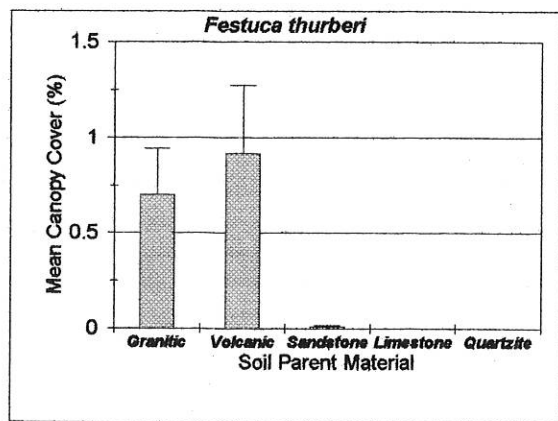
**Carex rossii Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.88	3.39	0.04	0.13	0.60
(signif. different)	a	b	c	c	a
Standard Error	0.24	0.40	0.01	0.04	0.17
% Constancy	17	46	4	11	15
n	247	283	625	169	229
Mean Where Present	5.03	7.43	0.97	1.19	3.90



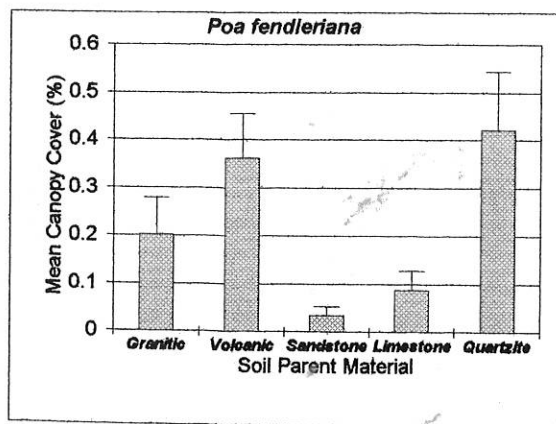
**Elymus glaucus Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	1.43	2.00	5.46	2.59	2.63
(signif. different)	a	a, b	c	b	b
Standard Error	0.42	0.55	0.51	0.60	0.42
% Constancy	17	12	46	33	34
n	247	283	625	169	229
Mean Where Present	8.23	16.16	11.94	7.83	7.63



**Festuca thurberi Canopy Cover (%)**

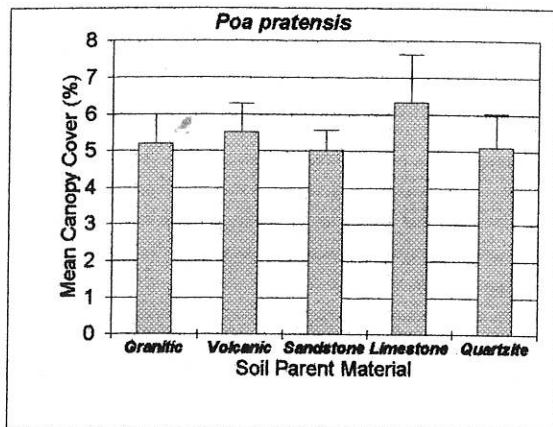
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.70	0.92	0.01	0.00	0.00
(signif. different)	a	a	b	b	b
Standard Error	0.24	0.36	0.01	0.00	0.00
% Constancy	7	10	1	0	0
n	247	283	625	169	229
Mean Where Present	10.21	9.60	0.01	0.00	0.00



**Poa fendleriana Canopy Cover (%)**

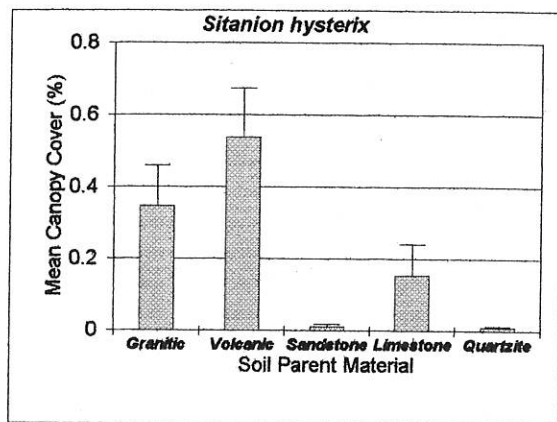
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.20	0.36	0.03	0.09	0.42
(signif. different)	a	b	c	c	b
Standard Error	0.08	0.09	0.02	0.04	0.12
% Constancy	9	17	1	5	7
n	247	283	625	169	229
Mean Where Present	2.16	2.38	2.65	1.84	5.36

# SPECIES/ SOIL PARENT MATERIAL RELATIONSHIP



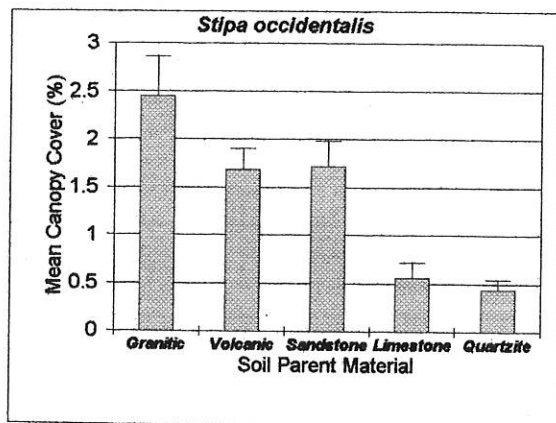
*Poa pratensis* Canopy Cover (%)

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	5.20	5.50	5.01	6.33	5.10
(signif. different)	a	a	a	a	a
Standard Error	0.79	0.79	0.55	1.30	0.92
% Constancy	34.00	38.00	32.00	38.00	31.00
n	247	283	625	169	229
Mean Where Present	15.30	14.69	15.82	16.71	12.70



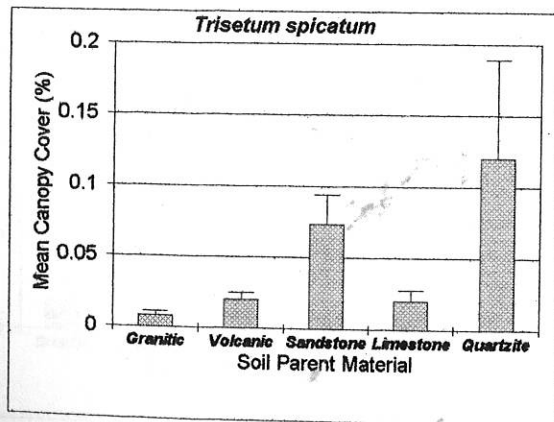
*Sitanion hystrix* Canopy Cover (%)

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.35	0.54	0.01	0.15	0.01
(signif. different)	a, b	b	c	a	c
Standard Error	0.11	0.14	0.01	0.09	0.00
% Constancy	10	17	1	4	3
n	247	283	625	169	229
Mean Where Present	3.59	2.41	2.10	3.71	0.30



*Stipa occidentalis* Canopy Cover (%)

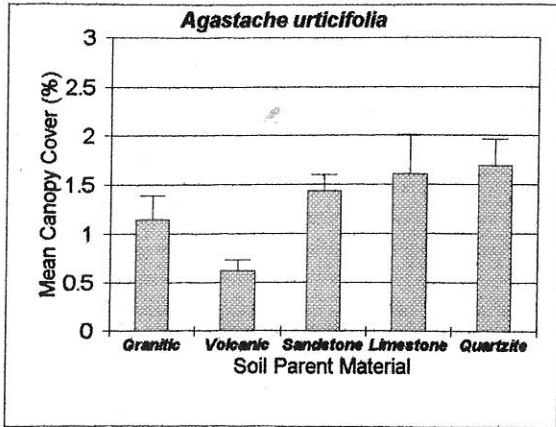
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	2.45	1.68	1.72	0.56	0.44
(signif. different)	a	b	b	c	c
Standard Error	0.41	0.22	0.27	0.16	0.11
% Constancy	36	37	25	19	13
n	247	283	625	169	229
Mean Where Present	6.87	4.53	6.83	2.95	3.44



*Trisetum spicatum* Canopy Cover (%)

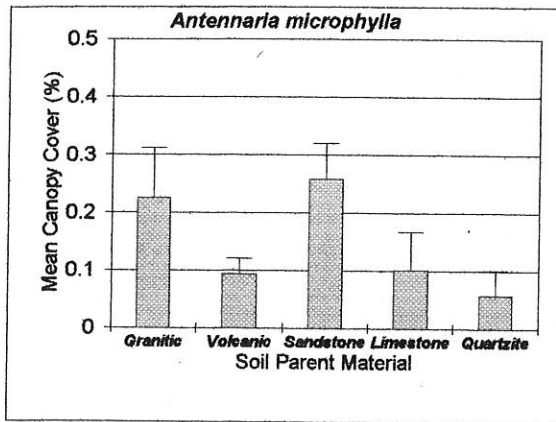
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.01	0.02	0.07	0.02	0.12
(signif. different)	a	b	c	b	c
Standard Error	0.00	0.00	0.02	0.01	0.07
% Constancy	3	7	11	6	5
n	247	283	625	169	229
Mean Where Present	0.25	0.30	0.98	0.31	2.29

# SPECIES/ SOIL PARENT MATERIAL RELATIONSHIP



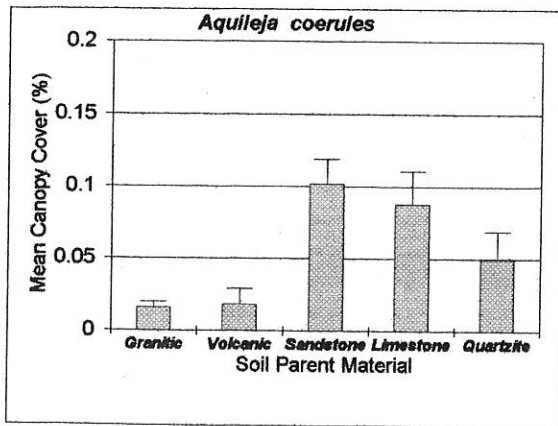
Agastache urticifolia Canopy Cover (%)

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	1.14	0.61	1.44	1.60	1.69
(signif. different)	a	b	a, c	a, c	c
Standard Error	0.24	0.11	0.16	0.40	0.27
% Constancy	23	17	34	31	34
n	247	283	625	169	229
Mean Where Present	5.05	3.69	4.28	5.12	4.85



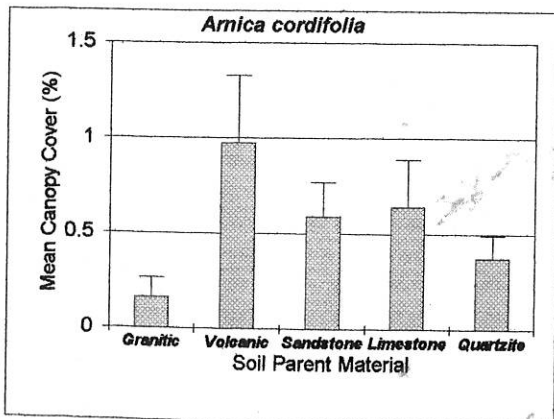
Antennaria microphylla Canopy Cover (%)

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.22	0.09	0.26	0.10	0.06
(signif. different)	a, d	b	a	b, d	b
Standard Error	0.09	0.03	0.06	0.07	0.04
% Constancy	9	14	11	5	4
n	247	283	625	169	229
Mean Where Present	2.41	0.67	2.24	1.90	1.46



Aquileja coerulea Canopy Cover (%)

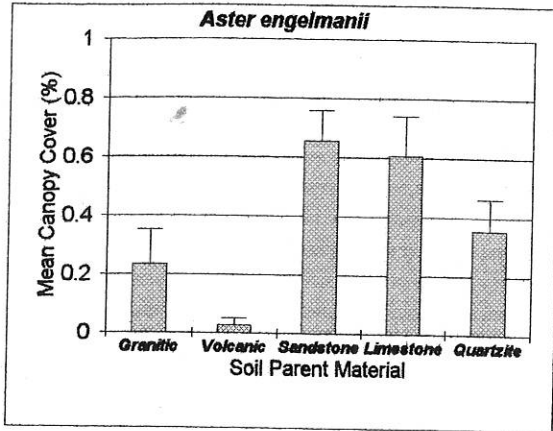
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.02	0.02	0.10	0.09	0.05
(signif. different)	a	a	b	b, c	c
Standard Error	0.00	0.01	0.02	0.02	0.02
n	247	283	625	169	229
Mean Where Present	0.30	0.64	0.62	0.51	0.75



Arnica cordifolia Canopy Cover (%)

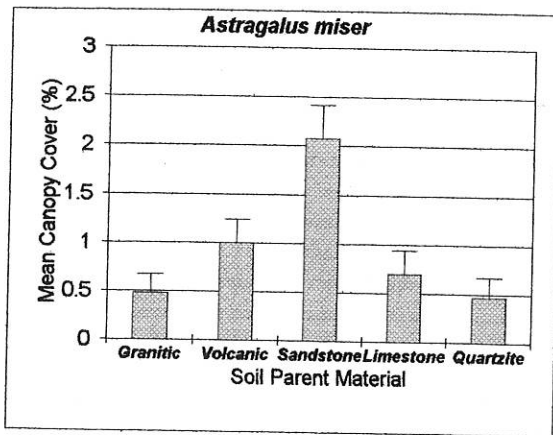
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.16	0.97	0.59	0.64	0.37
(signif. different)	a	b	b, c	b, c	c
Standard Error	0.10	0.35	0.18	0.25	0.12
% Constancy	5	6	5	11	13
n	247	283	625	169	229
Mean Where Present	3.04	15.33	8.62	5.71	2.93

# SPECIES/ SOIL PARENT MATERIAL RELATIONSHIP



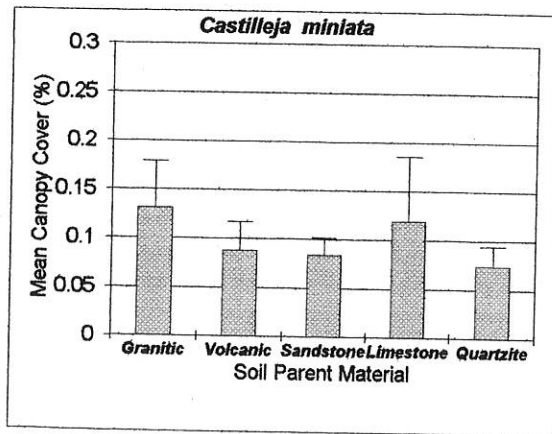
**Aster engelmannii Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.23	0.03	0.66	0.61	0.35
(signif. different)	a	b	c	c	a
Standard Error	0.12	0.02	0.10	0.14	0.11
% Constancy	4	1	28	25	16
n	247	283	625	169	229
Mean Where Present	5.75	3.65	2.63	2.38	2.31



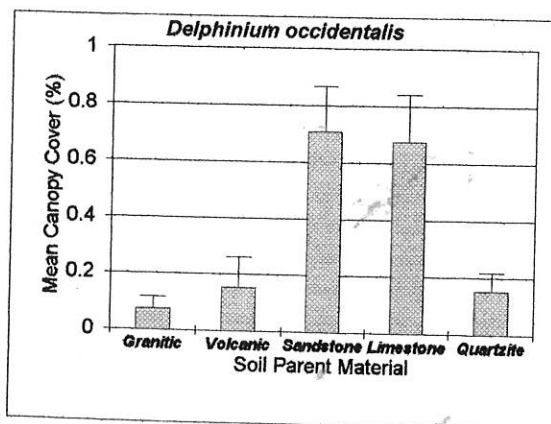
**Astragalus miser Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.48	1.00	2.07	0.70	0.47
(signif. different)	a	b	c	a, b	a
Standard Error	0.19	0.24	0.34	0.24	0.20
% Constancy	13	15	15	12	5
n	247	283	625	169	229
Mean Where Present	5.61	6.43	13.36	10.69	8.91



**Castilleja miniata Canopy Cover (%)**

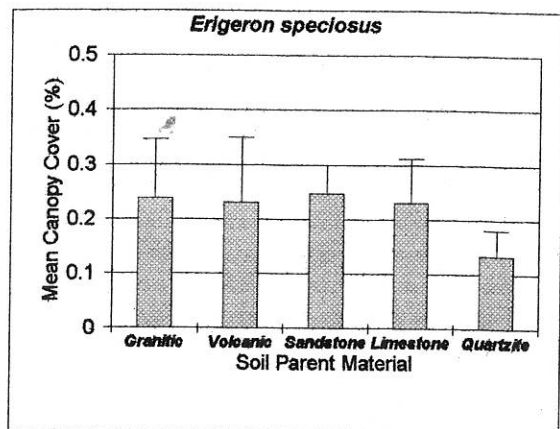
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.13	0.09	0.08	0.12	0.07
(signif. different)	a	a	a	a	a
Standard Error	0.05	0.03	0.02	0.07	0.02
% Constancy	15	13	12	11	12
n	247	283	625	169	229
Mean Where Present	0.88	0.69	0.76	1.06	0.60



**Delphinium occidentalis Canopy Cover (%)**

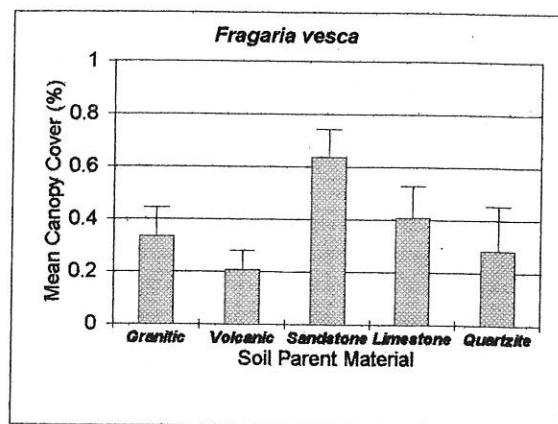
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.07	0.15	0.71	0.67	0.15
(signif. different)	a	a	b	b	a
Standard Error	0.04	0.11	0.16	0.17	0.07
% Constancy	6	4	15	23	7
n	247	283	625	169	229
Mean Where Present	1.31	4.35	4.75	2.92	2.06

# SPECIES/ SOIL PARENT MATERIAL RELATIONSHIP



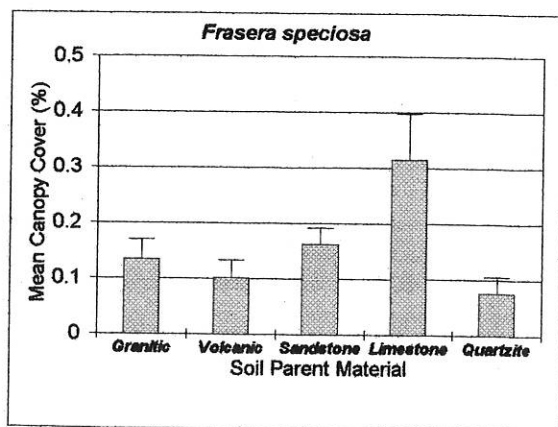
**Erigeron speciosus Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.24	0.23	0.25	0.23	0.13
(signif. different)	a,b	a,b	a	a,b	b
Standard Error	0.11	0.12	0.05	0.08	0.05
% Constancy	5	6	17	18	8
n	247	283	625	169	229
Mean Where Present	4.89	3.83	1.44	1.30	1.61



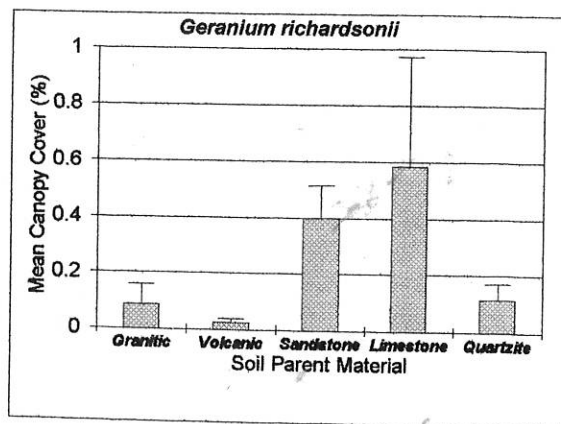
**Fragaria vesca Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.33	0.21	0.64	0.41	0.28
(signif. different)	a, b	b	c	a	a
Standard Error	0.11	0.07	0.11	0.12	0.17
% Constancy	15	14	26	23	8
n	247	283	625	169	229
Mean Where Present	2.58	1.50	2.72	1.76	3.41



**Fraseria speciosa Canopy Cover (%)**

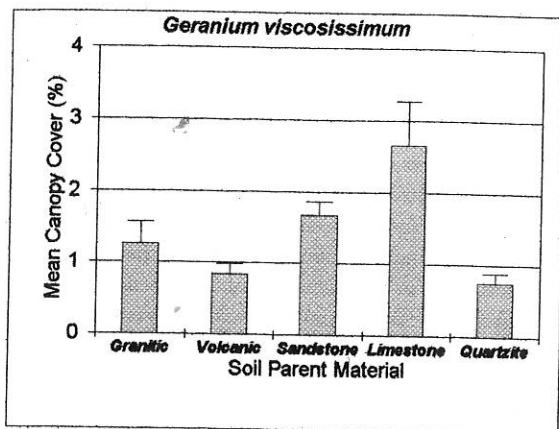
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.13	0.10	0.16	0.31	0.08
(signif. different)	b, c	b, d	c	a	d
Standard Error	0.03	0.03	0.03	0.08	0.03
% Constancy	15	8	14	21	8
n	247	283	625	169	229
Mean Where Present	0.93	1.24	1.18	1.48	0.96



**Geranium richardsonii Canopy Cover (%)**

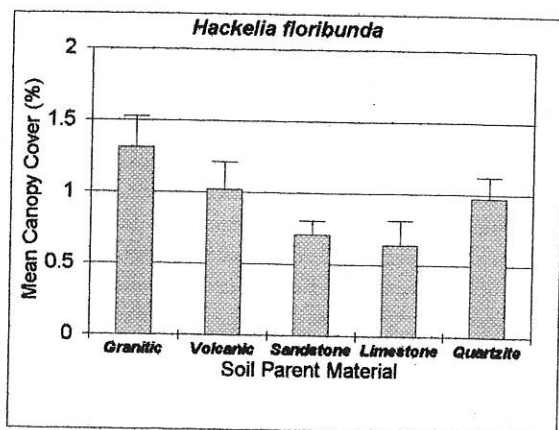
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.08	0.02	0.40	0.58	0.12
(signif. different)	a, b	b	c	c, d	a, d
Standard Error	0.07	0.01	0.11	0.39	0.05
% Constancy	2	2	6	10	4
n	247	283	625	169	229
Mean Where Present	4.18	1.17	6.24	2.24	2.96

# SPECIES/ SOIL PARENT MATERIAL RELATIONSHIP



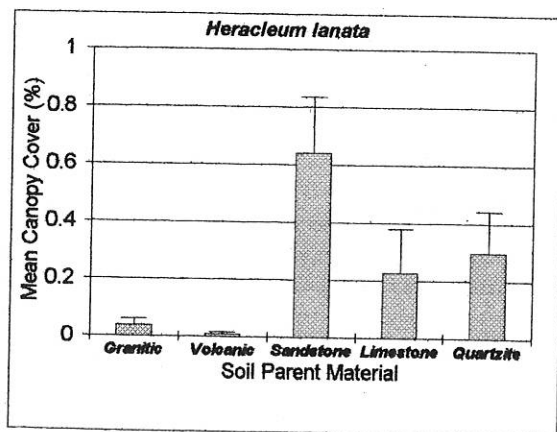
**Geranium viscosissimum Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	1.25	0.84	1.67	2.65	0.75
(signif. different)	a, c	a, b	c	d	b
Standard Error	0.31	0.15	0.19	0.62	0.14
% Constancy	27	22	38	49	29
n	247	283	625	169	229
Mean Where Present	4.68	3.82	4.35	2.59	2.59



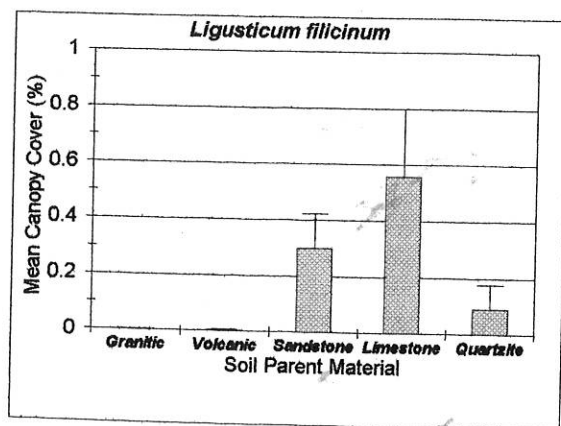
**Hackelia floribunda Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	1.31	1.02	0.71	0.64	0.97
(signif. different)	a	a, b	c	c	b
Standard Error	0.22	0.19	0.10	0.17	0.15
% Constancy	30	17	31	24	33
n	247	283	625	169	229
Mean Where Present	4.36	6.02	2.26	2.70	2.97



**Heracleum lanatum Canopy Cover (%)**

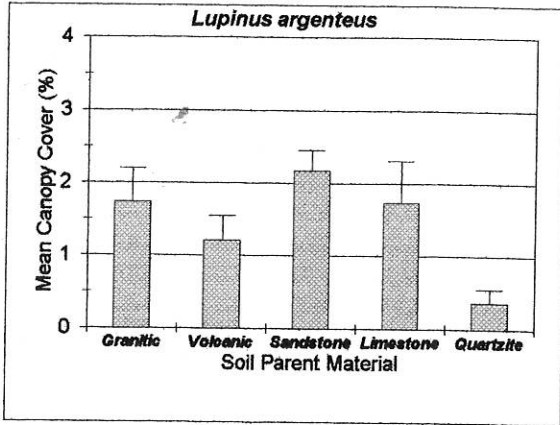
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.04	0.01	0.64	0.23	0.30
(signif. different)	a, b	b	c	a, d	d
Standard Error	0.02	0.01	0.20	0.15	0.14
% Constancy	2	<1	7	3	3
n	247	283	625	169	229
Mean Where Present	1.78	2.00	9.09	7.66	9.76



**Ligusticum filicinum Canopy Cover (%)**

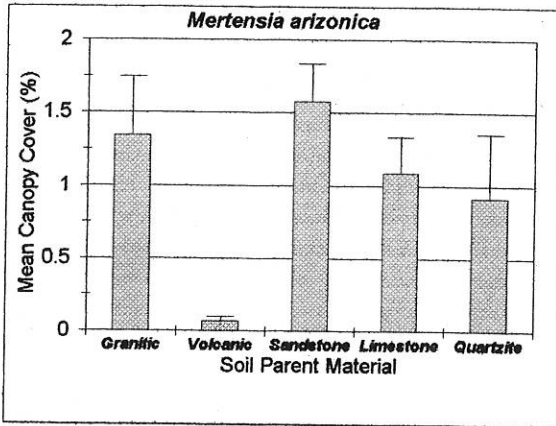
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.002	0.003	0.299	0.557	0.090
(signif. different)	a	a	b	b	a
Standard Error	0.001	0.002	0.124	0.242	0.087
% Constancy	2	1	5	5	1
n	247	283	625	169	229
Mean Where Present	0.12	0.30	6.23	8.55	6.87

# SPECIES/ SOIL PARENT MATERIAL RELATIONSHIP



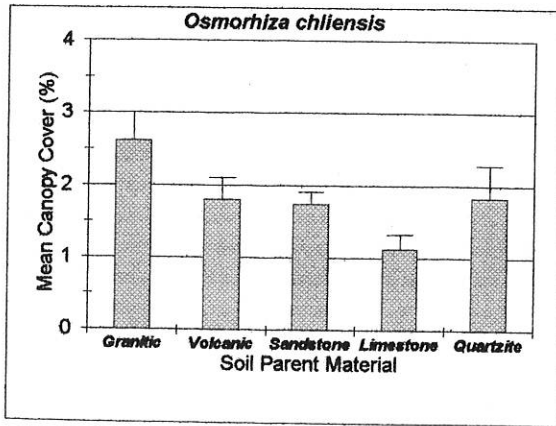
**Lupinus argenteus Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	1.73	1.20	2.17	1.74	0.36
(signif. different)	a, b	a	b	a, b	c
Standard Error	0.46	0.34	0.29	0.58	0.19
% Constancy	21	17	31	21	7
n	247	283	625	169	229
Mean Where Present	8.40	7.10	7.05	8.39	5.50



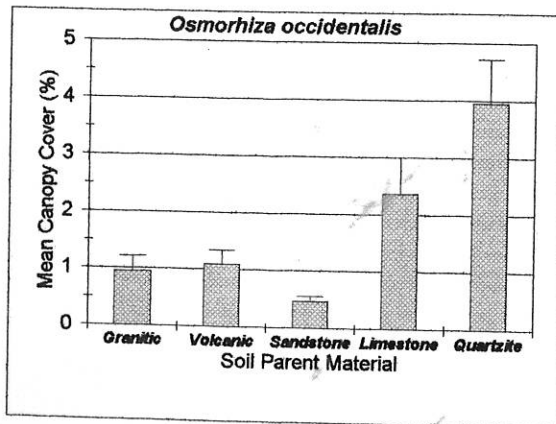
**Mertensia arizonica Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	1.34	0.07	1.58	1.08	0.91
(signif. different)	a, c	b	c	a	a
Standard Error	0.40	0.03	0.26	0.25	0.44
% Constancy	13	4	20	22	6
n	247	283	625	169	229
Mean Where Present	23.66	1.89	7.69	4.82	14.96



**Osmorhiza chilensis Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	2.62	1.80	1.74	1.12	1.83
(signif. different)	a	b	b	c	b
Standard Error	0.38	0.30	0.17	0.20	0.45
% Constancy	40	25	44	45	33
n	247	283	625	169	229
Mean Where Present	6.57	7.09	3.95	2.49	5.58

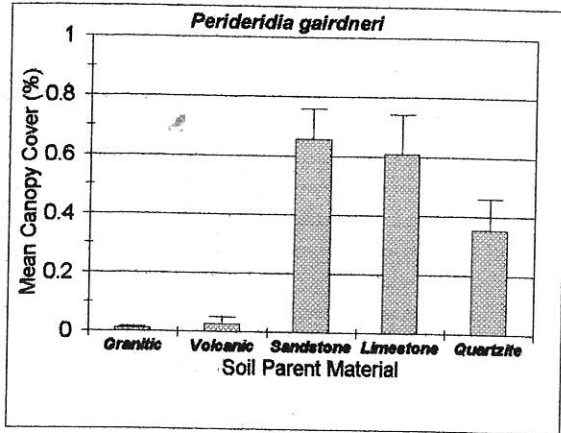


**Osmorhiza occidentalis Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.95	1.09	0.47	2.36	3.96
(signif. different)	a	a	b	c	d
Standard Error	0.27	0.25	0.09	0.63	0.76
% Constancy	17	14	19	25	31
n	247	283	625	169	229
Mean Where Present	5.45	7.94	2.52	9.29	12.95

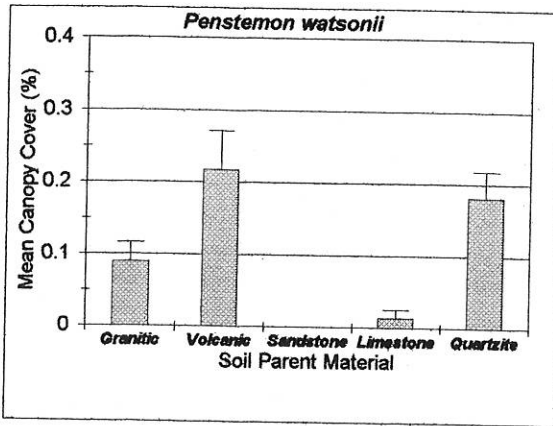


# SPECIES/ SOIL PARENT MATERIAL RELATIONSHIP



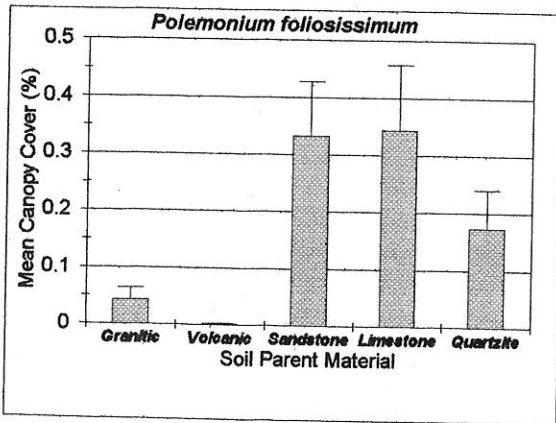
*Perideridia gairdneri* Canopy Cover (%)

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.01	0.03	0.66	0.61	0.35
(signif. different)	a	a	b	b, c	c
Standard Error	0.00	0.02	0.10	0.14	0.11
% Constancy	3	1	25	25	16
n	247	283	625	169	229
Mean Where Present	0.40	3.65	2.63	2.38	2.25



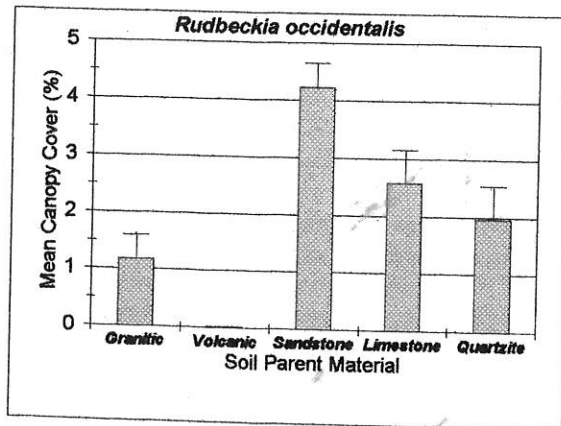
*Penstemon watsonii* Canopy Cover (%)

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.09	0.22	0.00	0.01	0.18
(signif. different)	a	b	c	d	b
Standard Error	0.03	0.05	0.00	0.01	0.04
% Constancy	8	16	0	1	17
n	247	283	625	169	229
Mean Where Present	1.16	1.75	0.00	1.15	1.04



*Polemonium foliosissimum* Canopy Cover (%)

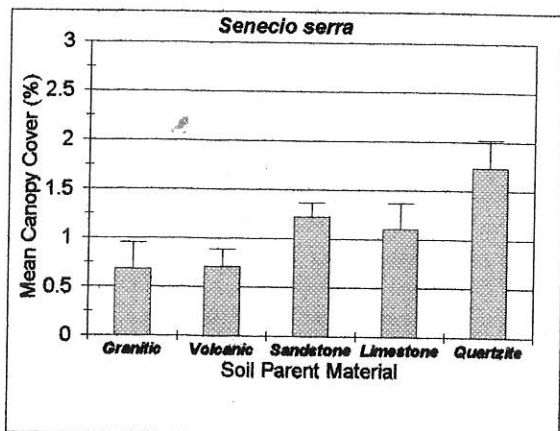
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.042	0.001	0.333	0.343	0.173
(signif. different)	a	b	c	c	d
Standard Error	0.022	0.001	0.094	0.114	0.067
% Constancy	6	<1	15	19	10
n	247	283	625	169	229
Mean Where Present	0.74	0.30	2.31	1.81	1.72



*Rudbeckia occidentalis* Canopy Cover (%)

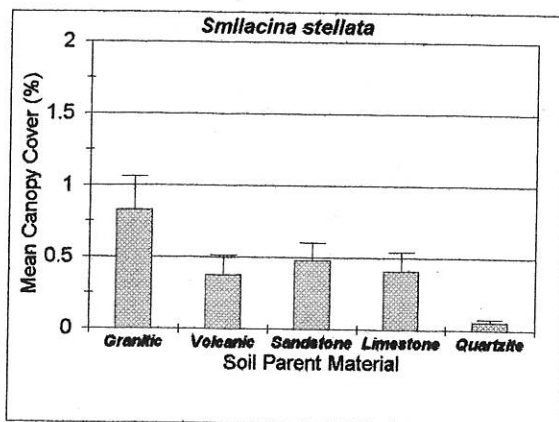
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	1.18	<0.01	4.23	2.58	1.96
(signif. different)	a	b	c	d	a, d
Standard Error	0.42	0.00	0.42	0.58	0.58
% Constancy	9	<1	38	37	15
n	247	283	625	169	229
Mean Where Present	13.20	0.70	11.10	7.02	12.83

# SPECIES/ SOIL PARENT MATERIAL RELATIONSHIP



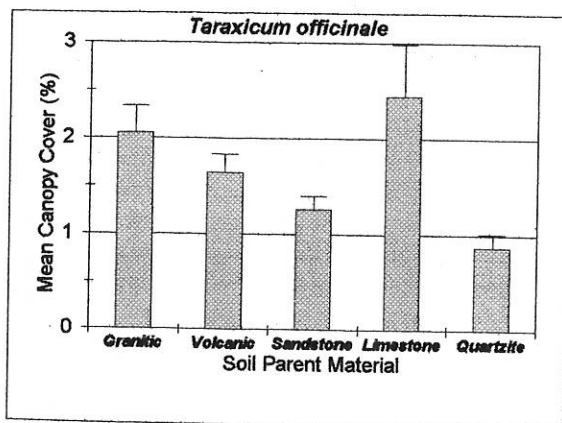
**Senecio serra Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.68	0.71	1.22	1.10	1.73
(signif. different)	a, b	b	c	c, a	d
Standard Error	0.27	0.18	0.15	0.27	0.29
% Constancy	14	13	31	22	34
n	247	283	625	169	229
Mean Where Present	4.81	5.57	3.98	5.03	5.01



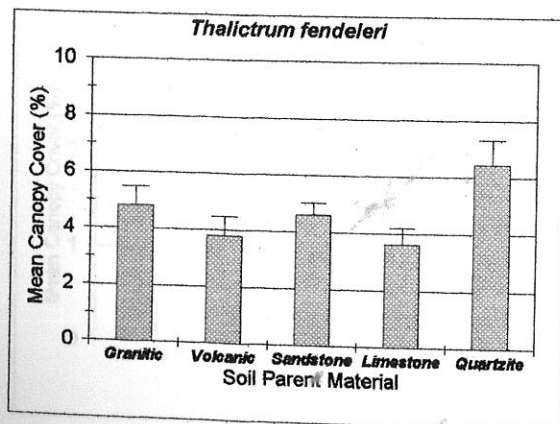
**Smilacina stellata Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.83	0.37	0.48	0.41	0.05
(signif. different)	a	b	b	b	c
Standard Error	0.23	0.14	0.12	0.13	0.02
% Constancy	20	10	17	25	6
n	247	283	625	169	229
Mean Where Present	4.09	3.93	2.73	1.64	0.93



**Taraxicum officinale Canopy Cover**

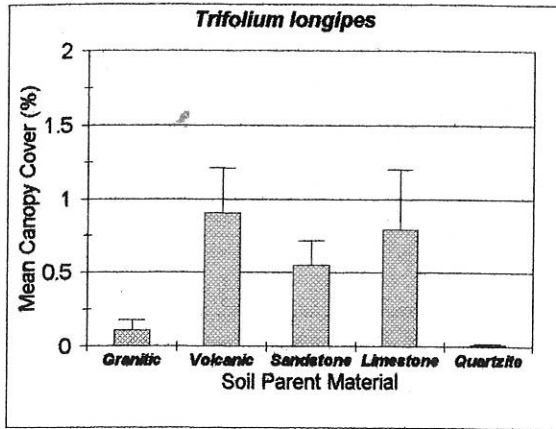
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	2.05	1.64	1.26	2.44	0.87
(signif. different)	a, b	b	c	a	d
Standard Error	0.28	0.20	0.14	0.55	0.14
% Constancy	60	61	43	59	40
n	247	283	625	169	229
Mean Where Present	3.45	2.68	2.92	4.12	2.18



**Thalictrum fendleri Canopy Cover (%)**

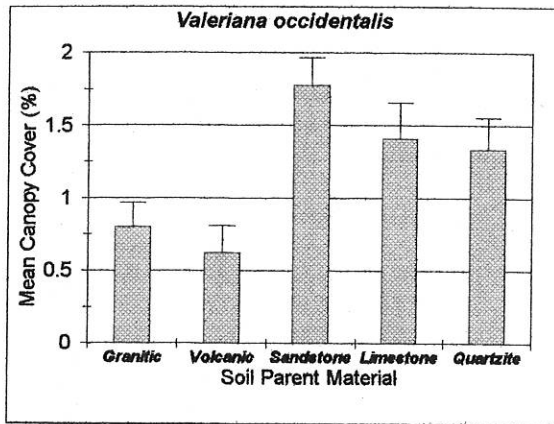
	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	4.81	3.80	4.62	3.63	6.45
(signif. different)	a	a, b	a	b	c
Standard Error	0.68	0.68	0.42	0.57	0.86
% Constancy	42	32	54	63	60
n	247	283	625	169	229
Mean Where Present	11.32	11.96	8.57	5.73	10.86

# SPECIES/ SOIL PARENT MATERIAL RELATIONSHIP



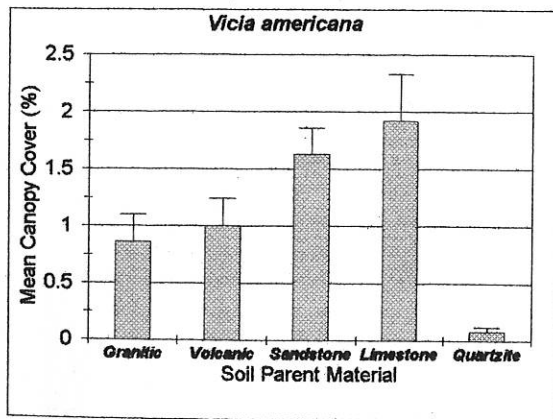
**Trifolium longipes Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.11	0.90	0.55	0.79	0.01
(signif. different)	a	b	b	b	c
Standard Error	0.07	0.31	0.17	0.41	0.01
% Constancy	2	8	5	6	1
n	247	283	625	169	229
Mean Where Present	4.37	11.12	10.74	12.15	0.87



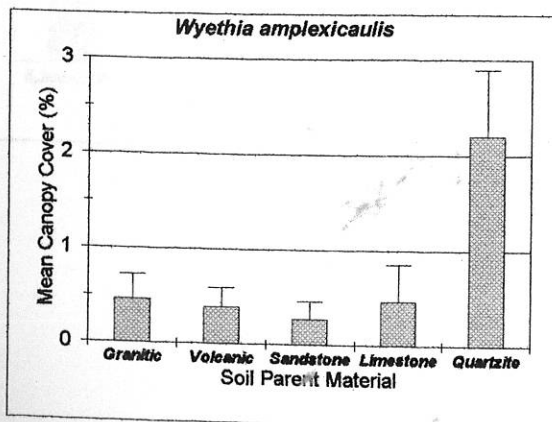
**Valeriana occidentalis Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.80	0.62	1.78	1.41	1.34
(signif. different)	a	a	b	b, c	c
Standard Error	0.17	0.19	0.19	0.25	0.22
% Constancy	18	8	34	30	24
n	247	283	625	169	229
Mean Where Present	4.49	7.33	5.21	4.67	5.46



**Vicia americana Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.86	1.00	1.63	1.92	0.08
(signif. different)	a	a	b	b	c
Standard Error	0.25	0.24	0.23	0.41	0.04
% Constancy	11	14	26	37	4
n	247	283	625	169	229
Mean Where Present	7.32	7.25	6.16	5.15	2.02

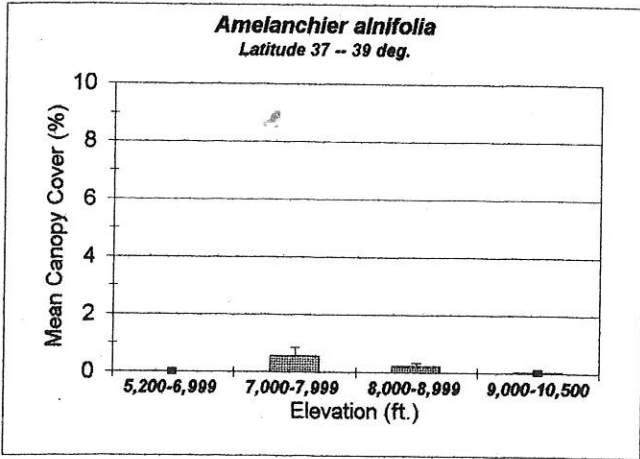


**Wyethia amplexicaulis Canopy Cover (%)**

	Granitic	Volcanic	Sandstone	Limestone	Quartzite
Mean	0.45	0.38	0.27	0.46	2.20
(signif. different)	a	a	a	a	b
Standard Error	0.26	0.21	0.19	0.39	0.70
% Constancy	3	3	2	2	11
n	247	283	625	169	229
Mean Where Present	11.23	10.82	15.40	19.58	19.35

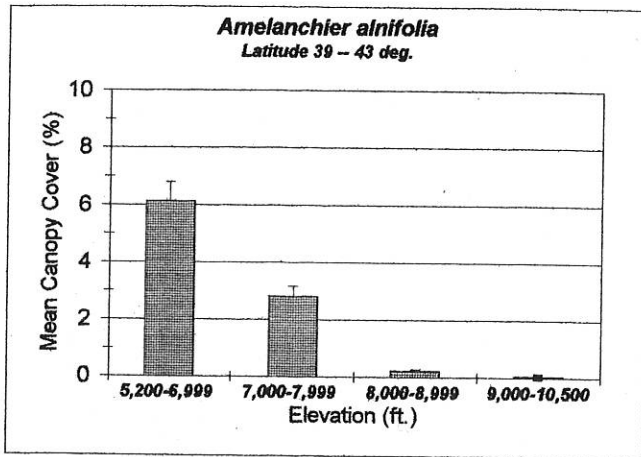
EFFECT OF ELEVATION AT DIFFERENT LATITUDES

*Amelanchier alnifolia*



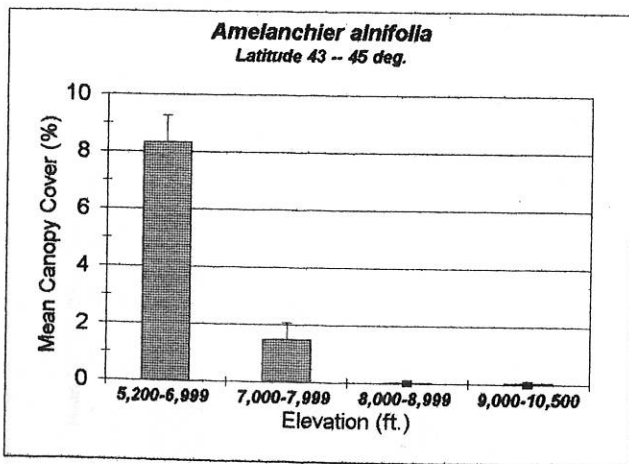
*Amelanchier alnifolia* Canopy Cover (%)  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0	0.56	0.21	0.02
(signif. different)	N	a	a	b
Standard Error	N	0.29	0.11	0.01
% Constancy	0	26	15	3
n	1	19	204	207
Mean Where Present	N	2.15	1.41	0.69



*Amelanchier alnifolia* Canopy Cover (%)  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	6.11	2.81	0.22	0.05
(signif. different)	a	b	c	c
Standard Error	0.68	0.35	0.05	0.02
% Constancy	70	50	14	8
n	283	477	435	131
Mean Where Present	8.70	5.59	1.55	0.65

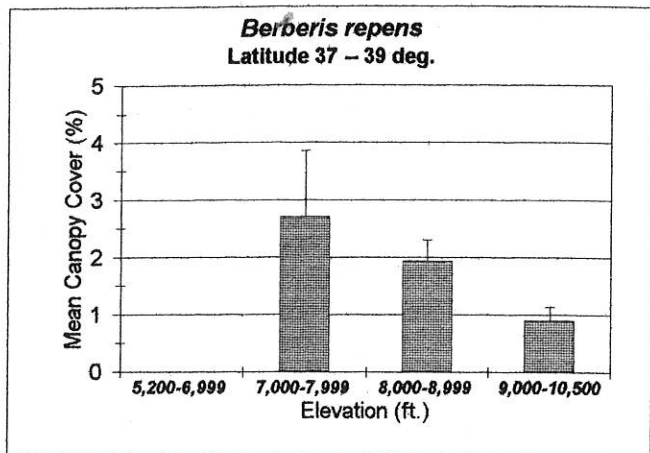


*Amelanchier alnifolia* Canopy Cover (%)  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	8.34	1.51	0.03	0.04
(signif. different)	a	b	c	c
Standard Error	0.93	0.55	0.02	0.04
% Constancy	68	33	3	14
n	210	91	70	7
Mean Where Present	12.33	4.57	1.00	0.30

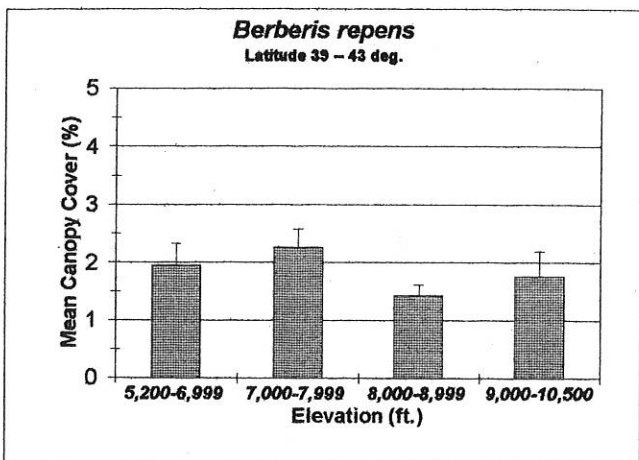
EFFECT OF ELEVATION AT DIFFERENT LATITUDES

*Berberis repens*



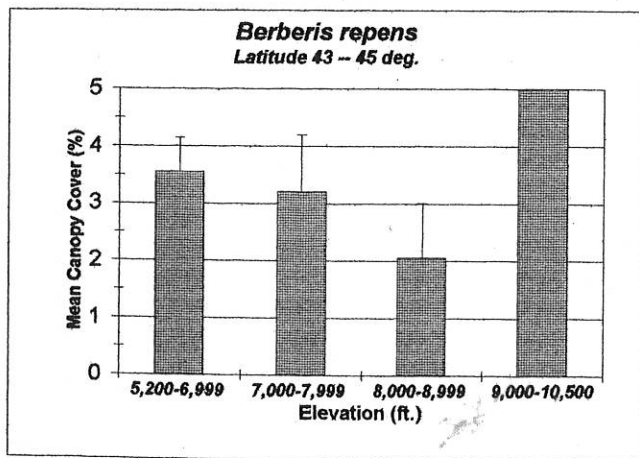
**Berberis repens Canopy Cover (%)**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0	0.56	0.21	0.02
(signif. different)		a	a	b
Standard Error	N	0.29	0.11	0.01
% Constancy	0	26	15	3
n	1	19	204	207
Mean Where Present	N	2.15	1.41	0.69



**Berberis repens Canopy Cover (%)**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	6.11	2.81	0.22	0.05
(signif. different)	a	b	c	c
Standard Error	0.68	0.35	0.05	0.02
% Constancy	70	50	14	8
n	283	477	435	131
Mean Where Present	8.70	5.59	1.55	0.65

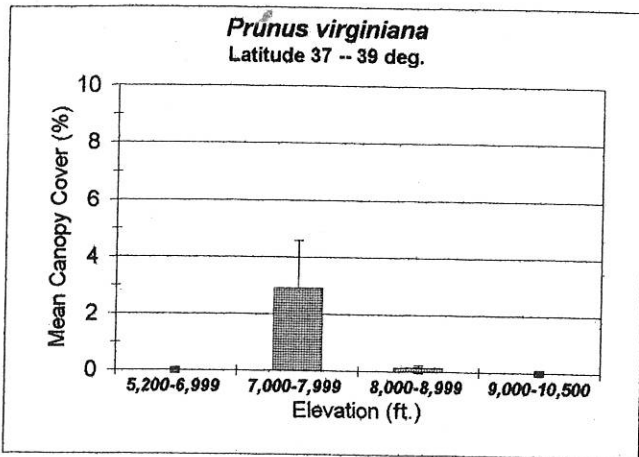


**Berberis repens Canopy Cover (%)**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	8.34	1.51	0.03	0.04
(signif. different)	a	b	c	c
Standard Error	0.93	0.55	0.02	0.04
% Constancy	68	33	3	14
n	210	91	70	7
Mean Where Present	12.33	4.57	1.00	0.30

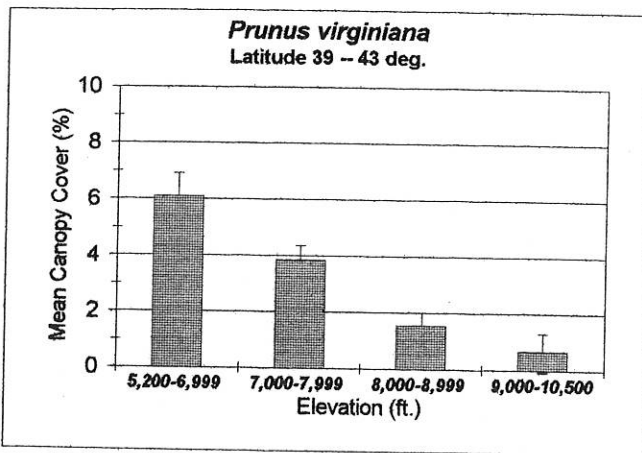
# EFFECT OF ELEVATION AT DIFFERENT LATTITUDES

## *Prunus virginiana*



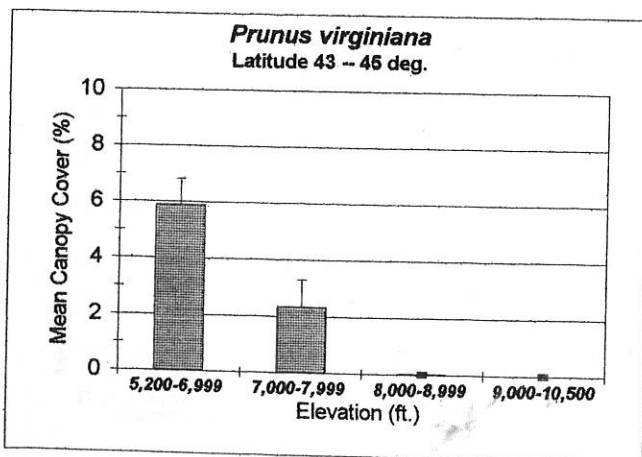
**Prunus virginiana Canopy Cover (%)**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0	2.92	0.14	0.00
(signif. different)	a	b	a	a
Standard Error	0	1.68	0.09	0.00
% Constancy	0	32	3	2
n	1	19	204	207
Mean Where Present	N	9.25	4.11	0.5



**Prunus virginiana Canopy Cover (%)**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	6.10	3.84	1.56	0.65
(signif. different)	a	b	c	c
Standard Error	0.83	0.53	0.44	0.65
% Constancy	45	32	11	2
n	283	477	435	131
Mean Where Present	13.59	11.98	13.55	42.65

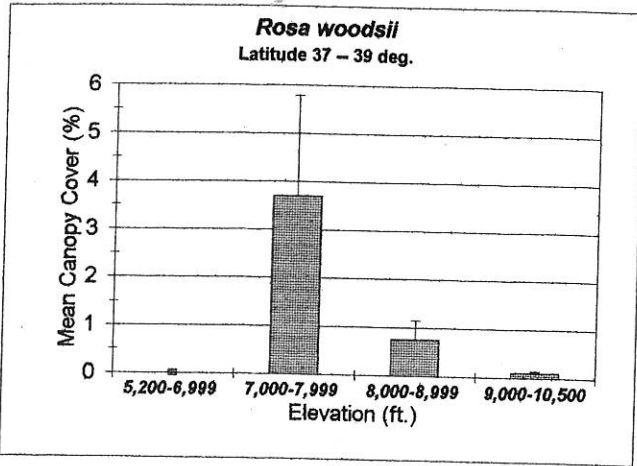


**Prunus virginiana Canopy Cover (%)**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	5.89	2.33	0.01	0.00
(signif. different)	a	b	c	c
Standard Error	0.93	0.97	0.01	0.00
% Constancy	45	21	3	0
n	210	91	70	7
Mean Where Present	13.15	11.16	0.3	0

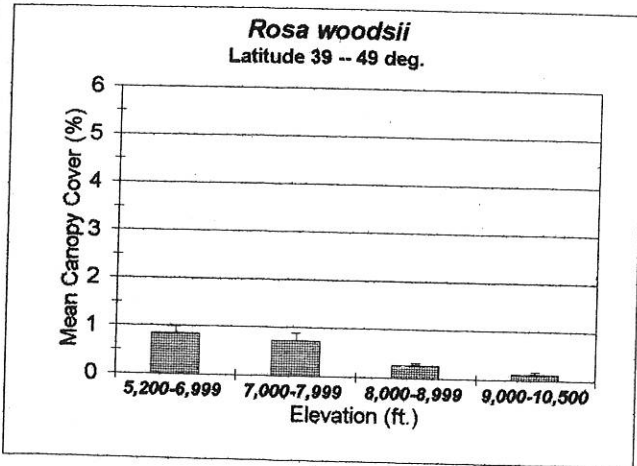
EFFECT OF ELEVATION AT DIFFERENT LATTITUDES

*Rosa woodsii*



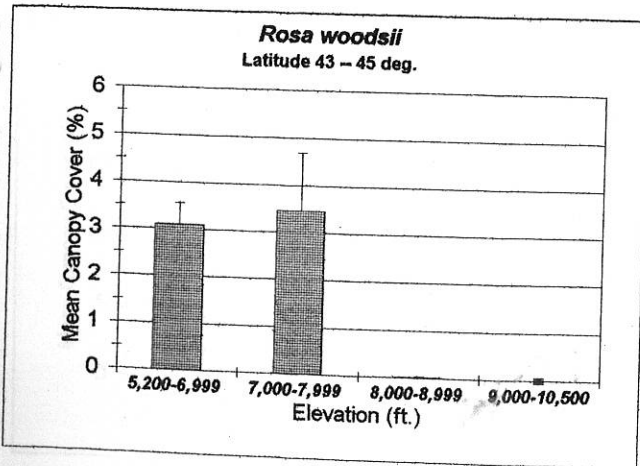
**Rosa woodsii Canopy Cover (%)**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	NA	3.70	0.75	0.10
(signif. different)	NA	a	b	c
Standard Error		2.08	0.39	0.03
% Constancy	NA	32	29	14
n	1	19	204	207
Mean Where Present	NA	11.72	2.56	0.71



**Rosa woodsii Canopy Cover (%)**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.85	0.72	0.26	0.11
(signif. different)	a	a	b	c
Standard Error	0.15	0.16	0.05	0.05
% Constancy	48	38	26	12
n	283	477	435	131
Mean Where Present	1.75	1.9	0.99	0.93

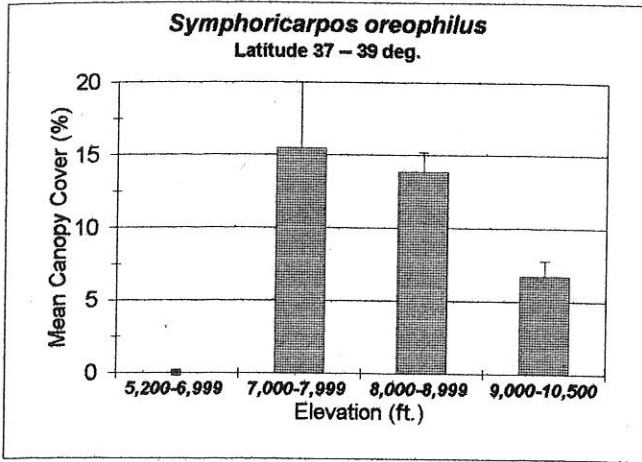


**Rosa woodsii Canopy Cover (%)**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	3.10	3.46	0.01	0.00
(signif. different)	a	a	b	b
Standard Error	0.45	1.23	0.01	0.00
% Constancy	58	29	1	0
n	210	91	70	7
Mean Where Present	5.37	12.12	1	N

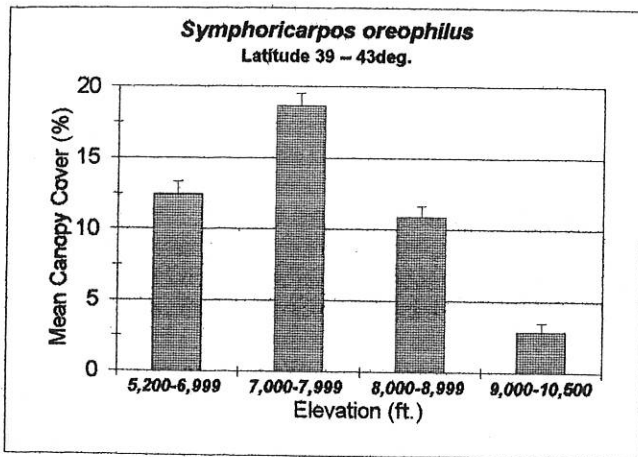
**EFFECT OF ELEVATION AT DIFFERENT LATITUDES**

***Symphoricarpos oreophilus***



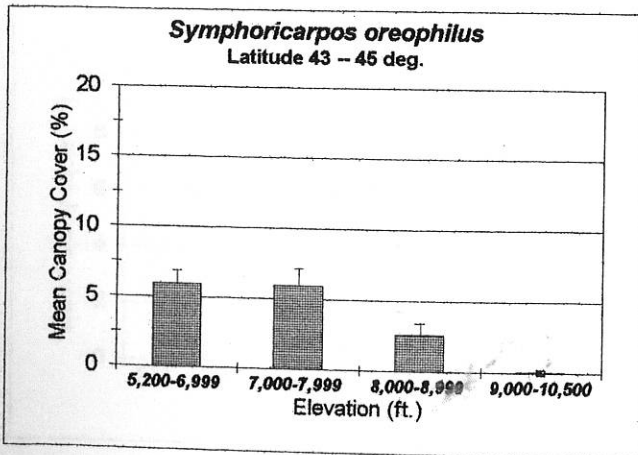
***Symphoricarpos oreophilus* Canopy Cover**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.00	15.49	13.85	6.71
(signif. different)	a	b	b	c
Standard Error	0	5.03	1.35	1.08
% Constancy	0	74	80	57
n	1	19	204	207
Mean Where Present	N	21.02	17.34	11.88



***Symphoricarpos oreophilus* Canopy Cover**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	12.43	18.62	10.85	2.85
(signif. different)	a	b	c	d
Standard Error	0.92	0.89	0.79	0.62
% Constancy	88	91	72	50
n	283	477	435	131
Mean Where Present	14.19	20.51	15.07	5.66



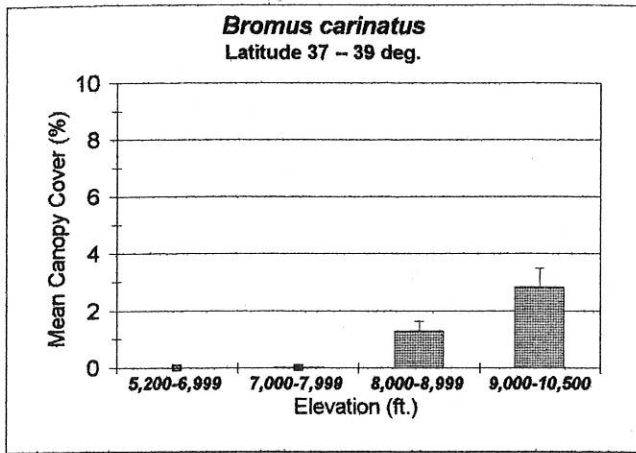
***Symphoricarpos oreophilus* Canopy Cover**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	5.94	5.90	2.60	0.04
(signif. different)				
Standard Error	0.95	1.25	0.78	0.04
% Constancy	43	67	59	14
n	210	91	70	7
Mean Where Present	13.71	8.81	2.9	0.3



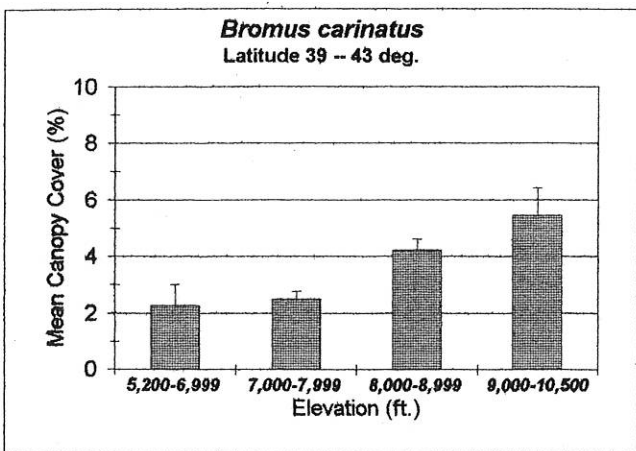
EFFECT OF ELEVATION AT DIFFERENT LATTITUDES

*Bromus carinatus*



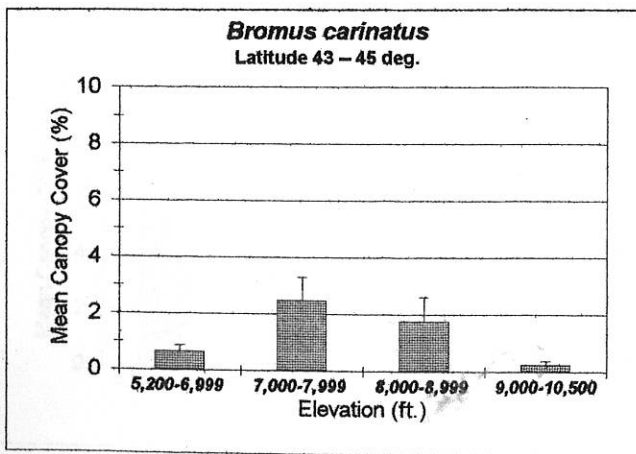
**Bromus carinatus Canopy Cover (%)**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.00	0.02	1.29	2.84
(signif. different)	a	a	b	c
Standard Error	0.00	0.02	0.33	0.65
% Constancy	0	5	24	24
n	1	19	204	207
Mean Where Present	N	0.3	5.48	11.98



**Bromus carinatus Canopy Cover (%)**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	2.27	2.48	4.23	5.45
(signif. different)	a	a	b	b
Standard Error	0.74	0.28	0.38	0.97
% Constancy	56	59	53	44
n	16	268	477	131
Mean Where Present	4.03	4.24	8.04	12.53

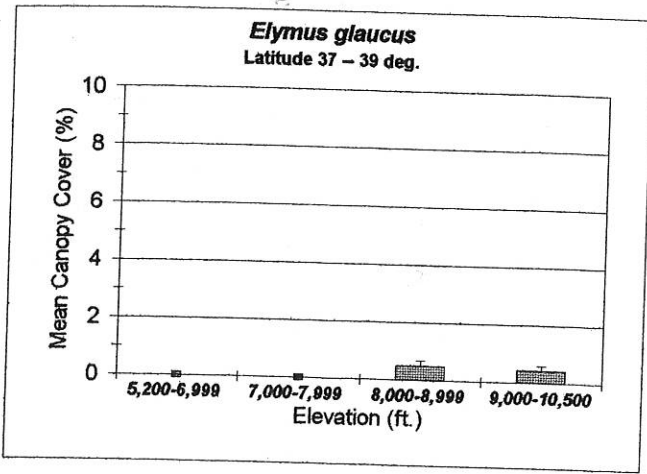


**Bromus carinatus Canopy Cover (%)**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.65	2.46	1.74	0.23
(signif. different)	a	b	b	a
Standard Error	0.22	0.83	0.85	0.14
% Constancy	26	38	39	43
n	209	91	70	7
Mean Where Present	2.47	6.41	4.52	0.53

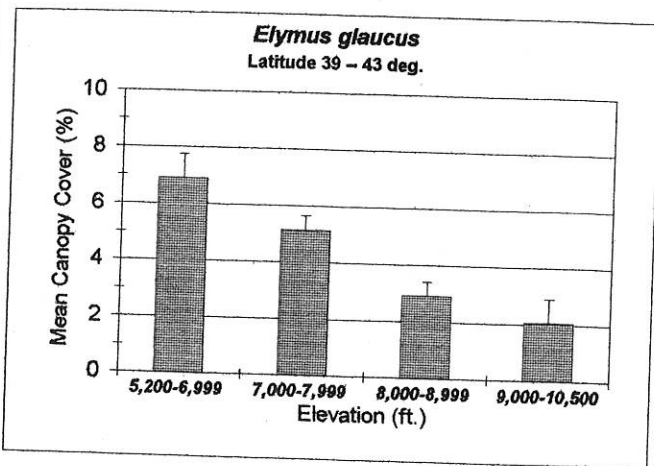
# EFFECT OF ELEVATION AT DIFFERENT LATTITUDES

## *Elymus glaucus*



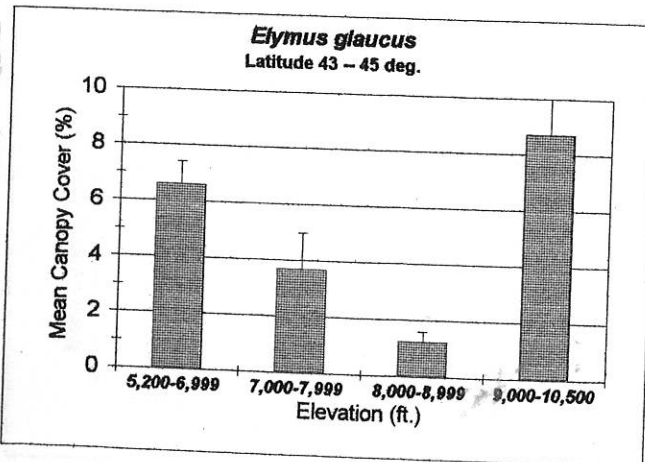
***Elymus glaucus* Canopy Cover (%)**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.00	0.00	0.49	0.43
(signif. different)	a	a	b	b
Standard Error	0.00	0.00	0.19	0.16
% Constancy	0	0	8	8
n	1	19	203	207
Mean Where Present	N	N	6.23	5.21



***Elymus glaucus* Canopy Cover (%)**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	6.90	5.13	2.92	2.06
(signif. different)	a	b	c	c
Standard Error	0.85	0.52	0.49	0.83
% Constancy	56	48	29	18
n	283	477	436	131
Mean Where Present	12.36	10.59	10.11	11.26

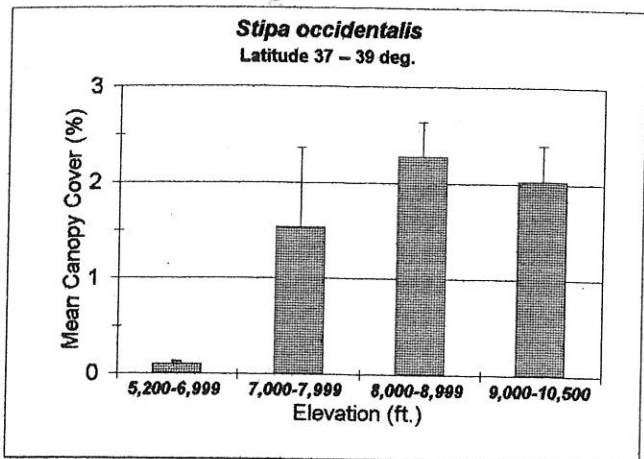


***Elymus glaucus* Canopy Cover (%)**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	6.61	3.69	1.22	8.71
(signif. different)	a	b	c	NA
Standard Error	0.80	1.29	0.38	8.55
% Constancy	70	55	47	29
n	210	91	70	7
Mean Where Present	9.51	6.72	2.59	? 30 ?

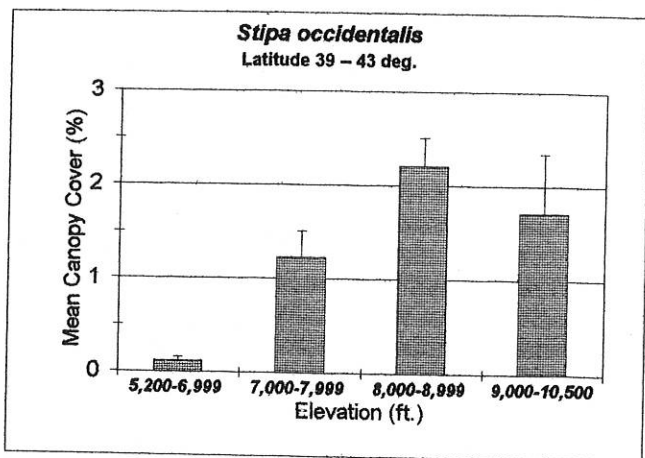
# EFFECT OF ELEVATION AT DIFFERENT LATTITUDES

## *Stipa occidentalis*



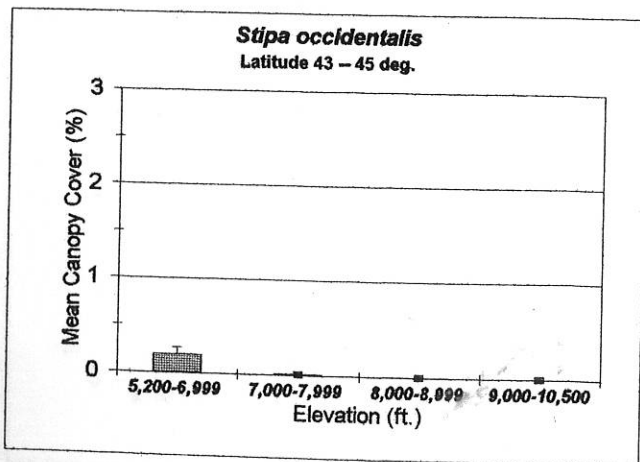
**Stipa occidentalis Canopy Cover (%)**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.10	1.54	2.28	2.03
(signif. different)	N	a	a	a
Standard Error	0.00	0.83	0.36	0.37
% Constancy	100	53	40	44
n	1	19	204	207
Mean Where Present	0.10	2.92	5.67	4.56



**Stipa occidentalis Canopy Cover (%)**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.12	1.23	2.21	1.71
(signif. different)	a	b	c	b, c
Standard Error	0.04	0.28	0.30	0.63
% Constancy	8	17	34	31
n	283	477	435	131
Mean Where Present	1.50	7.31	6.44	5.61

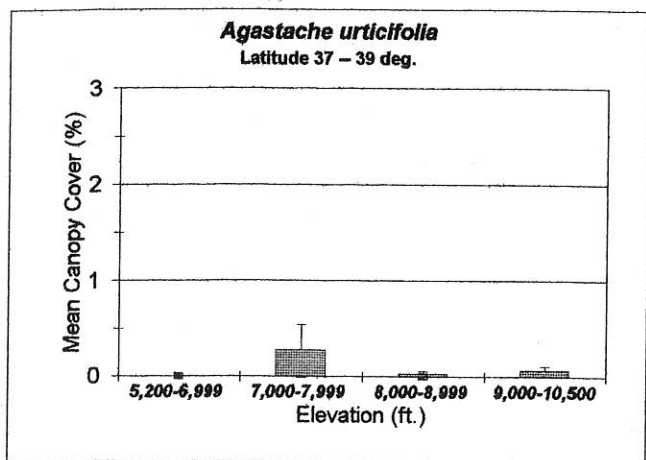


**Stipa occidentalis Canopy Cover (%)**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.19	0.01	0.00	0.00
(signif. different)	a	b	b	b
Standard Error	0.08	0.00	0.00	0.00
% Constancy	8	2	0	0
n	210	91	70	7
Mean Where Present	2.35	0.3	N	N

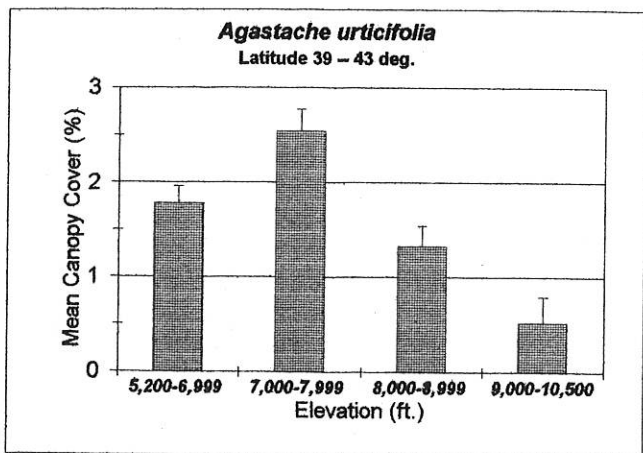
EFFECT OF ELEVATION AT DIFFERENT LATTITUDES

*Agastache urticifolia*



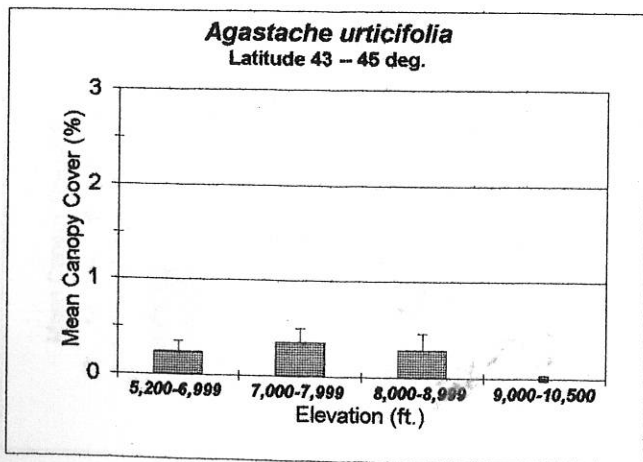
**Agastache urticifolia Canopy Cover (%)**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.00	0.28	0.03	0.07
(signif. different)	a	a	a	a
Standard Error	0.00	0.26	0.02	0.04
% Constancy	0	11	2	1
n	1	19	204	207
Mean Where Present	N	2.65	1.48	1.84



**Agastache urticifolia Canopy Cover (%)**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	1.78	2.54	1.33	0.51
(signif. different)	a	b	c	d
Standard Error	0.19	0.23	0.22	0.28
% Constancy	52	50	24	18
n	283	477	435	131
Mean Where Present	3.4	5.05	5.55	2.81

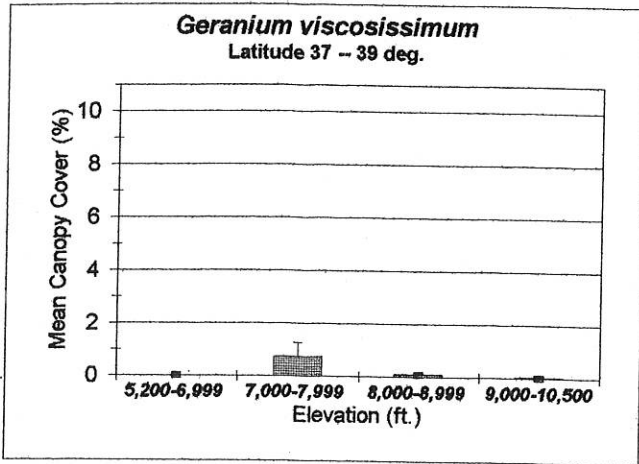


**Agastache urticifolia Canopy Cover (%)**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.24	0.36	0.29	0.00
(signif. different)	a	a	a	b
Standard Error	0.11	0.14	0.17	0.00
% Constancy	9	16	10	0
n	210	91	70	7
Mean Where Present	2.56	2.17	2.89	N

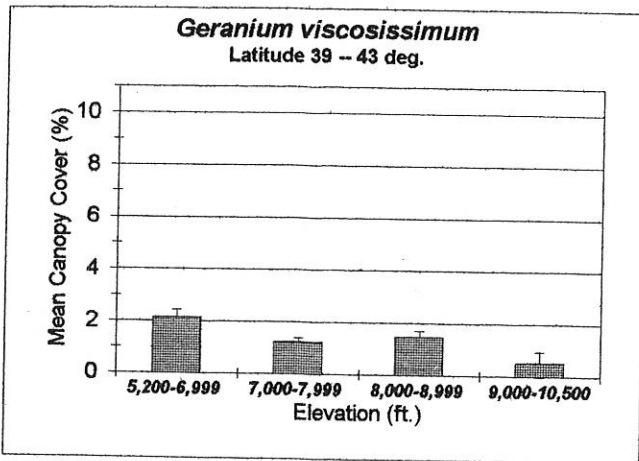
**EFFECT OF ELEVATION AT DIFFERENT LATTITUDES**

***Geranium viscosissimum***



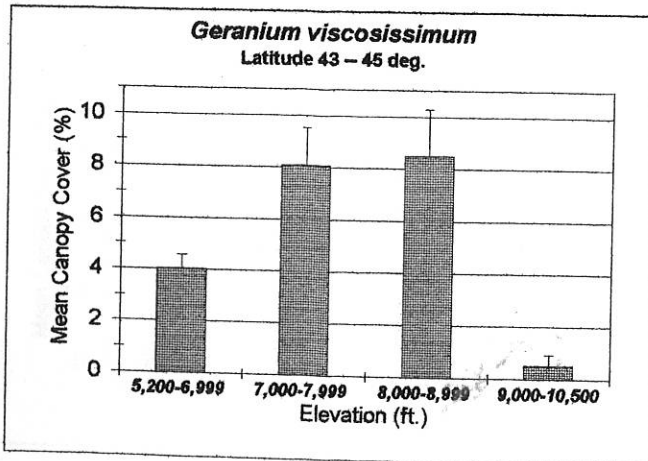
**Geranium viscosissimum Canopy Cover**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.00	0.73	0.09	0.01
(signif. different)	a	b	b	a
Standard Error	0.00	0.54	0.03	0.01
% Constancy	0	26	15	2
n	1	19	204	207
Mean Where Present	N	2.78	0.61	0.65



**Geranium viscosissimum Canopy Cover**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	2.13	1.23	1.46	0.51
(signif. different)	a	b	b	c
Standard Error	0.29	0.15	0.25	0.42
% Constancy	48	36	37	43
n	283	477	435	7
Mean Where Present	4.47	3.42	3.98	1.2

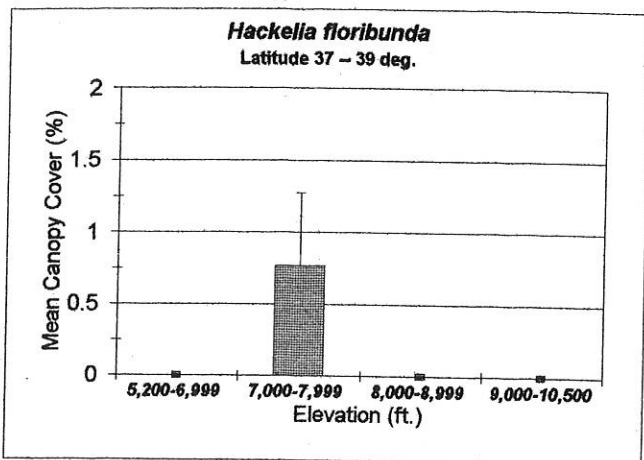


**Geranium viscosissimum Canopy Cover**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	4.03	8.07	8.49	0.51
(signif. different)	a	b	b	c
Standard Error	0.52	1.45	1.78	0.42
% Constancy	44	77	86	43
n	210	91	70	7
Mean Where Present	9.21	10.49	9.91	1.2

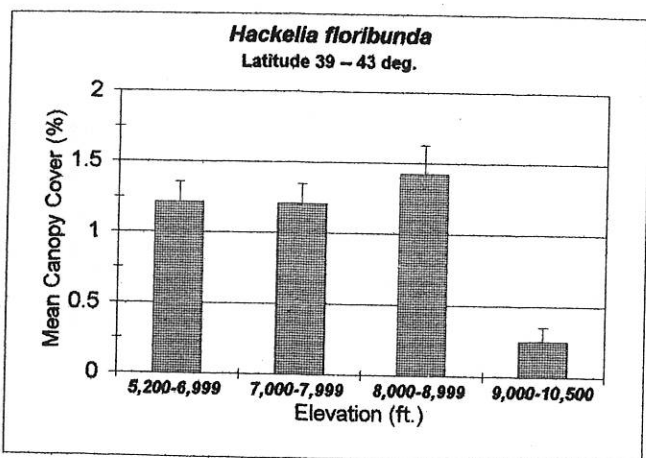
EFFECT OF ELEVATION AT DIFFERENT LATTITUDES

*Hackelia floribunda*



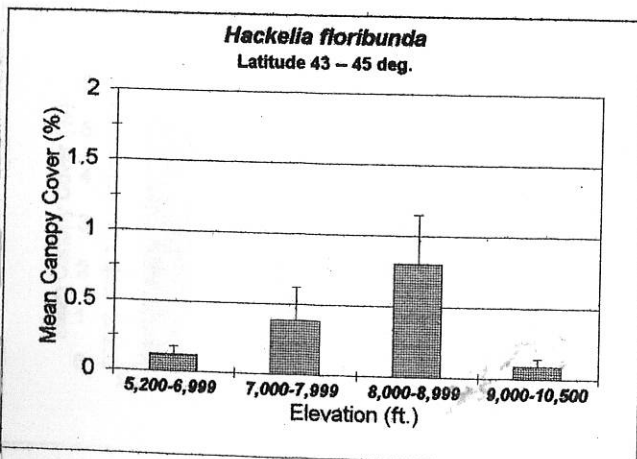
**Hackelia floribunda Canopy Cover (%)**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.00	0.77	0.00	0.00
(signif. different)	a	b	a	a
Standard Error	0.00	0.50	0.00	0.00
% Constancy	0	21	0	0
n	1	19	204	207
Mean Where Present	N	3.65	N	N



**Hackelia floribunda Canopy Cover (%)**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	1.21	1.21	1.42	0.25
(signif. different)	a	a	a	b
Standard Error	0.14	0.14	0.20	0.10
% Constancy	39	42	36	15
n	283	477	435	131
Mean Where Present	3.15	2.87	3.97	1.71

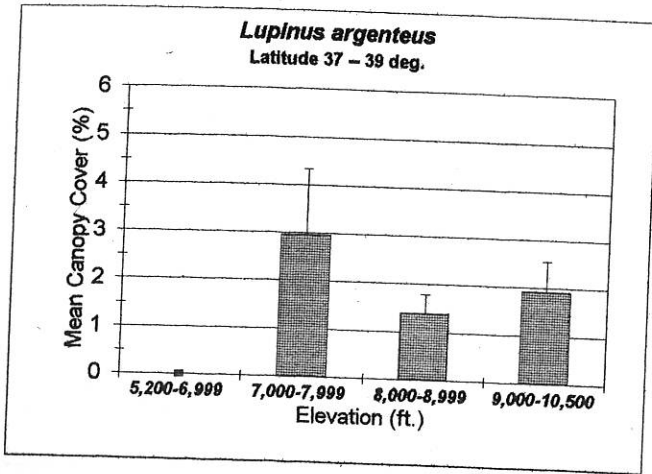


**Hackelia floribunda Canopy Cover (%)**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.12	0.38	0.80	0.09
(signif. different)		a, b	b	a
Standard Error	0.06	0.24	0.35	0.06
% Constancy	8	15	21	29
n	210	91	70	7
Mean Where Present	1.56	2.5	3.74	0.3

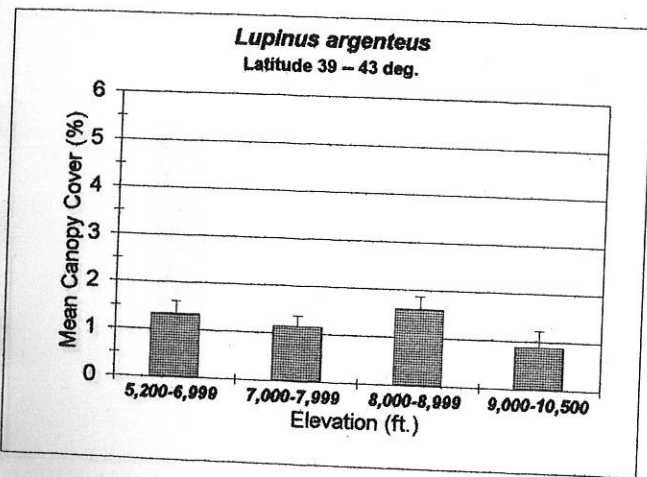
# EFFECT OF ELEVATION AT DIFFERENT LATITUDES

## *Lupinus argenteus*



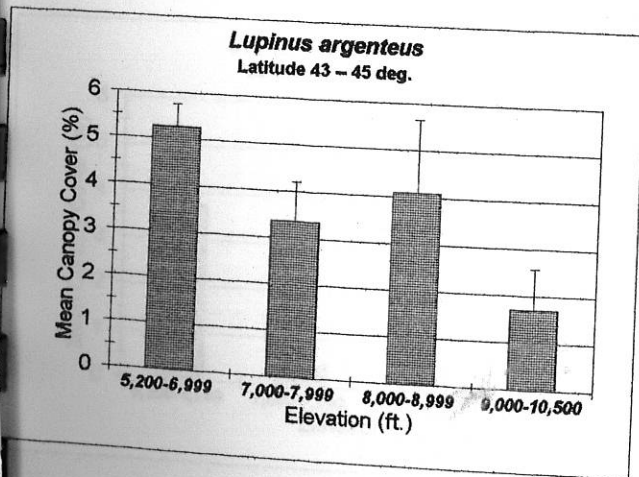
***Lupinus argenteus* Canopy Cover (%)**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.00	2.96	1.41	1.93
(signif. different)		a	a	a
Standard Error	0.00	1.37	0.39	0.63
% Constancy	0	53	17	18
n	1	19	204	207
Mean Where Present	N	5.63	8.44	10.52



***Lupinus argenteus* Canopy Cover (%)**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	1.33	1.14	1.60	0.88
(signif. different)	a, b,	a	b	a
Standard Error	0.27	0.24	0.28	0.35
% Constancy	22	22	24	18
n	283	477	435	131
Mean Where Present	5.98	5.3	6.55	4.82

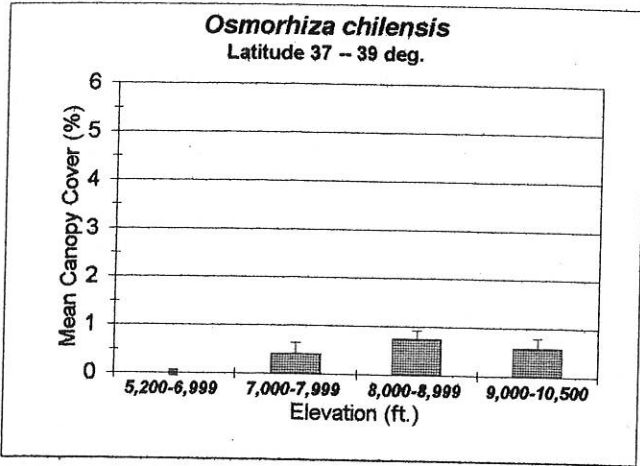


***Lupinus argenteus* Canopy Cover (%)**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	5.28	3.36	4.09	1.71
(signif. different)	a	b	a, b	c
Standard Error	0.47	0.85	1.57	0.87
% Constancy	75	64	87	57
n	210	91	70	7
Mean Where Present	7.01	5.27	4.70	3.00

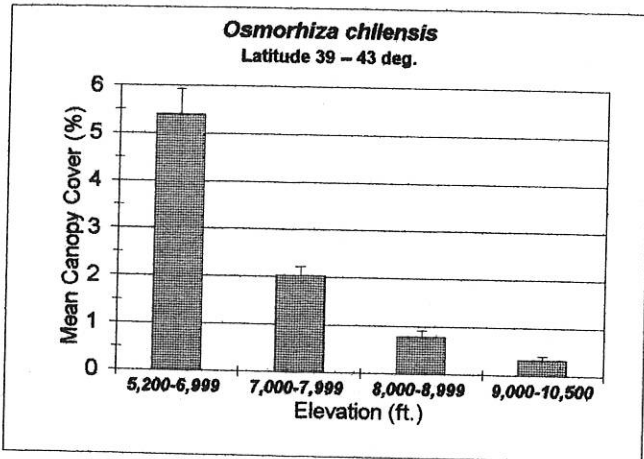
EFFECT OF ELEVATION AT DIFFERENT LATTITUDES

*Osmorhiza chilensis*



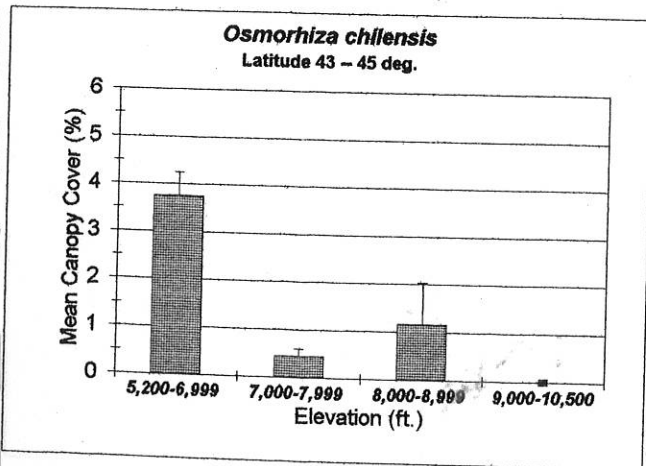
**Osmorhiza chilensis Canopy Cover (%)**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.00	0.42	0.75	0.60
(signif. different)	N	a	a	a
Standard Error	0.00	0.23	0.18	0.20
% Constancy	0	37	22	18
n	1	19	204	207
Mean Where Present	N	1.13	3.39	3.25



**Osmorhiza chilensis Canopy Cover (%)**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	5.40	2.03	0.78	0.32
(signif. different)	a	b	c	d
Standard Error	0.54	0.19	0.12	0.08
% Constancy	71	49	31	32
n	283	477	435	131
Mean Where Present	7.56	4.17	2.49	1.01



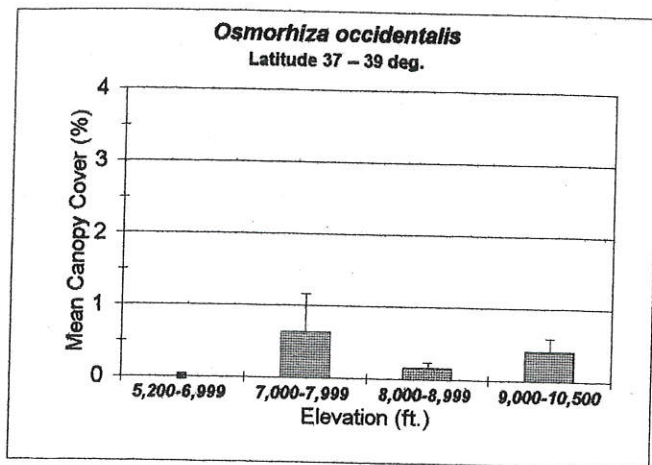
**Osmorhiza chilensis Canopy Cover (%)**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	3.75	0.44	1.16	0.00
(signif. different)	a	b	b	c
Standard Error	0.49	0.15	0.88	0.00
% Constancy	60	20	13	0
n	210	91	70	7
Mean Where Present	6.25	2.24	8.99	0



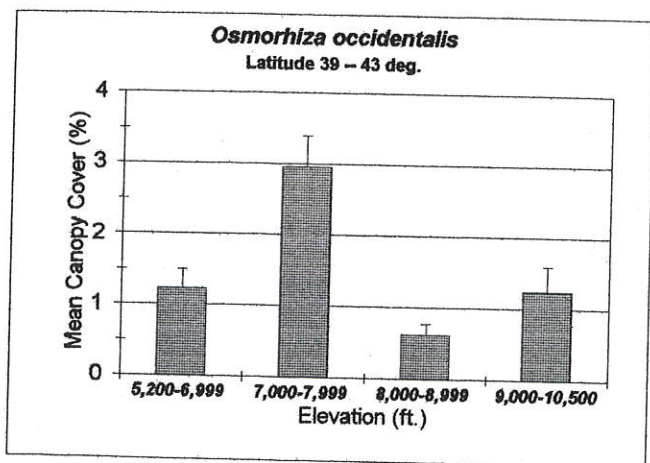
# EFFECT OF ELEVATION AT DIFFERENT LATTITUDES

## *Osmorhiza occidentalis*



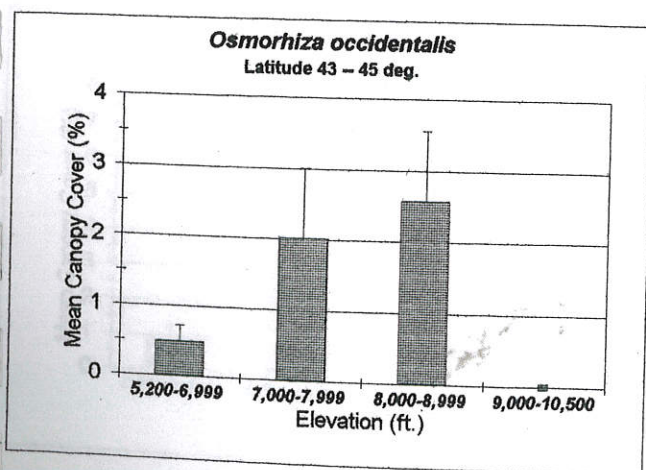
### *Osmorhiza occidentalis* Canopy Cover (%) Latitude 37/01" to 39/00" (Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.00	0.63	0.16	0.41
(signif. different)	a	b, c	b	c
Standard Error	0	0.53	0.07	0.18
% Constancy	0	11	6	10
n	1	19	204	207
Mean Where Present	N	6.00	2.52	4.05



### *Osmorhiza occidentalis* Canopy Cover (%) Latitude 39/01" to 43/00" (Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	1.22	2.95	0.62	1.25
(signif. different)	a	b	c	a
Standard Error	0.28	0.44	0.15	0.35
% Constancy	20	26	21	29
n	283	477	435	131
Mean Where Present	5.97	11.45	2.96	4.30

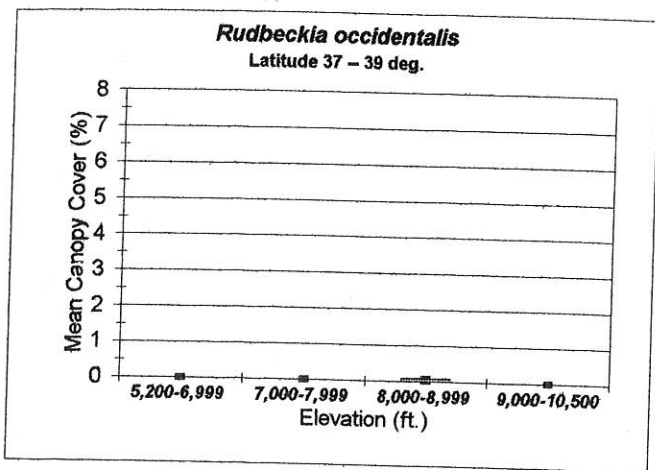


### *Osmorhiza occidentalis* Canopy Cover (%) Latitude 43/01" to 45/00" (Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.50	2.02	2.57	0.00
(signif. different)	a	b	b	c
Standard Error	0.22	0.99	0.99	0.00
% Constancy	10	16	31	0
n	210	91	70	7
Mean Where Present	4.99	12.26	8.19	N

# EFFECT OF ELEVATION AT DIFFERENT LATTITUDES

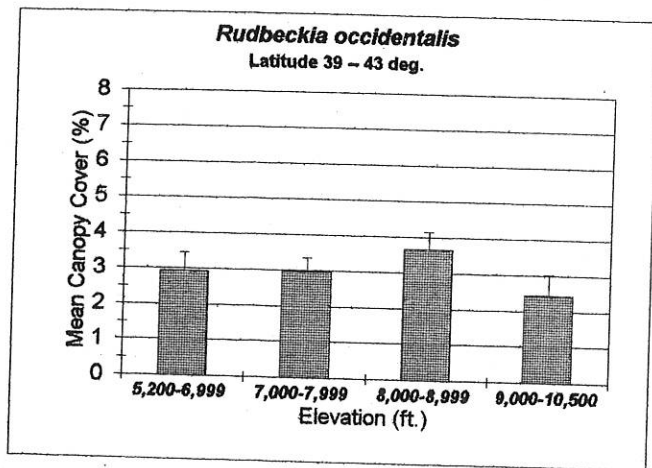
## *Rudbeckia occidentalis*



### *Rudbeckia occidentalis* Canopy Cover (%) Latitude 37/01" to 39/00"

(Elevation in ft.)

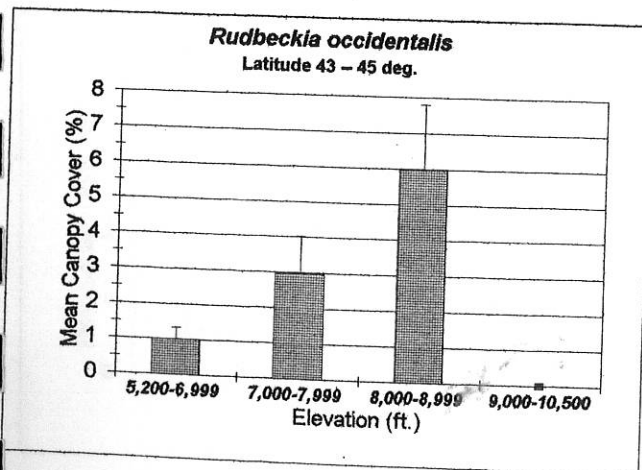
	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.00	0.00	0.10	0.00
(signif. different)	a	a	b	a
Standard Error	0.00	0.00	0.07	0.00
% Constancy	0	0	1	<1
n	1	19	204	207
Mean Where Present	N	N	6.9	0.5



### *Rudbeckia occidentalis* Canopy Cover (%) Latitude 39/01" to 43/00"

(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	2.92	2.96	3.65	2.45
(signif. different)	a, b	a, b	b	a
Standard Error	0.53	0.40	0.49	0.57
% Constancy	29	33	33	27
n	283	477	435	131
Mean Where Present	10.07	8.88	11.11	8.92



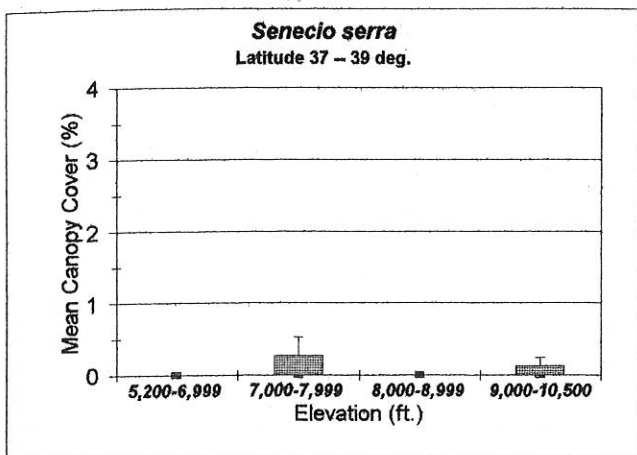
### *Rudbeckia occidentalis* Canopy Cover (%) Latitude 43/01" to 45/00"

(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	1.00	2.98	6.00	0.00
(signif. different)	a	b	c	d
Standard Error	0.33	1.04	1.81	0.00
% Constancy	11	18	29	0
n	210	91	70	7
Mean Where Present	9.17	16.93	21.01	N

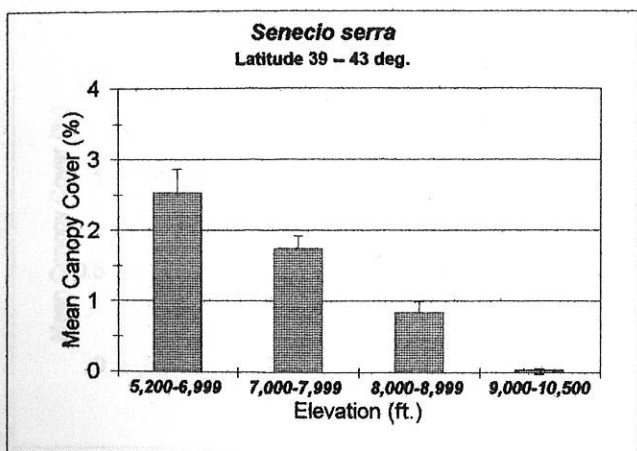
EFFECT OF ELEVATION AT DIFFERENT LATITUDES

*Senecio serra*



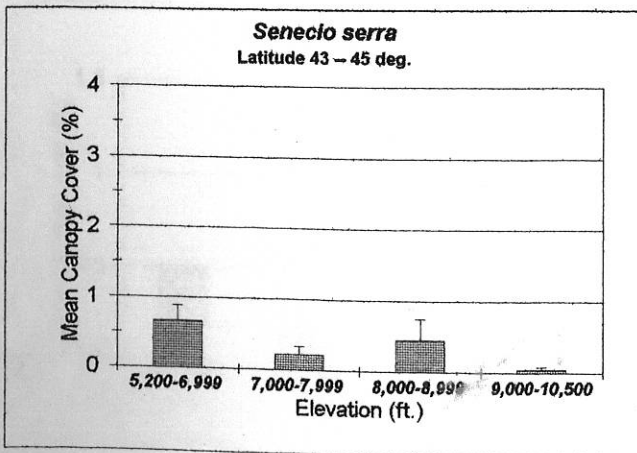
**Senecio serra Canopy Cover (%)**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.00	0.26	0.00	0.12
(signif. different)	a	a	a	a
Standard Error	0.00	0.26	0.00	0.12
% Constancy	0	5	0	<1
n	1	19	204	207
Mean Where Present	N	5.00	N	25.00



**Senecio serra Canopy Cover (%)**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	2.53	1.74	0.84	0.03
(signif. different)	a	b	c	d
Standard Error	0.33	0.18	0.15	0.02
% Constancy	49	41	24	5
n	283	477	435	131
Mean Where Present	5.15	4.24	3.65	0.58

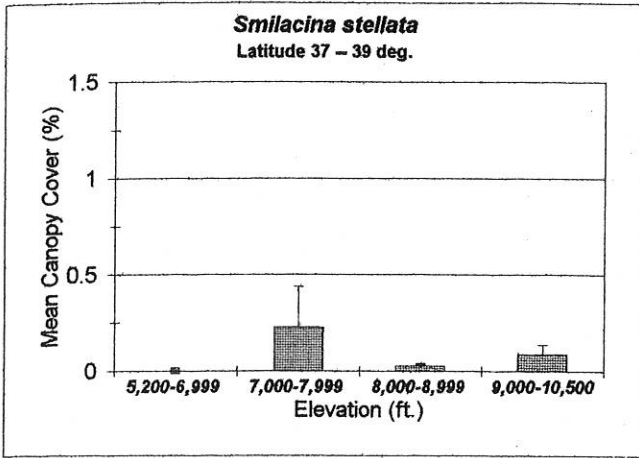


**Senecio serra Canopy Cover (%)**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.66	0.22	0.46	0.04
(signif. different)	a	b	a, b	c
Standard Error	0.22	0.11	0.29	0.04
% Constancy	20	20	14	14
n	210	91	70	7
Mean Where Present	3.31	1.09	3.19	0.30

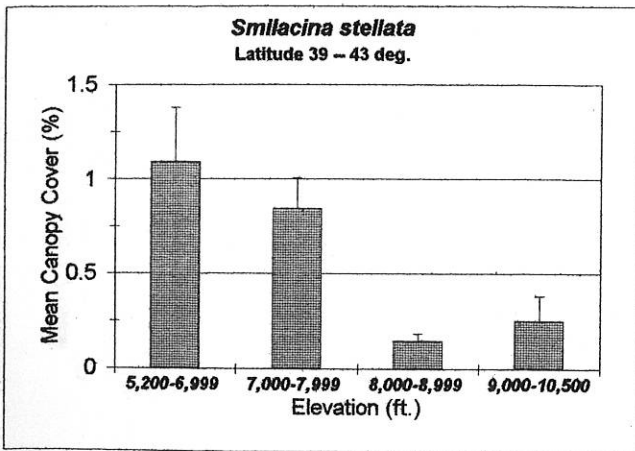
EFFECT OF ELEVATION AT DIFFERENT LATITUDES

*Smilacina stellata*



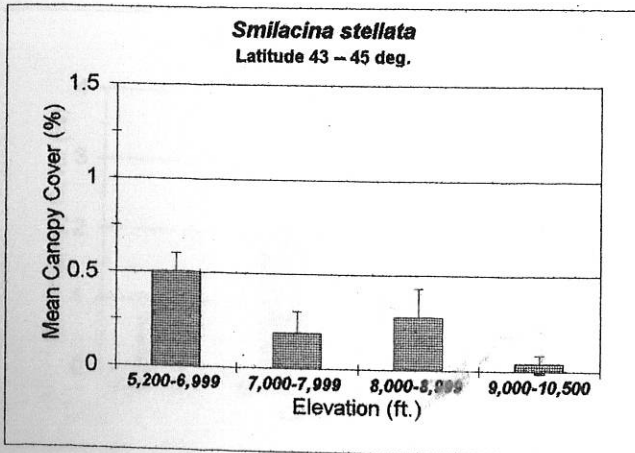
**Smilacina stellata Canopy Cover (%)**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.00	0.23	0.03	0.09
(signif. different)	a	a	a	a
Standard Error	0.00	0.21	0.01	0.05
% Constancy	N	11	5	6
n	1	19	204	207
Mean Where Present	N	2.15	0.50	1.37



**Smilacina stellata Canopy Cover (%)**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	1.09	0.85	0.15	0.25
(signif. different)	a	a	b	b
Standard Error	0.29	0.16	0.04	0.13
% Constancy	25	22	15	18
n	283	477	435	131
Mean Where Present	4.35	3.77	1.01	1.38

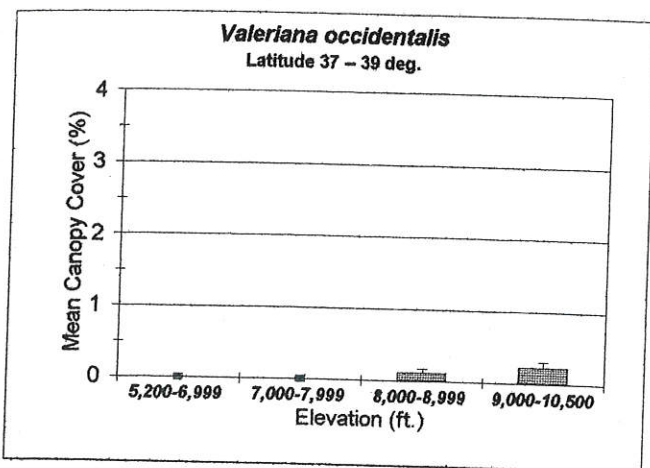


**Smilacina stellata Canopy Cover (%)**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.51	0.19	0.28	0.04
(signif. different)	a	b, c	a, b	c
Standard Error	0.10	0.12	0.15	0.04
% Constancy	35	11	16	14
n	210	91	70	7
Mean Where Present	1.43	1.71	1.77	0.30

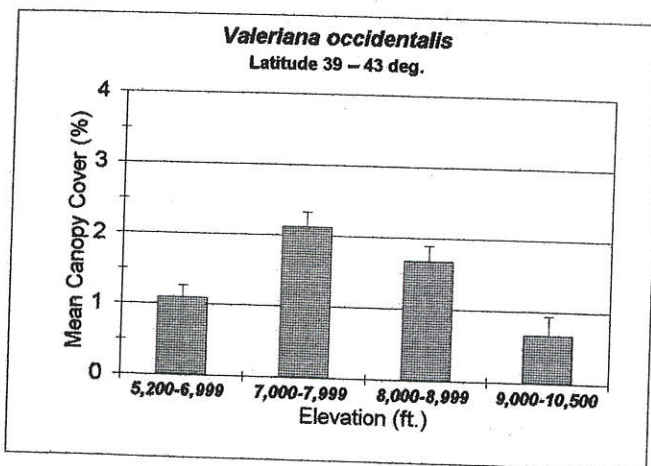
# EFFECT OF ELEVATION AT DIFFERENT LATTITUDES

## *Valeriana occidentalis*



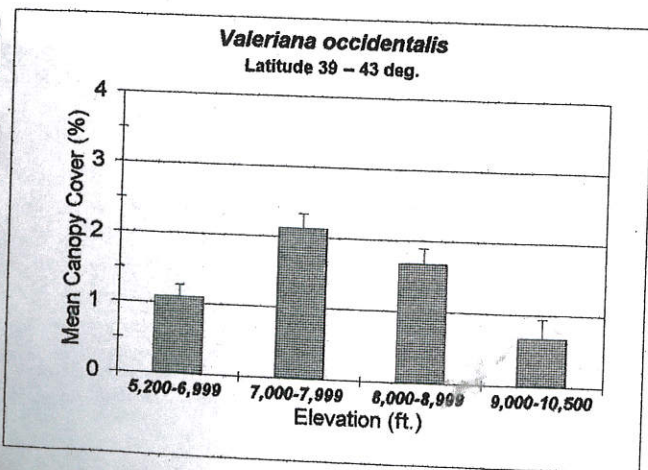
***Valeriana occidentalis* Canopy Cover (%)**  
Latitude 37/01" to 39/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.00	0.00	0.12	0.22
(signif. different)	a	a	b	b
Standard Error	0	0	0.05	0.08
% Constancy	0	0	6	6
n	1	19	204	207
Mean Where Present	N	N	2.05	3.58



***Valeriana occidentalis* Canopy Cover (%)**  
Latitude 39/01" to 43/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	1.09	2.13	1.68	0.67
(signif. different)	a	b	b	c
Standard Error	0.17	0.20	0.22	0.27
% Constancy	30	38	28	14
n	283	477	435	131
Mean Where Present	3.68	5.68	6.09	4.89



***Valeriana occidentalis* Canopy Cover (%)**  
Latitude 43/01" to 45/00"  
(Elevation in ft.)

	5,200-6,999	7,000-7,999	8,000-8,999	9,000-10,500
Mean	0.52	1.20	2.84	0.14
(signif. different)	a	b	c	d
Standard Error	0.12	0.33	0.76	0.14
% Constancy	19	33	47	14
n	210	91	70	7
Mean Where Present	2.83	3.64	6.02	1.00