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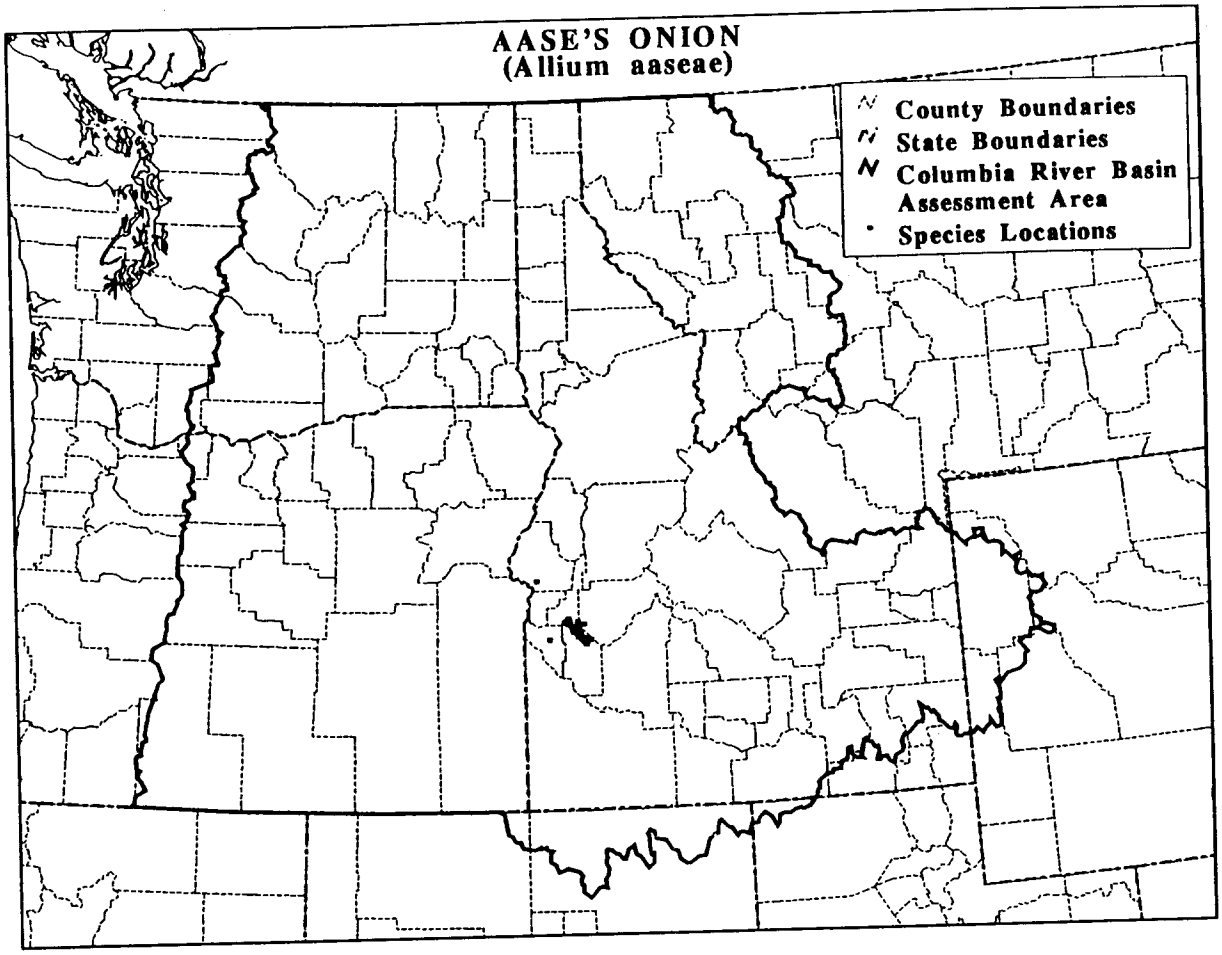
APPENDIX 1

Range Maps for Species of Conservation Concern

These range maps were compiled from data from State Heritage Programs in Oregon, Washington, Idaho, Montana, Wyoming, Utah, and Nevada. This information represents what was known at the end of the 1994 field season. These maps may not represent the most recent information on distribution and range for these taxa but it does illustrate geographic distribution across the assessment area. For many of these species, this is the first time information has been compiled on this scale. For the continued viability of many of these taxa, it is imperative that we begin to manage for them across their range and across administrative boundaries.

Of the 173 taxa analyzed, there are maps for 153 taxa. For those taxa that were not tracked by heritage programs, we were not able to generate range maps.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(Allium aaseae)
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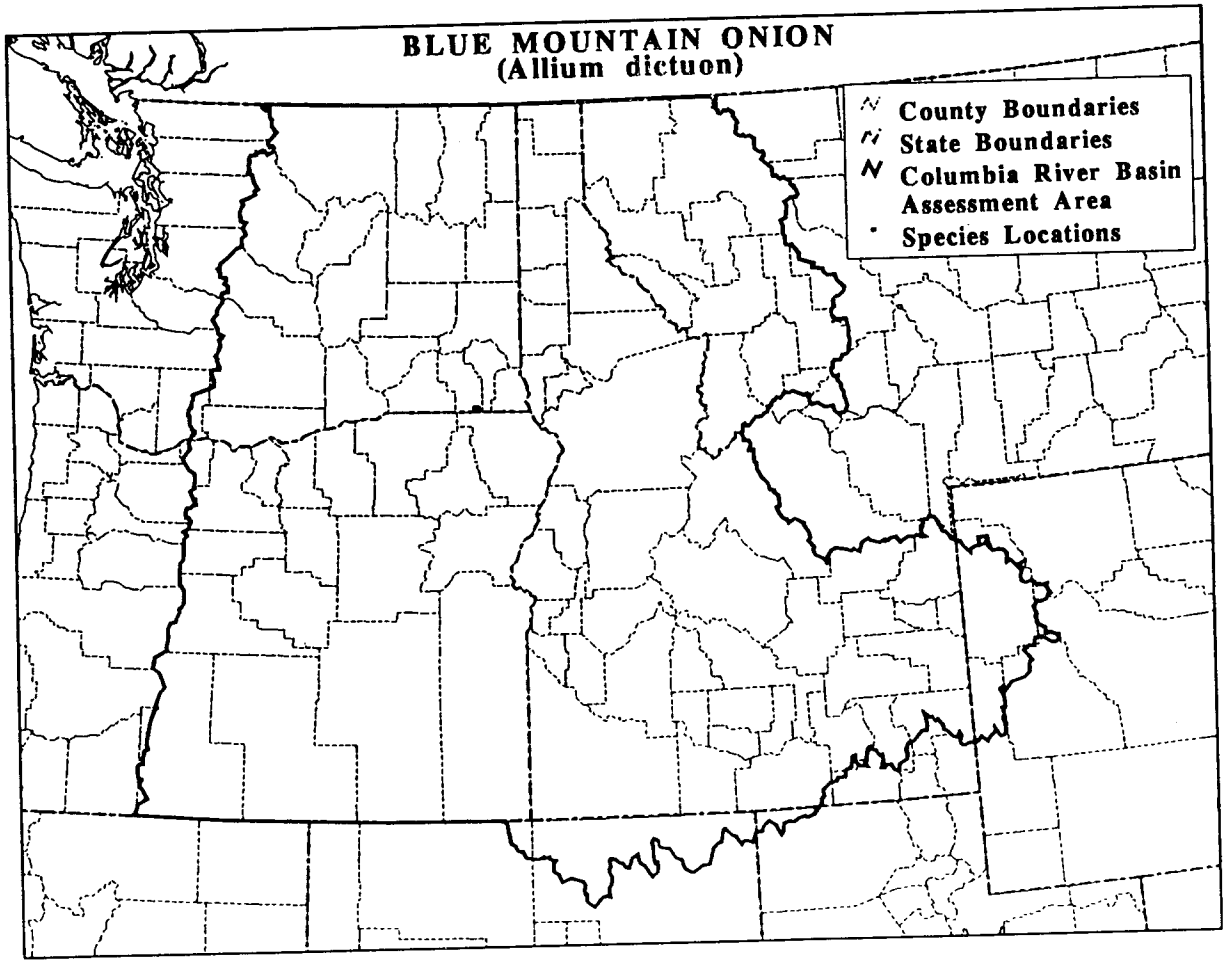
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


BLUE MOUNTAIN ONION
(Allium dictuon)
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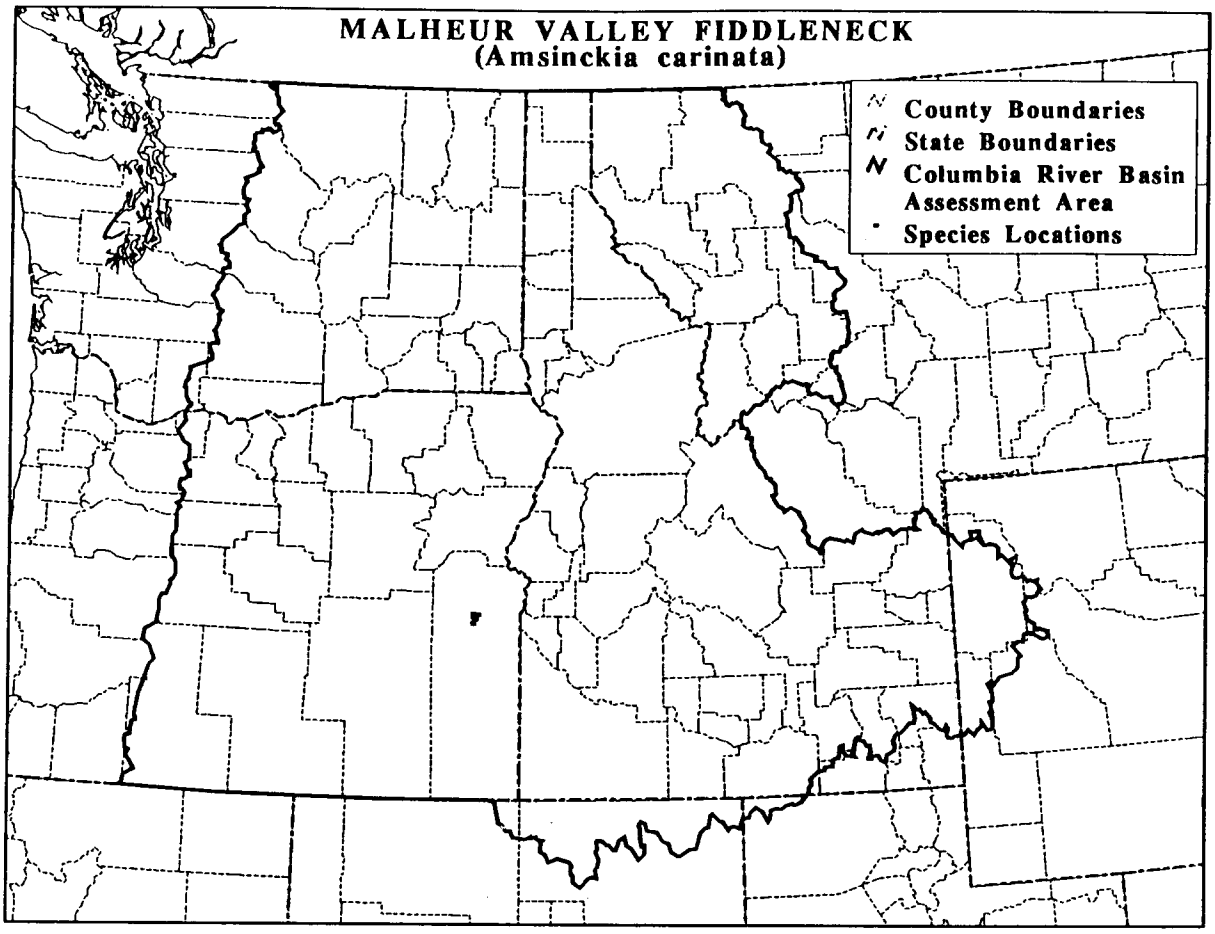
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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(Amsinckia carinata)
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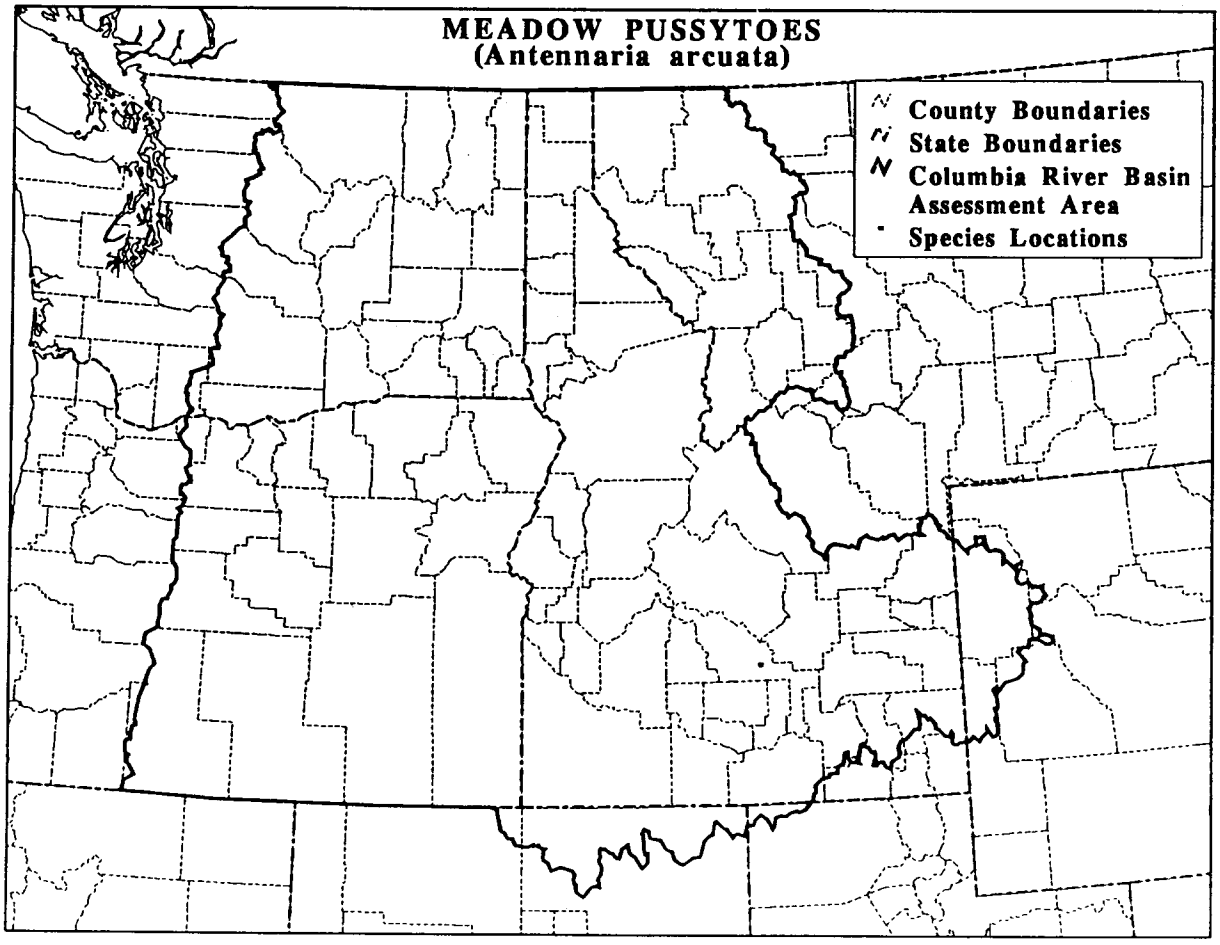
Columbia River Basin
Assessment Area
Species Locations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(Antennaria arcuata)
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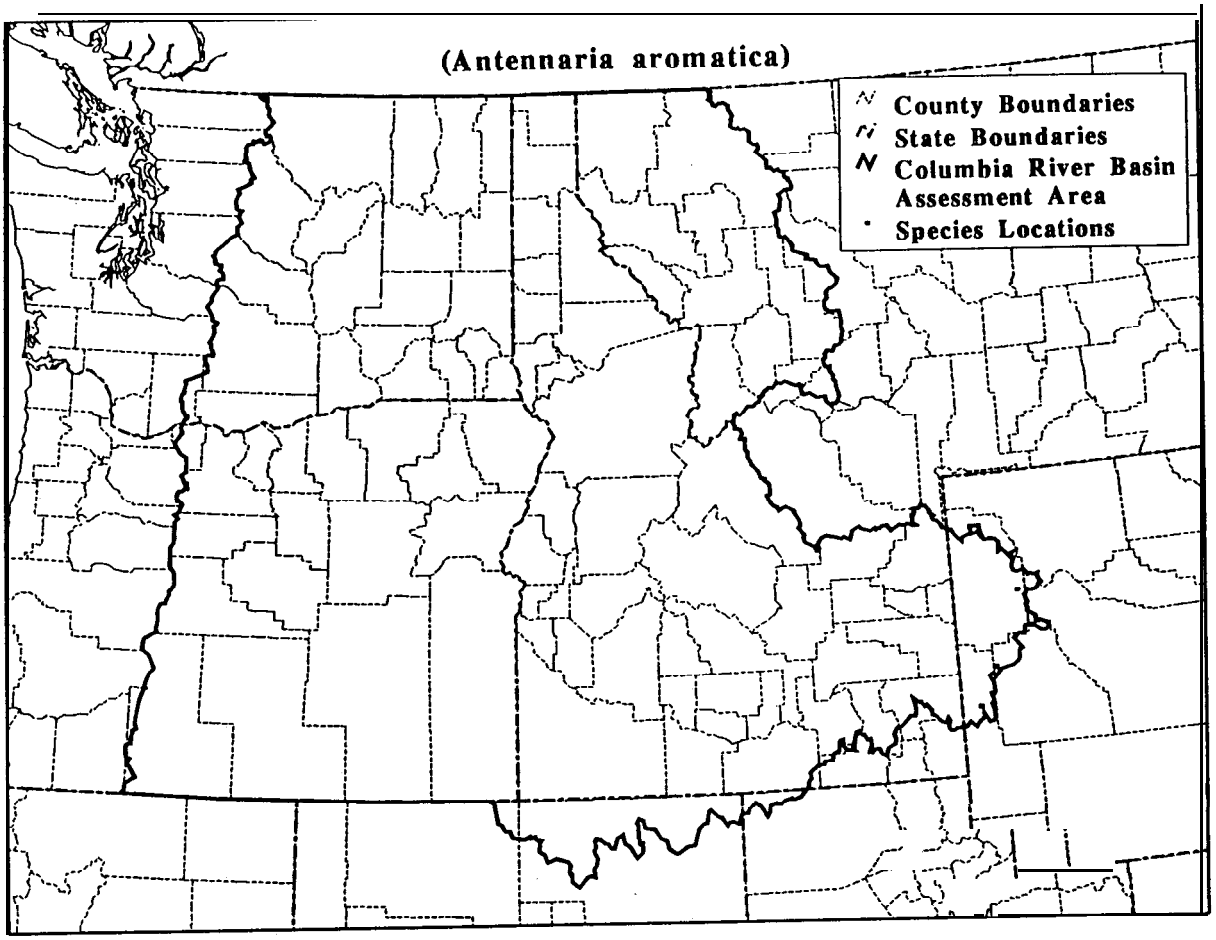
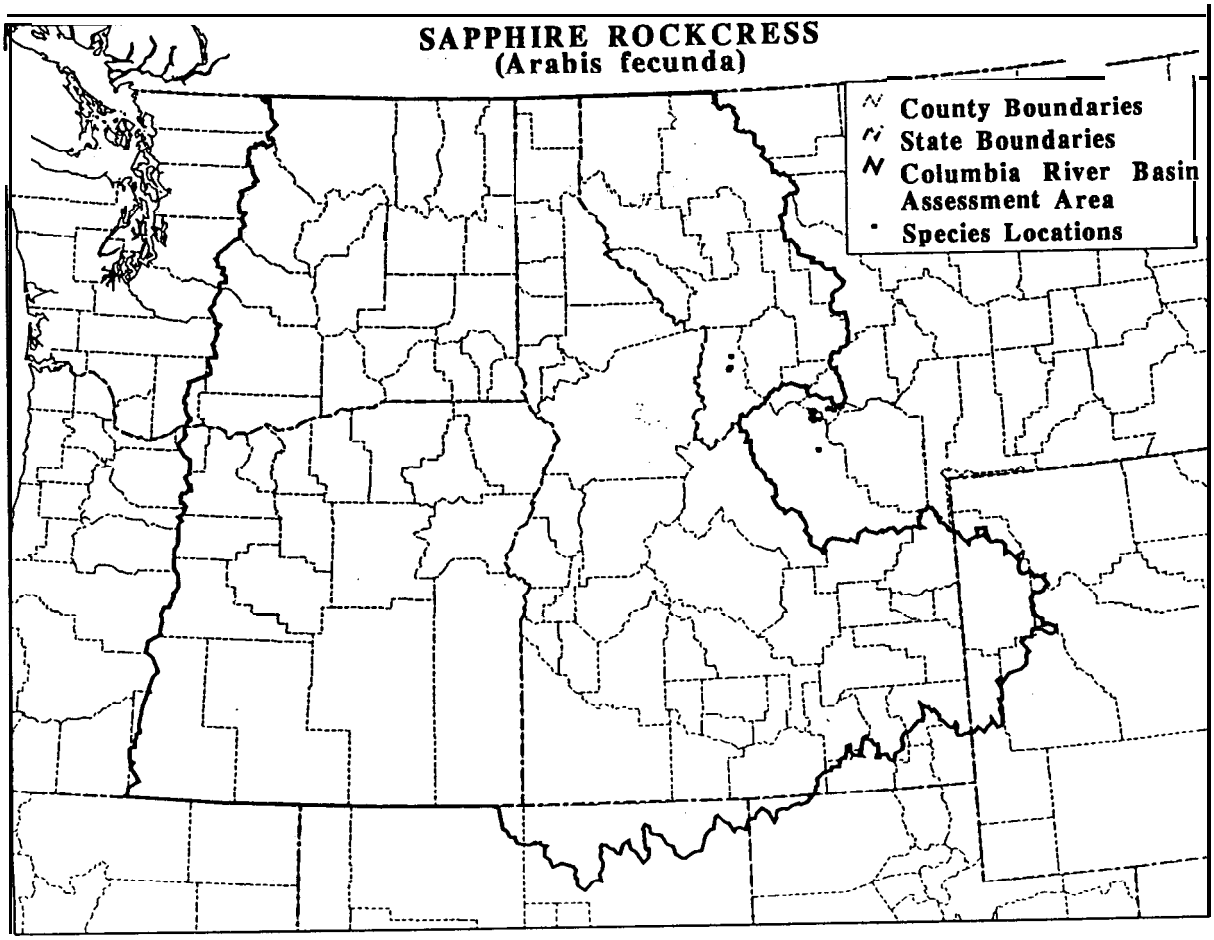
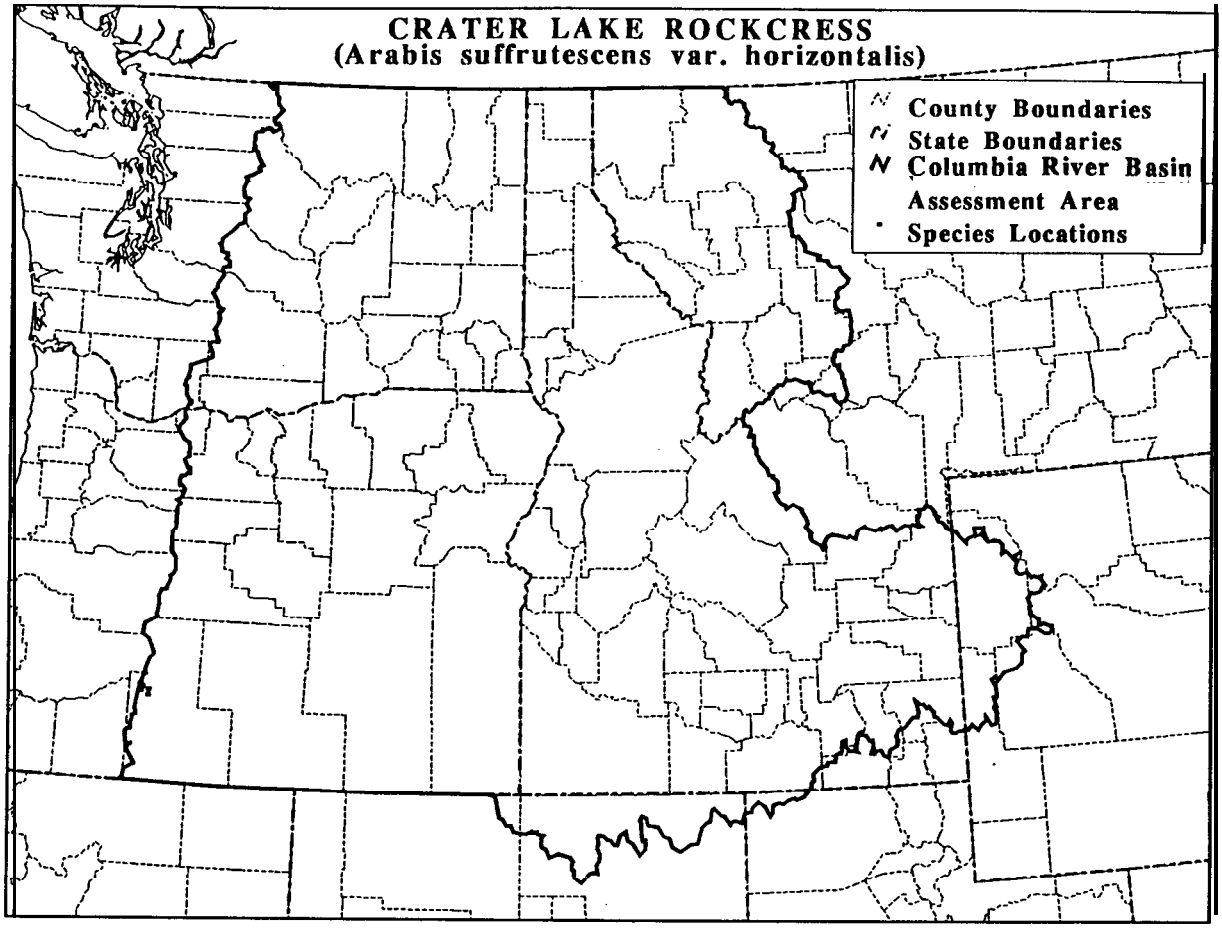
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

(Antennaria aromatica)



SAPPHIRE ROCKCRESS
(Arabis fecunda)

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(Arabis suffrutescens var. horizontalis)
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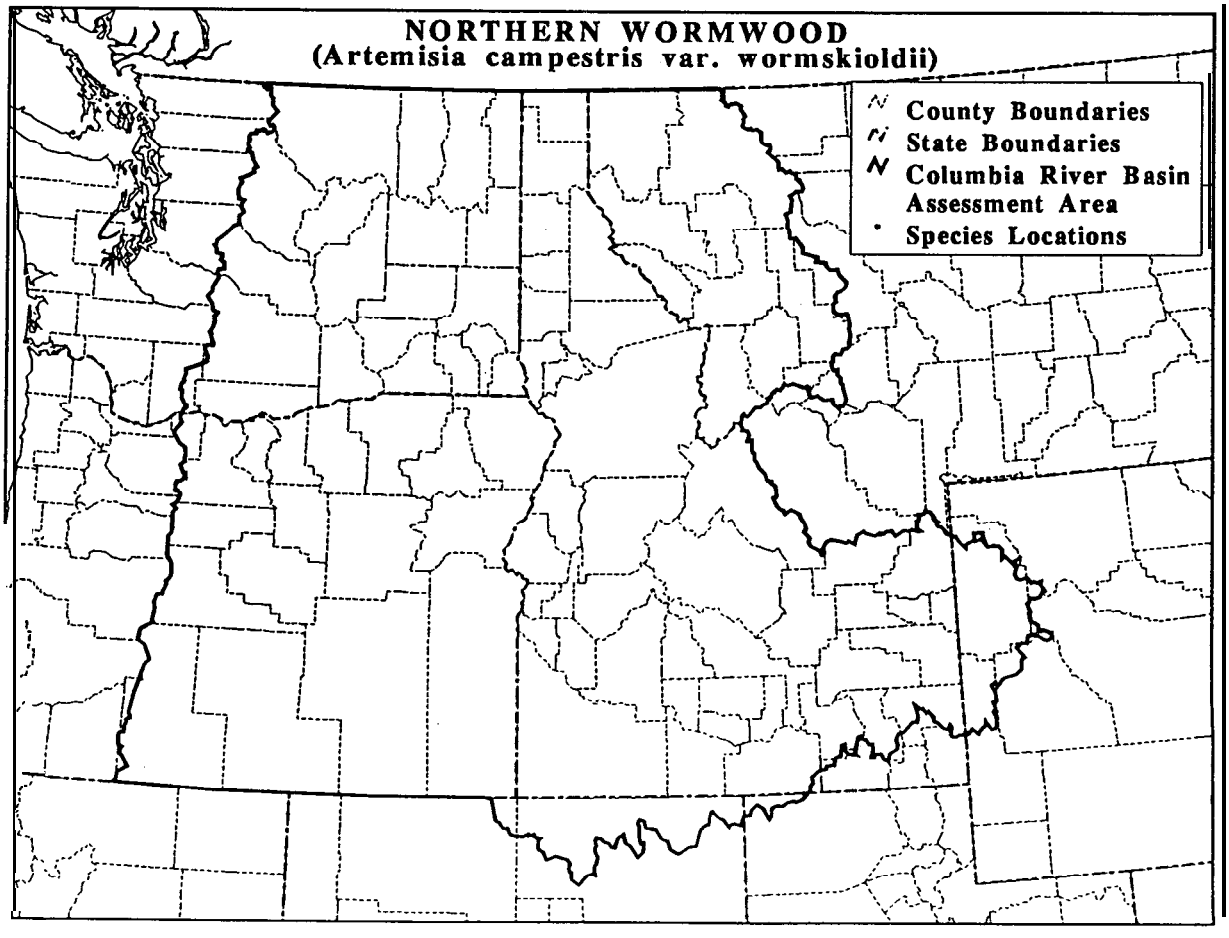
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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(Artemisia campestris var. wormskioldii)
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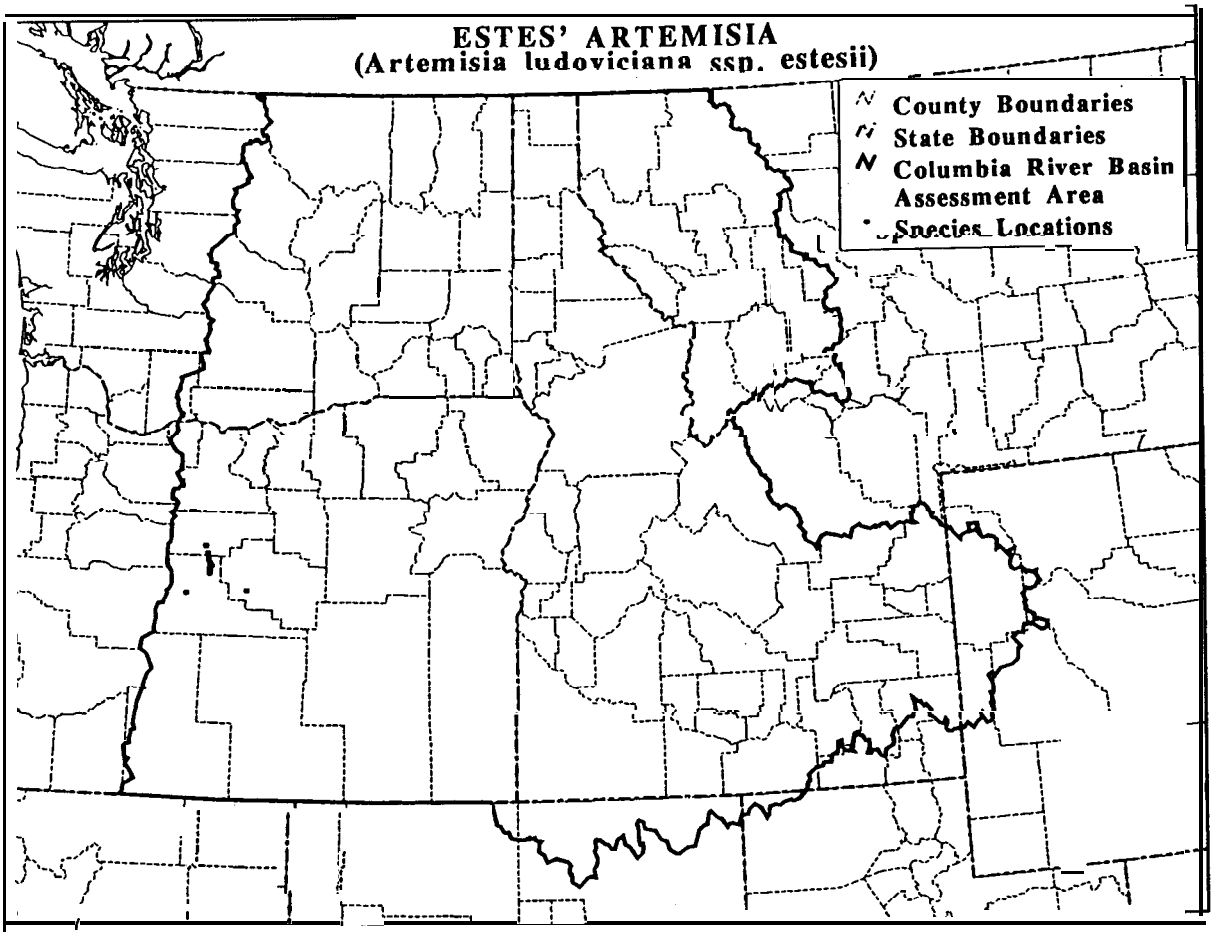
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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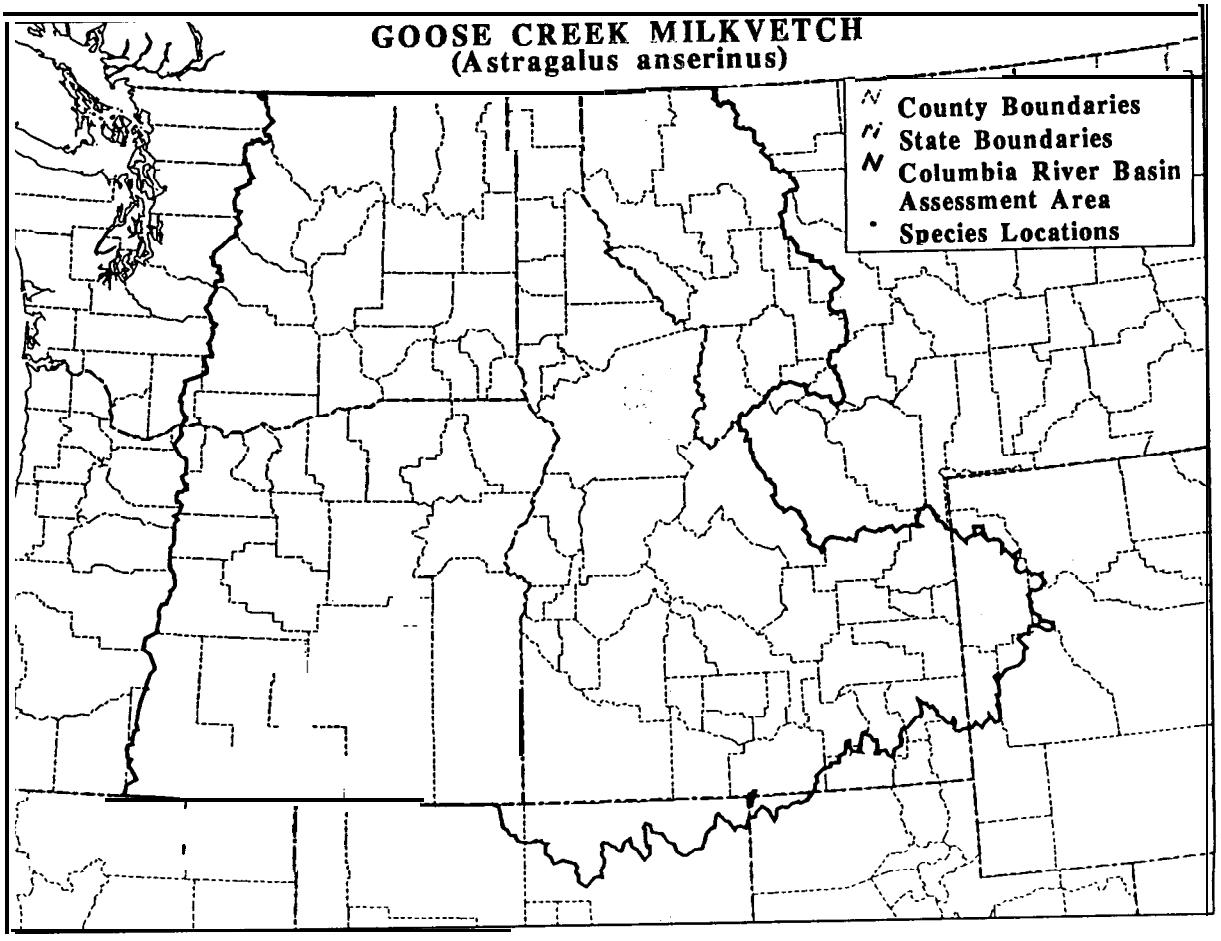
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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(Astragalus anserinus)
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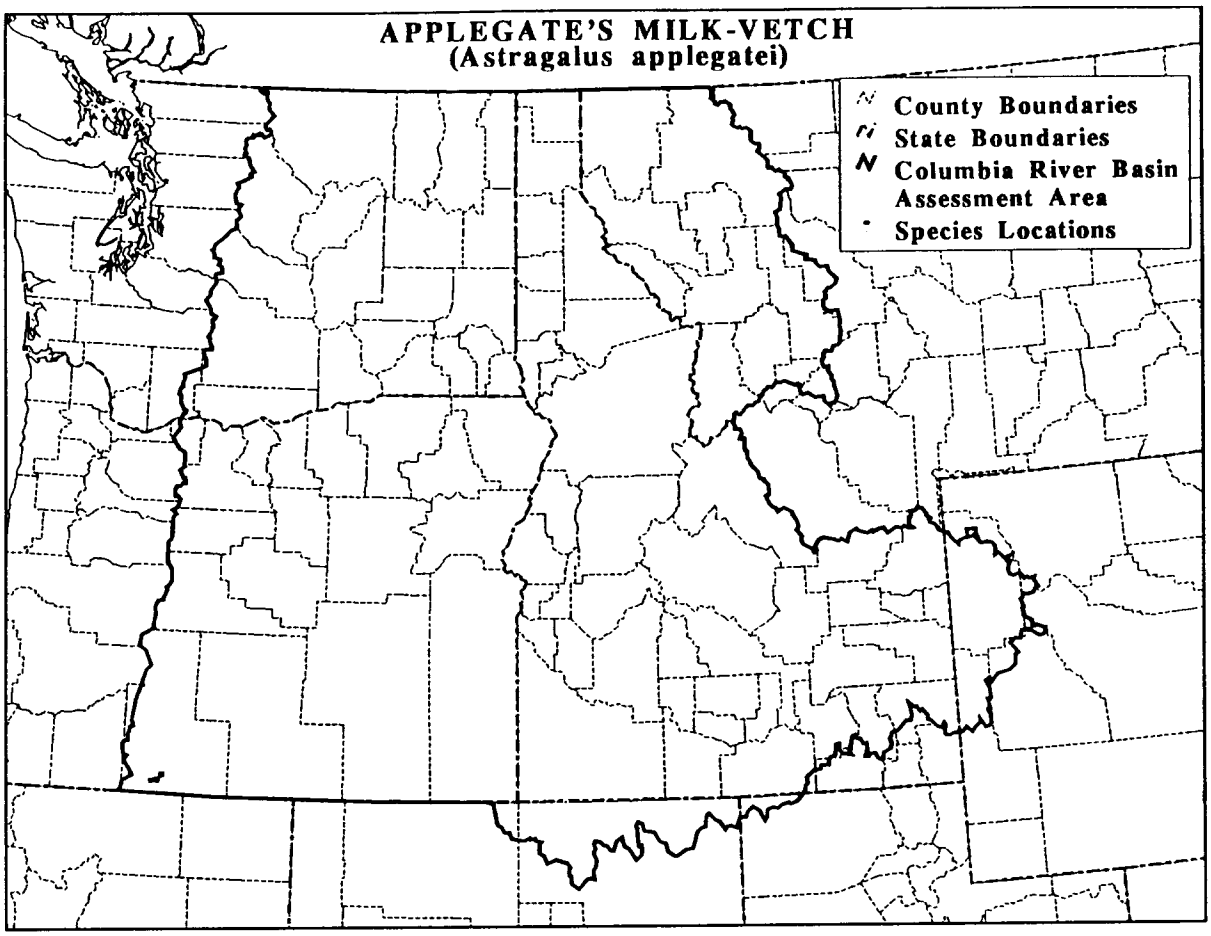
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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(Astragalus applegatei)
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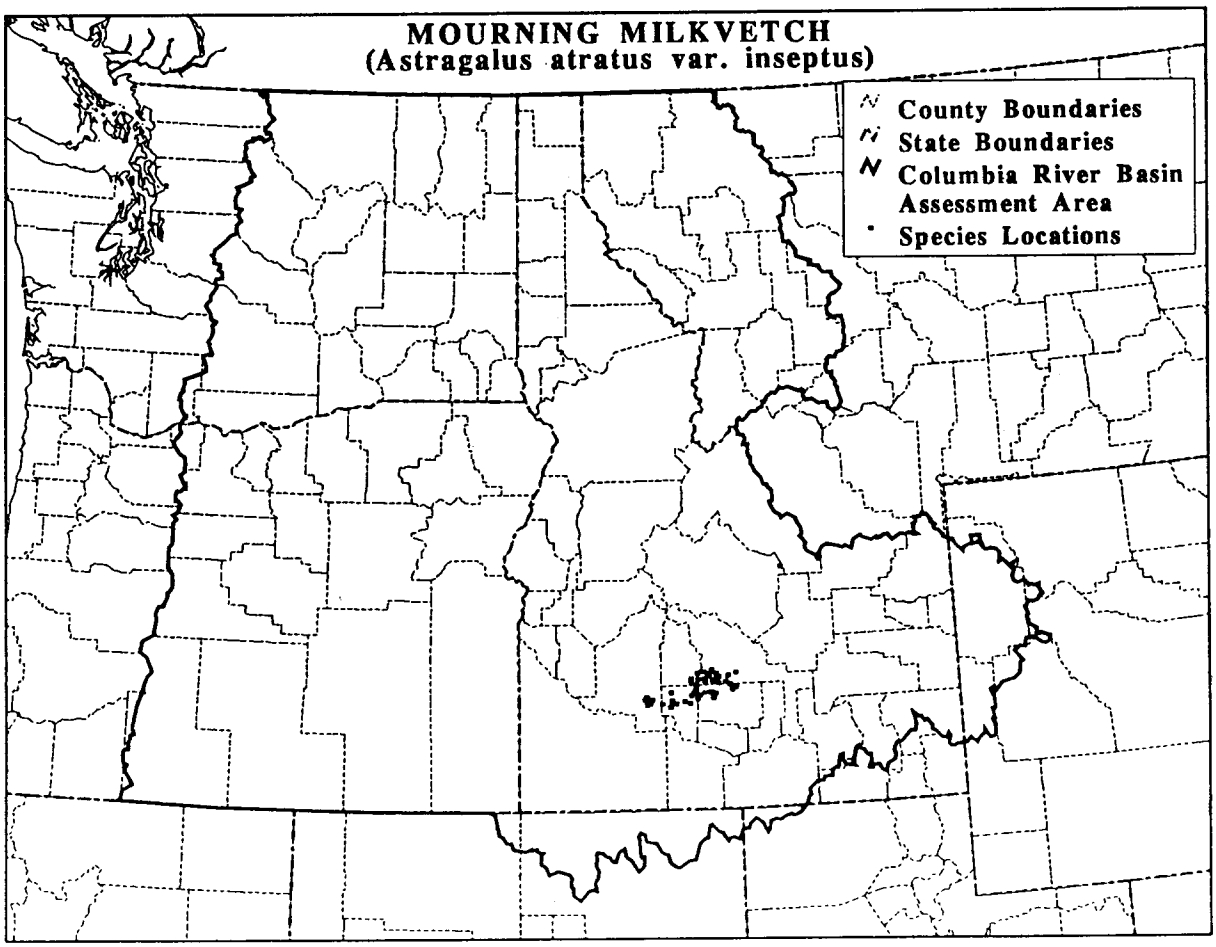
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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(Astragalus atratus var. inseptus)
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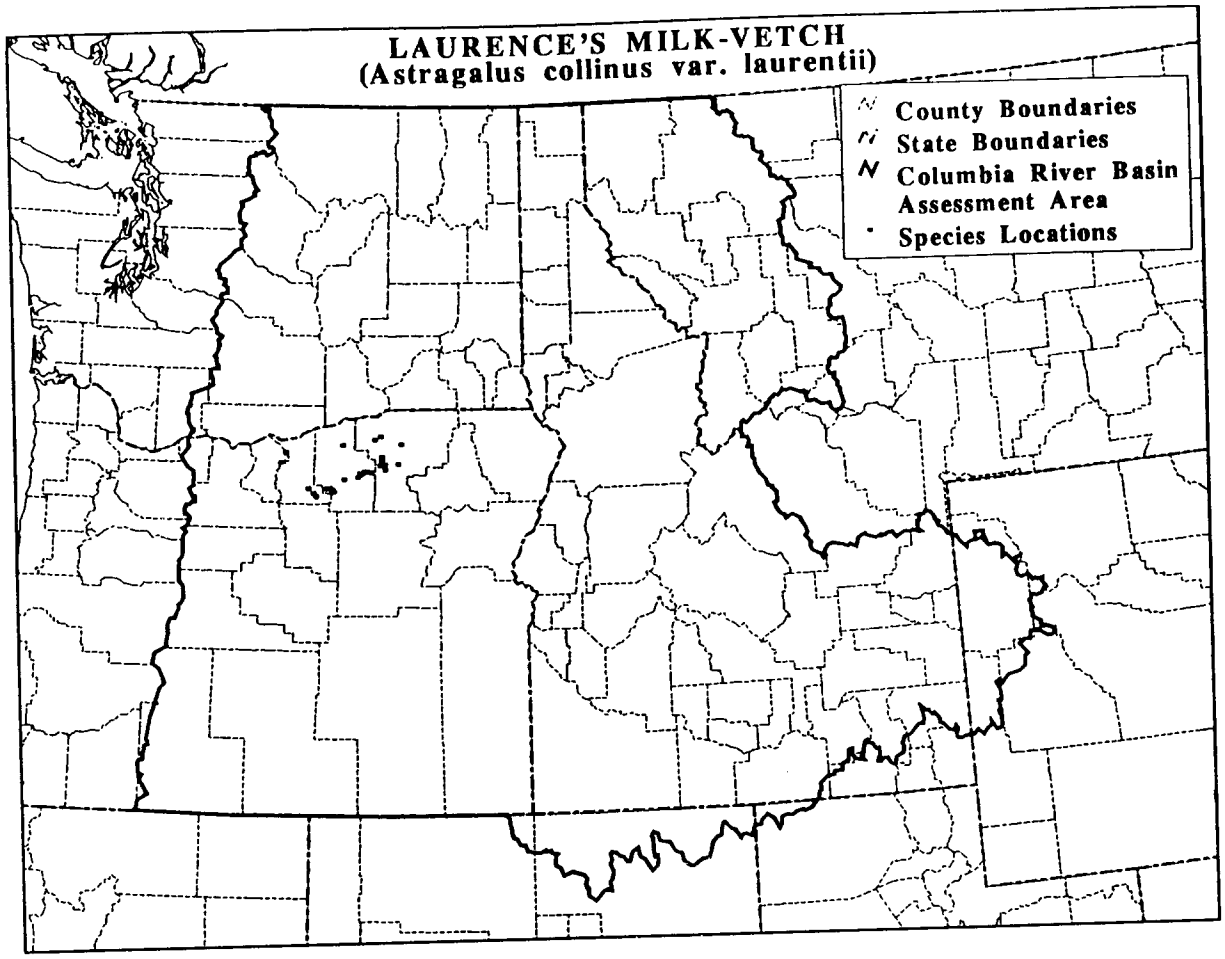
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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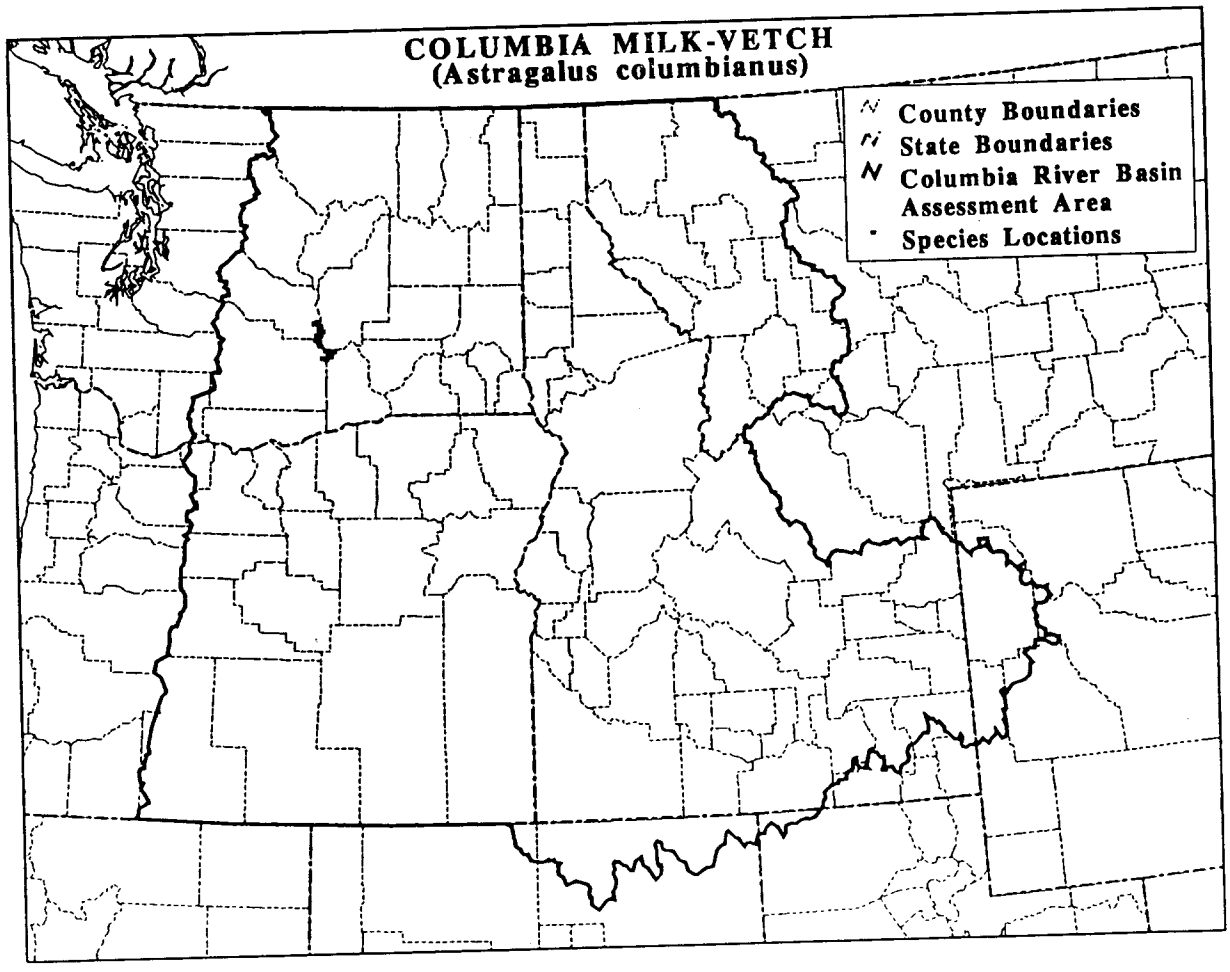
(Astragalus collinus var. laurentii)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations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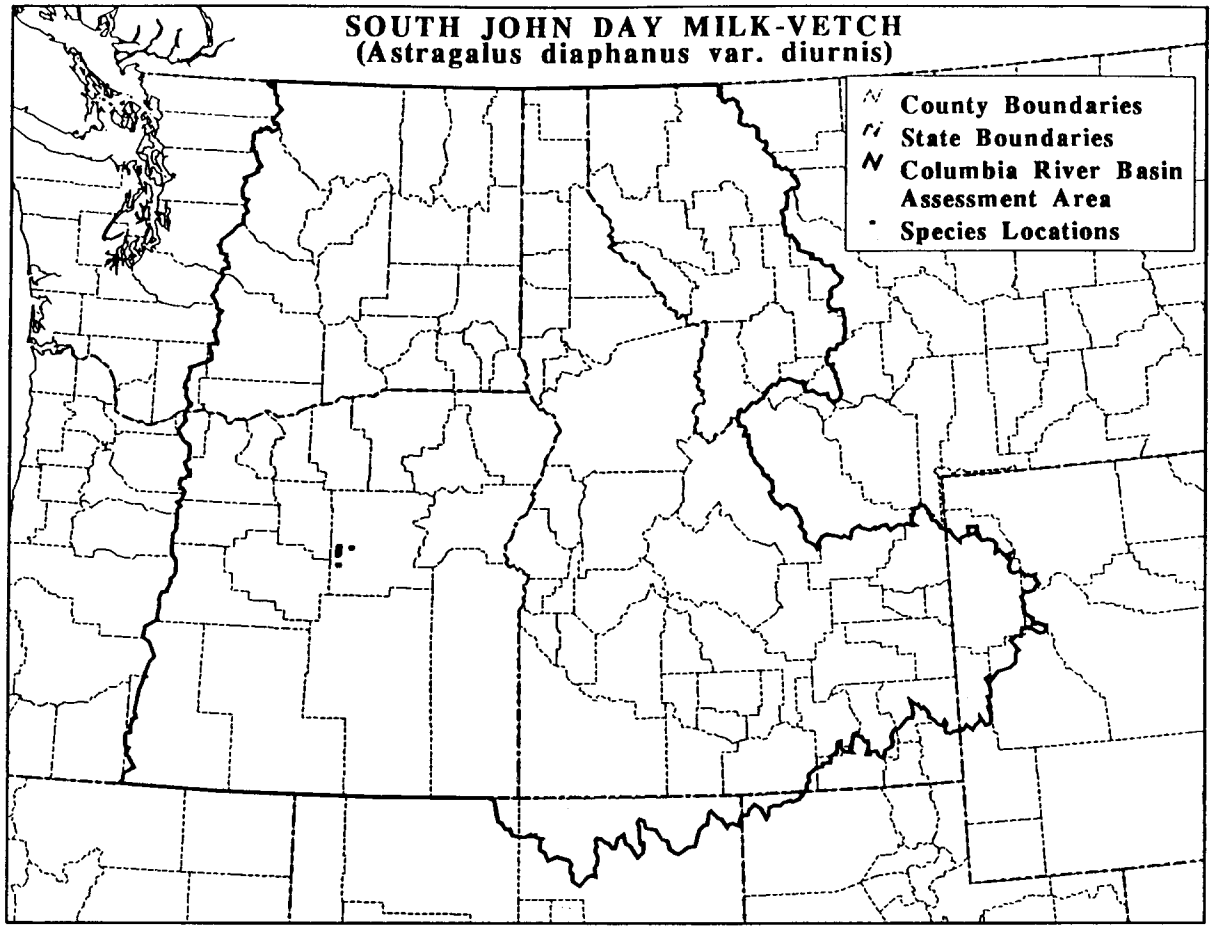
(Astragalus columbianus)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations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(Astragalus diaphanus var. diurnis)
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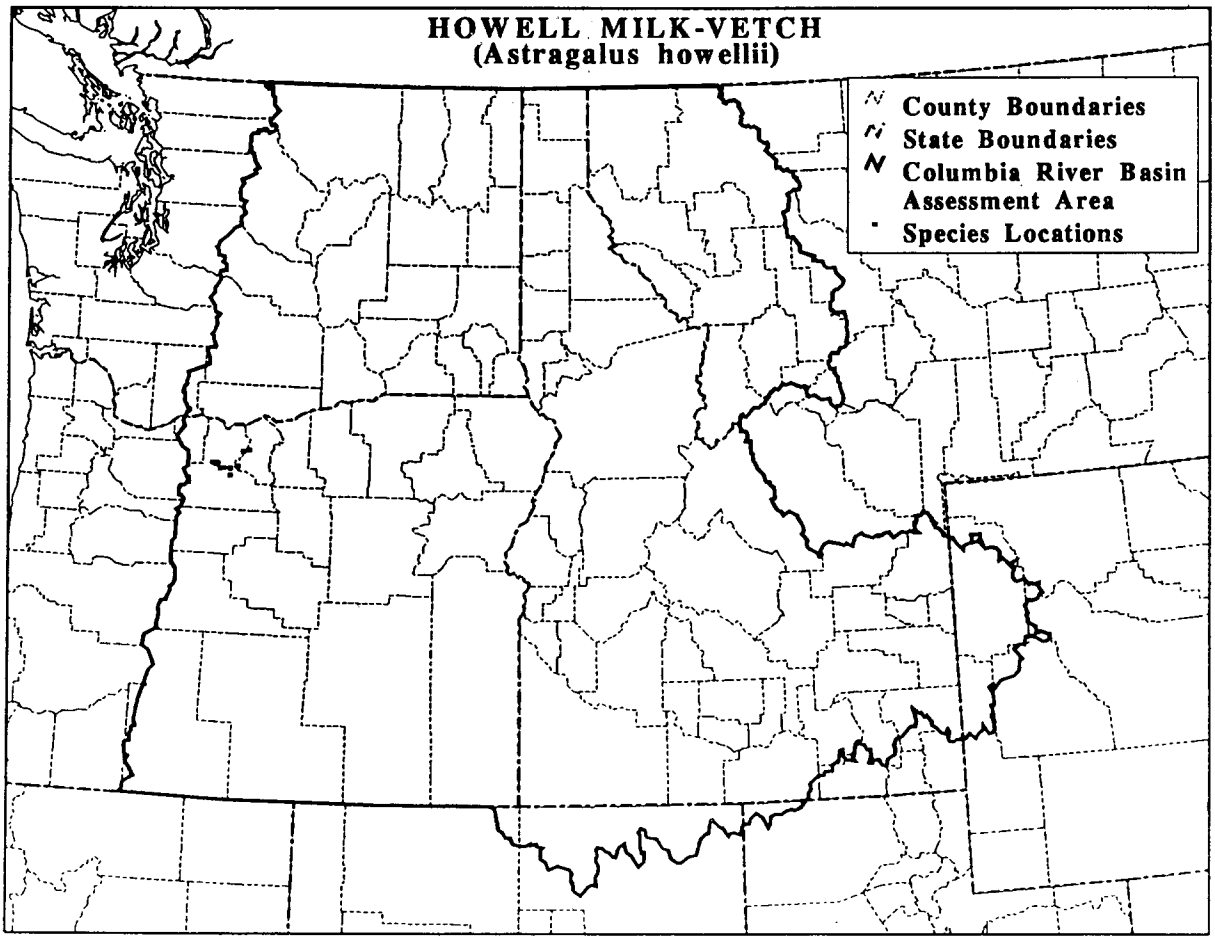
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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(Astragalus howellii)
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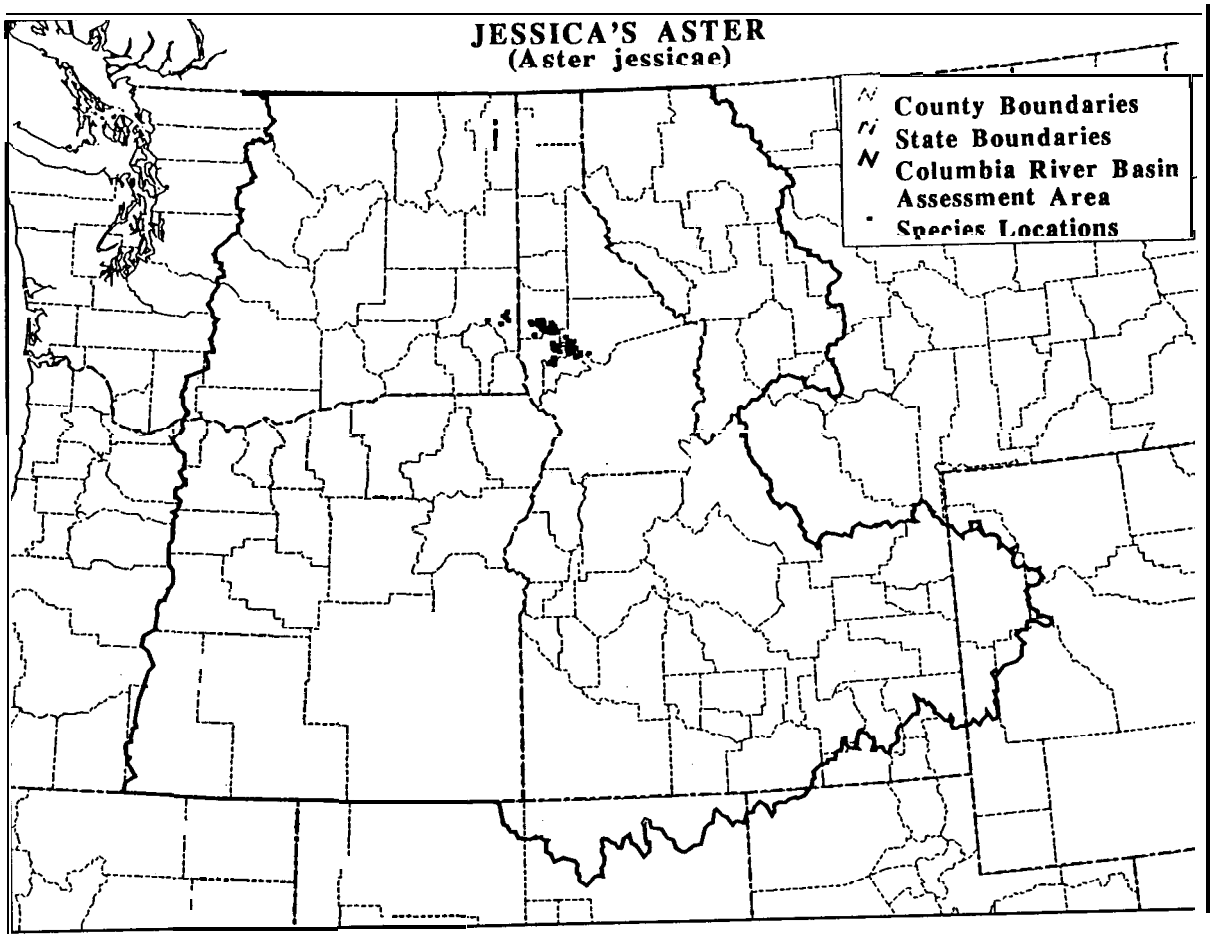
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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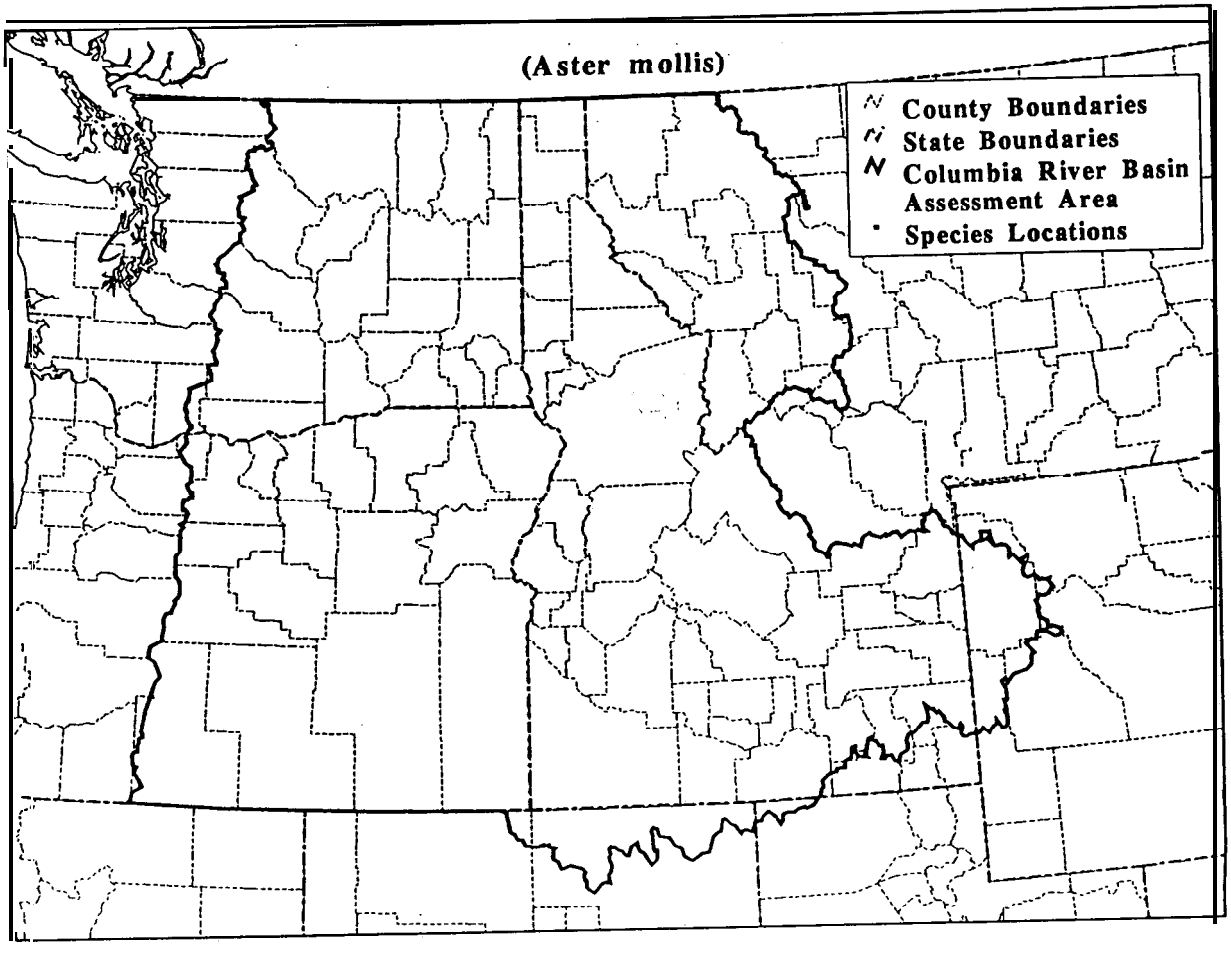
Columbia River Basin
Assessment Area
Species Locations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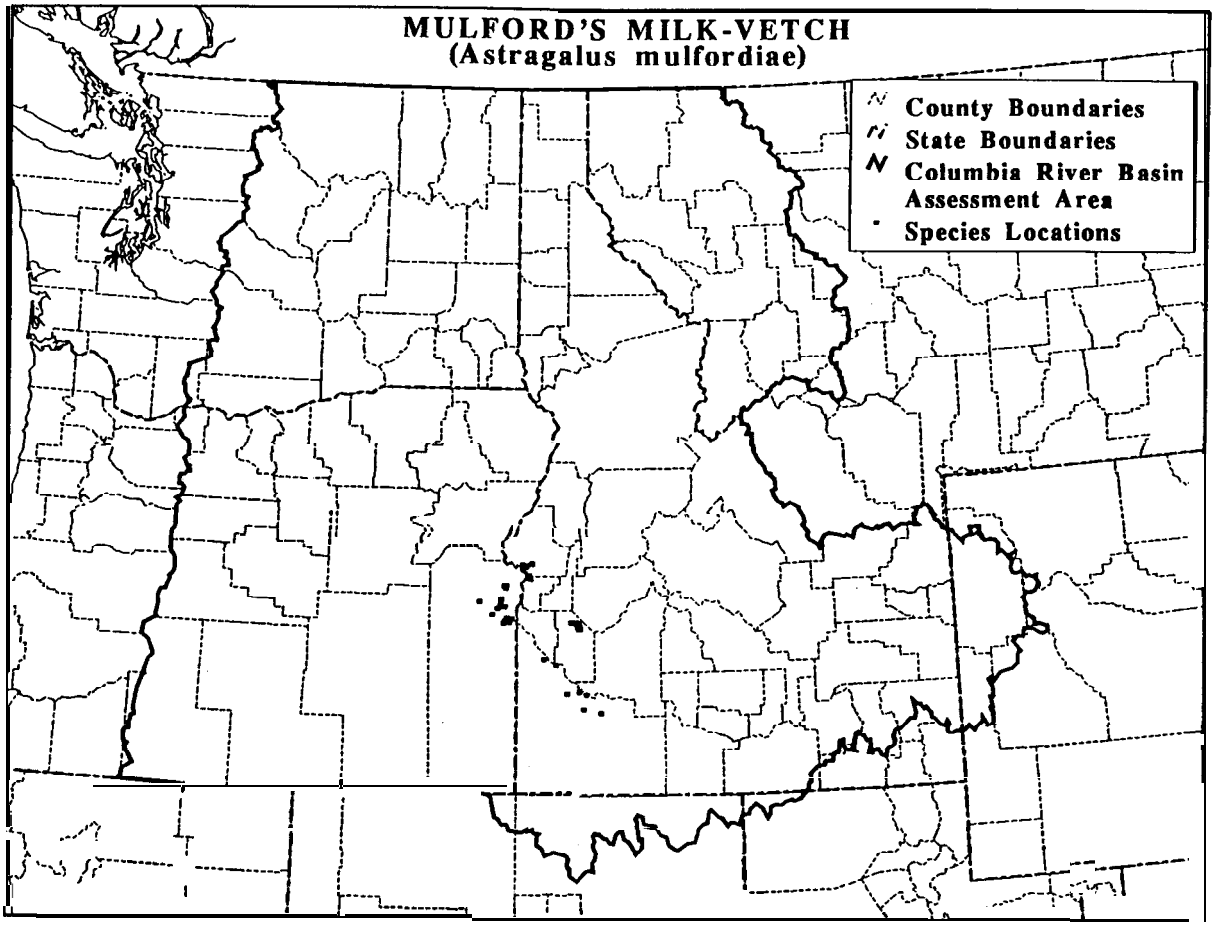
Columbia River Basin
Assessment Area
Species Locations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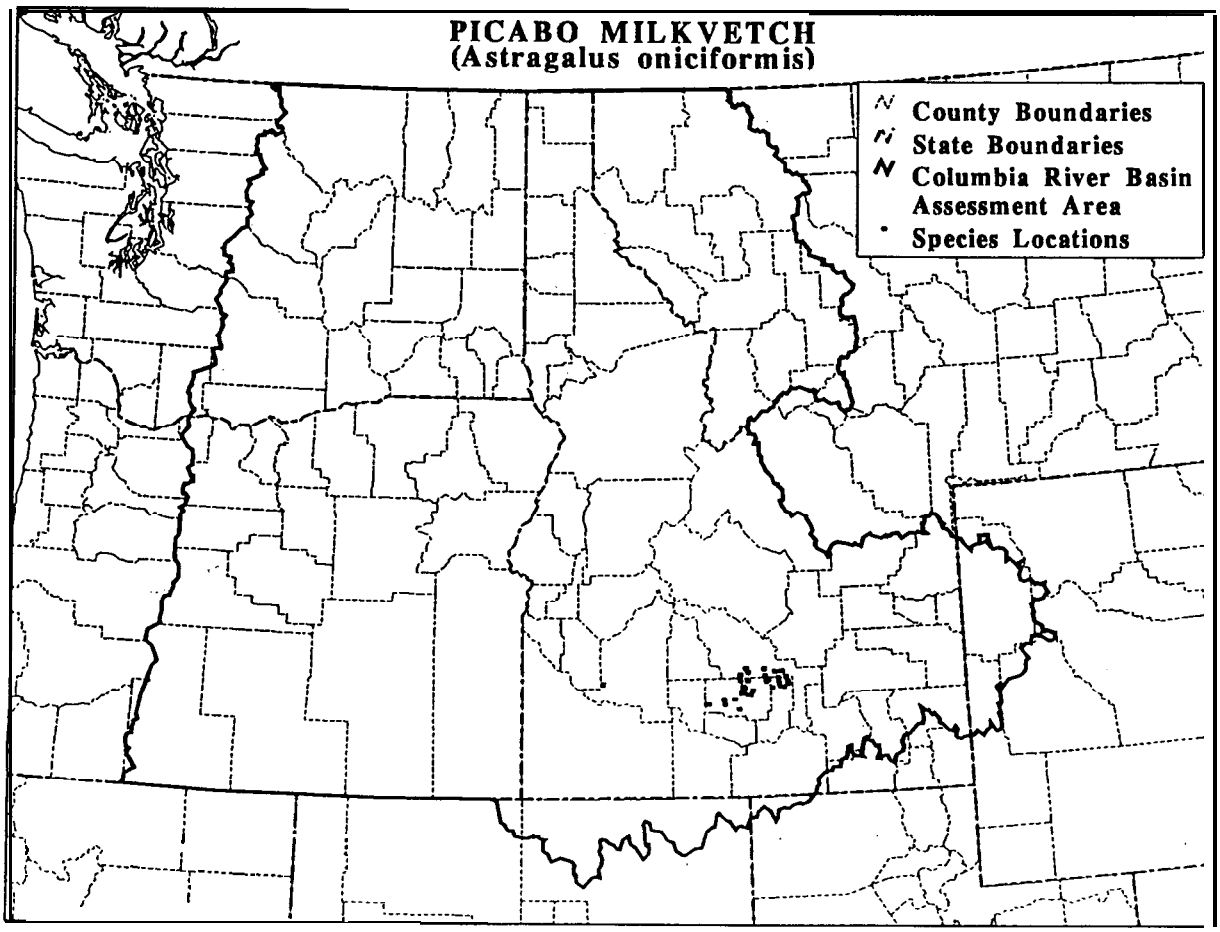
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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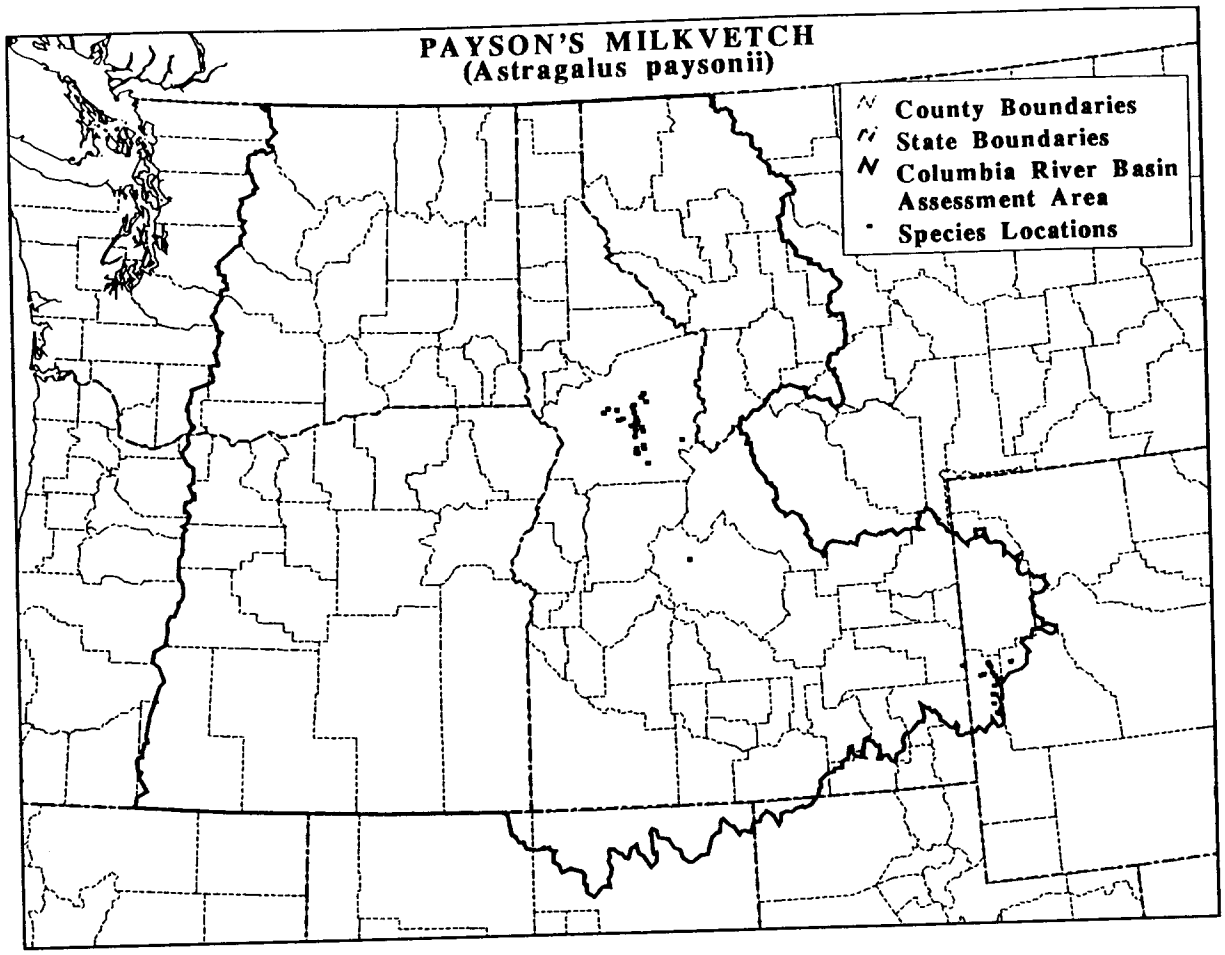
Columbia River Basin
Assessment Area
Species Locations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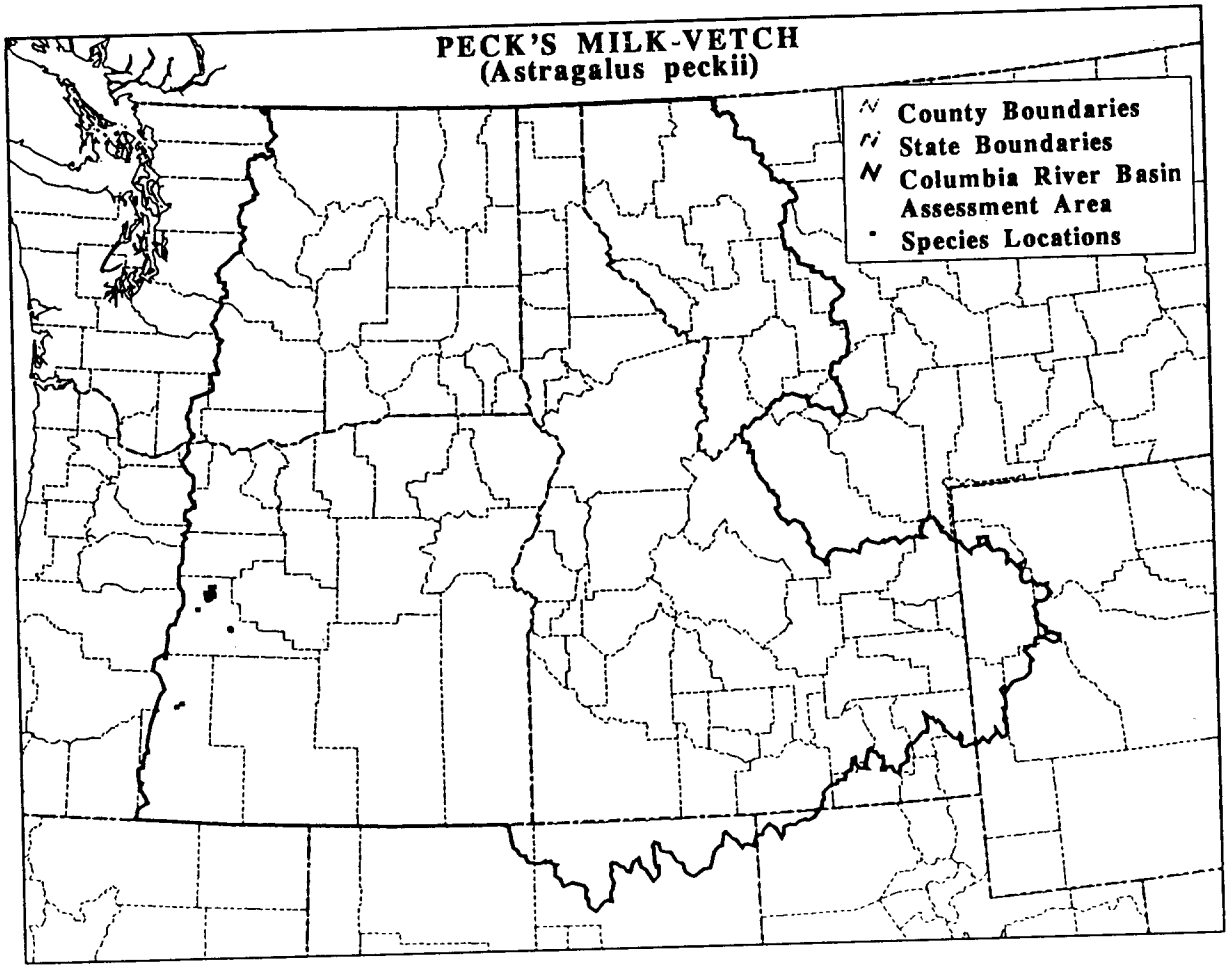
Columbia River Basin
Assessment Area
Species Locations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(Astragalus peckii)
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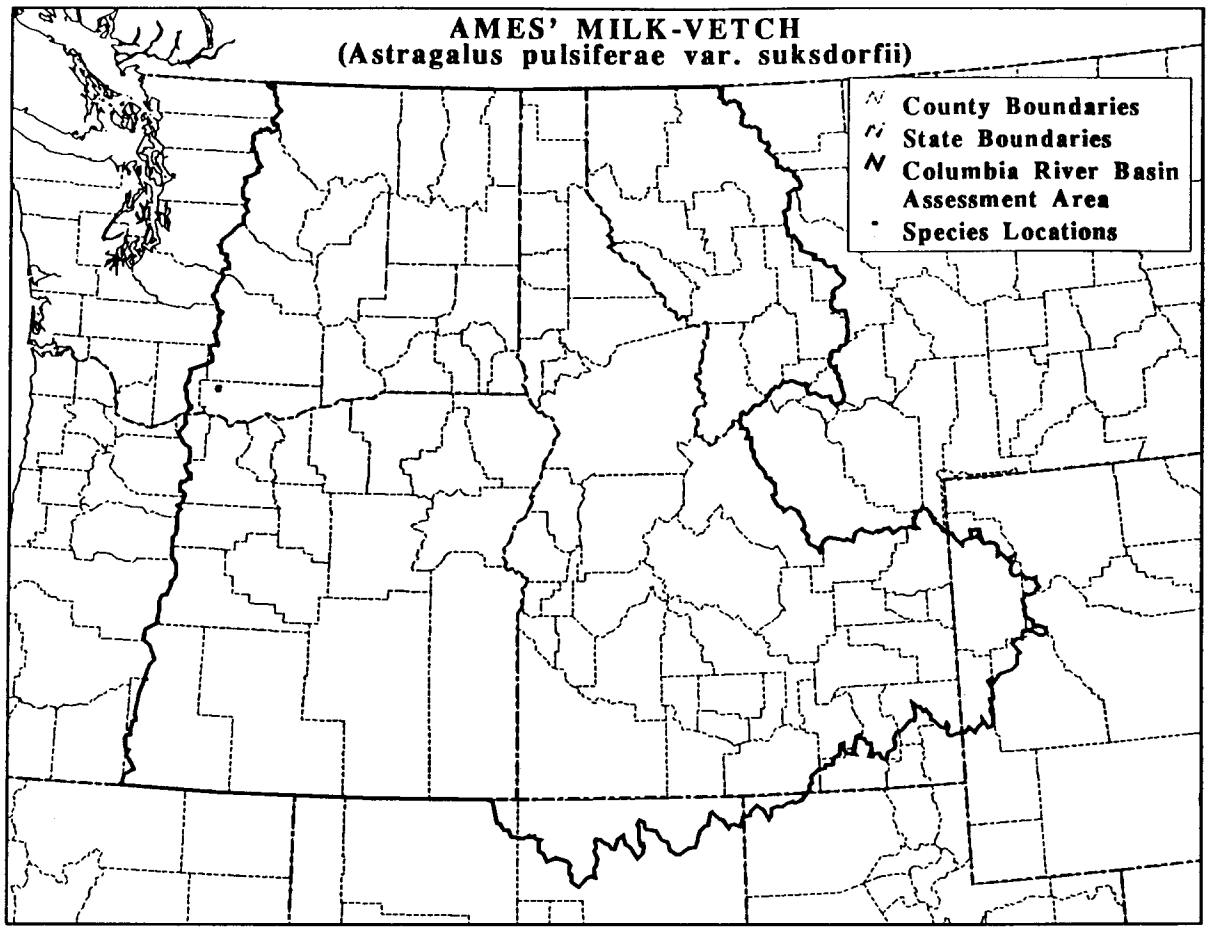
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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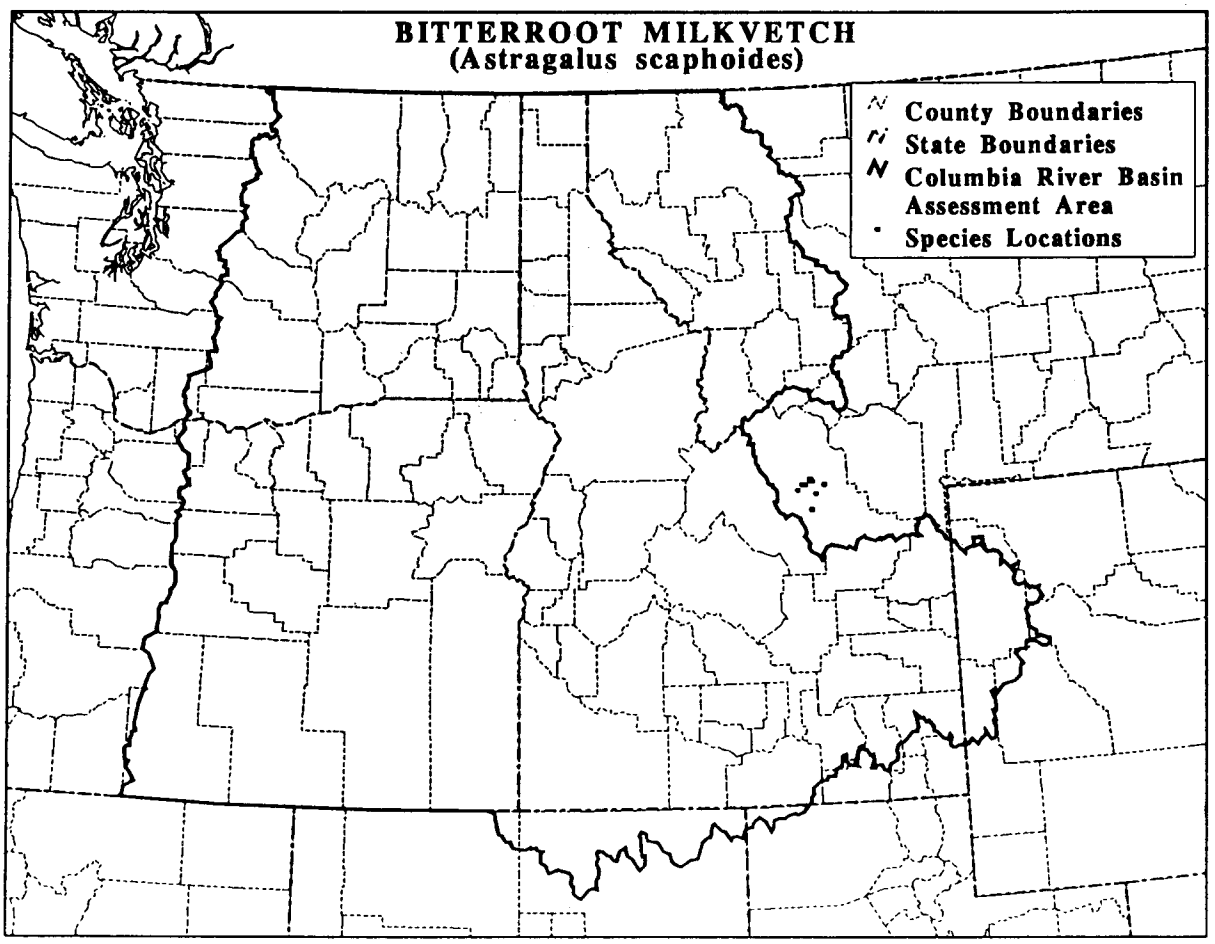
Columbia River Basin
Assessment Area
Species Locations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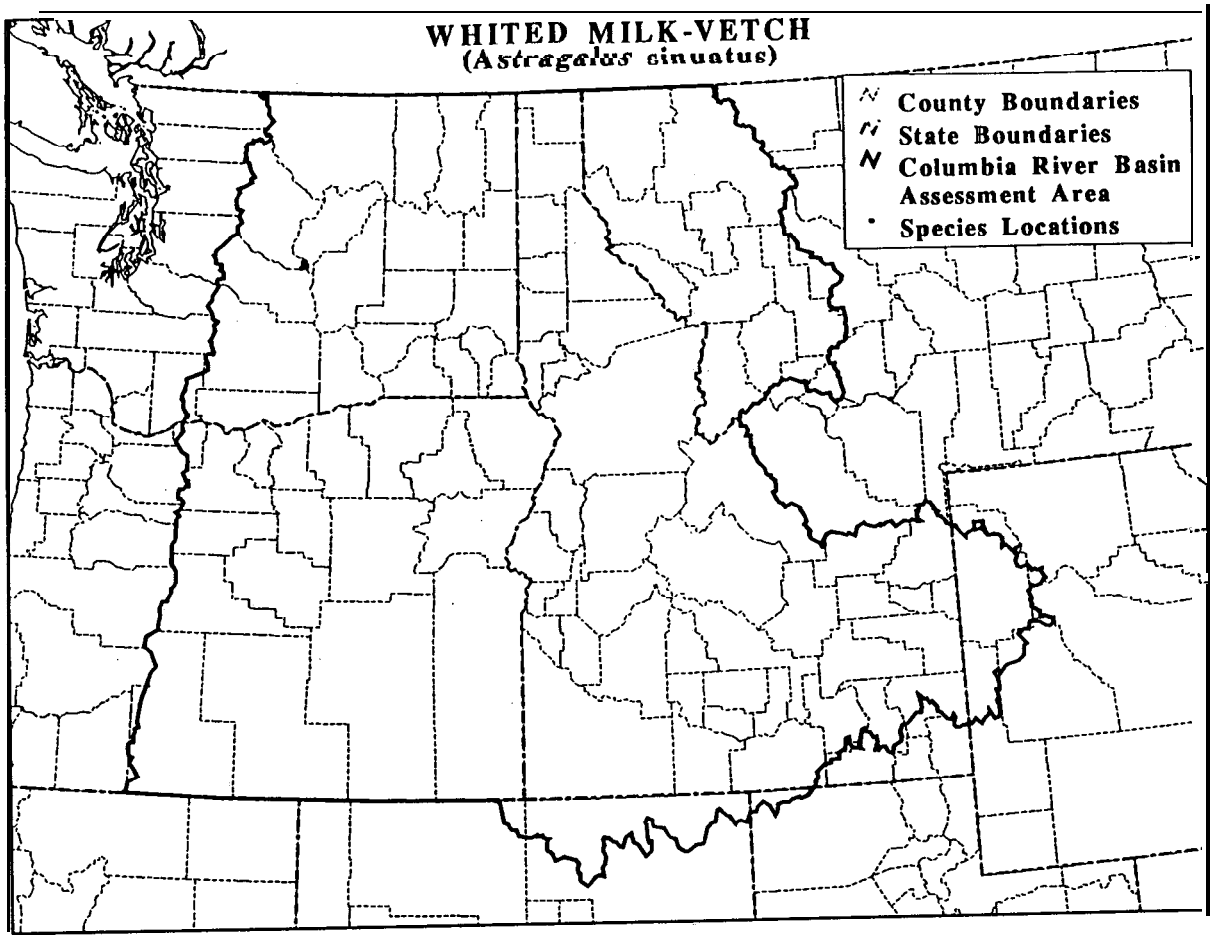
Columbia River Basin
Assessment Area
Species Locations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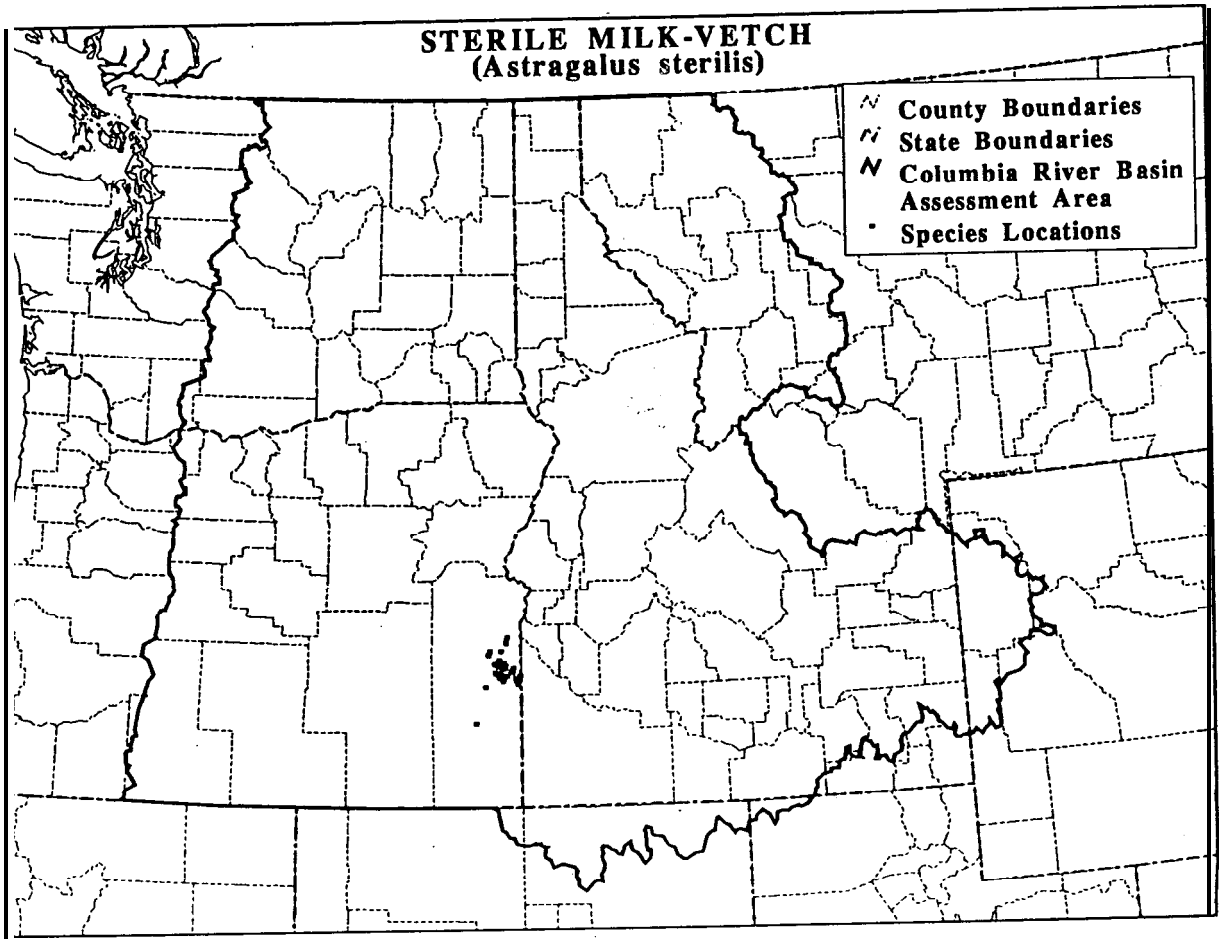
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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(Astragalus sterilis)
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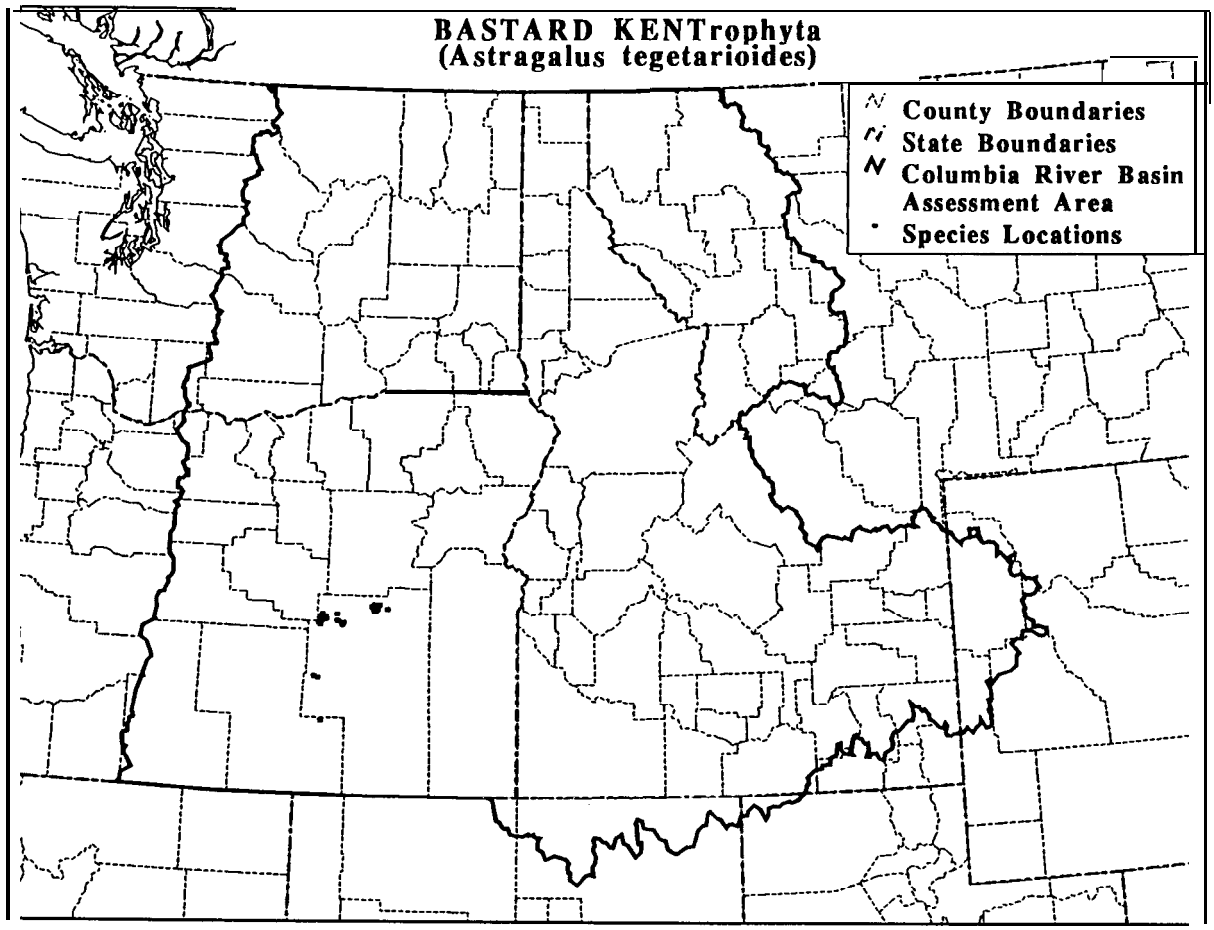
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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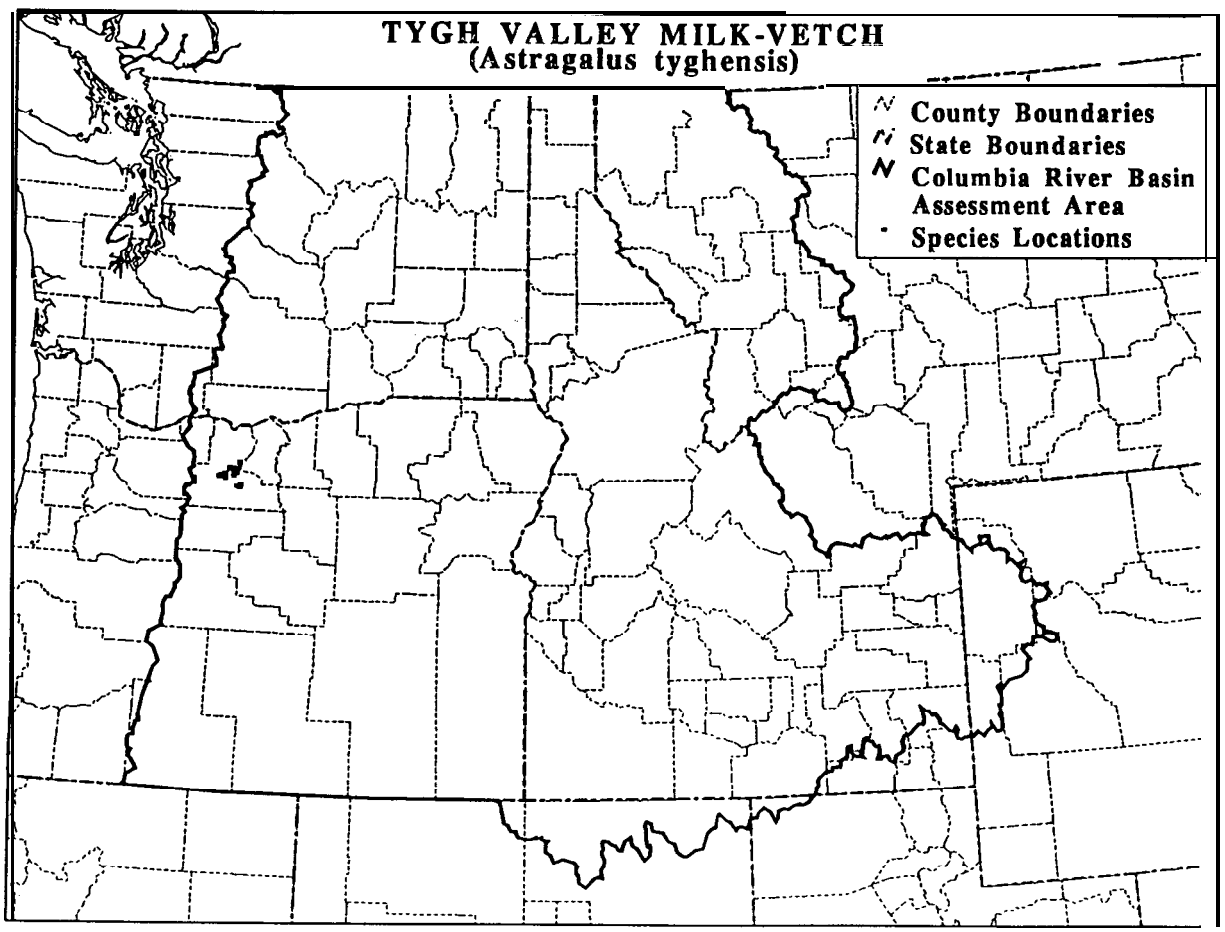
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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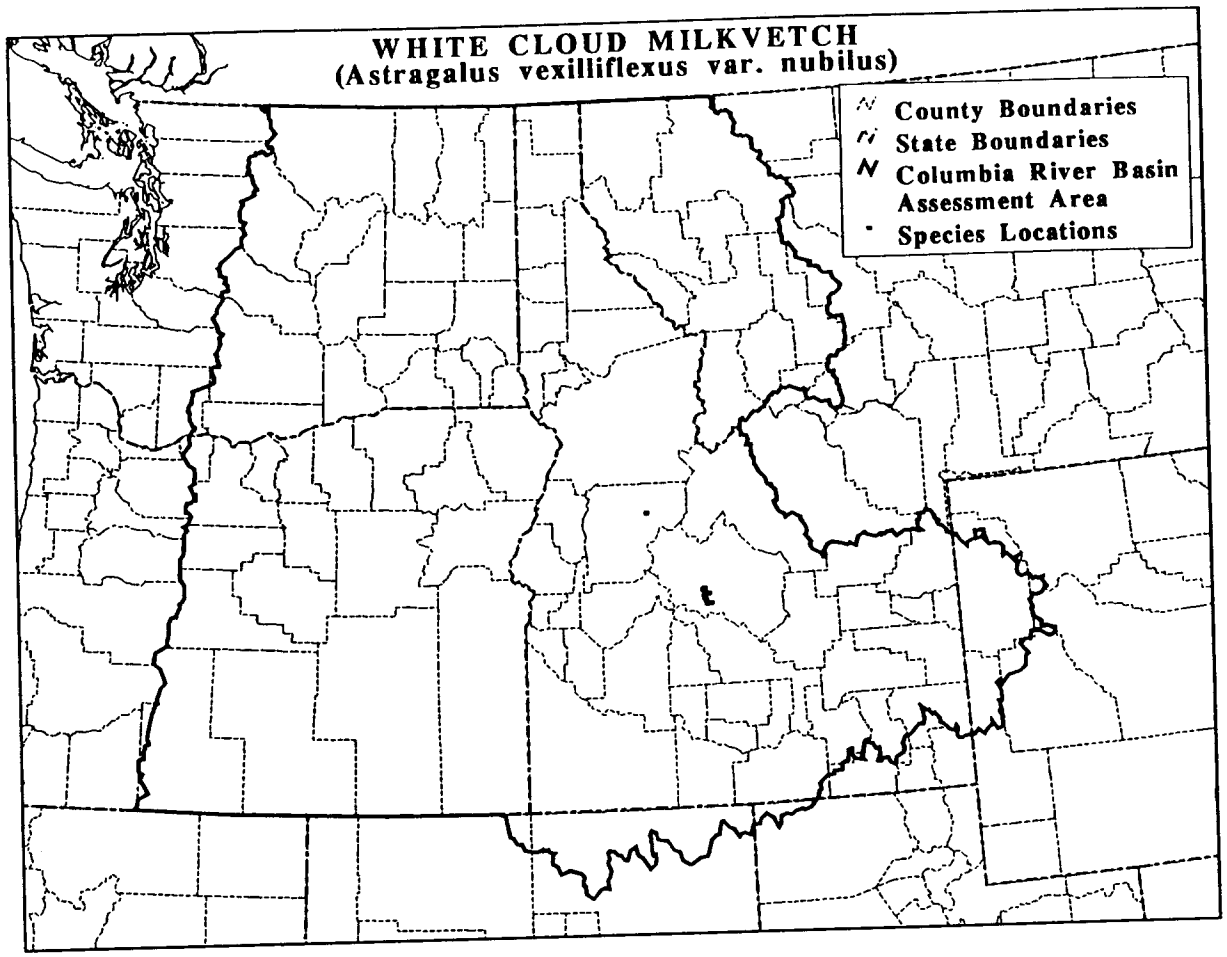
(Astragalus tyghensis)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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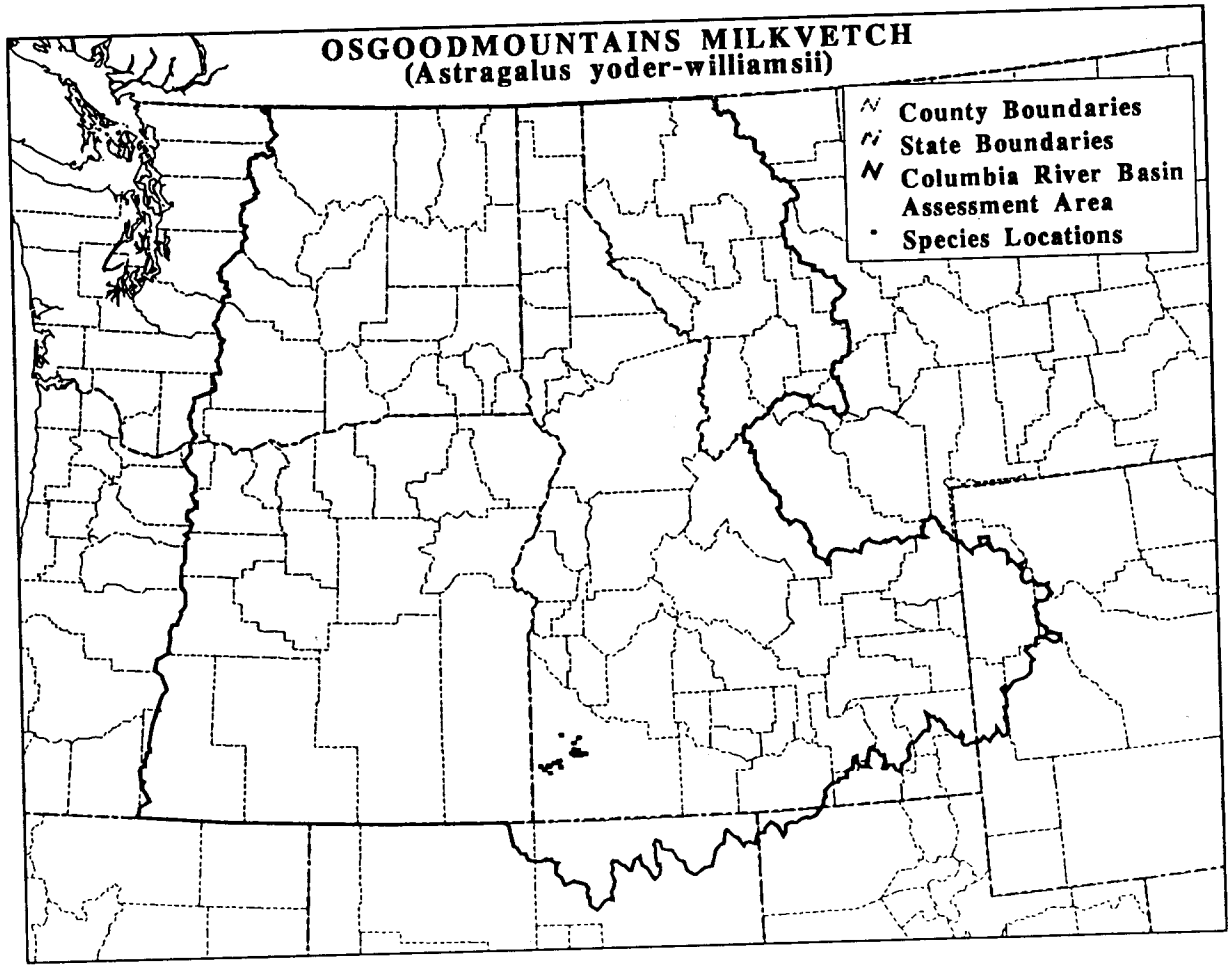
(Astragalus vexilliflexus var. nubilus)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations


OSGOODMOUNTAINS MILKVETCH
(Astragalus yoder-williamsii)
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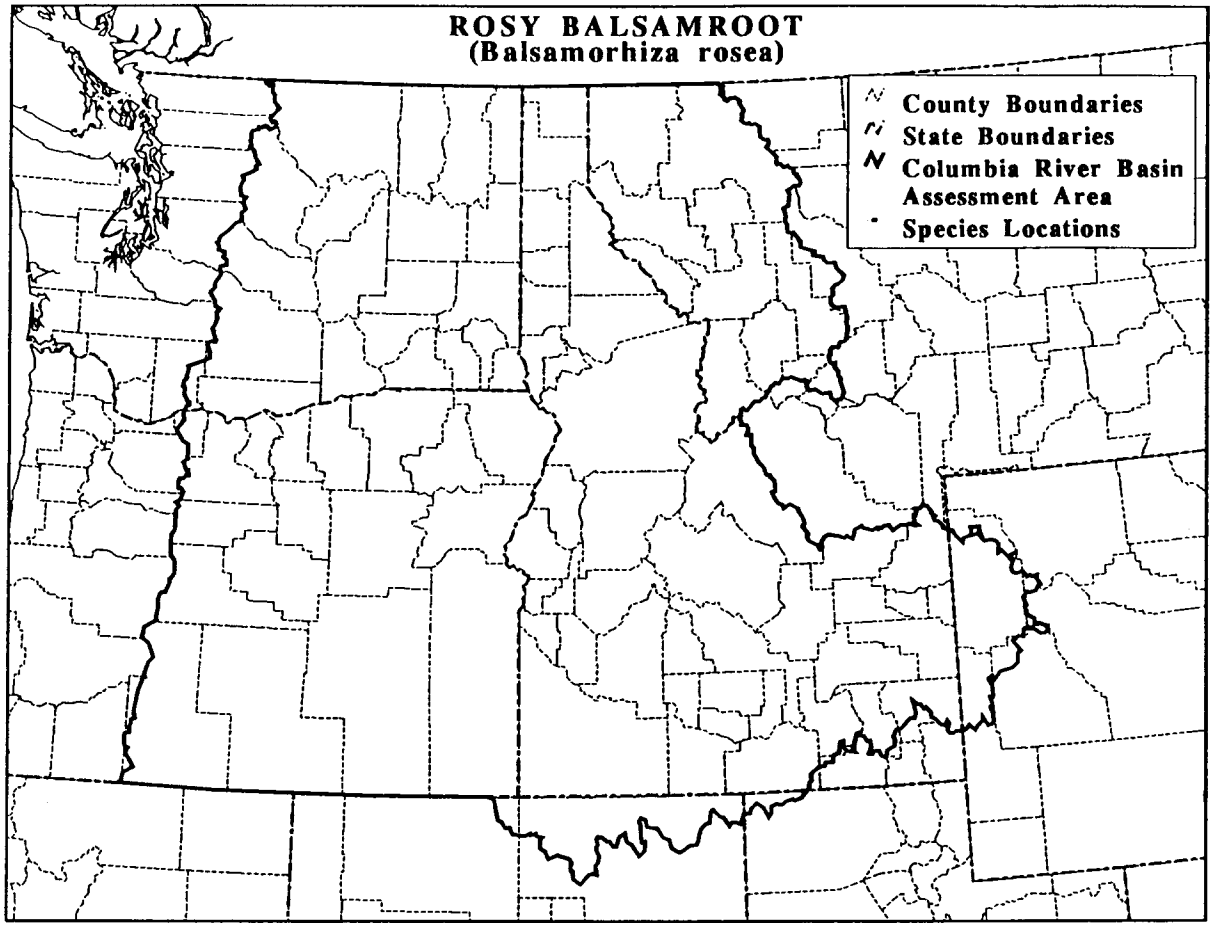
State Boundaries
Columbia River Basin Assessment Area
Species Locations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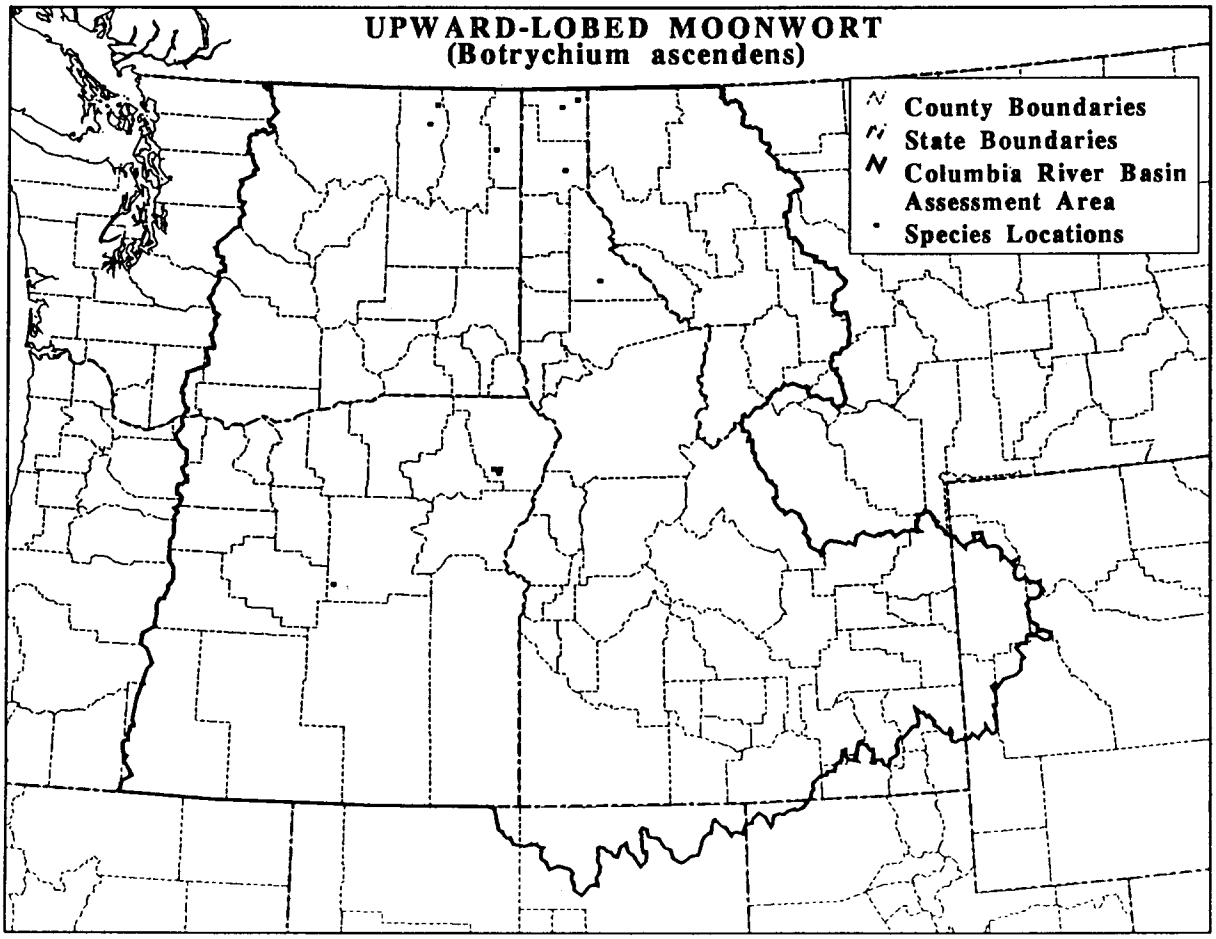
Columbia River Basin
Assessment Area
Species Locations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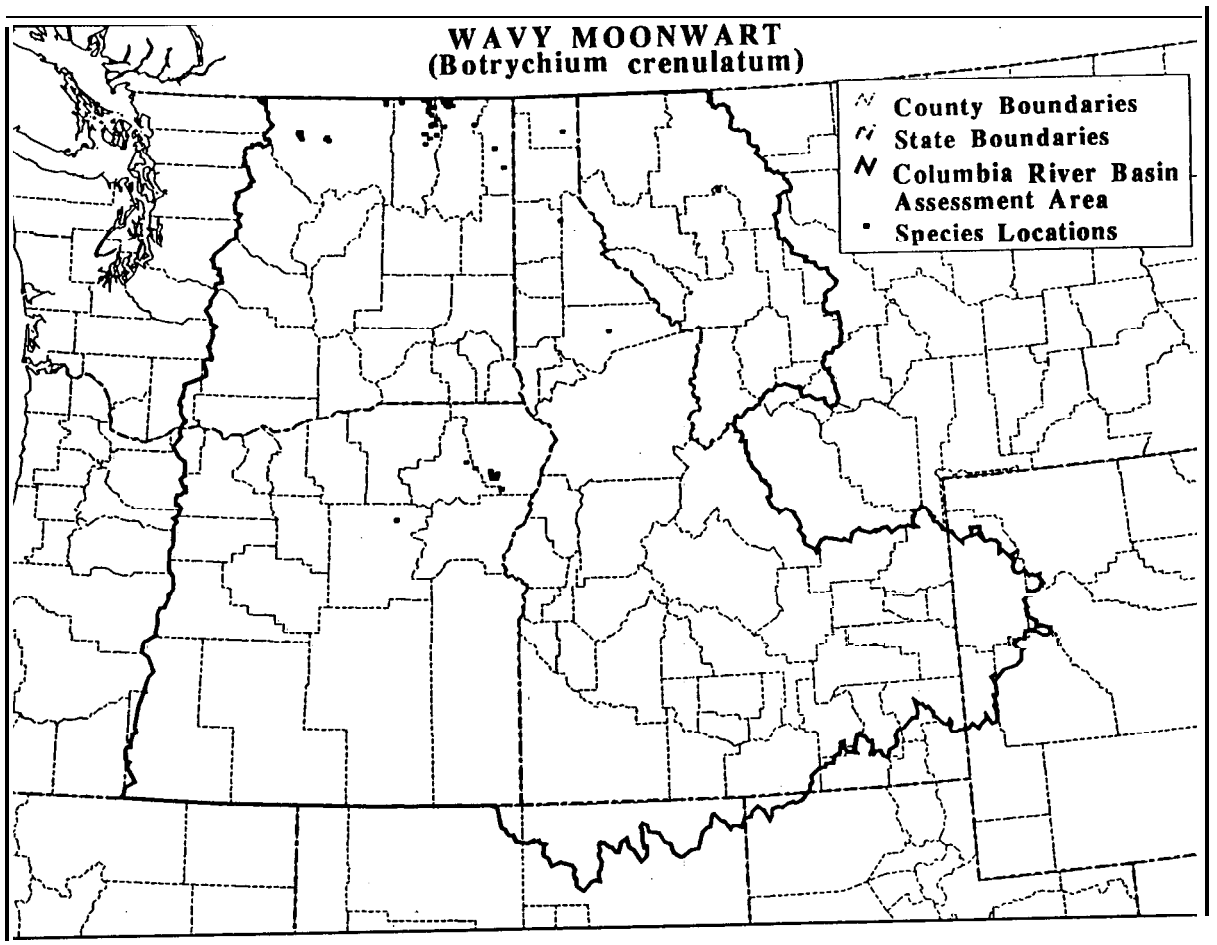
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


WAVY MOONWART
(Botrychium crenulatum)
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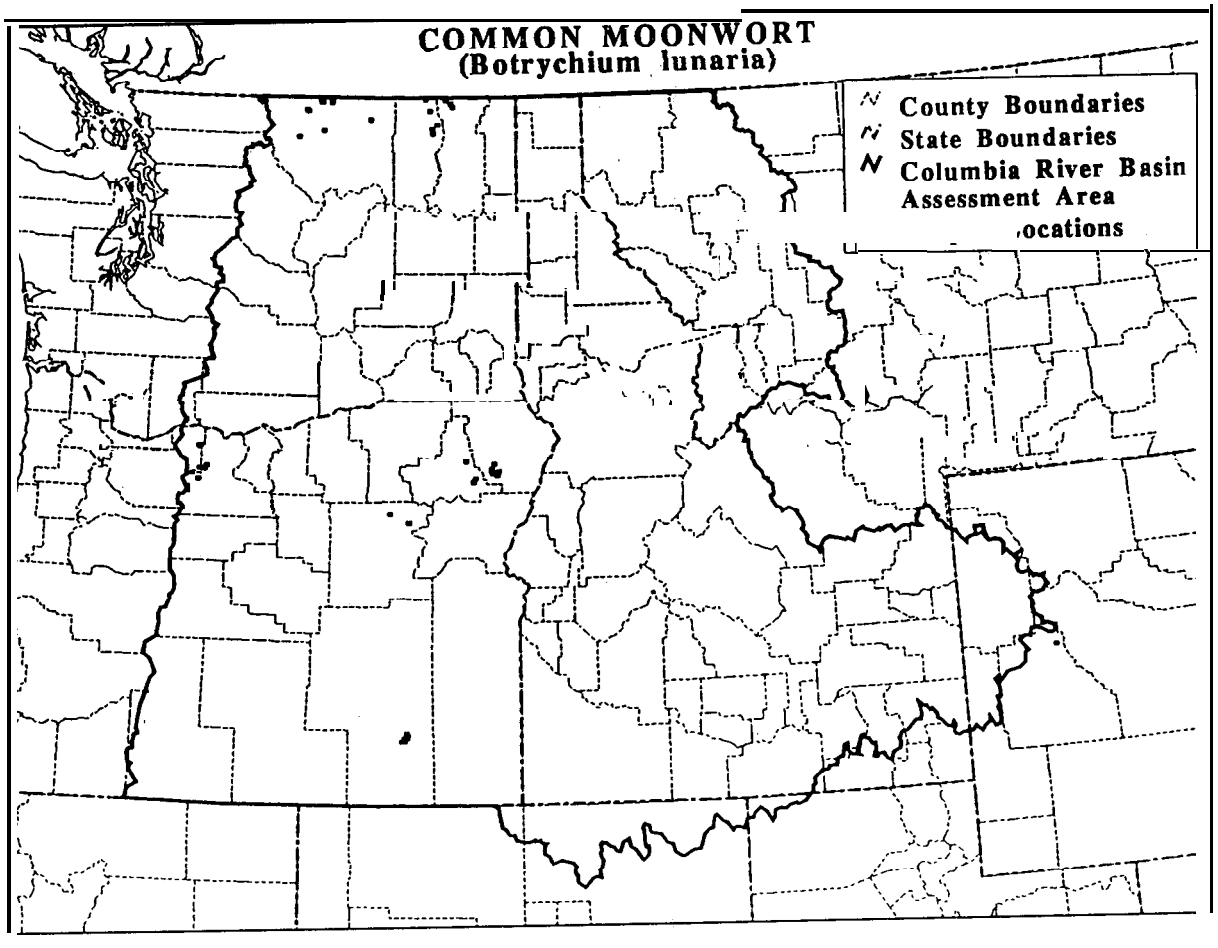
Columbia River Basin
Assessment Area
Species Locations


COMMON MOONWORT
(Botrychium lunaria)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
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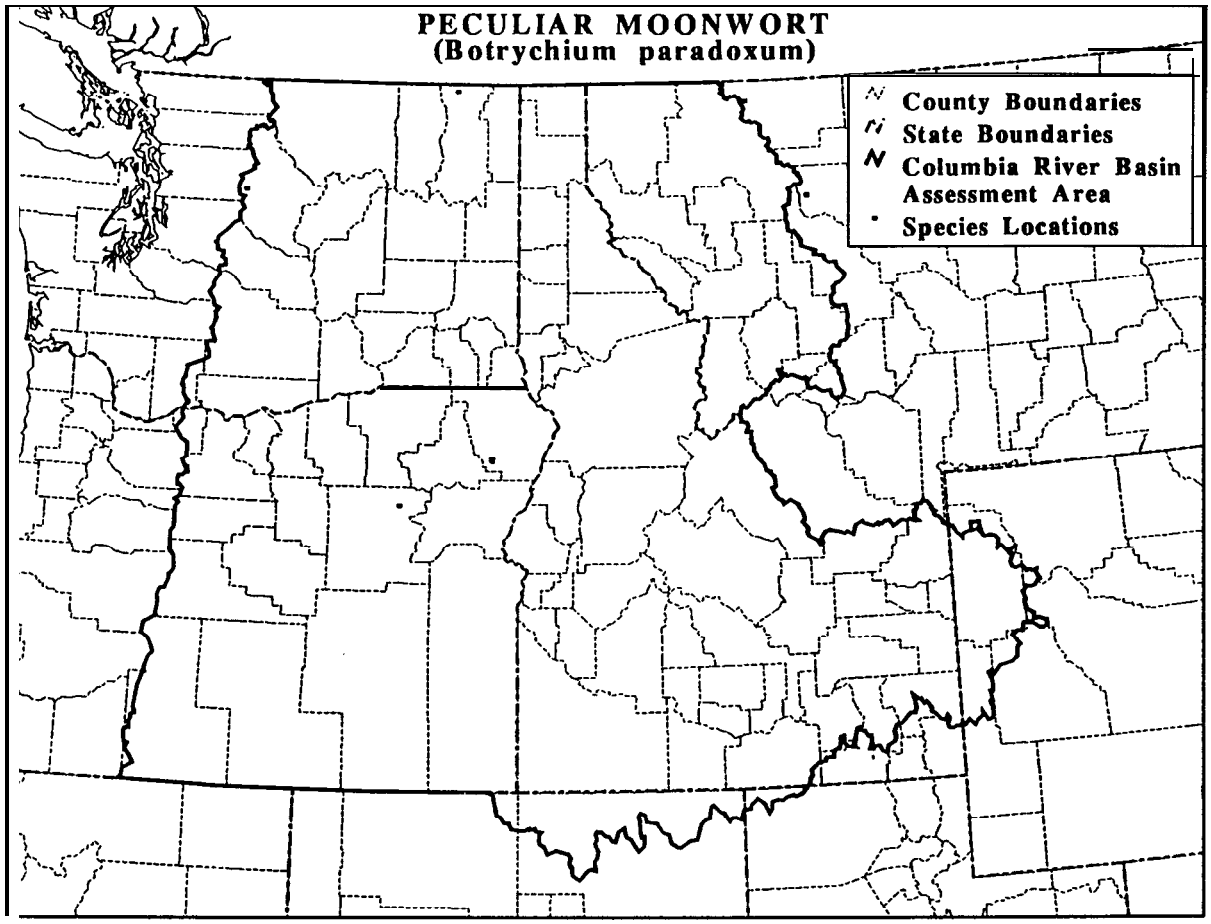
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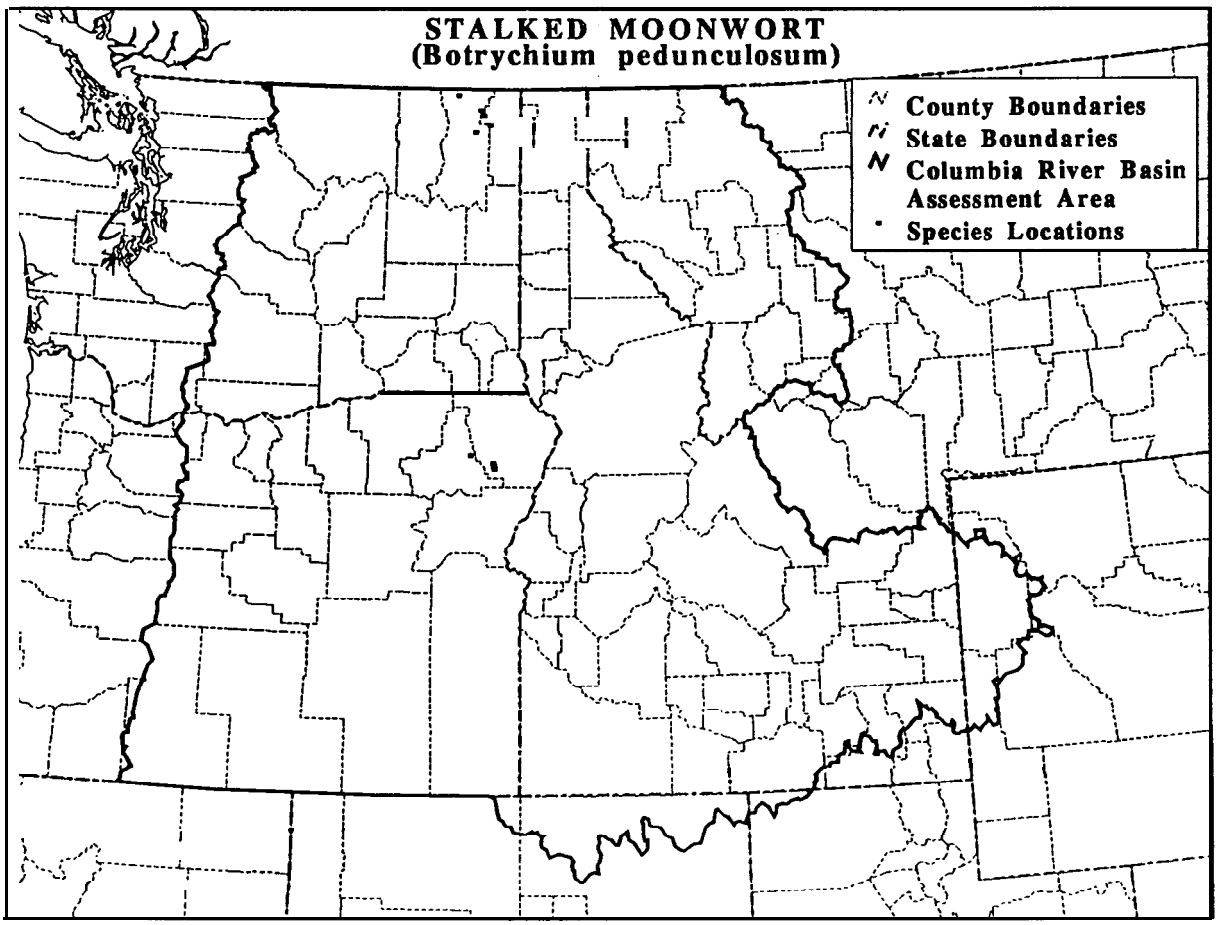
Assessment Area
Species Locations


STALKED MOONWORT
(Botrychium pedunculosum)
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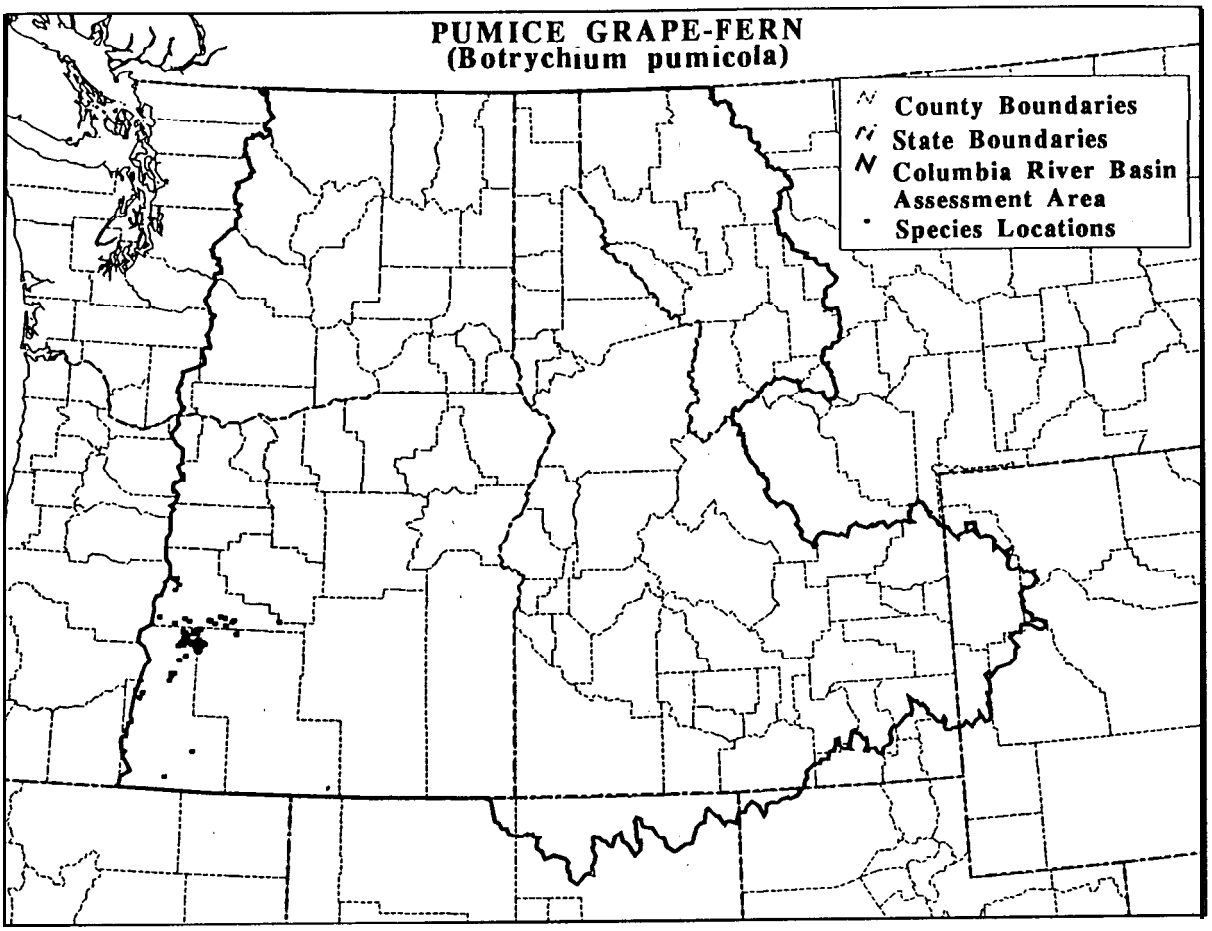
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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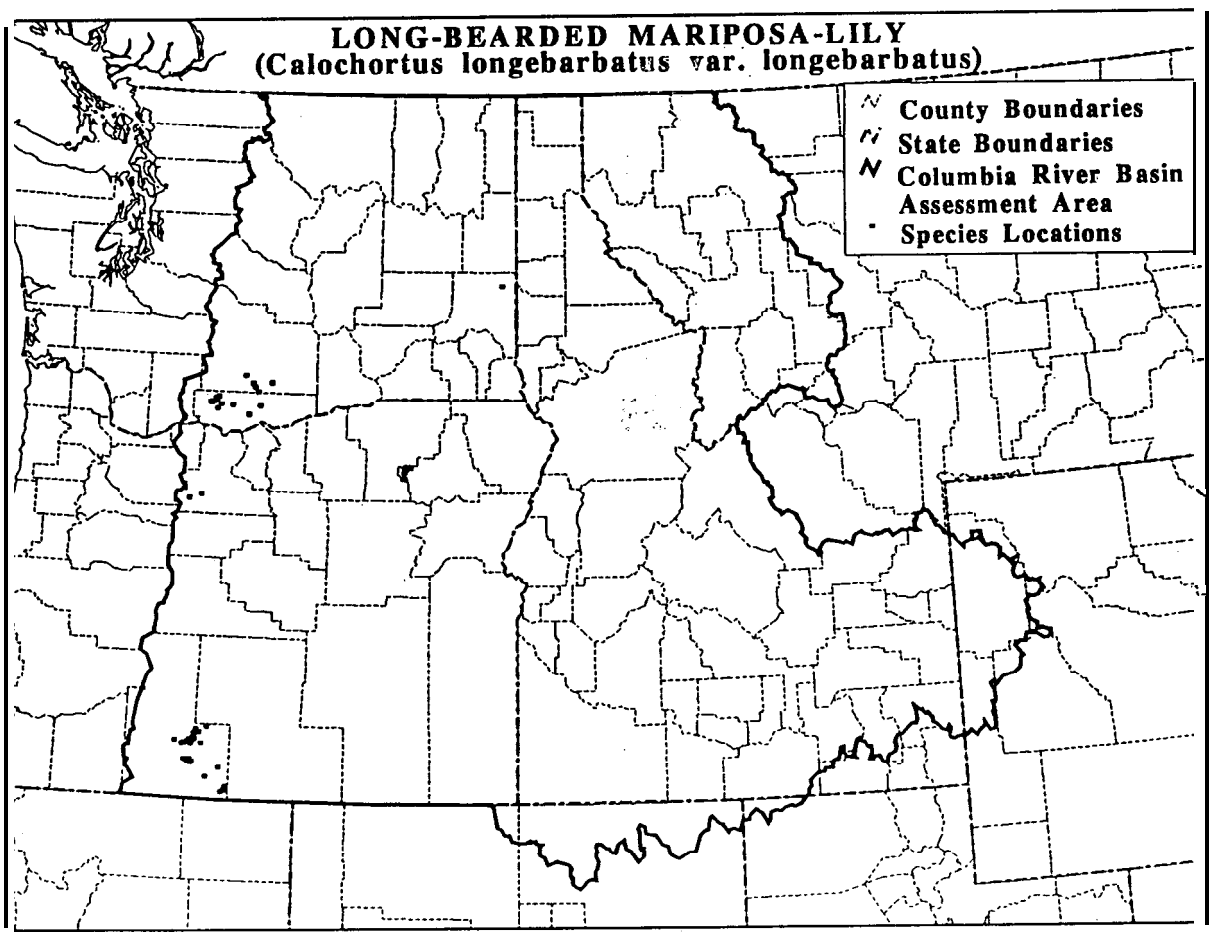
Columbia River Basin
Assessment Area
Species Locations


LONG-BEARDED MARIPOSA-LILY
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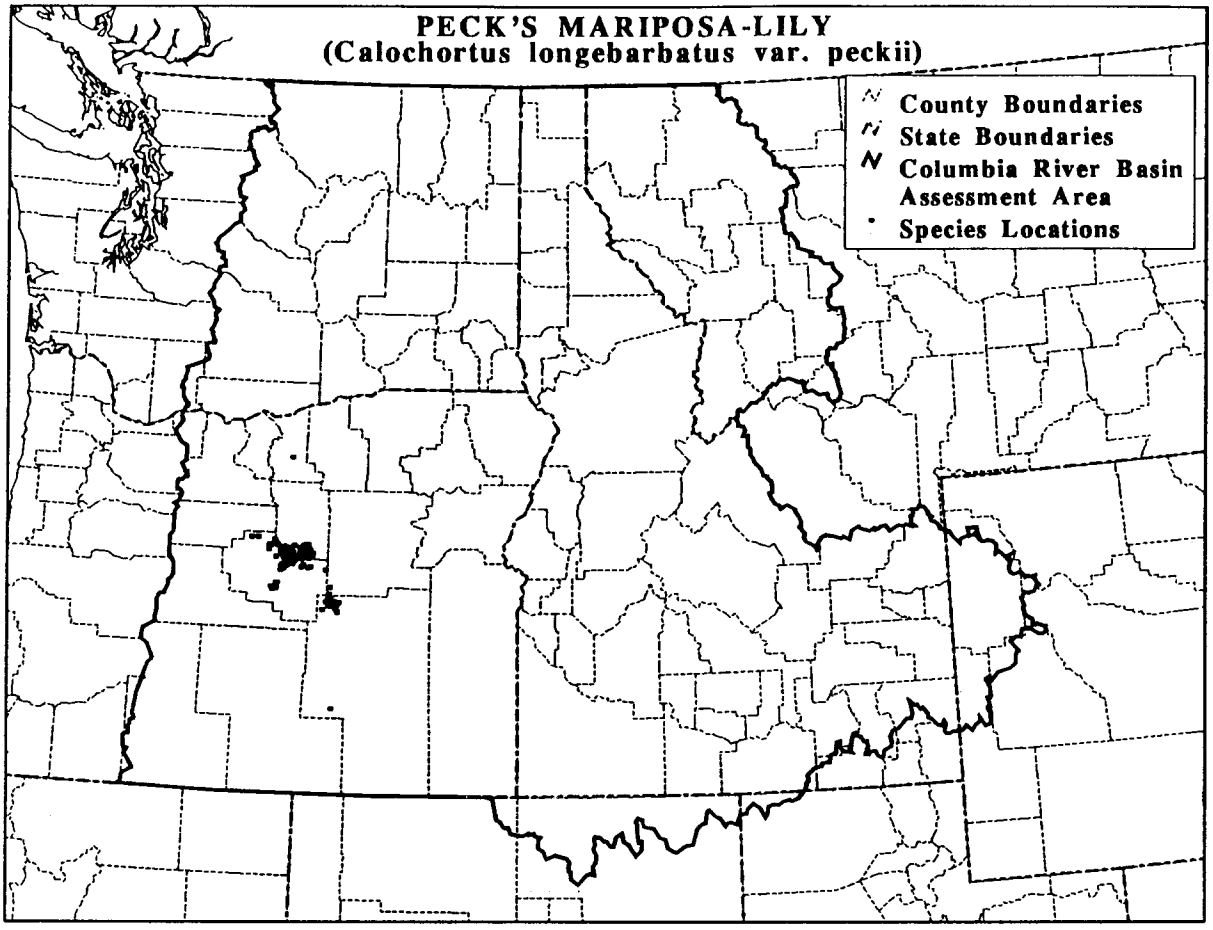
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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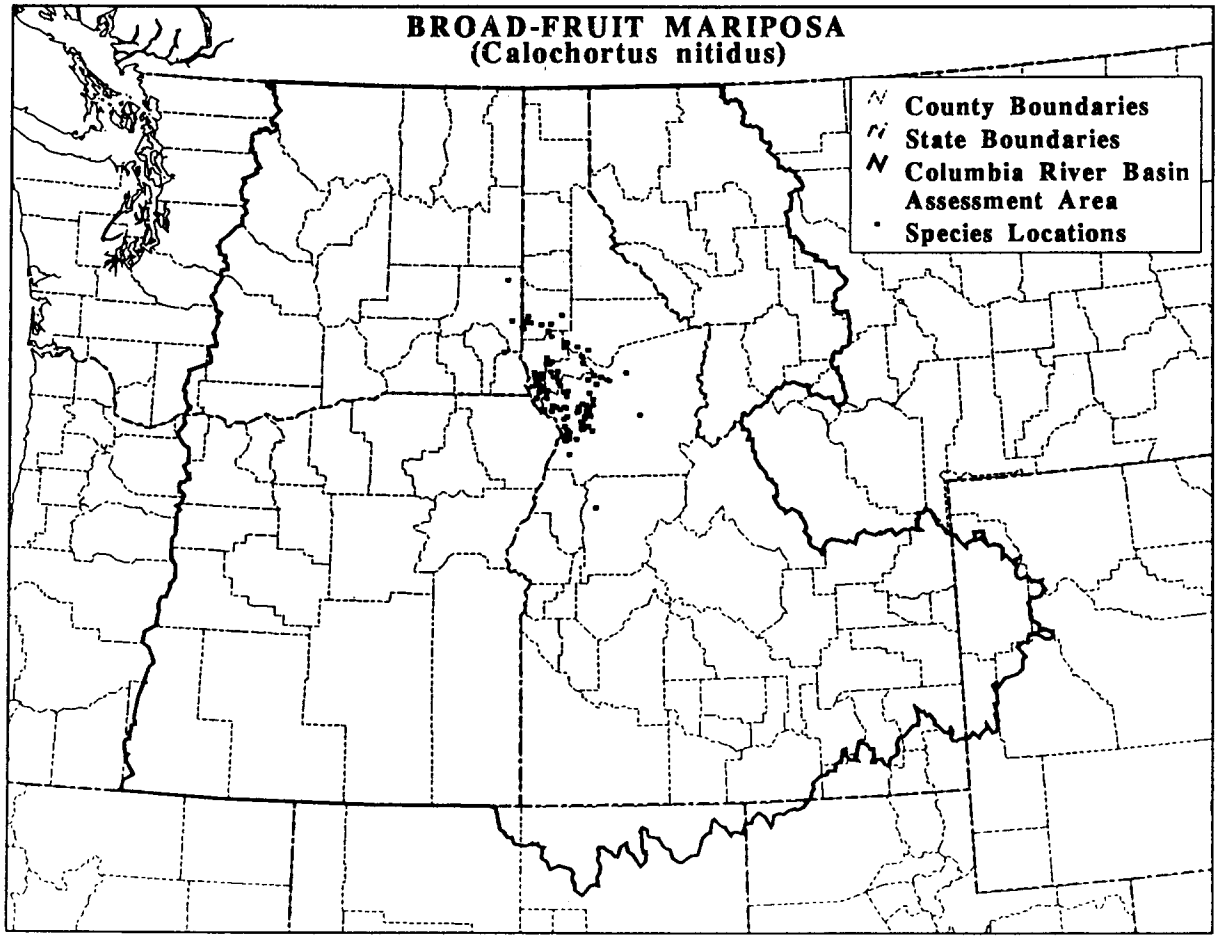
(Calochortus longebarbatus var. peckii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


BROAD-FRUIT MARIPOSA
(Calochortus nitidus)
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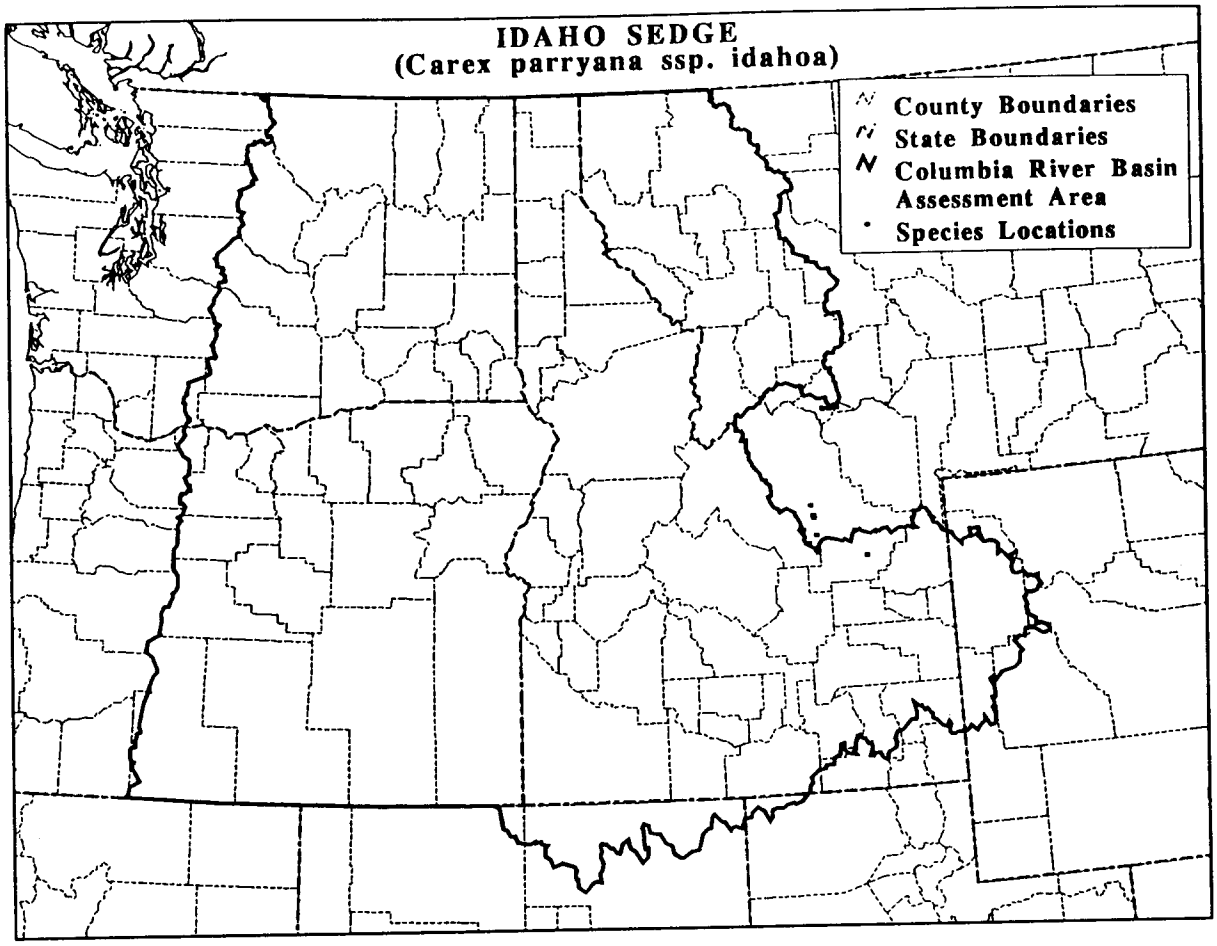
Columbia River Basin
Assessment Area
Species Locations


IDAHO SEDGE
(Carex parryana ssp. idahoa)
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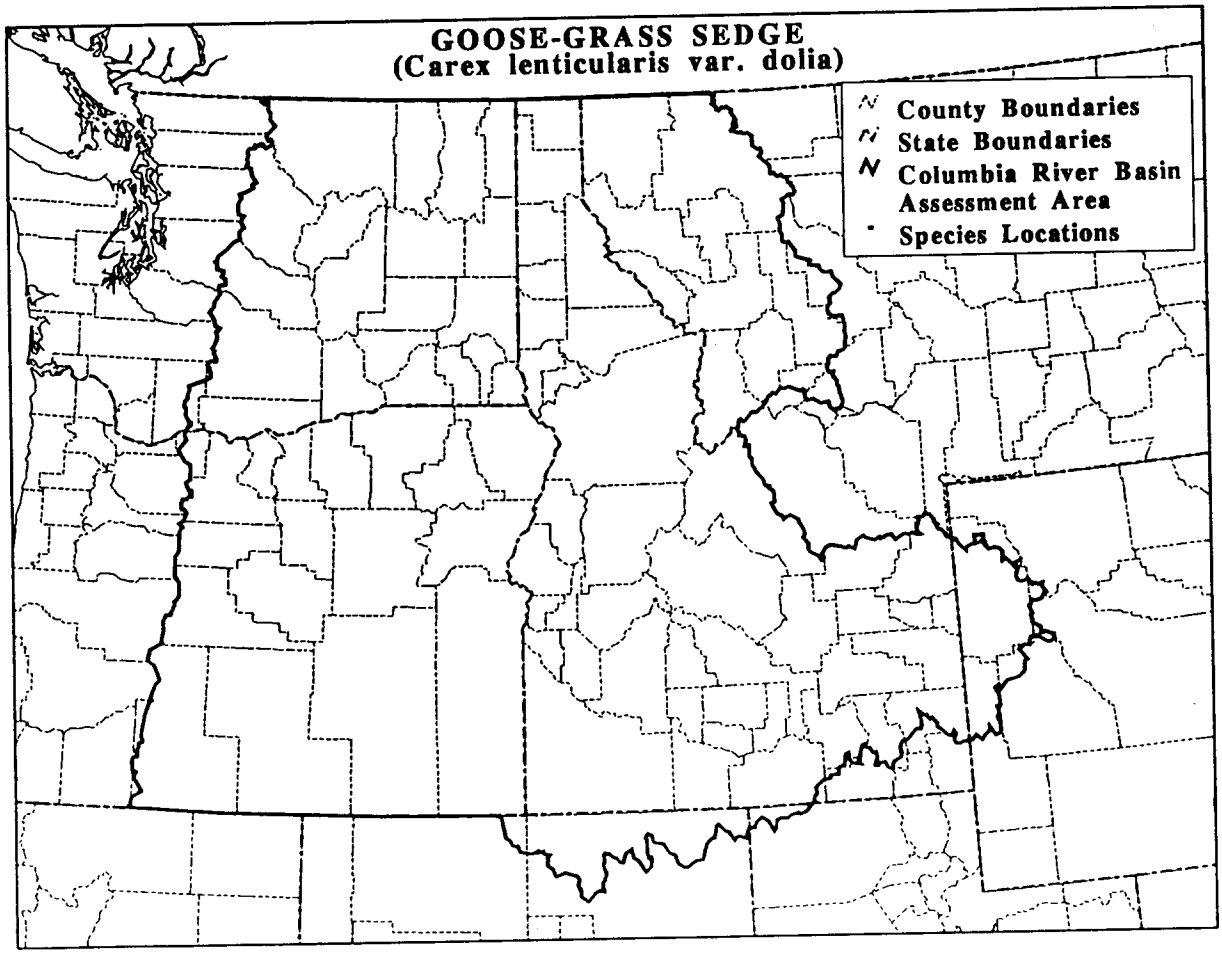
Columbia River Basin
Assessment Area
Species Locations


GOOSE-GRASS SEDGE
(Carex lenticularis var. dolia)
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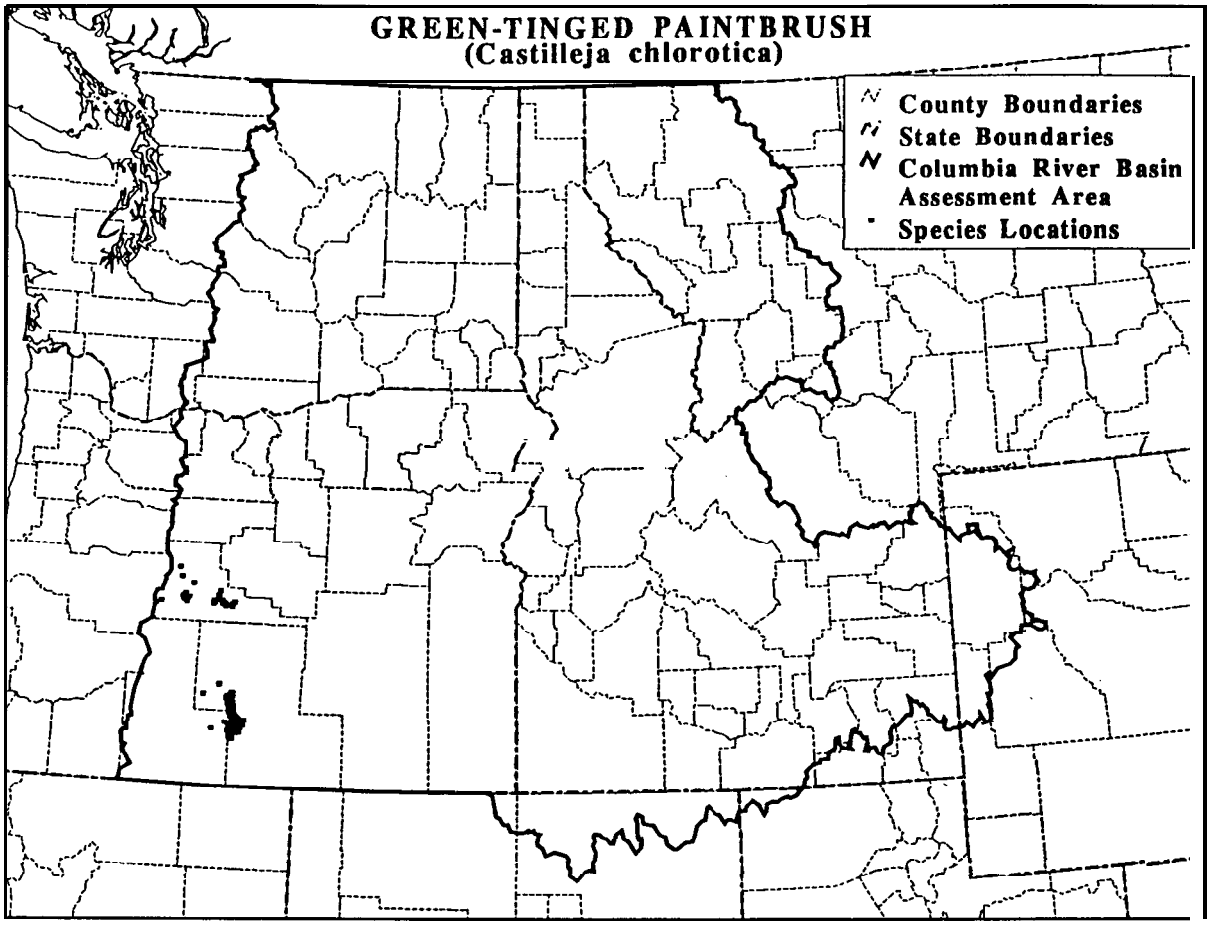
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


GREEN-TINGED PAINTBRUSH
(Castilleja chlorotica)
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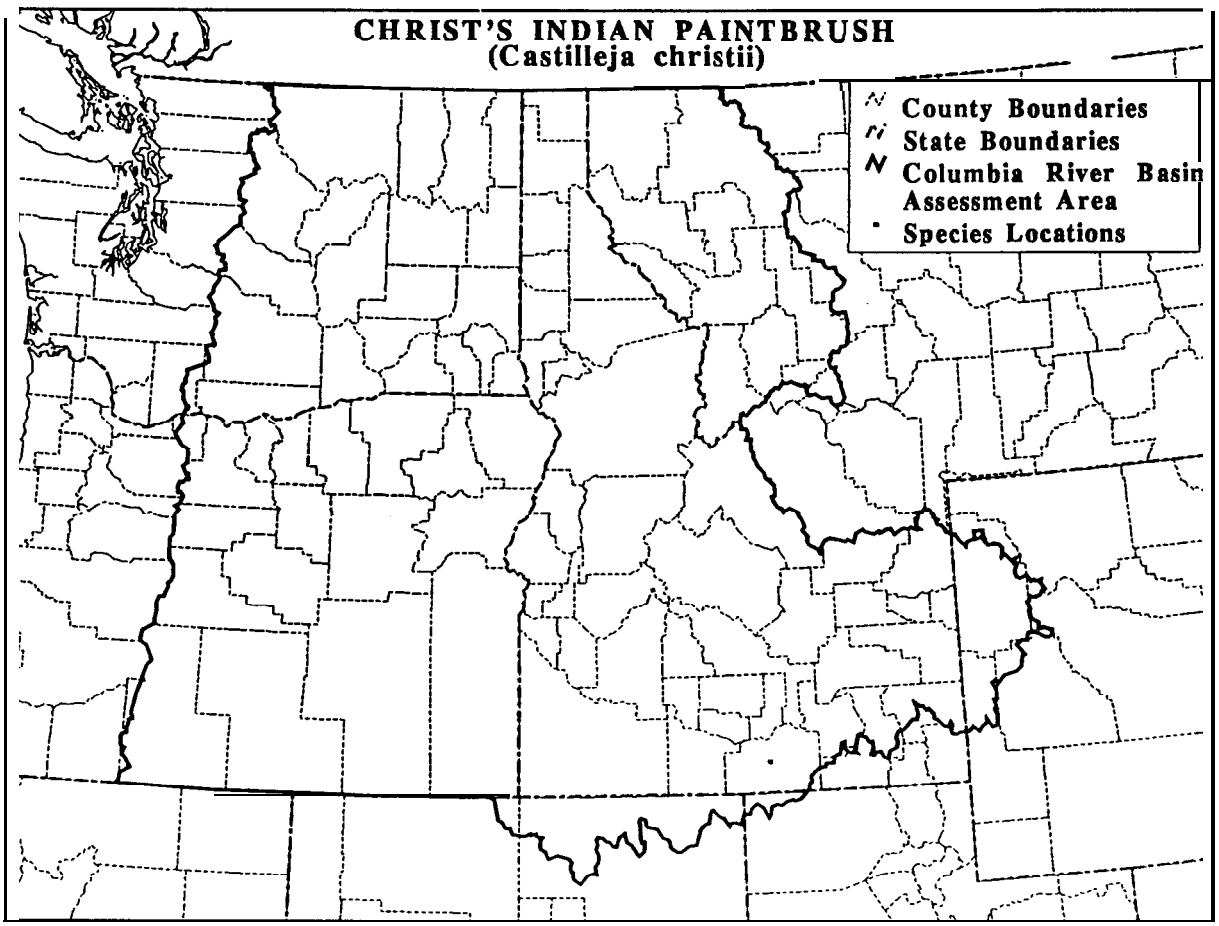
State Boundaries
Columbia River Basin
Assessment Area
Species Locations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(Castilleja christii)
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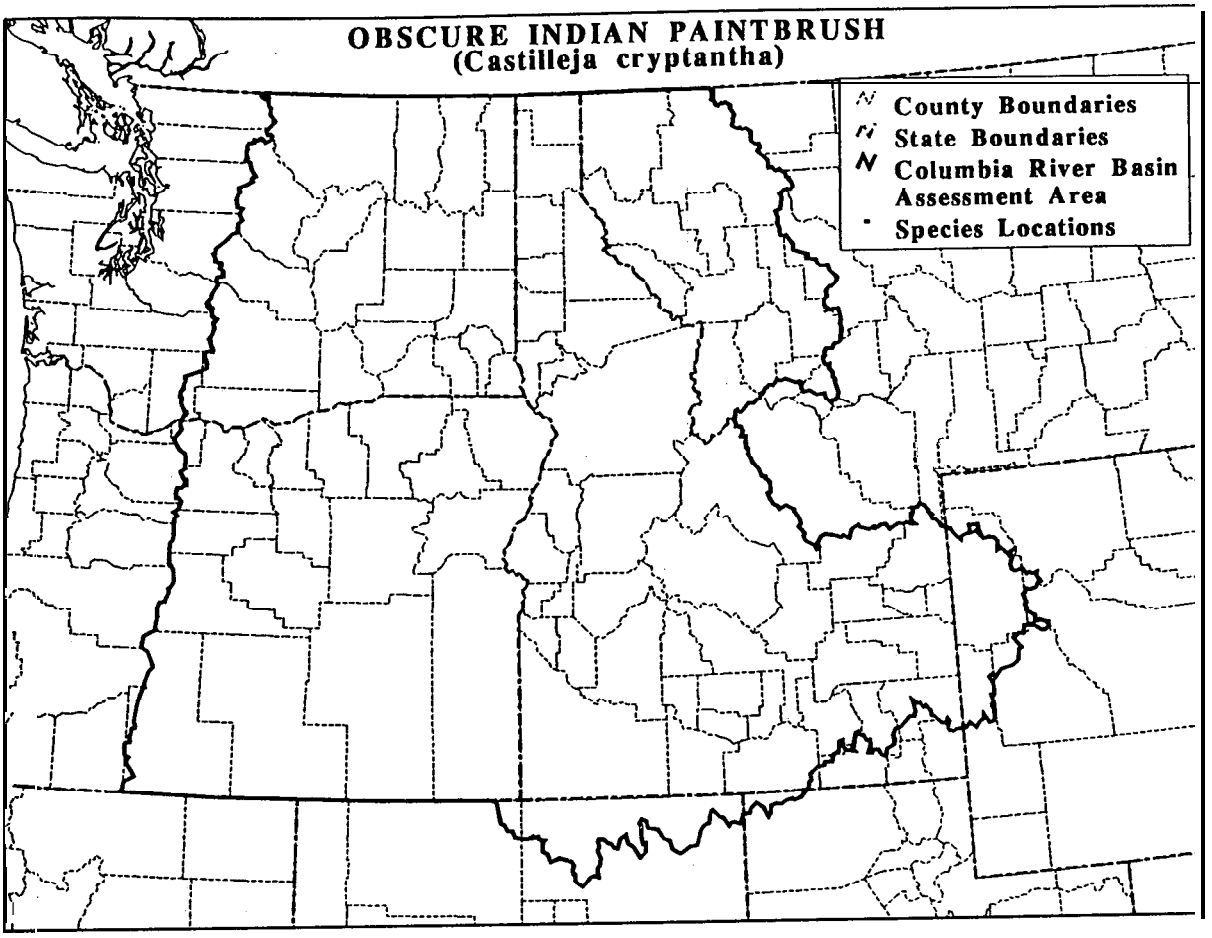
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


OBSCURE INDIAN PAINTBRUSH
(Castilleja cryptantha)
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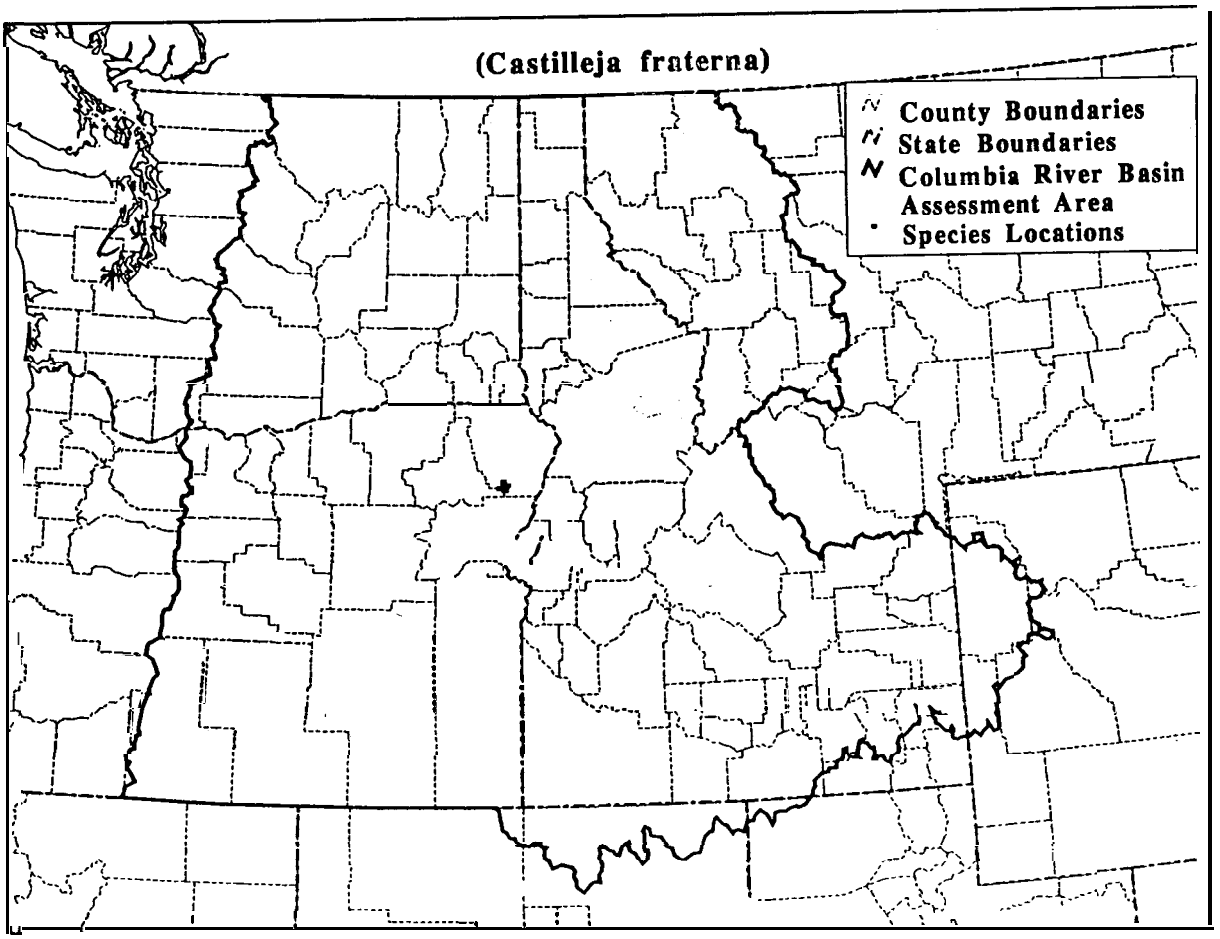
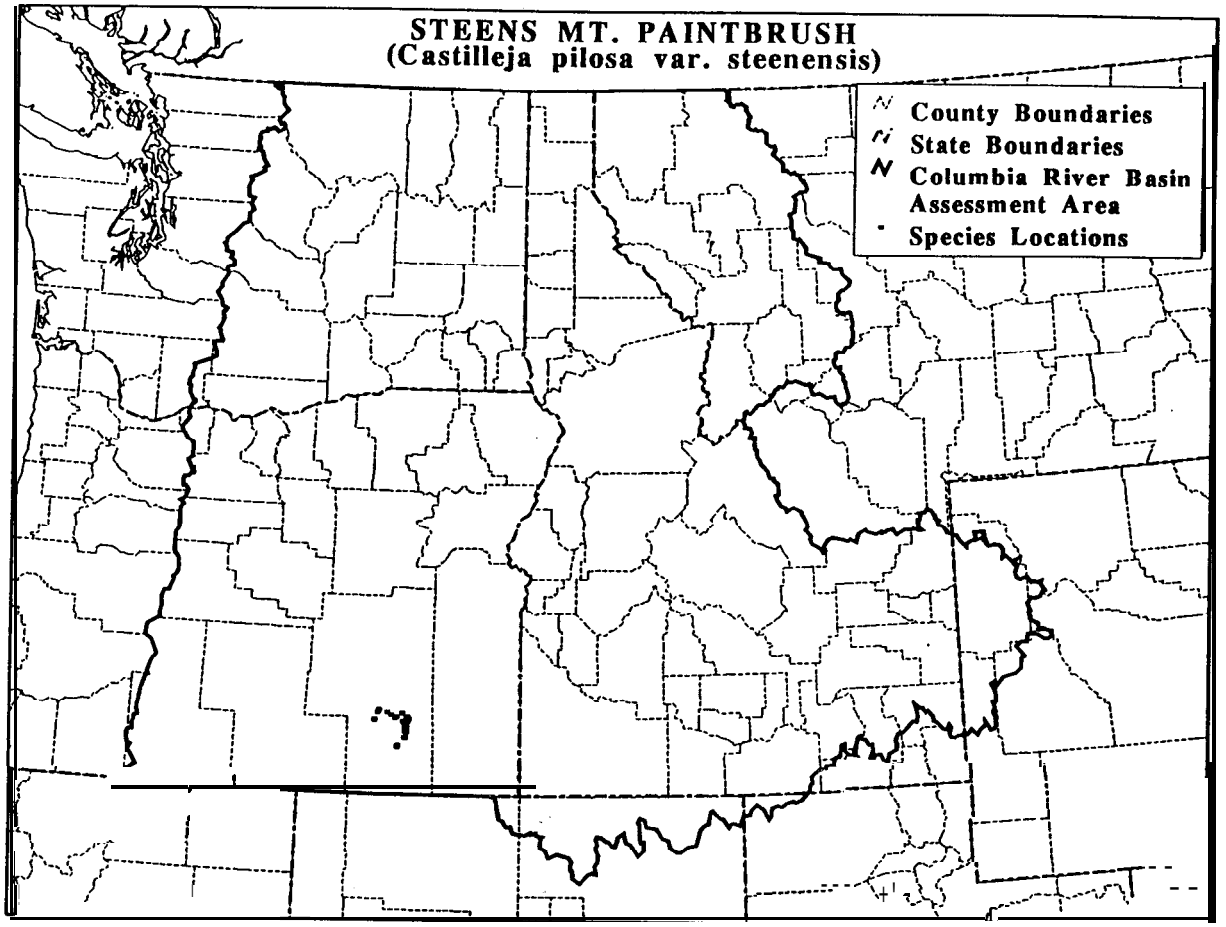
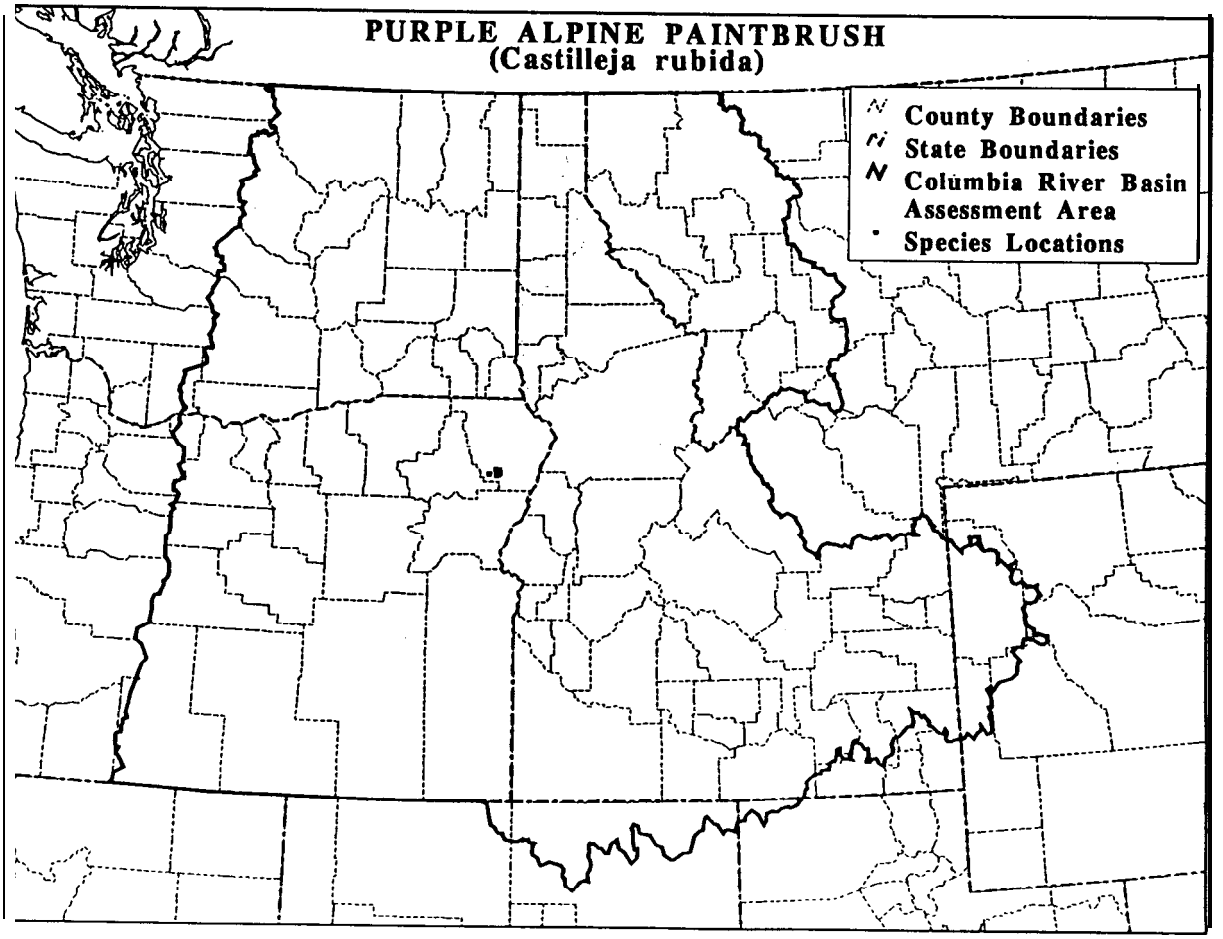
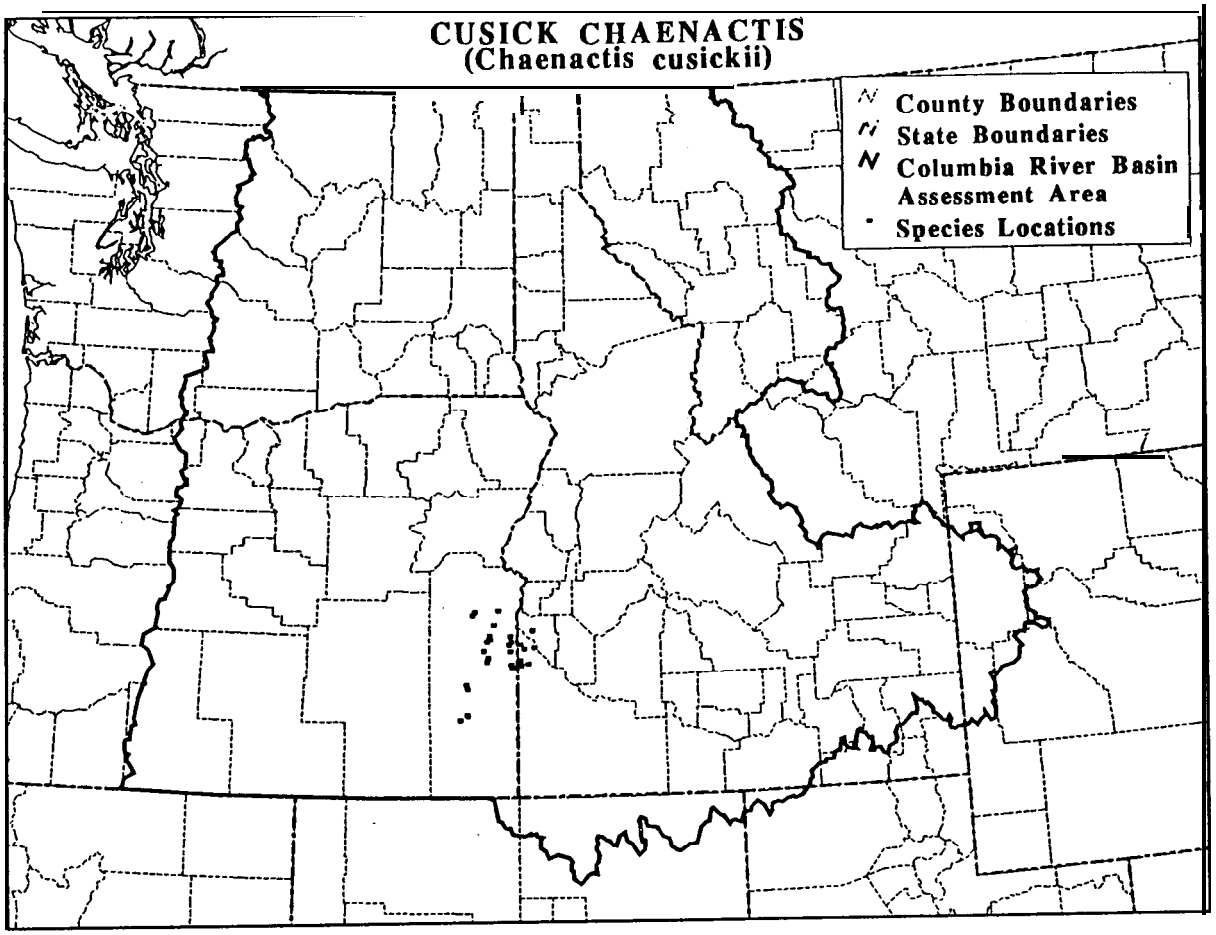
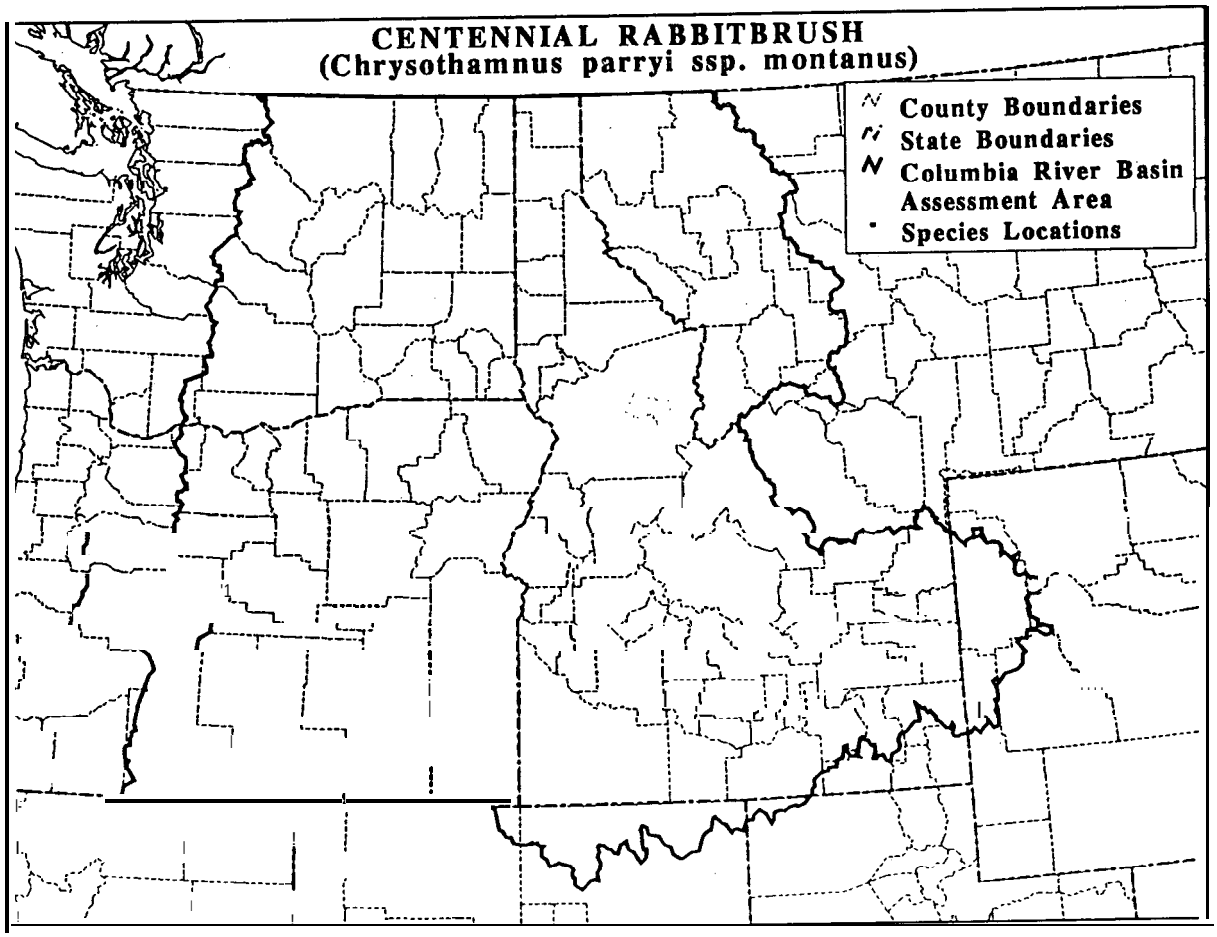
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

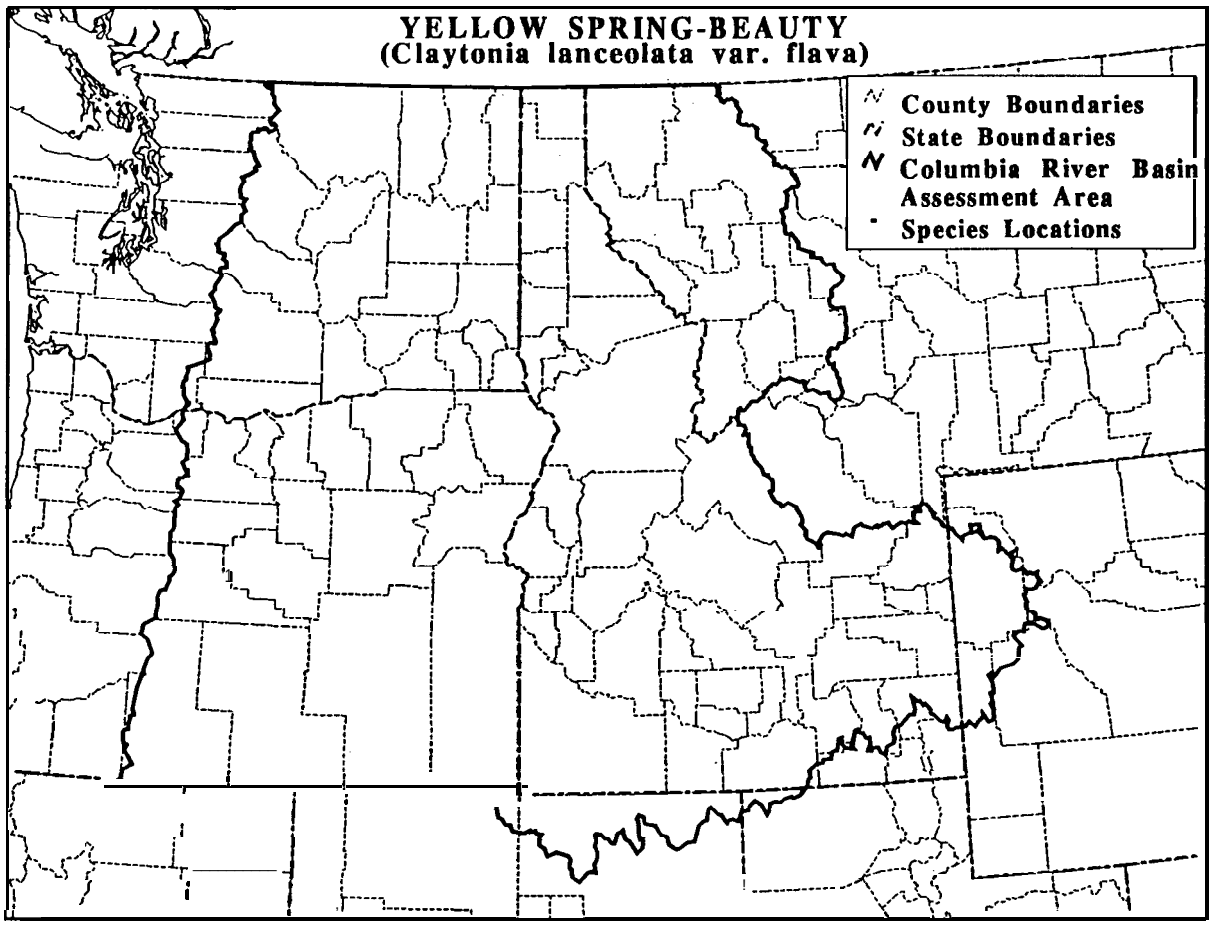

(Castilleja fraterna)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

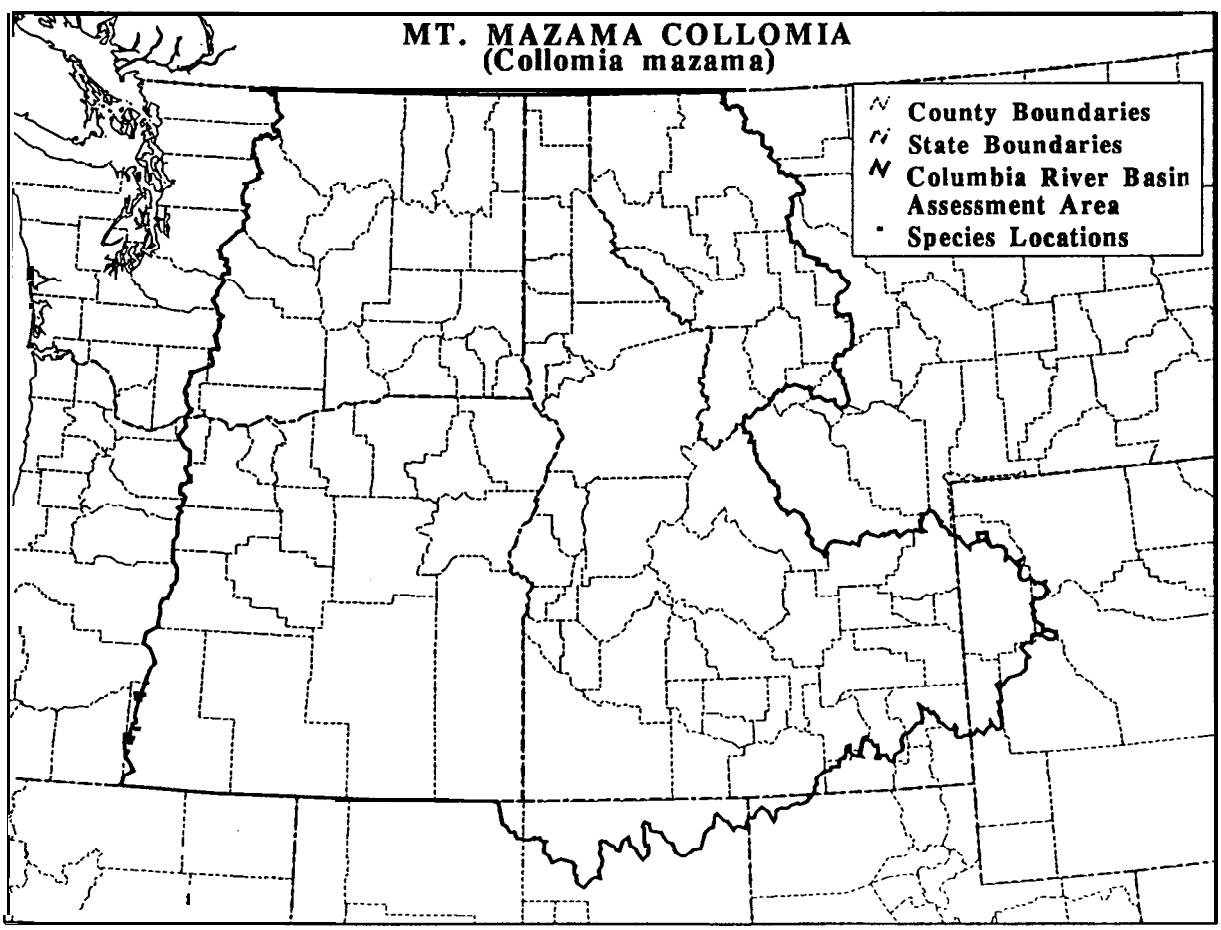

STEENS MT. PAINTBRUSH
(Castilleja pilosa var. steenensis)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

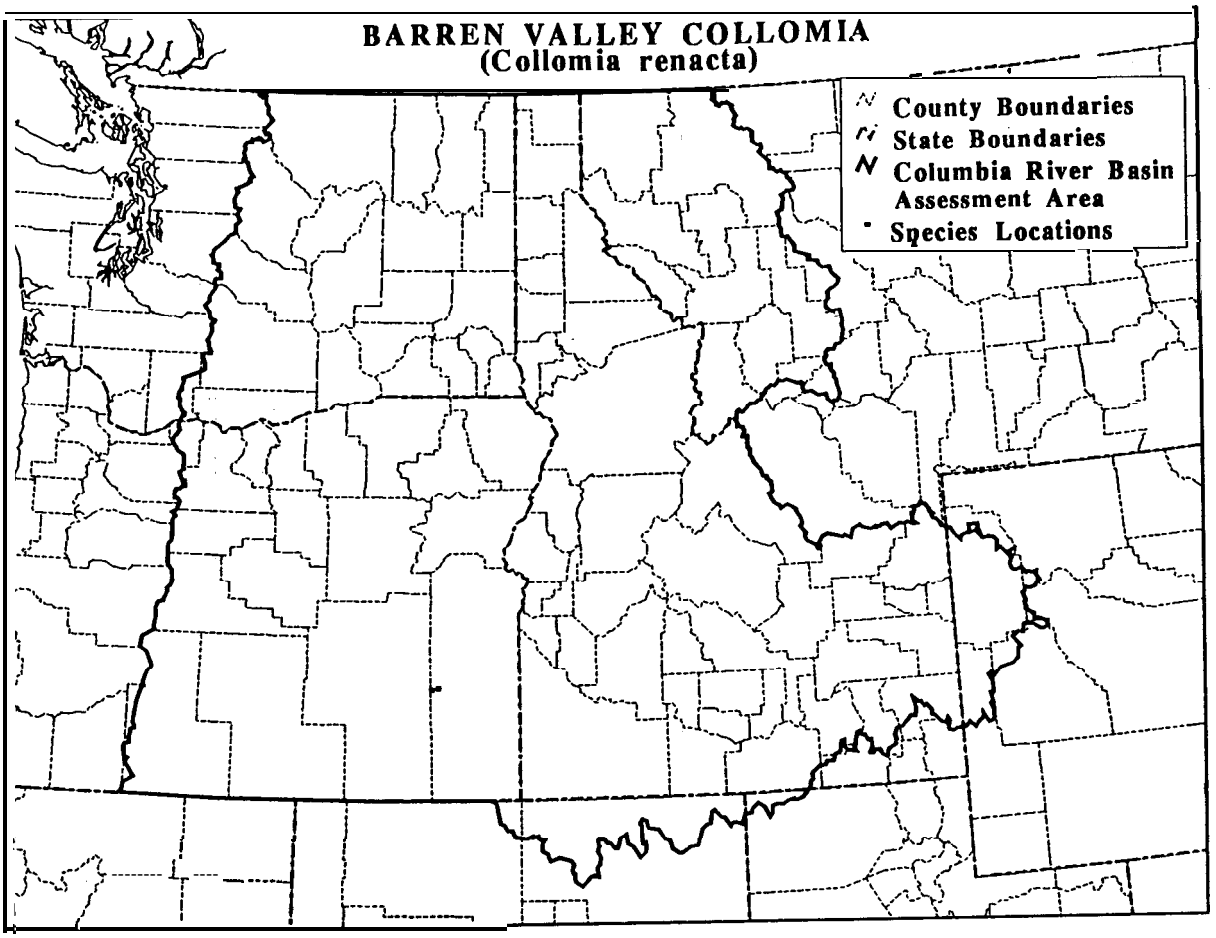

PURPLE ALPINE PAINTBRUSH
(Castilleja rubida)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

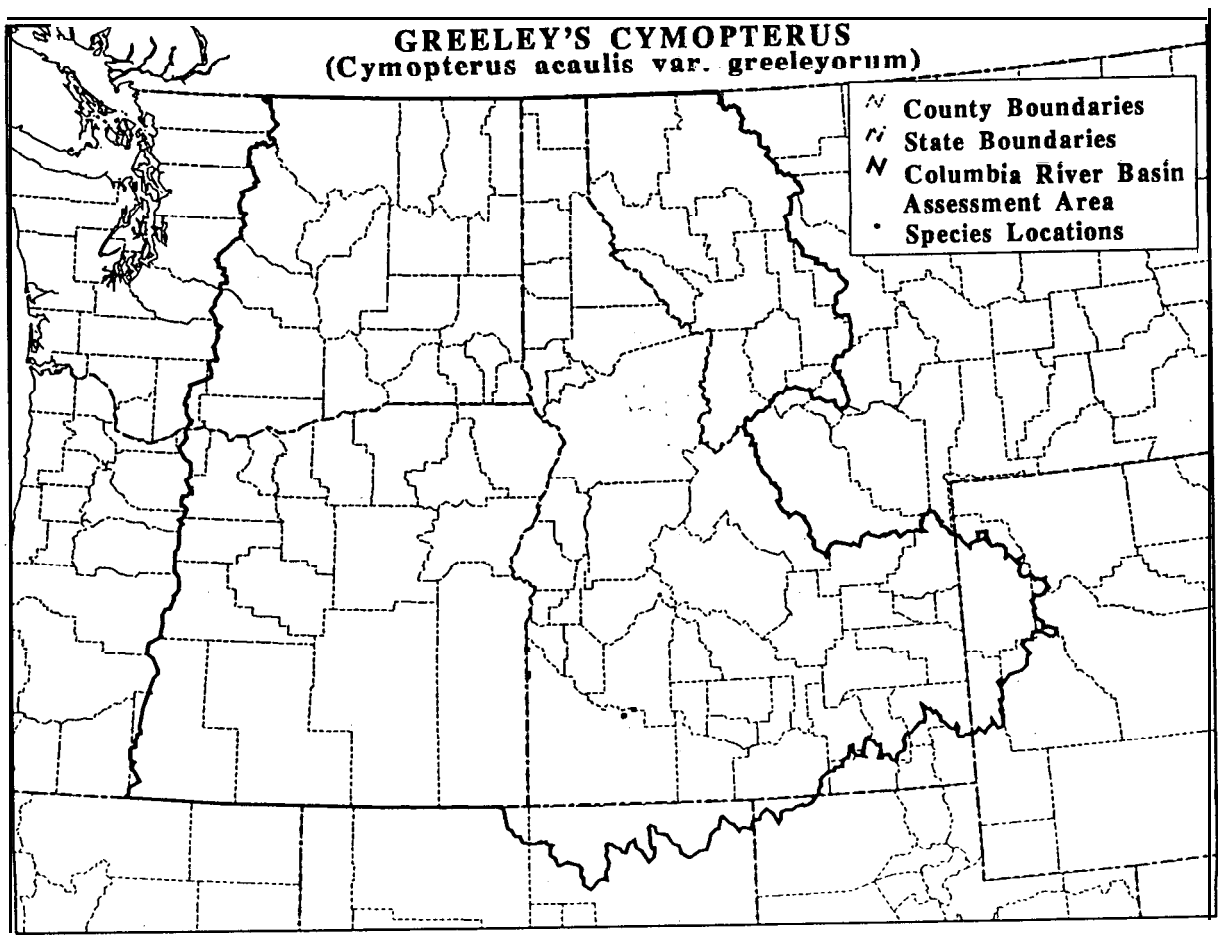

CUSICK CHAENACTIS
(Chaenactis cusickii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

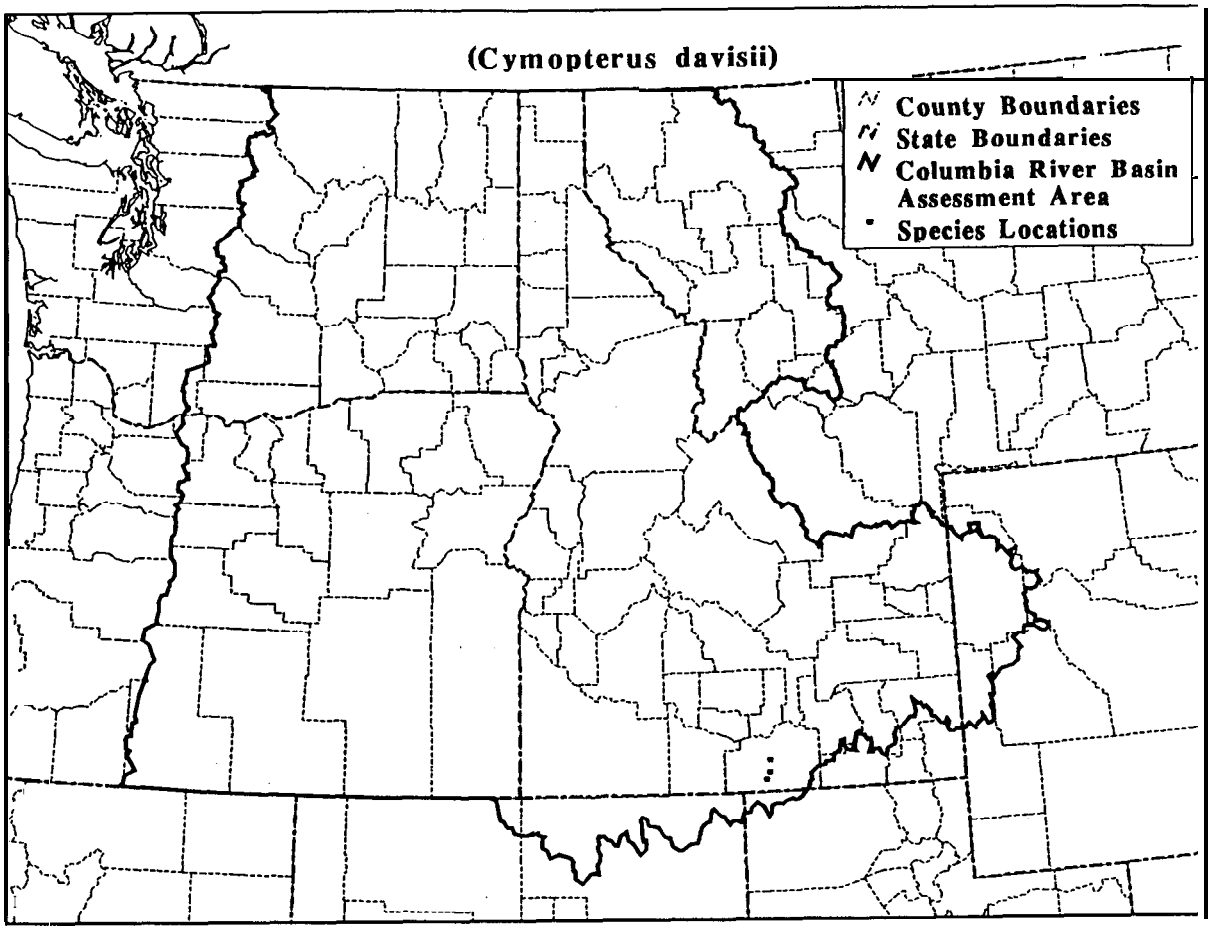

CENTENNIAL RABBITBRUSH
(Chrysothamnus parryi ssp. montanus)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

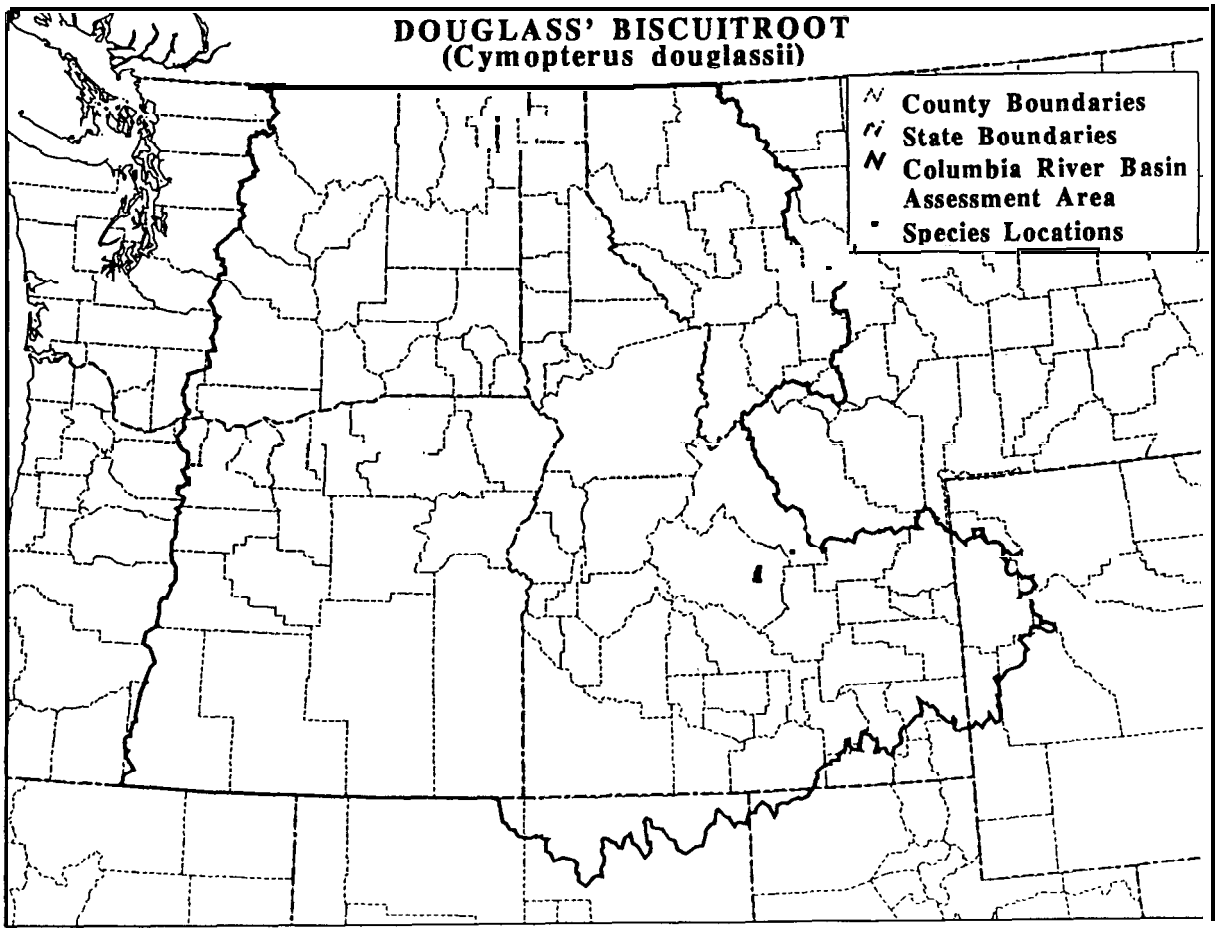

YELLOW SPRING-BEAUTY
(Claytonia lanceolata var. flava)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

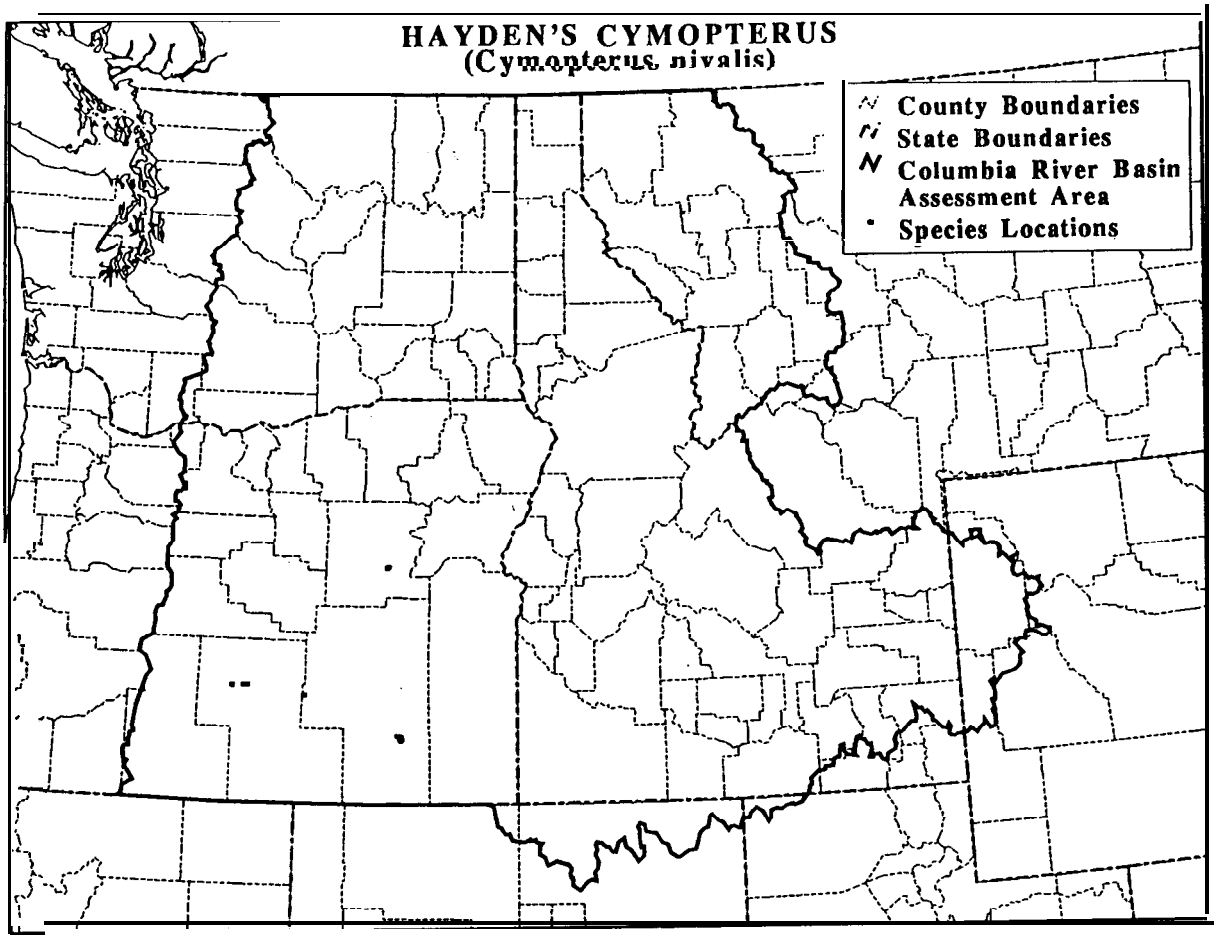

MT. MAZAMA COLLOMIA
(Collomia mazama)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

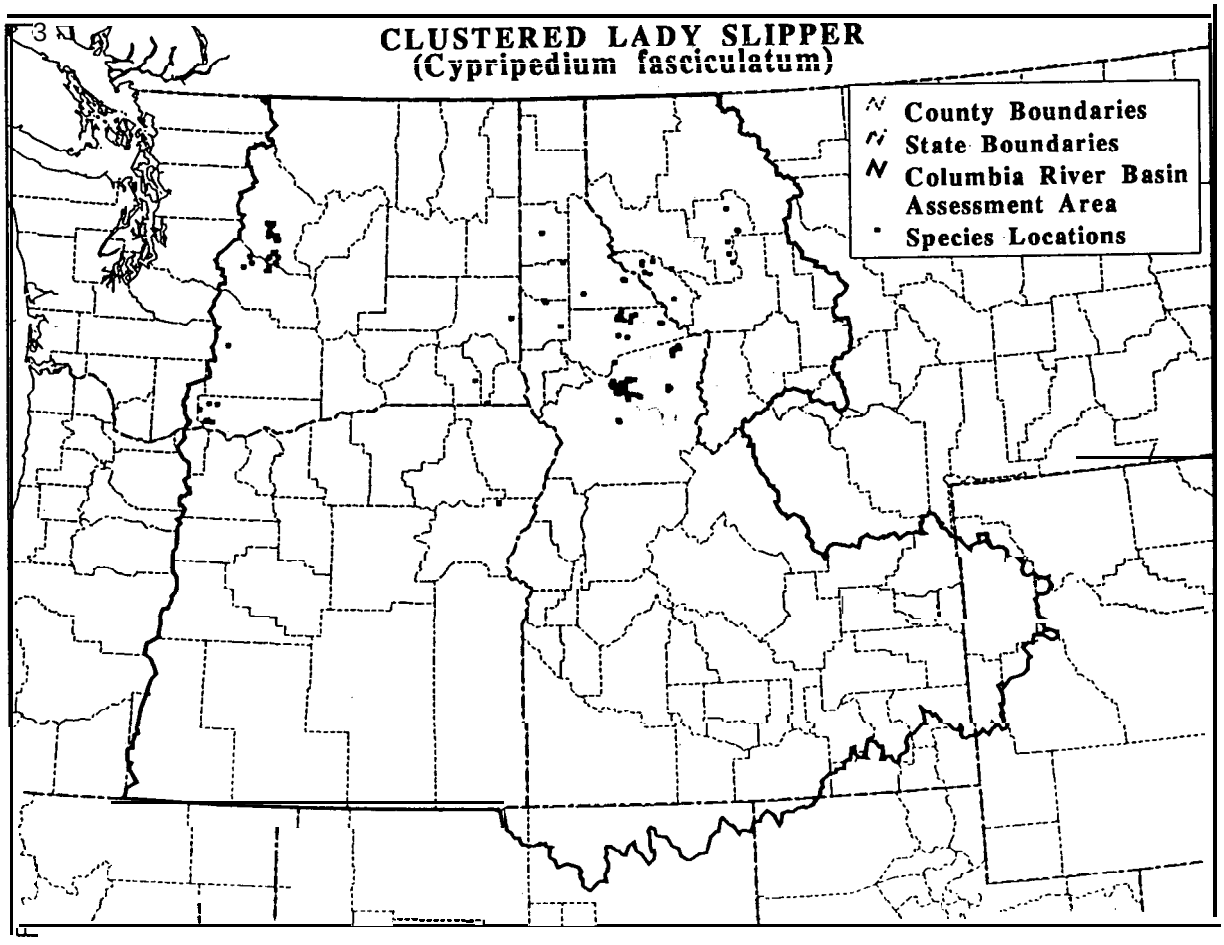

BARREN VALLEY COLLOMIA
(Collomia renacta)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

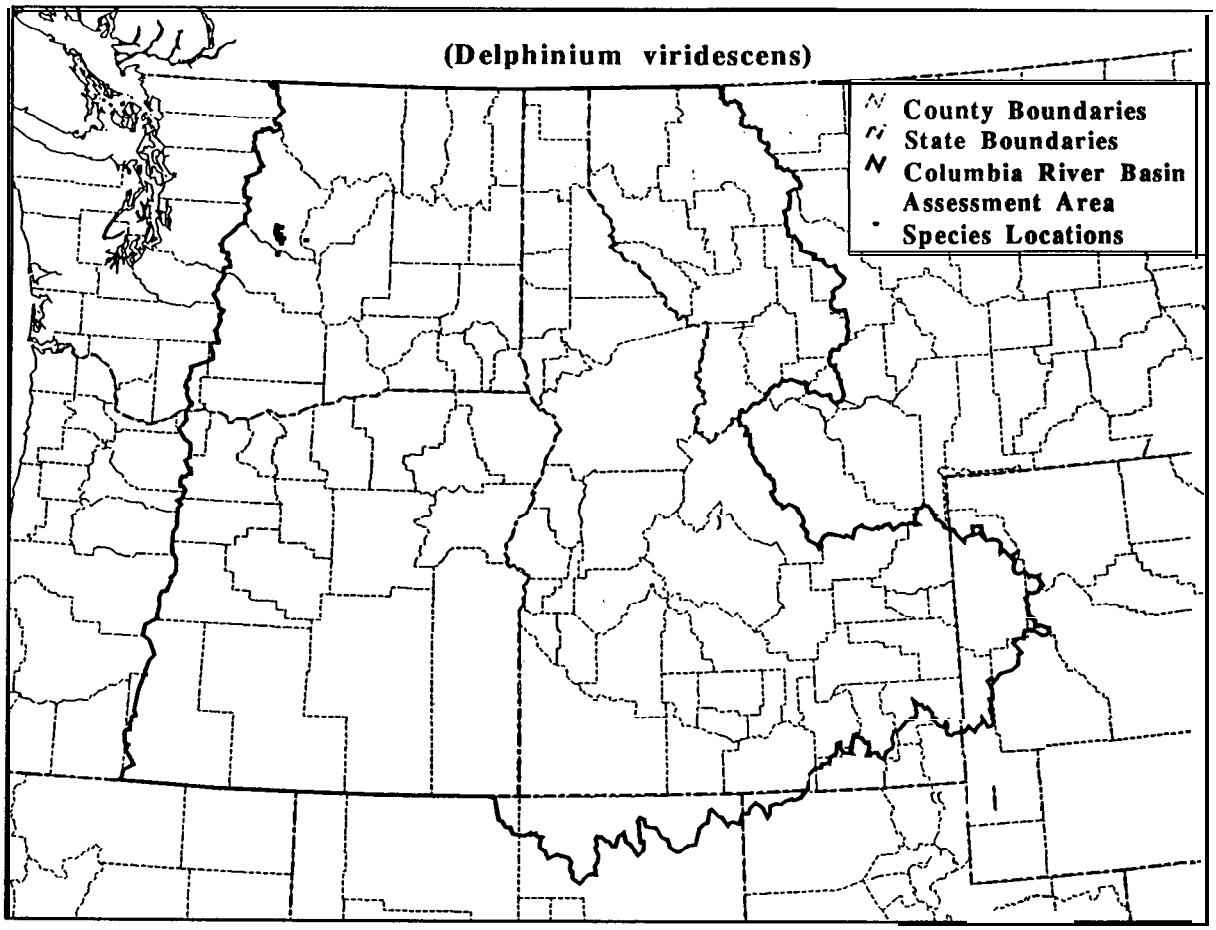

GREELEY'S CYMOPTERUS
(Cymopterus acaulis var. greeleyorum)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

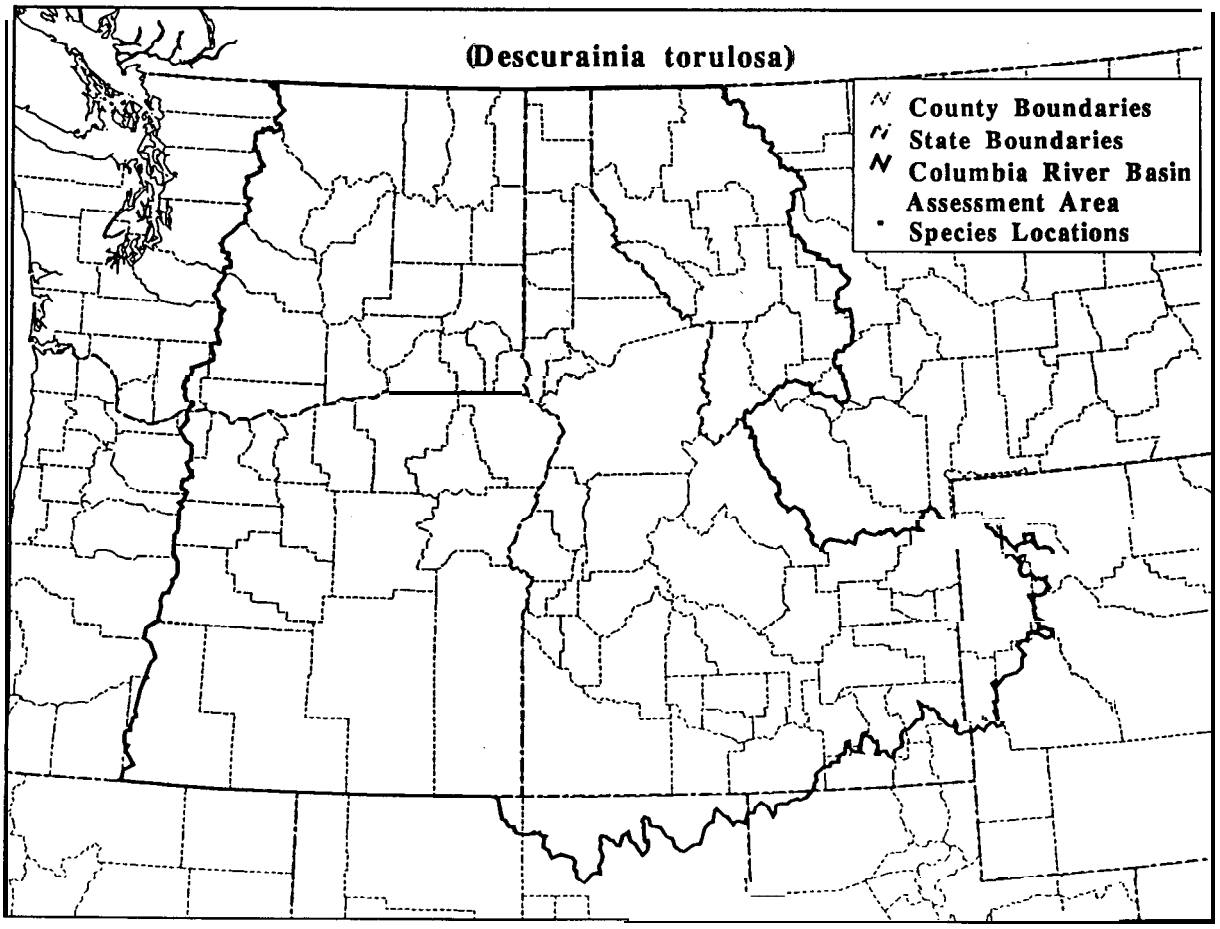

(Cymopterus davisii)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations

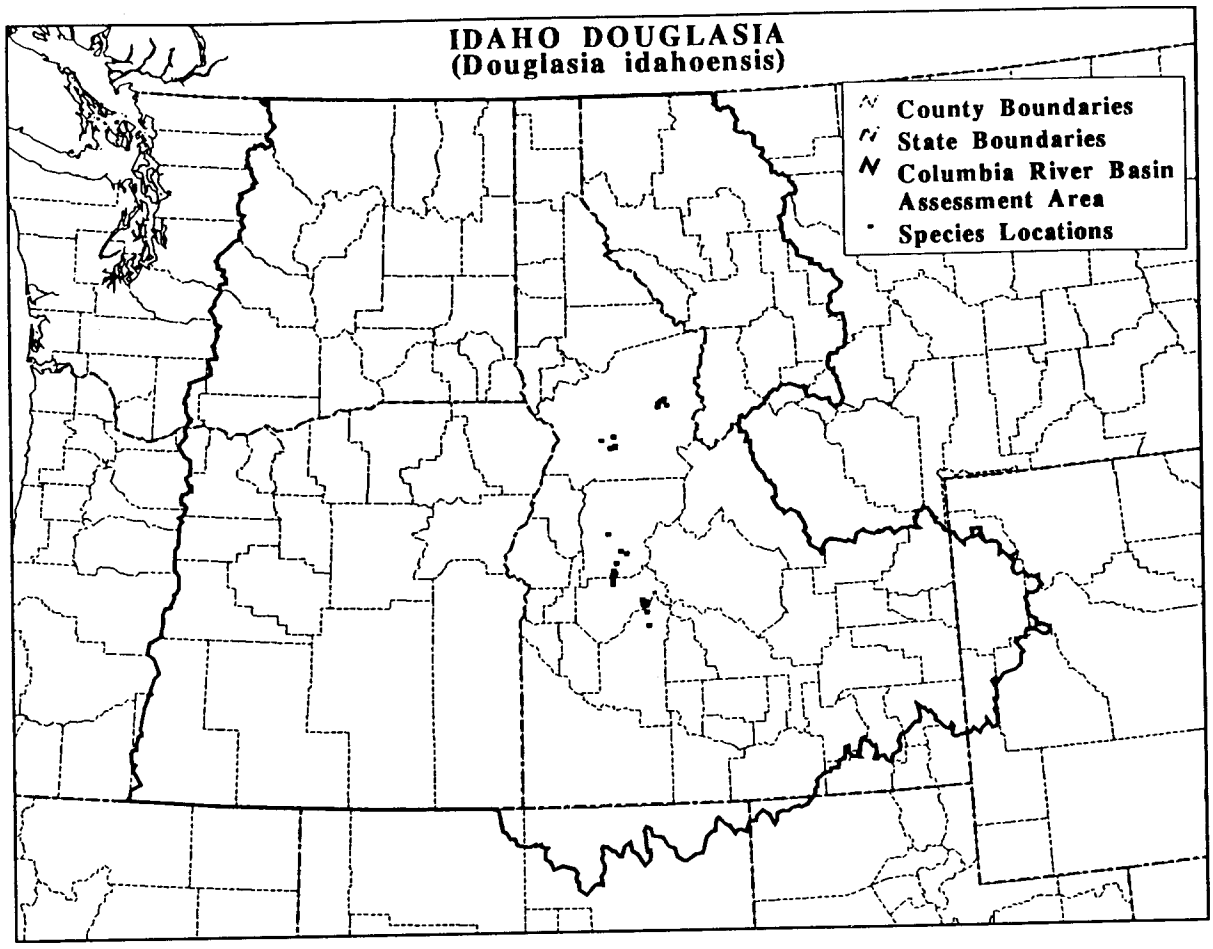

DOUGLASS' BISCUITROOT
(Cymopterus douglassii)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations

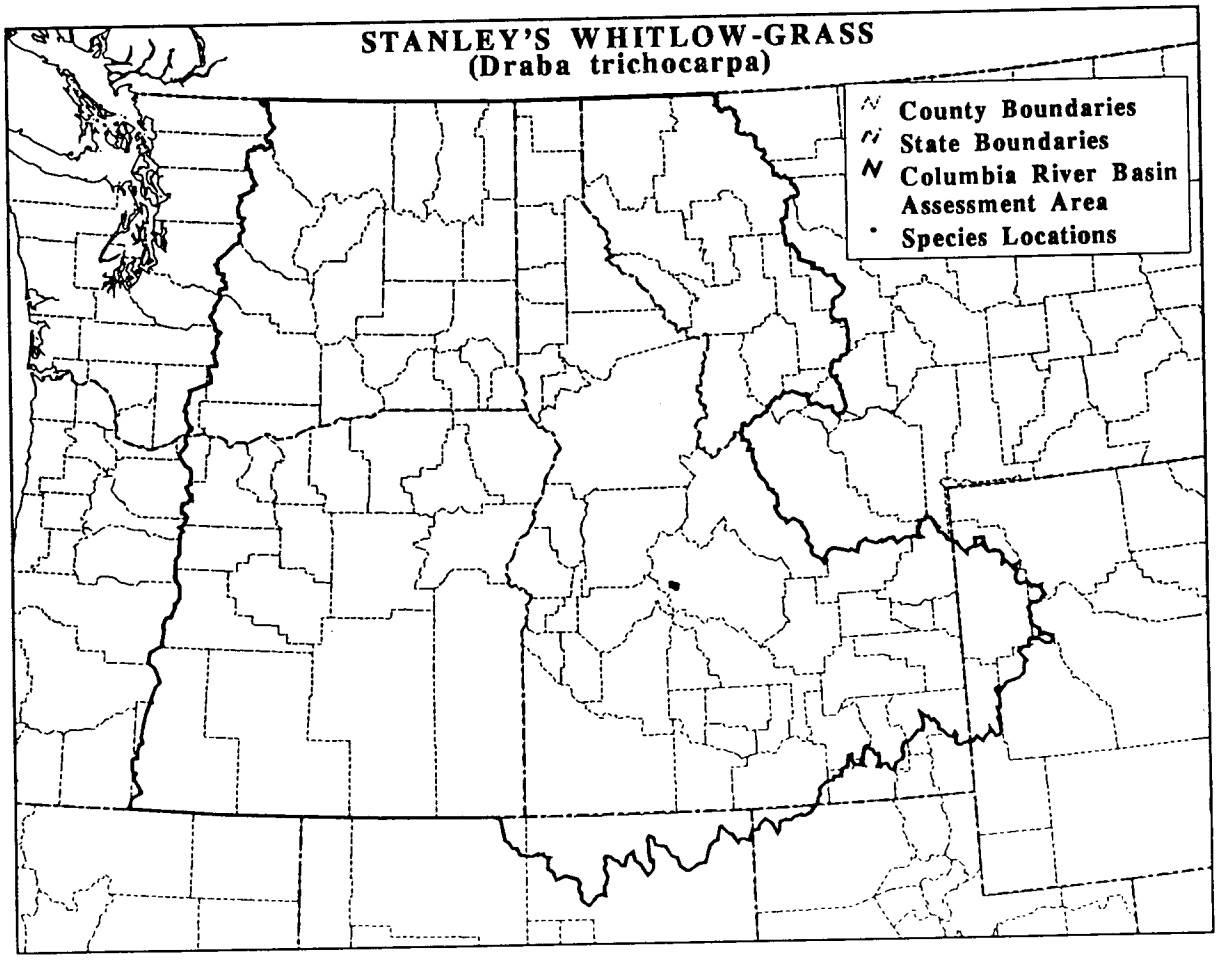

HAYDEN'S CYMOPTERUS
(Cymopterus nivalis)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations

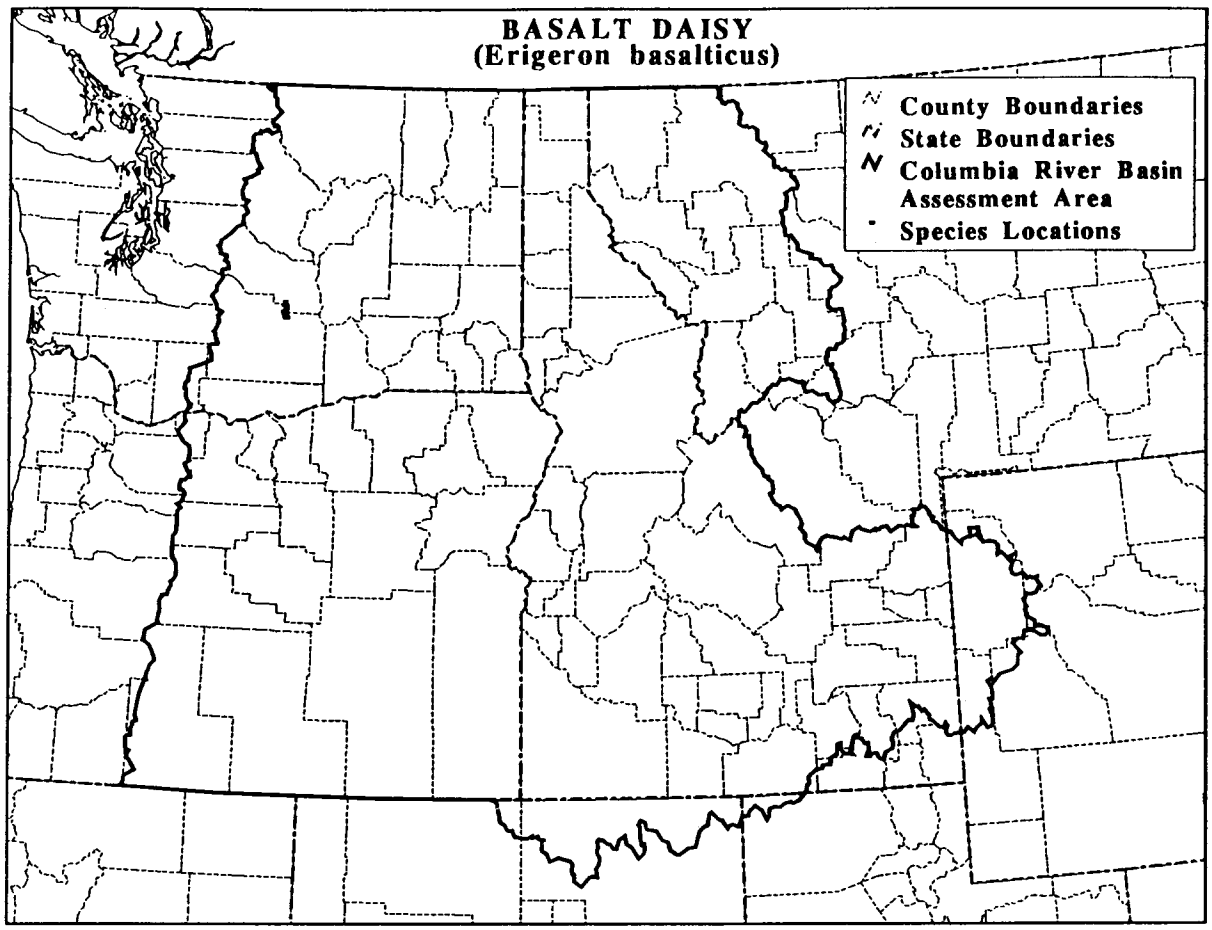

CLUSTERED LADY SLIPPER
(Cypripedium fasciculatum)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations

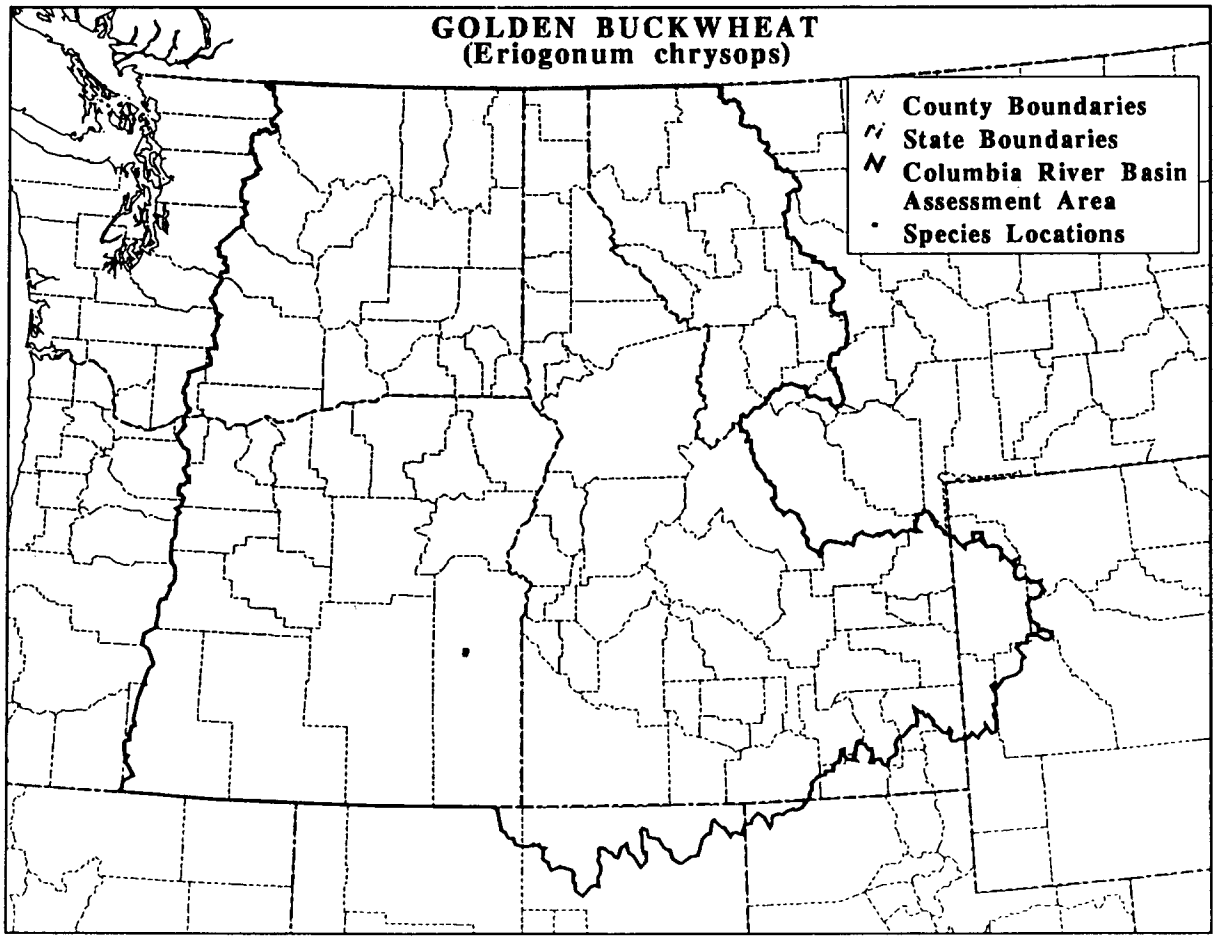

(Delphinium viridescens)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

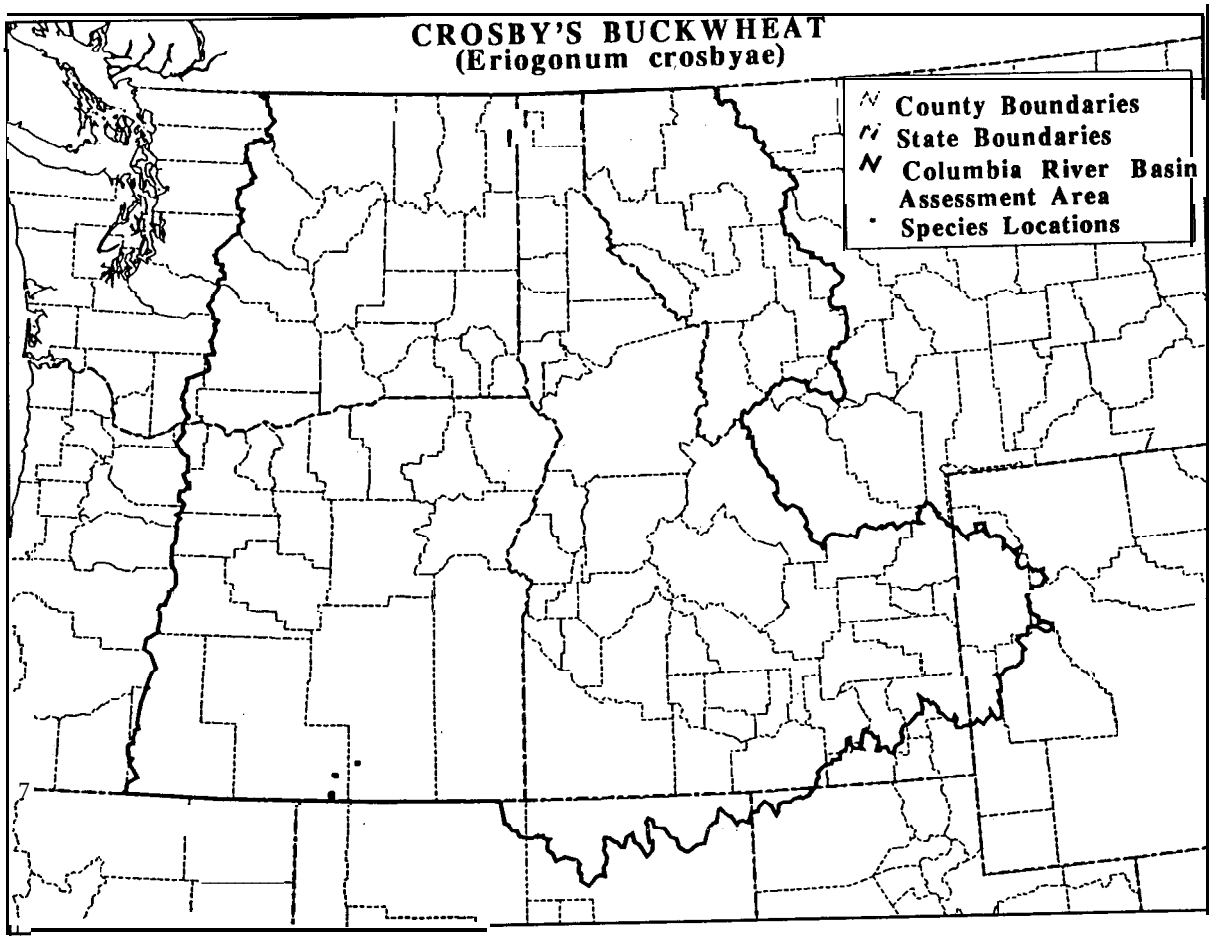

(Descurainia torulosa)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

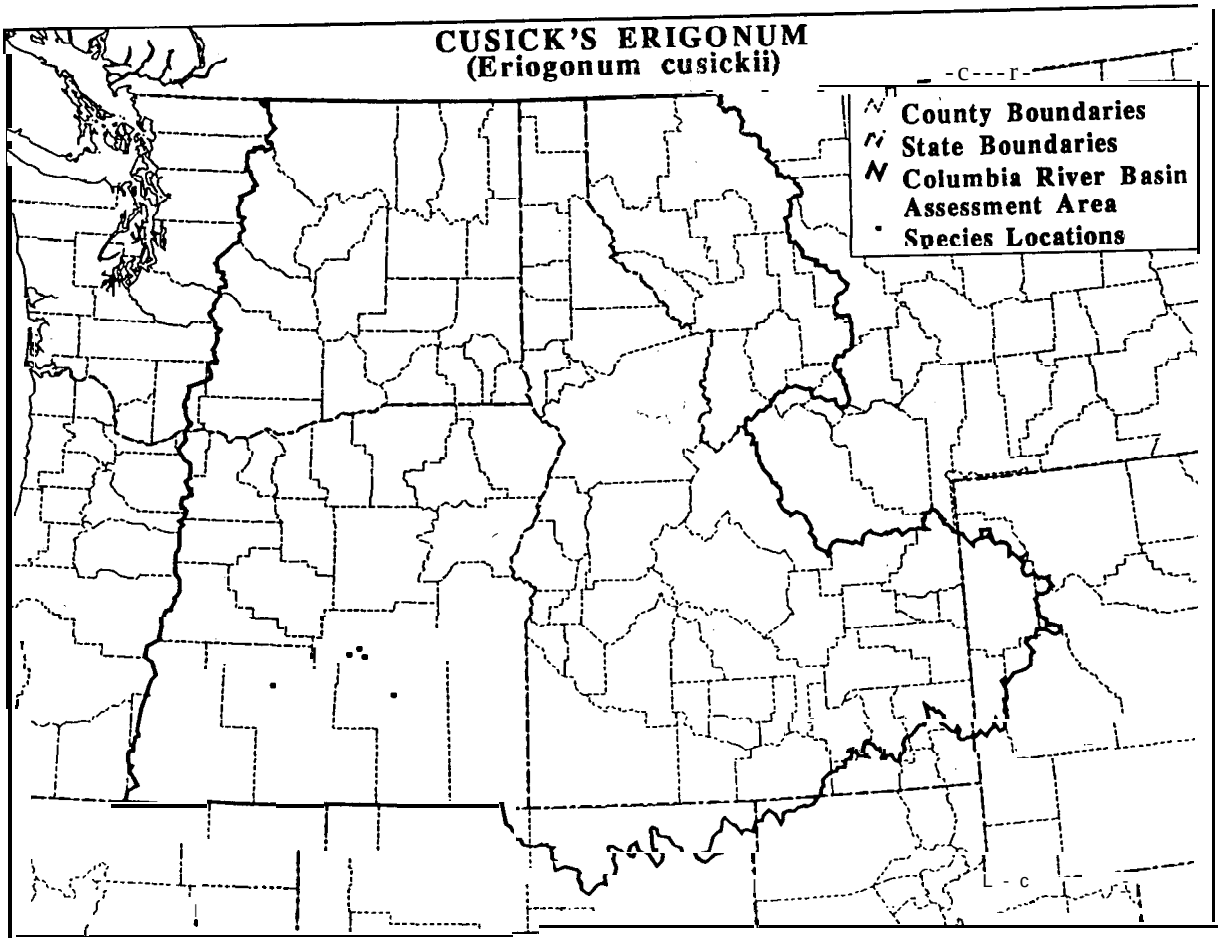

IDAHO DOUGLASIA
(Douglasia idahoensis)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

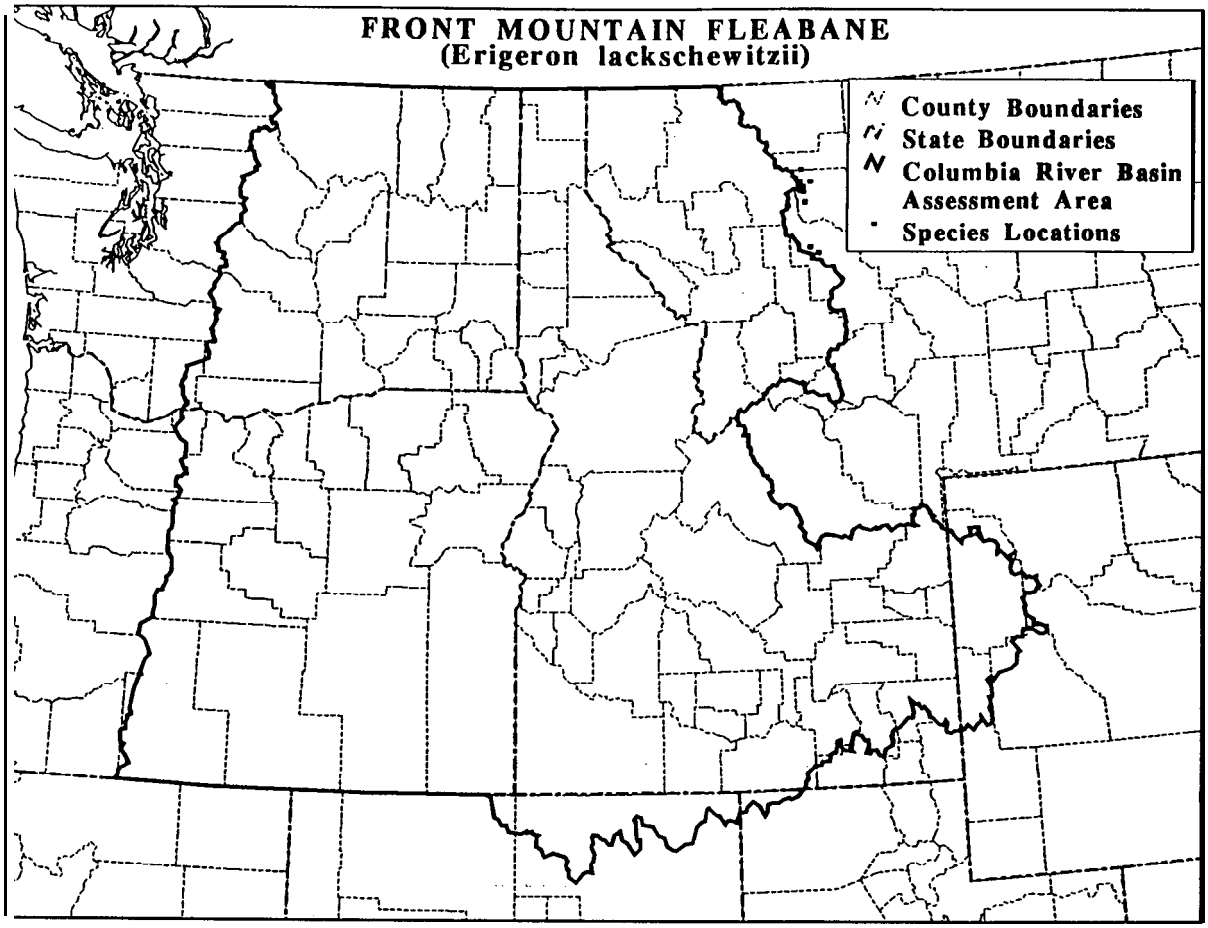

STANLEY'S WHITLOW-GRASS
(Draba trichocarpa)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

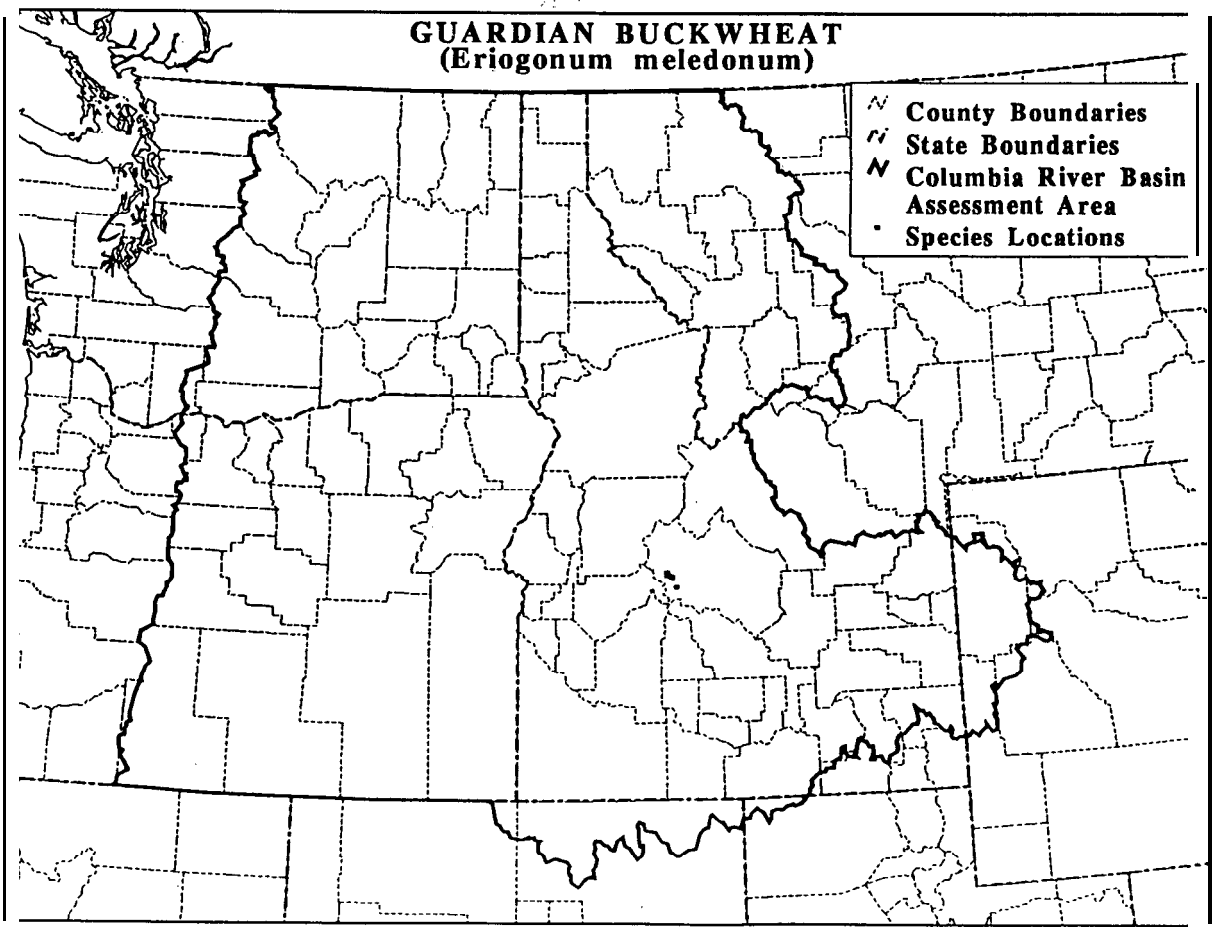

BASALT DAISY
(Erigeron basalticus)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

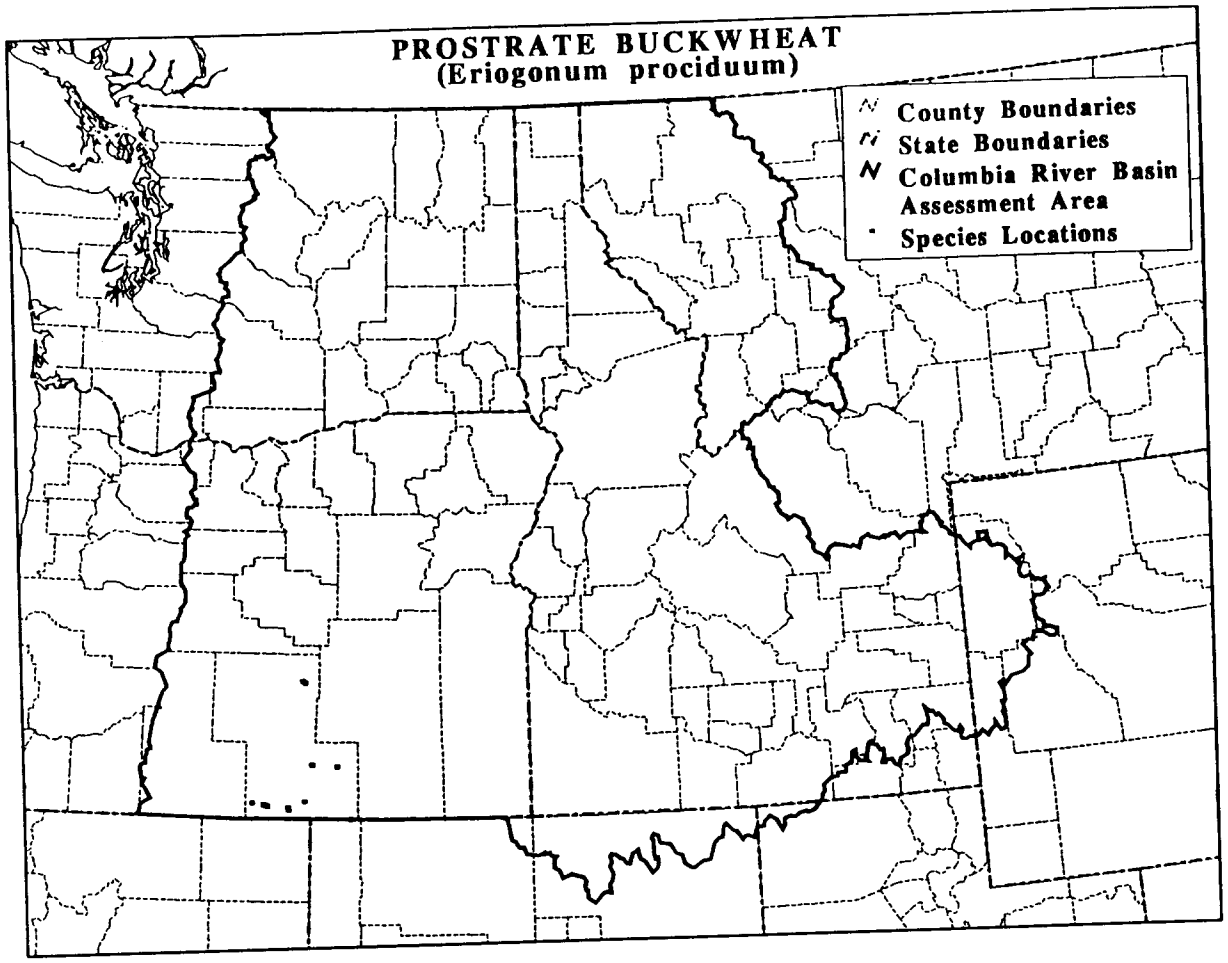

GOLDEN BUCKWHEAT
(Eriogonum chrysops)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


CROSBY'S BUCKWHEAT
(Eriogonum crosbyae)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

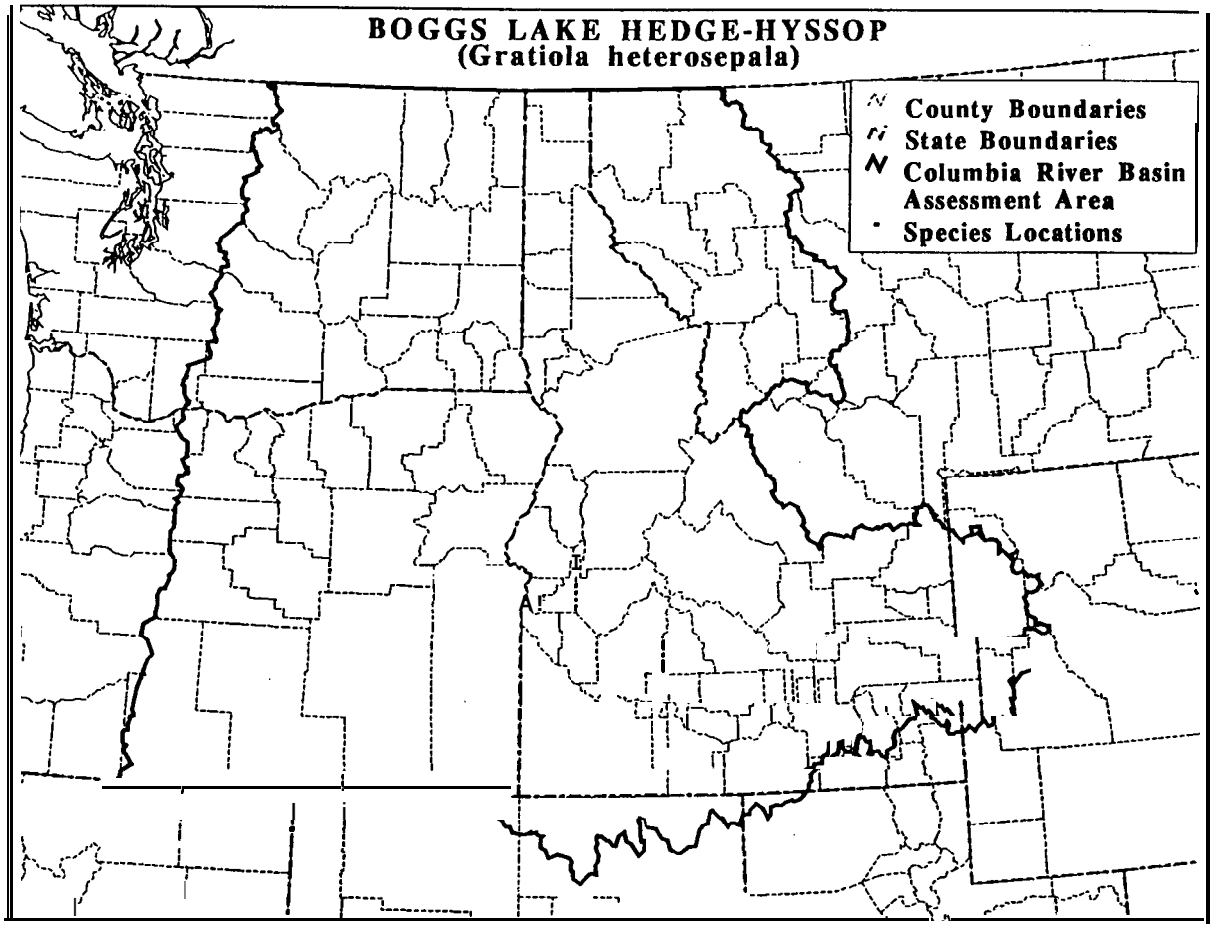

CUSICK'S ERIGONUM
(Eriogonum cusickii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

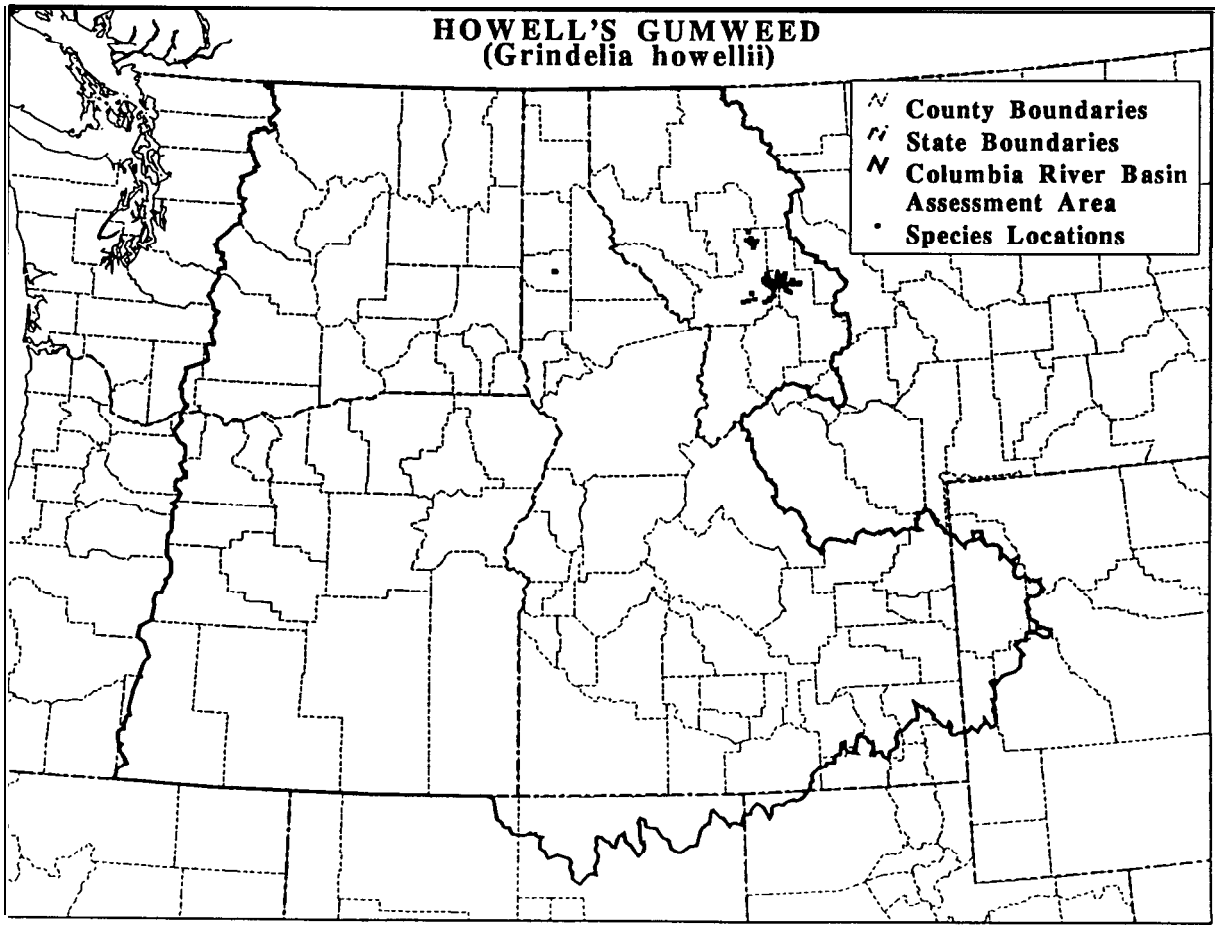

FRONT MOUNTAIN FLEABANE
(Erigeron lackschewitzii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

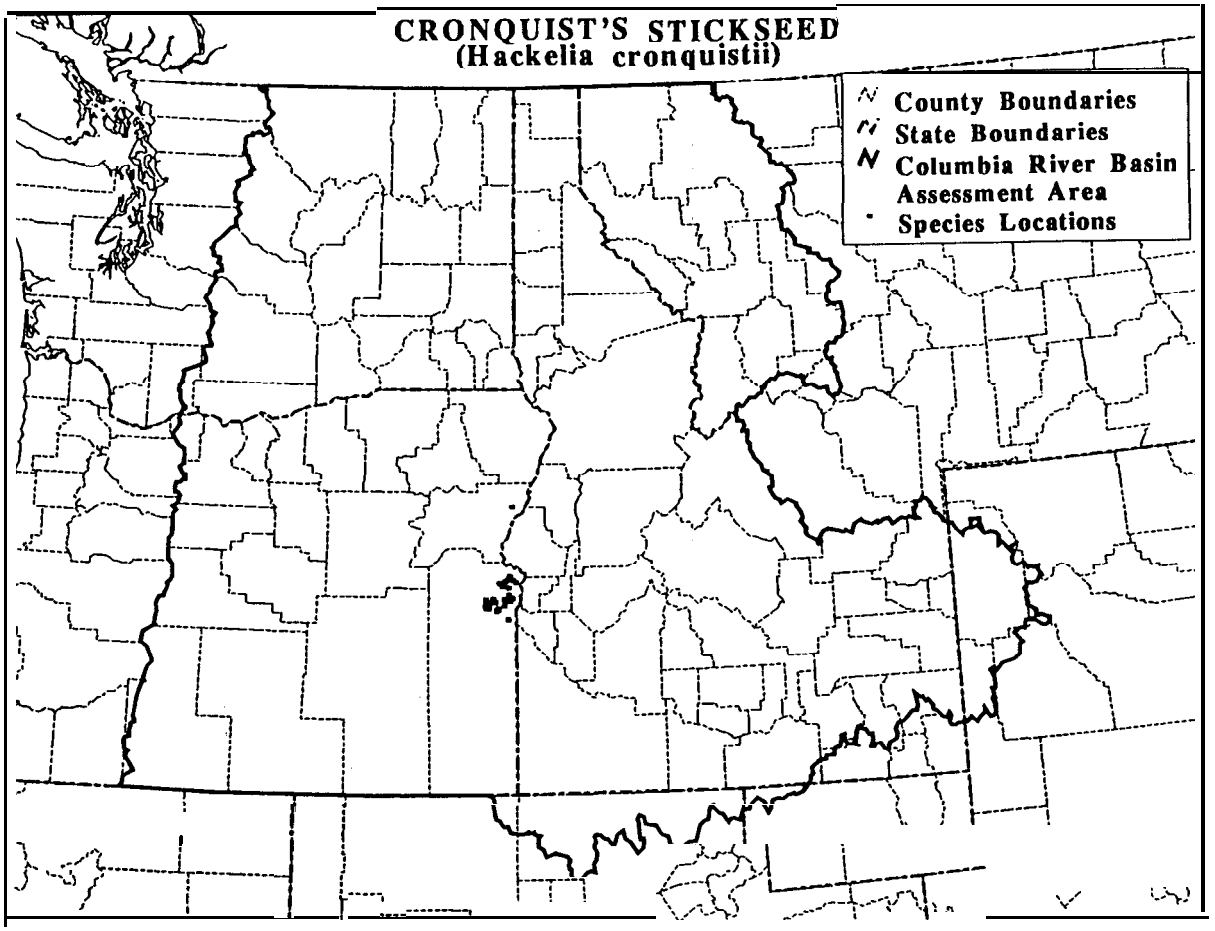

GUARDIAN BUCKWHEAT
(Eriogonum meledonum)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

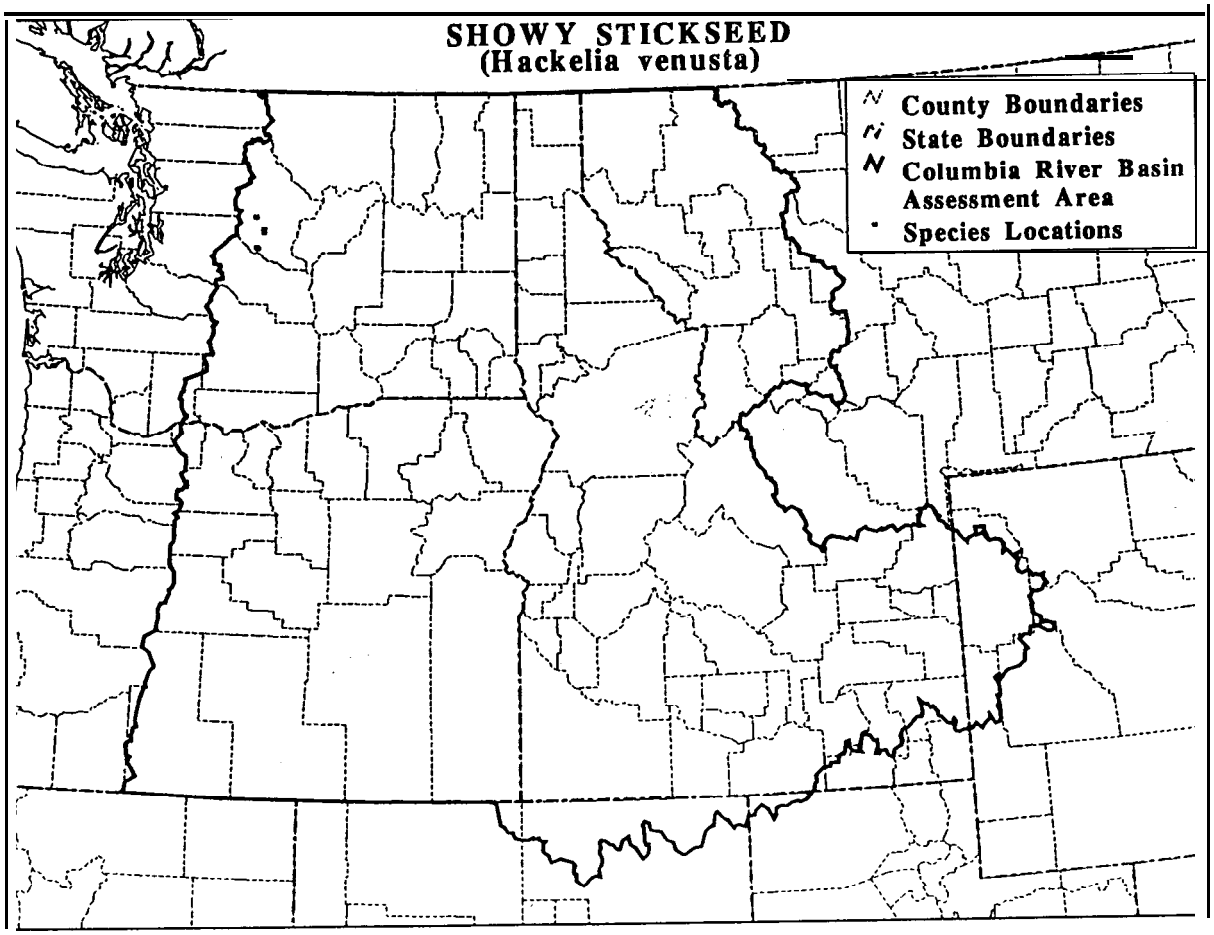

PROSTRATE BUCKWHEAT
(Eriogonum prociduum)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

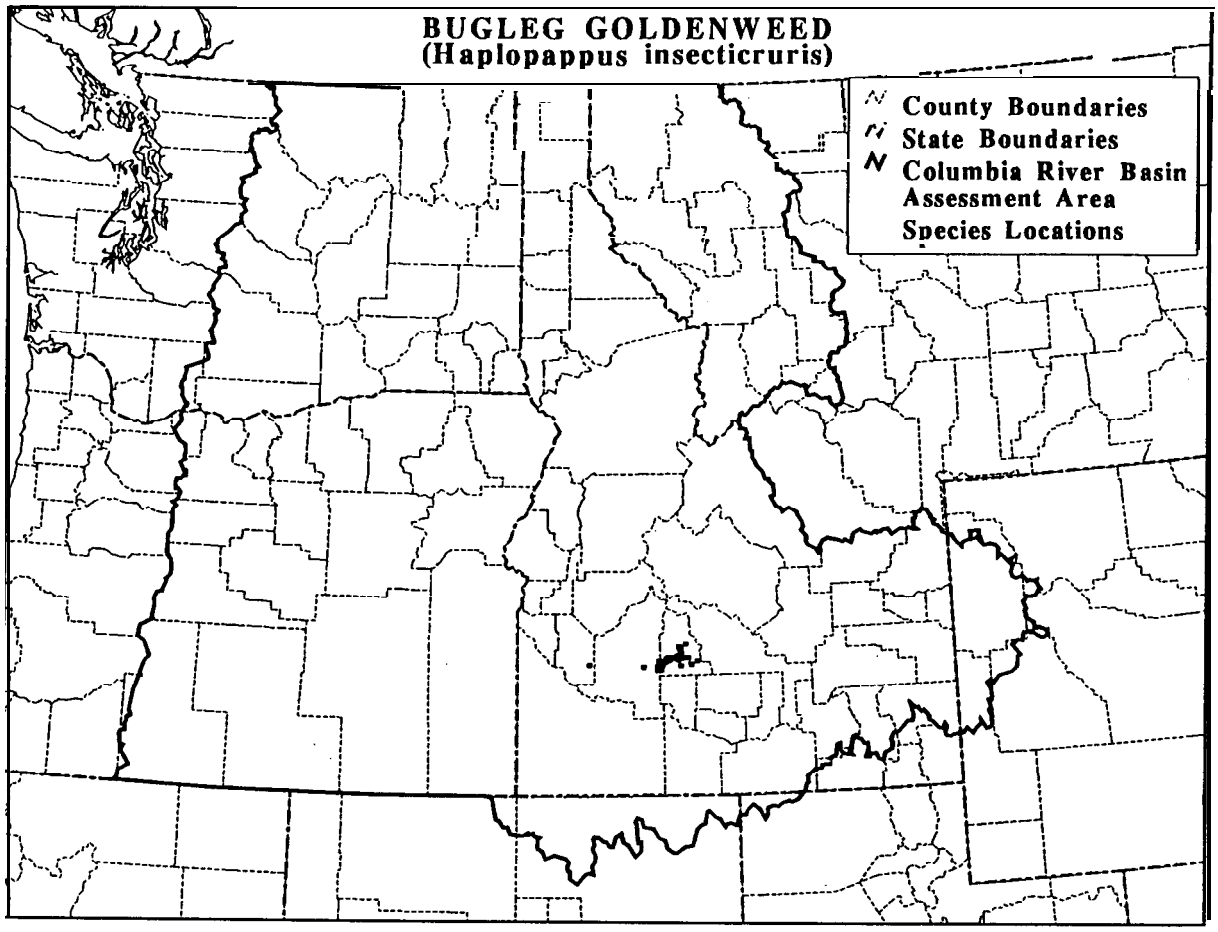

SALMON RIVER FLEABANE
(Erigeron salmonensis)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

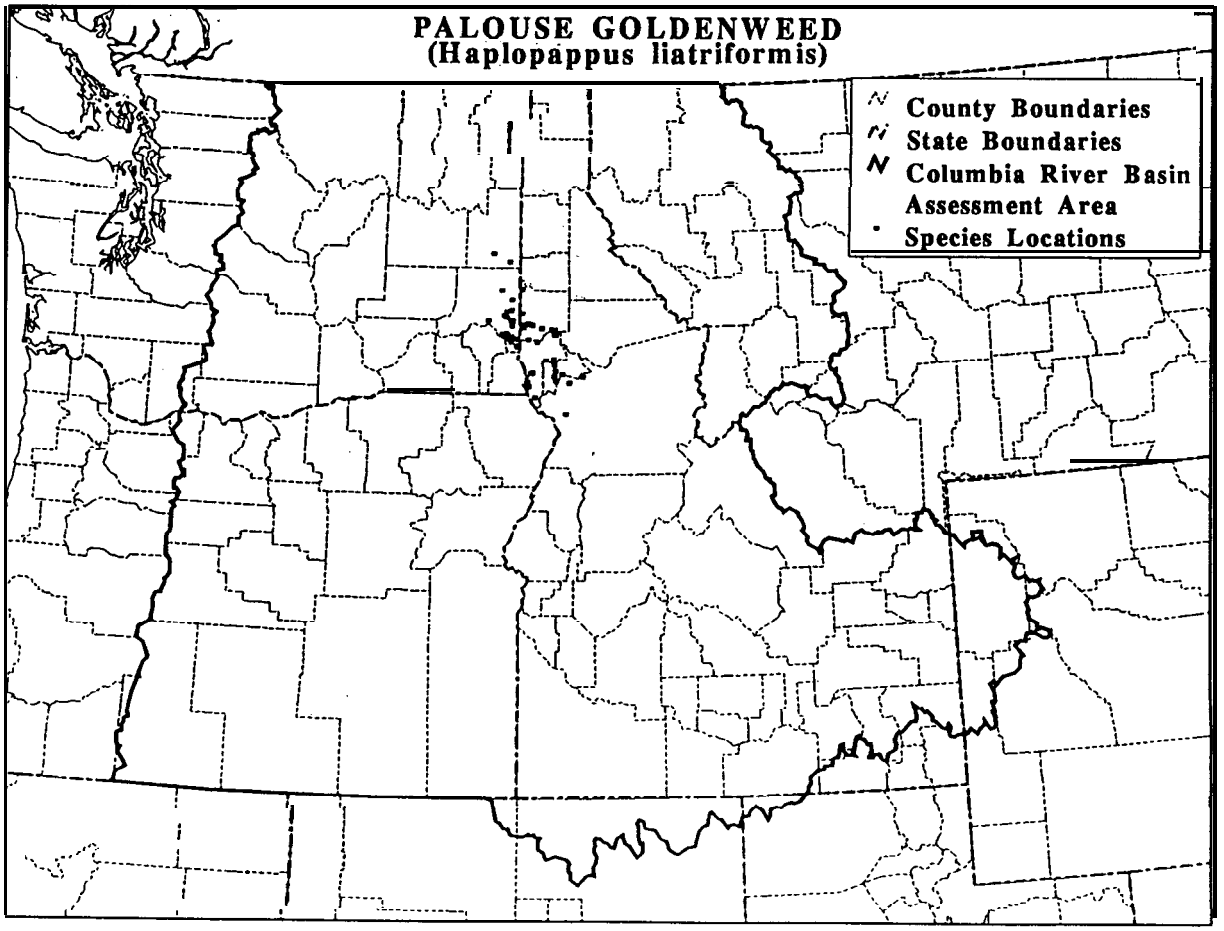

BOGGS LAKE HEDGE-HYSSOP
(Gratiola heterosepala)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


HOWELL'S GUMWEED
(Grindelia howellii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

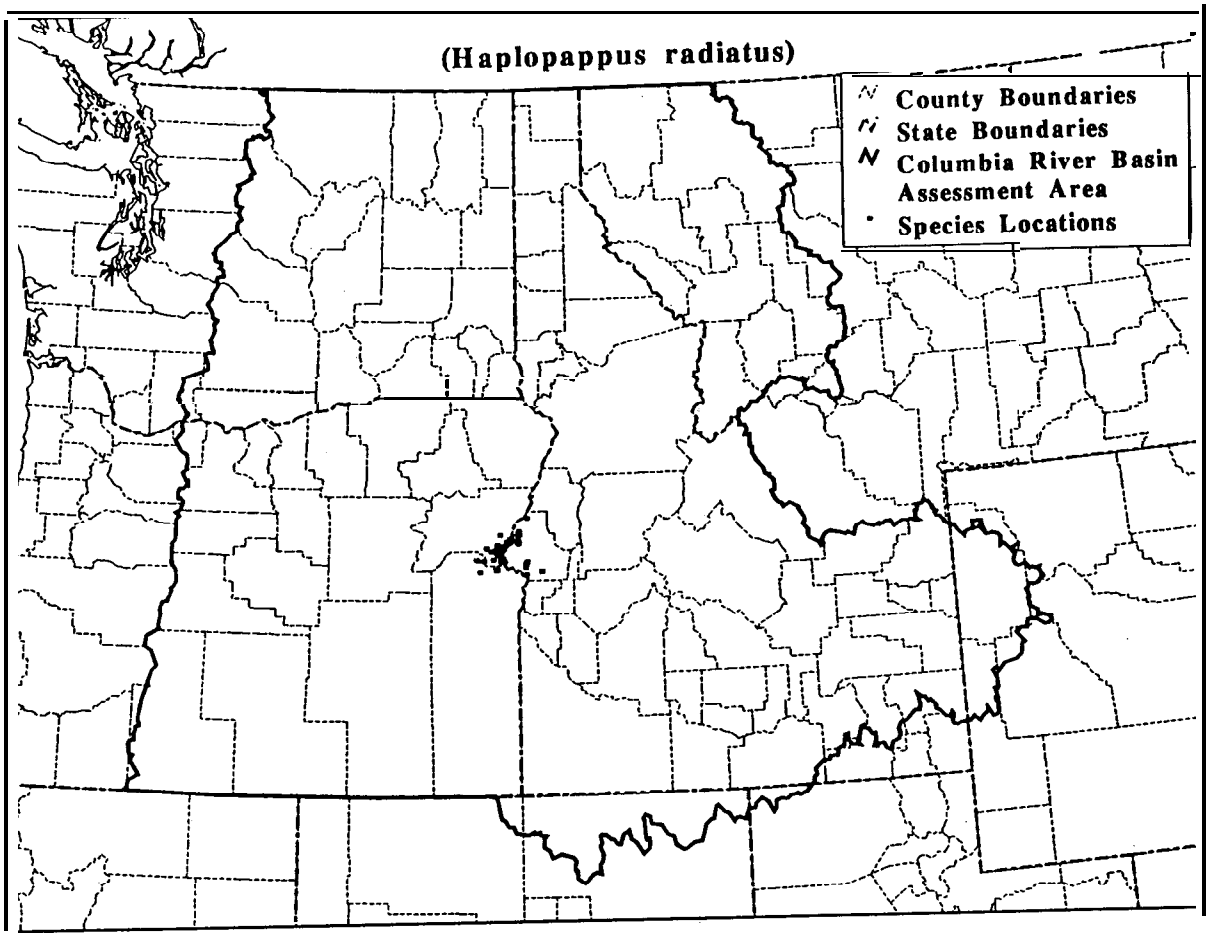

CRONQUIST'S STICKSEED
(Hackelia cronquistii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


SHOWY STICKSEED
(Hackelia venusta)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

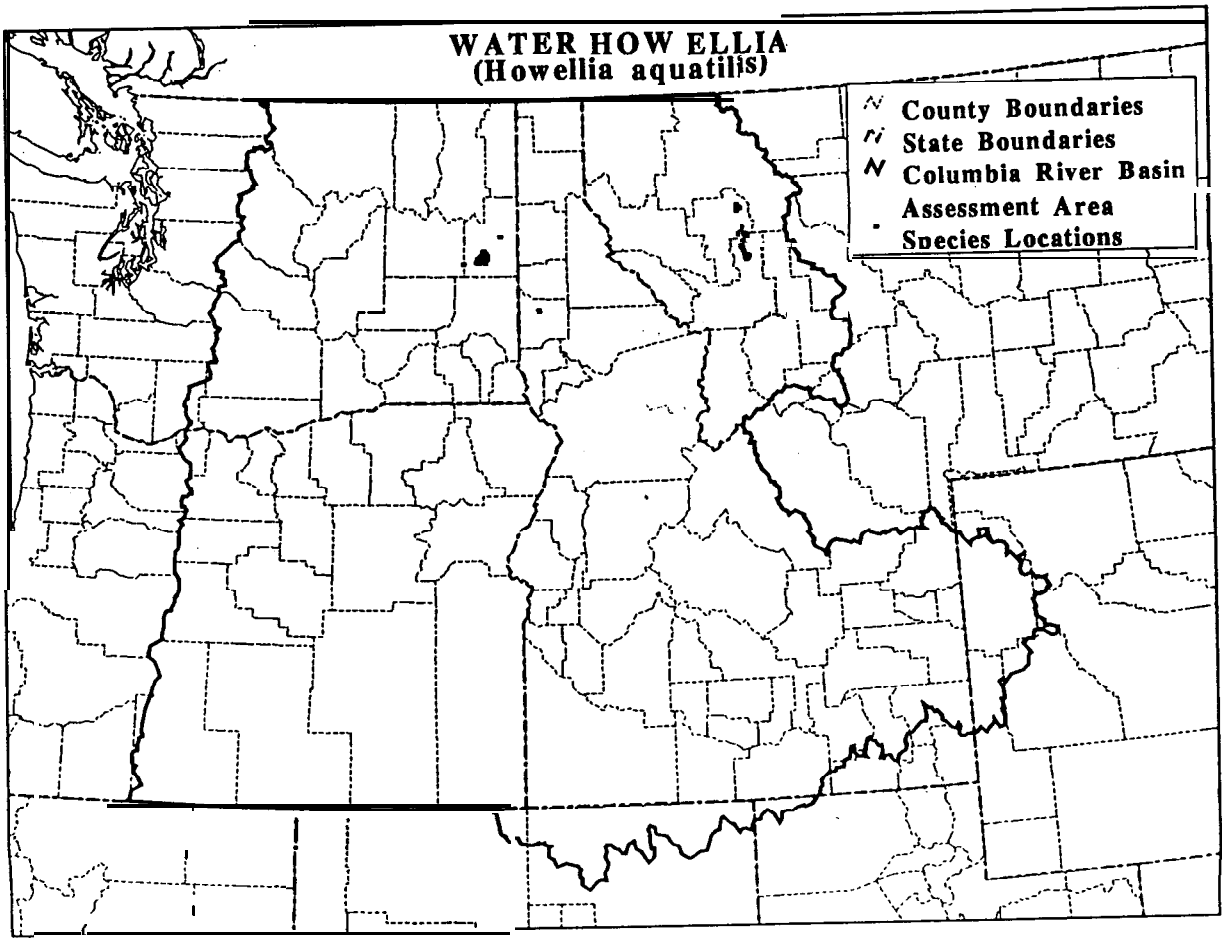

BUGLEG GOLDENWEED
(Haplopappus insecticruris)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

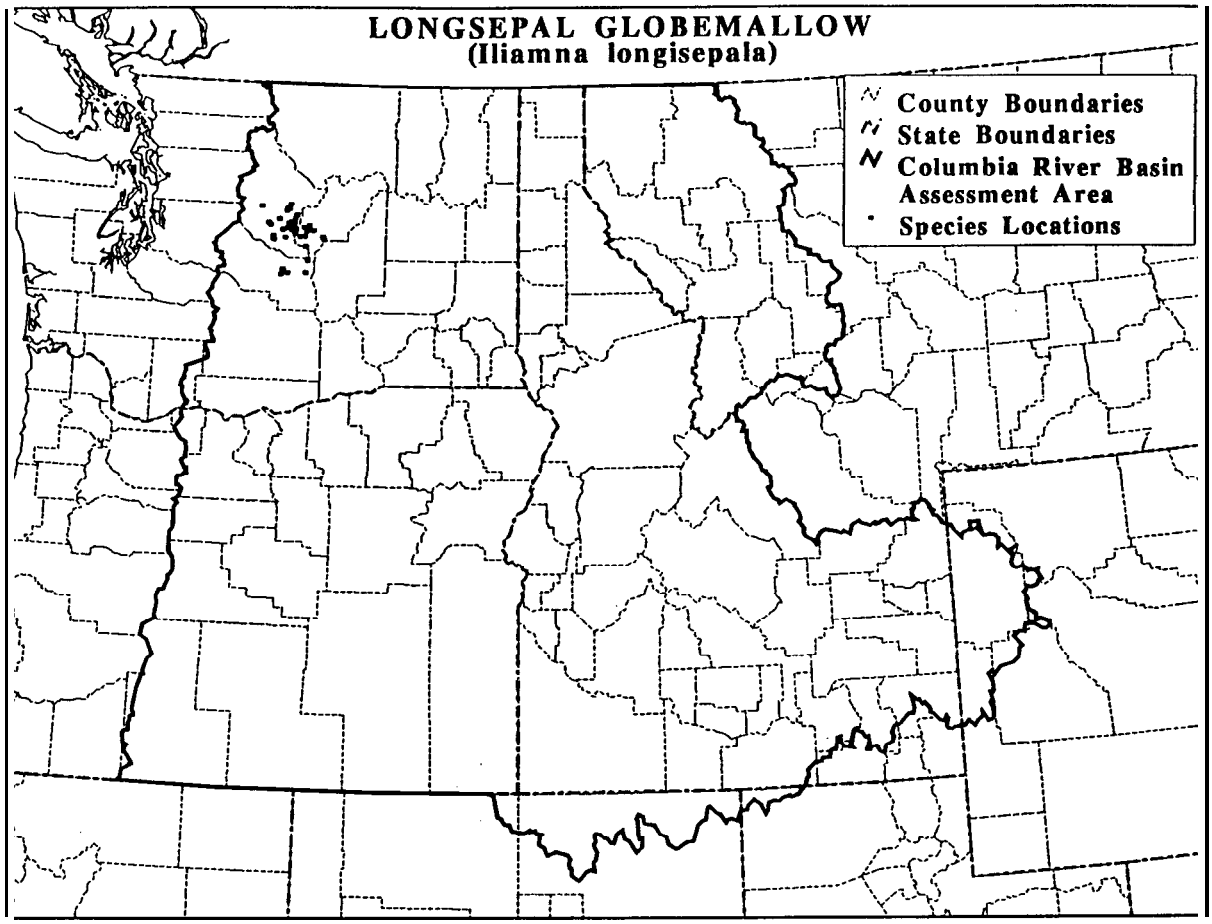

PALOUSE GOLDENWEED
(Haplopappus liatriformis)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

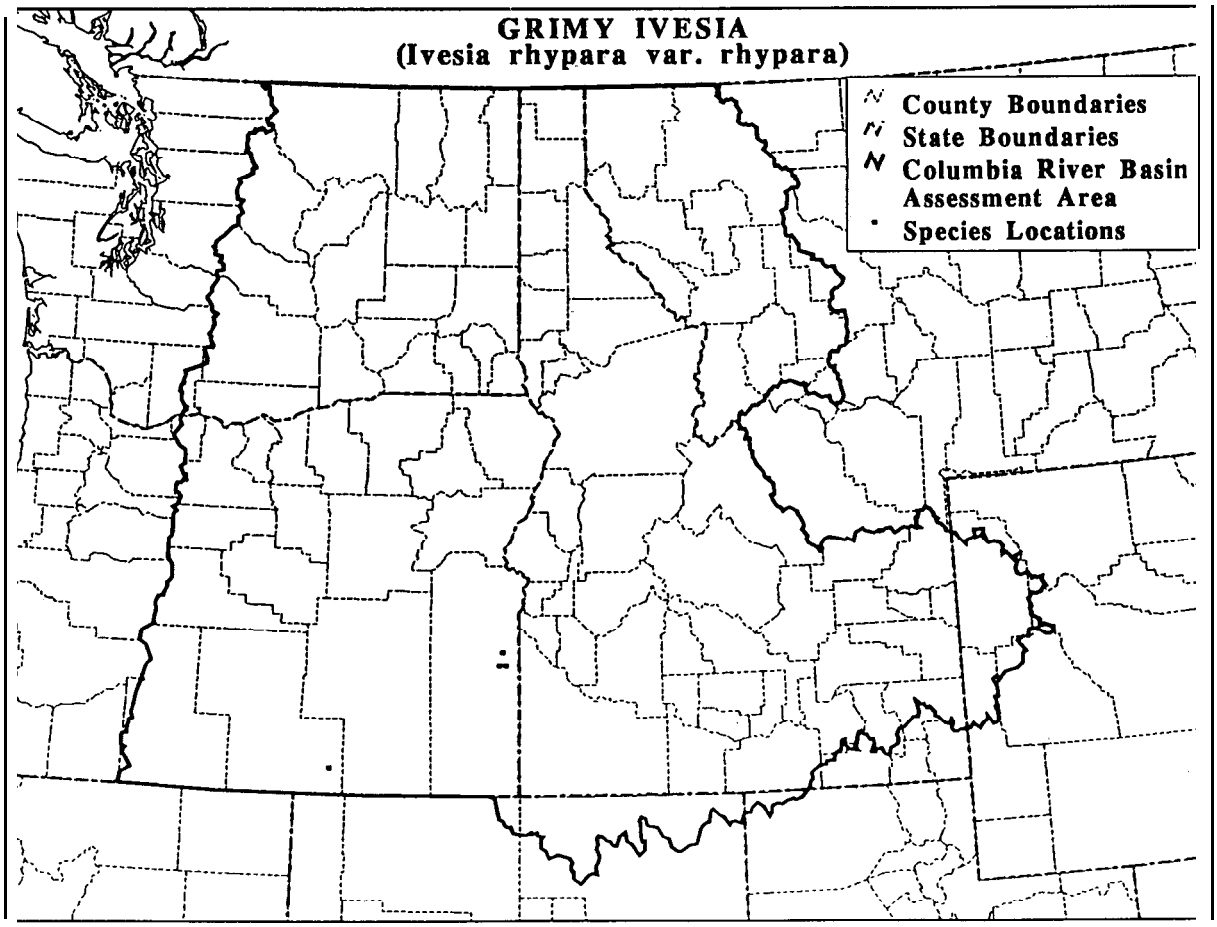
(Haplopappus radiatus)

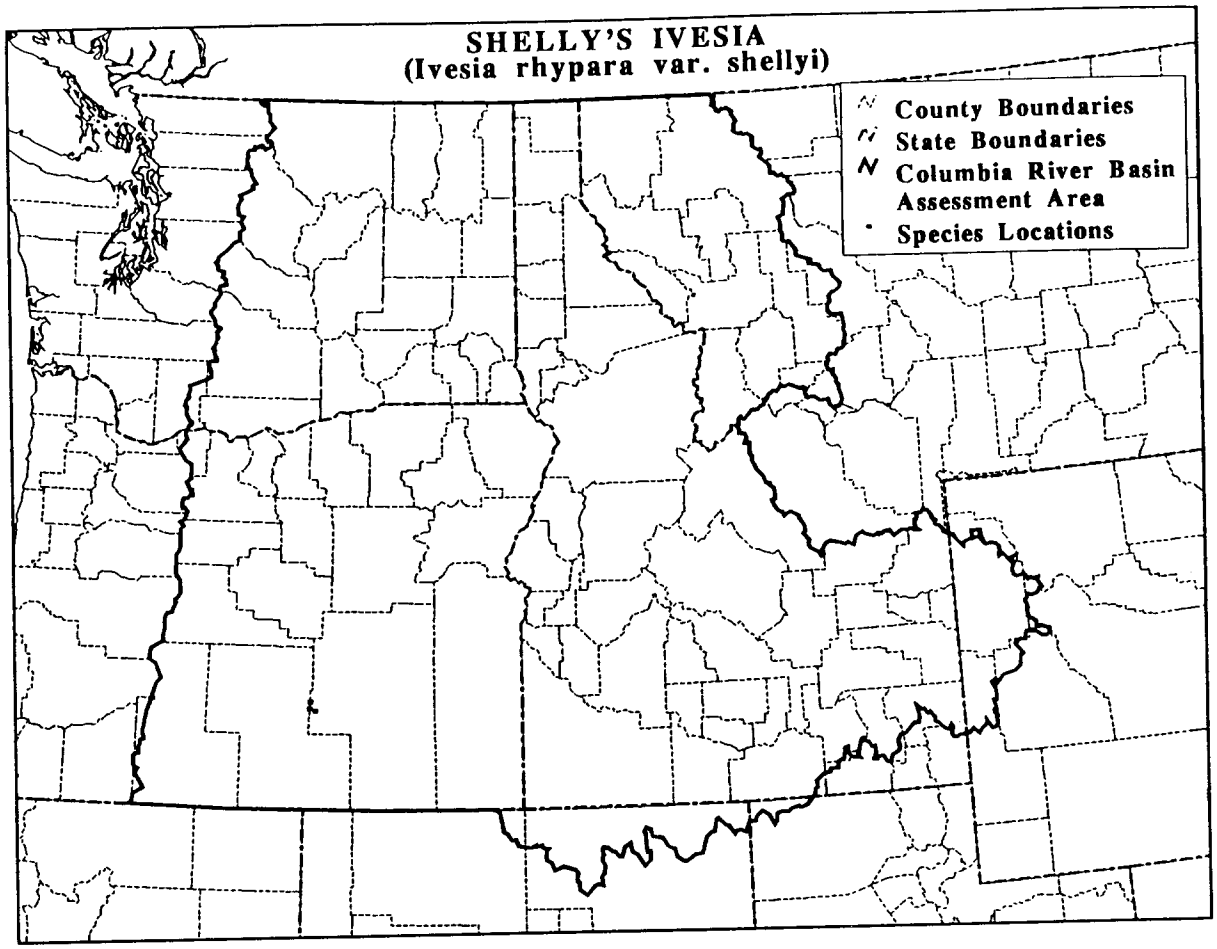


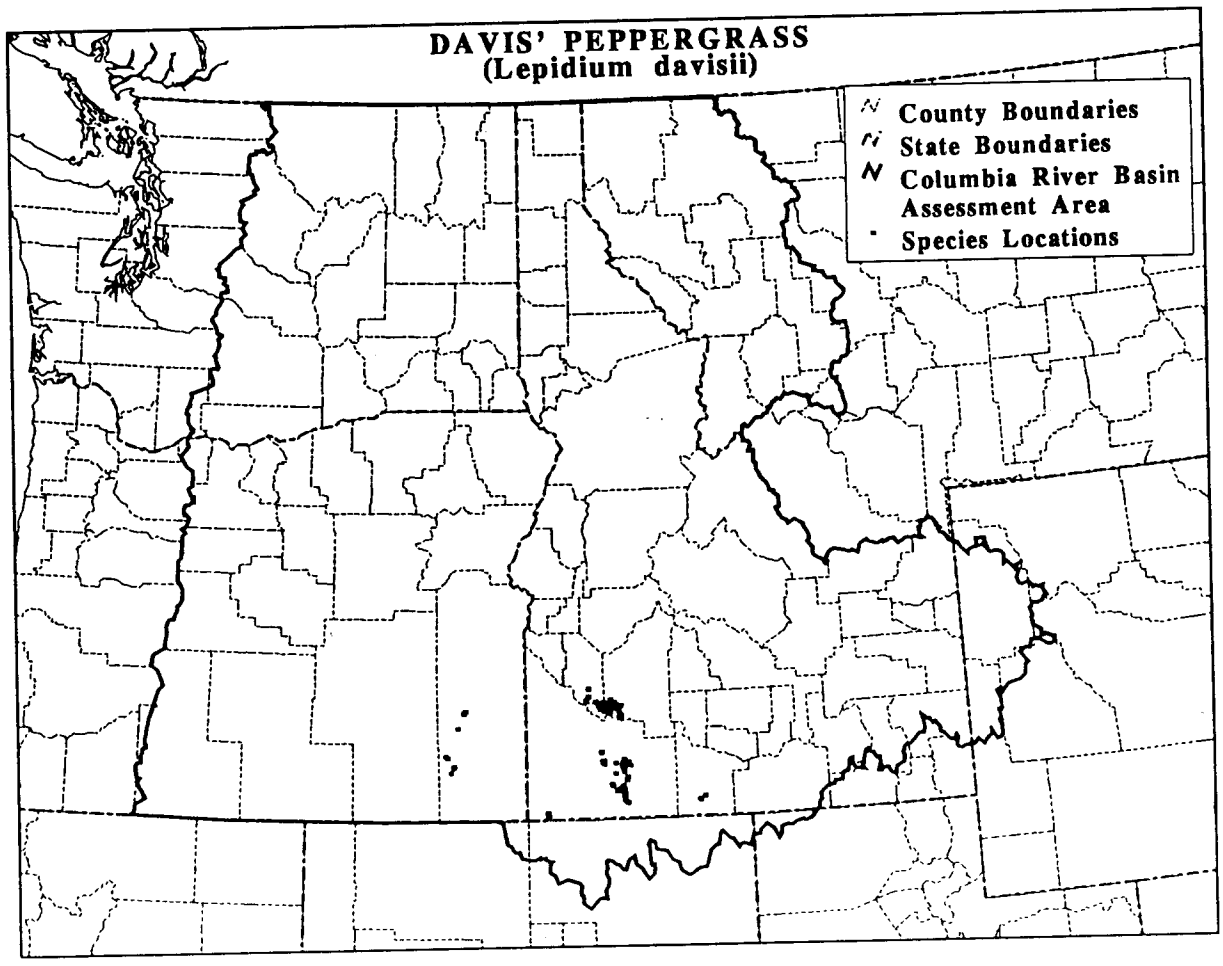
WATER HOW ELLIA
(Howellia aquatilis)

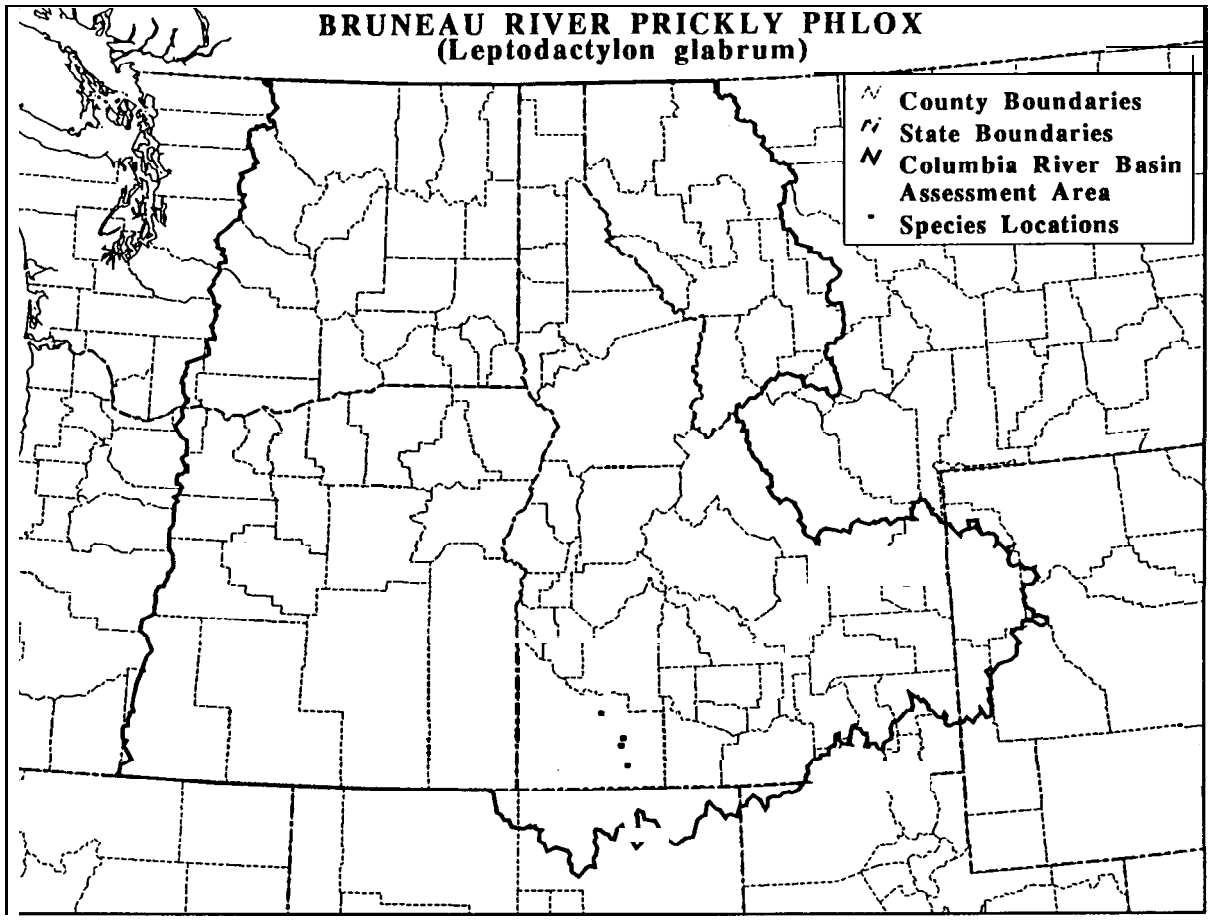


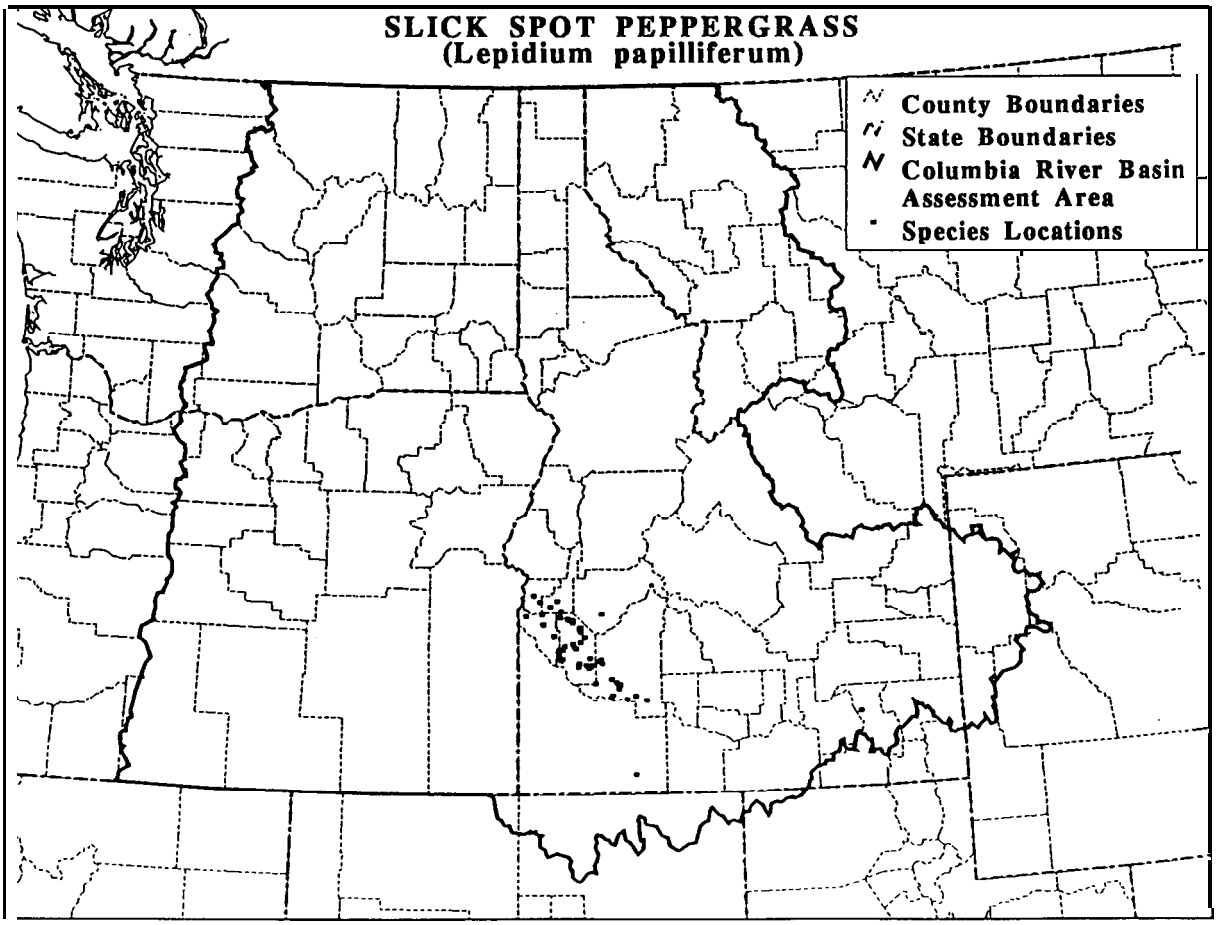

LONGSEPAL GLOBEMALLOW
(Iliamna longisepala)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

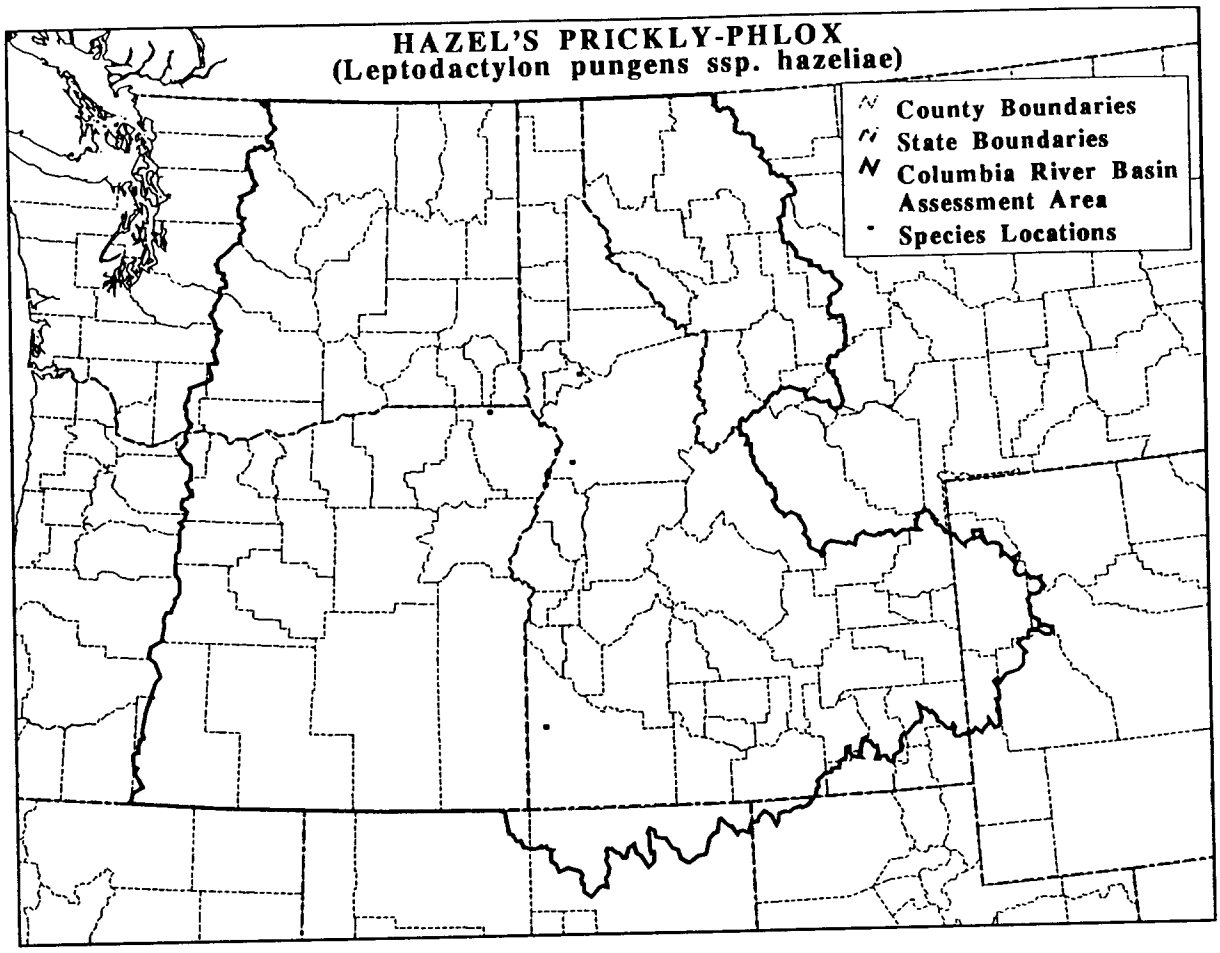

GRIMY IVESIA
(Ivesia rhypara var. rhypara)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

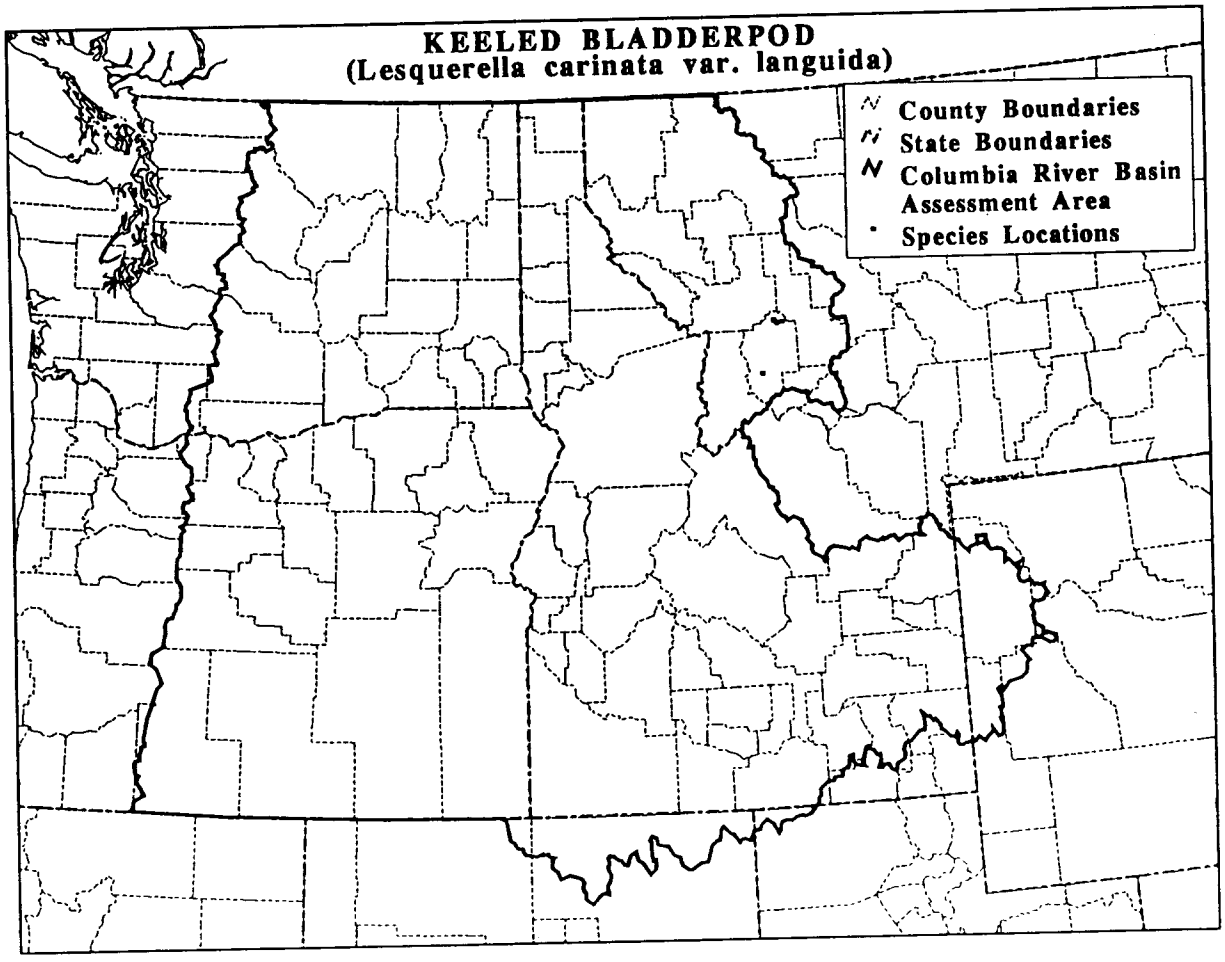

SHELLY'S IVESIA
(Ivesia rhypara var. shellyi)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

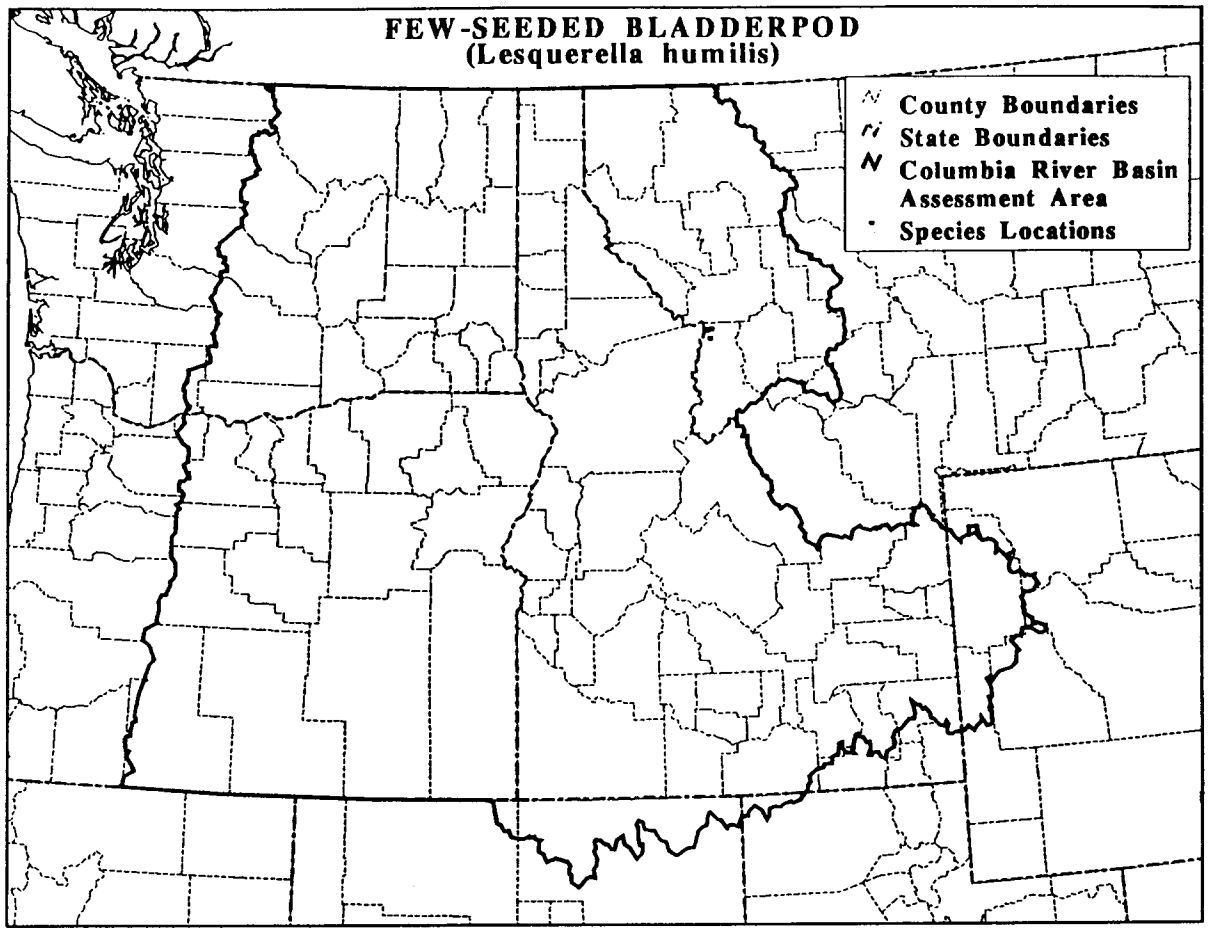

DAVIS' PEPPERGRASS
(Lepidium davisii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

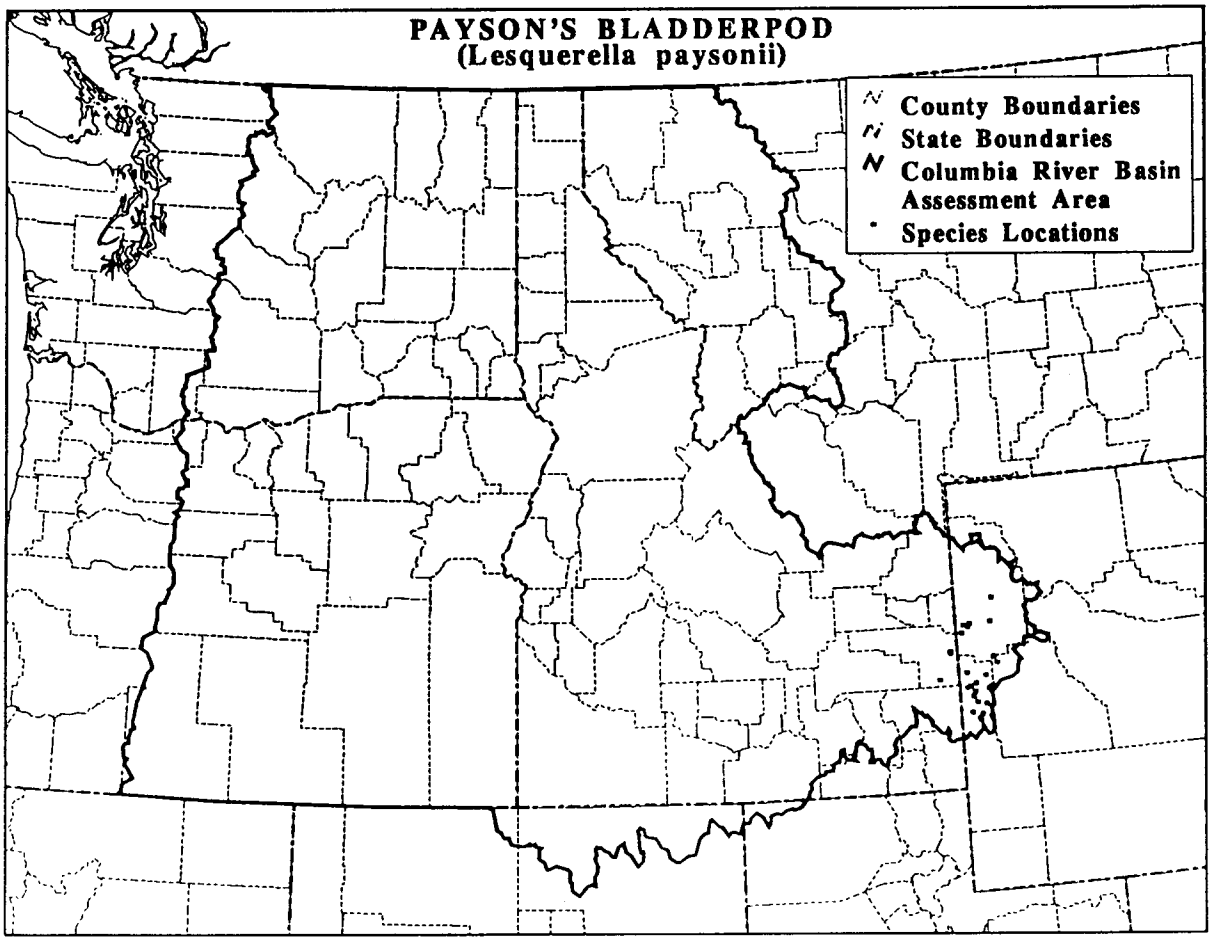

BRUNEAU RIVER PRICKLY PHLOX
(Leptodactylon glabrum)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


SLICK SPOT PEPPERGRASS
(Lepidium papilliferum)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

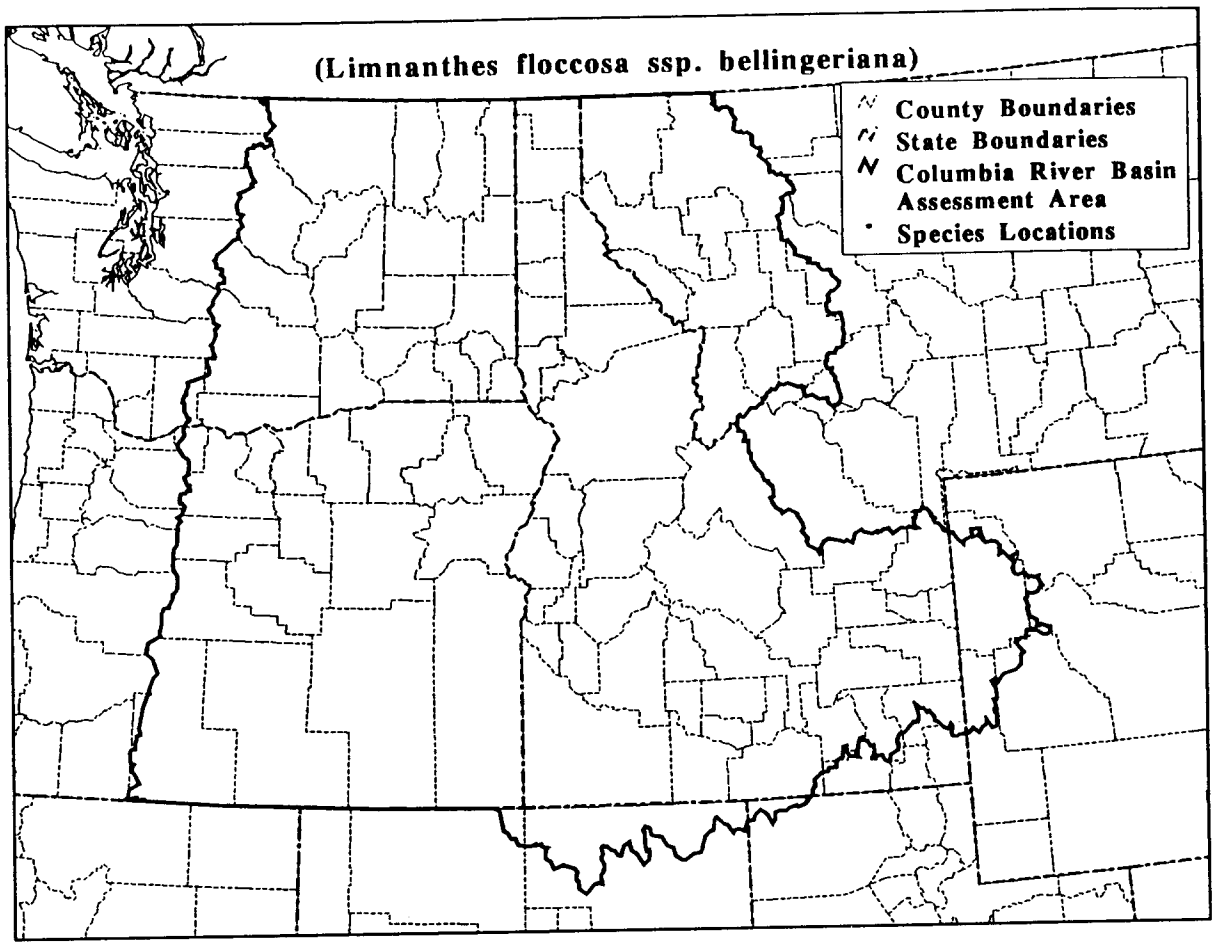

HAZEL'S PRICKLY-PHLOX
(Leptodactylon pungens ssp. hazeliae)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations


KEELED BLADDERPOD
(Lesquerella carinata var. languida)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations

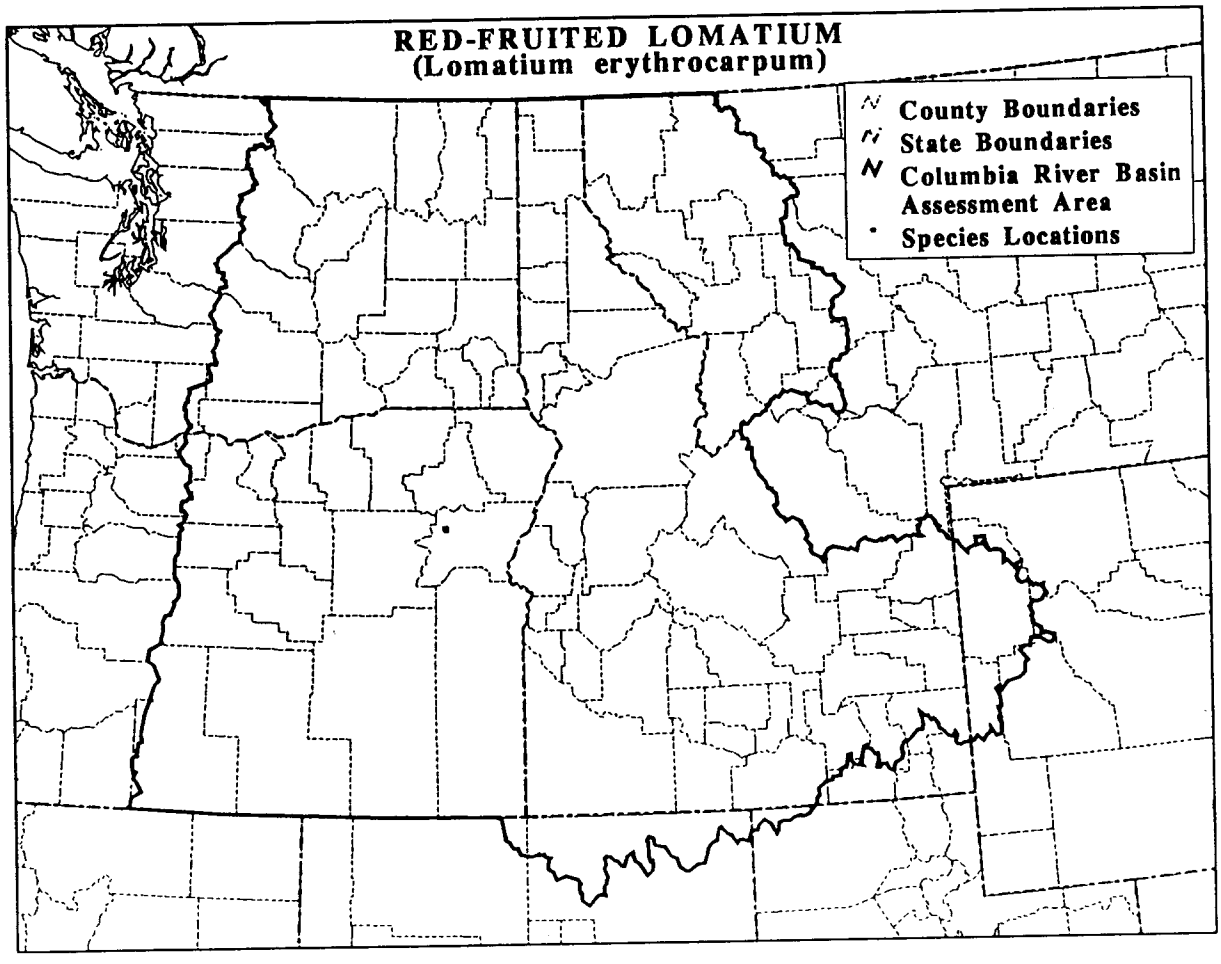

FEW-SEEDED BLADDERPOD
(Lesquerella humilis)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

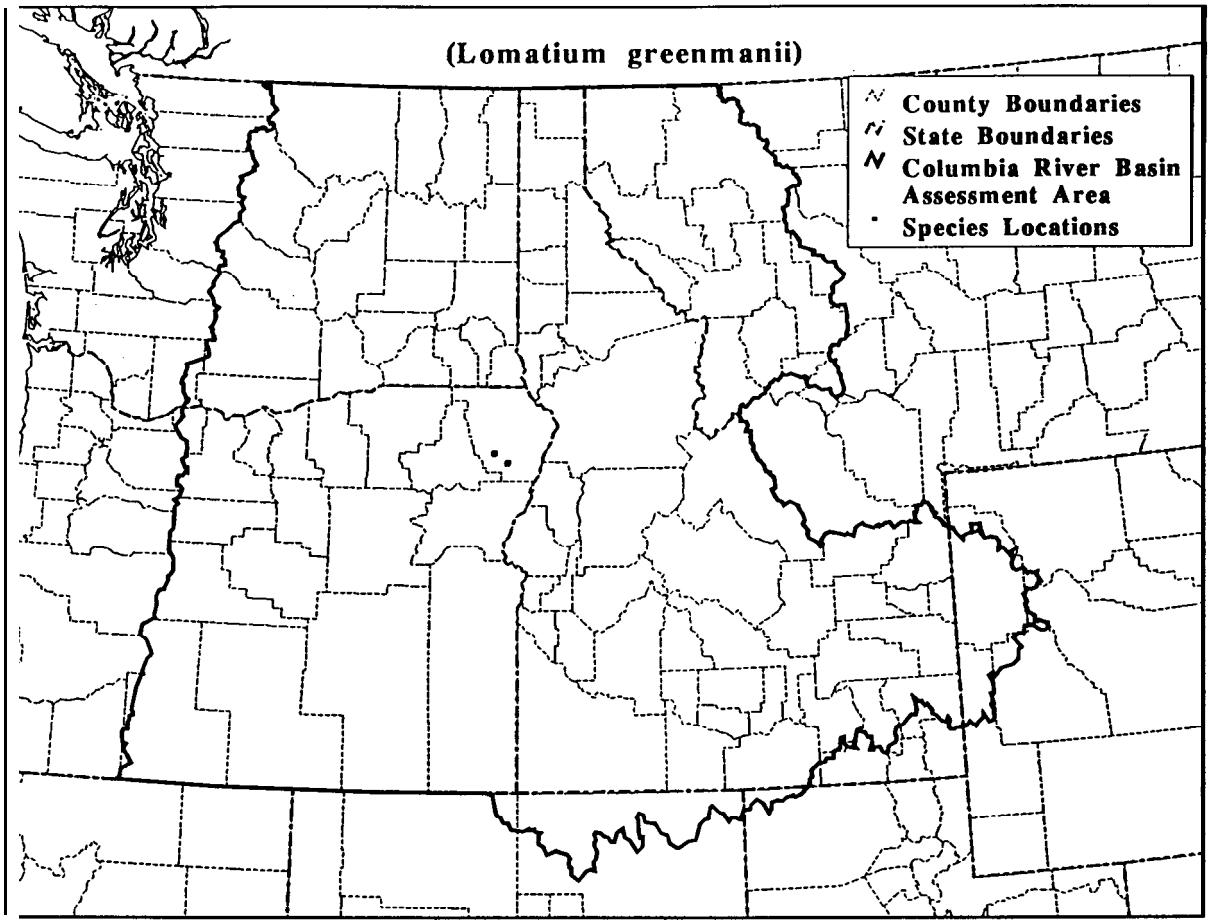

PAYSON'S BLADDERPOD
(Lesquerella paysonii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

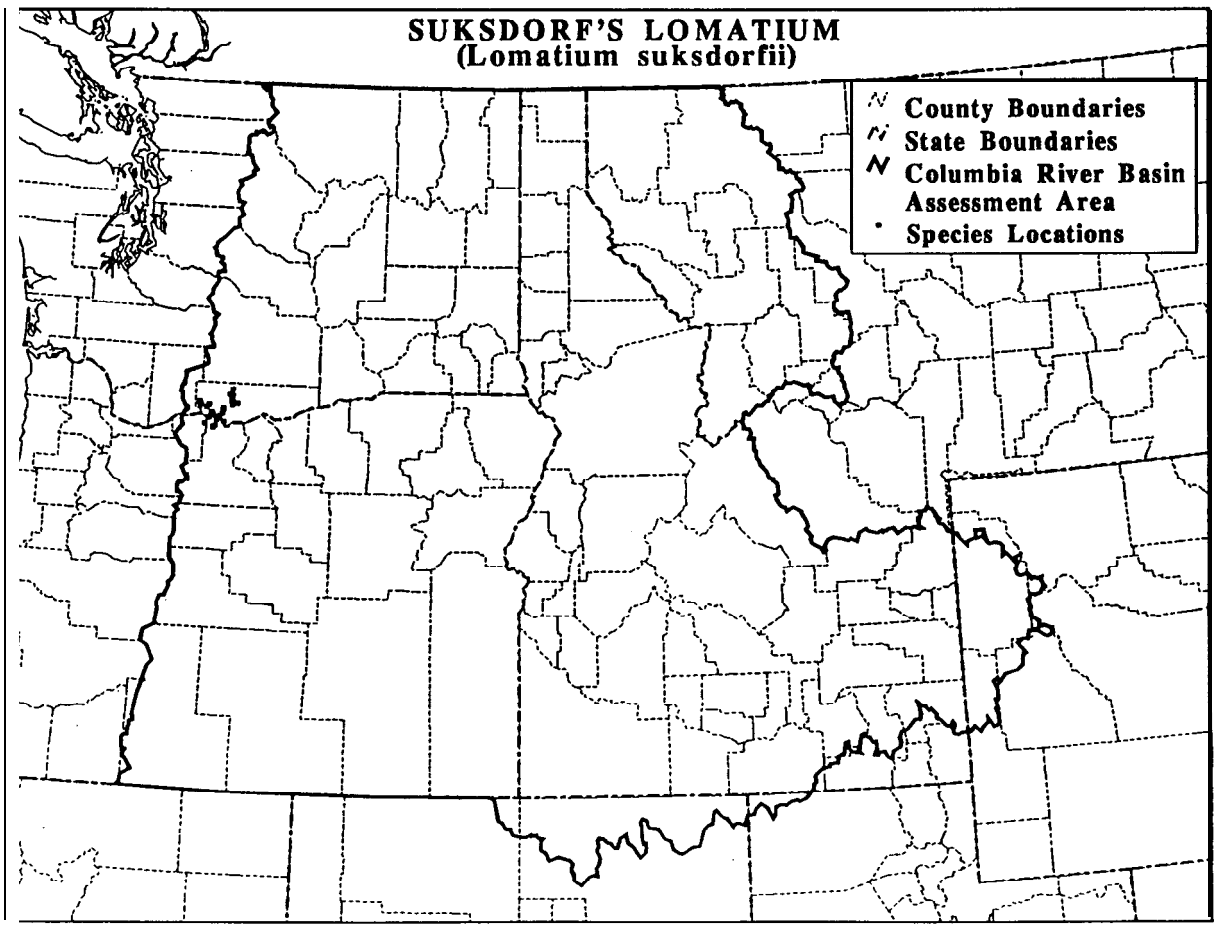
(Limnanthes floccosa ssp. bellingeriana)

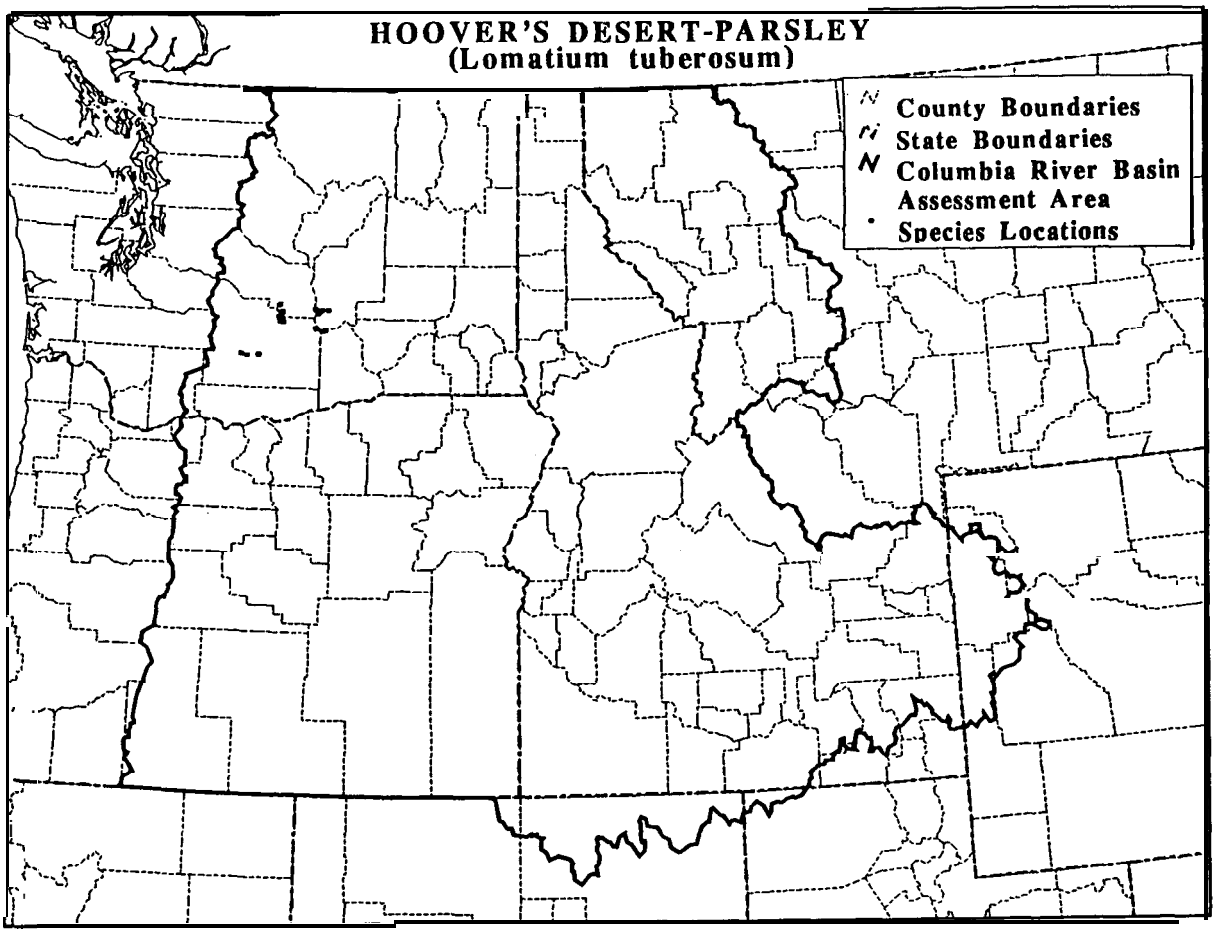


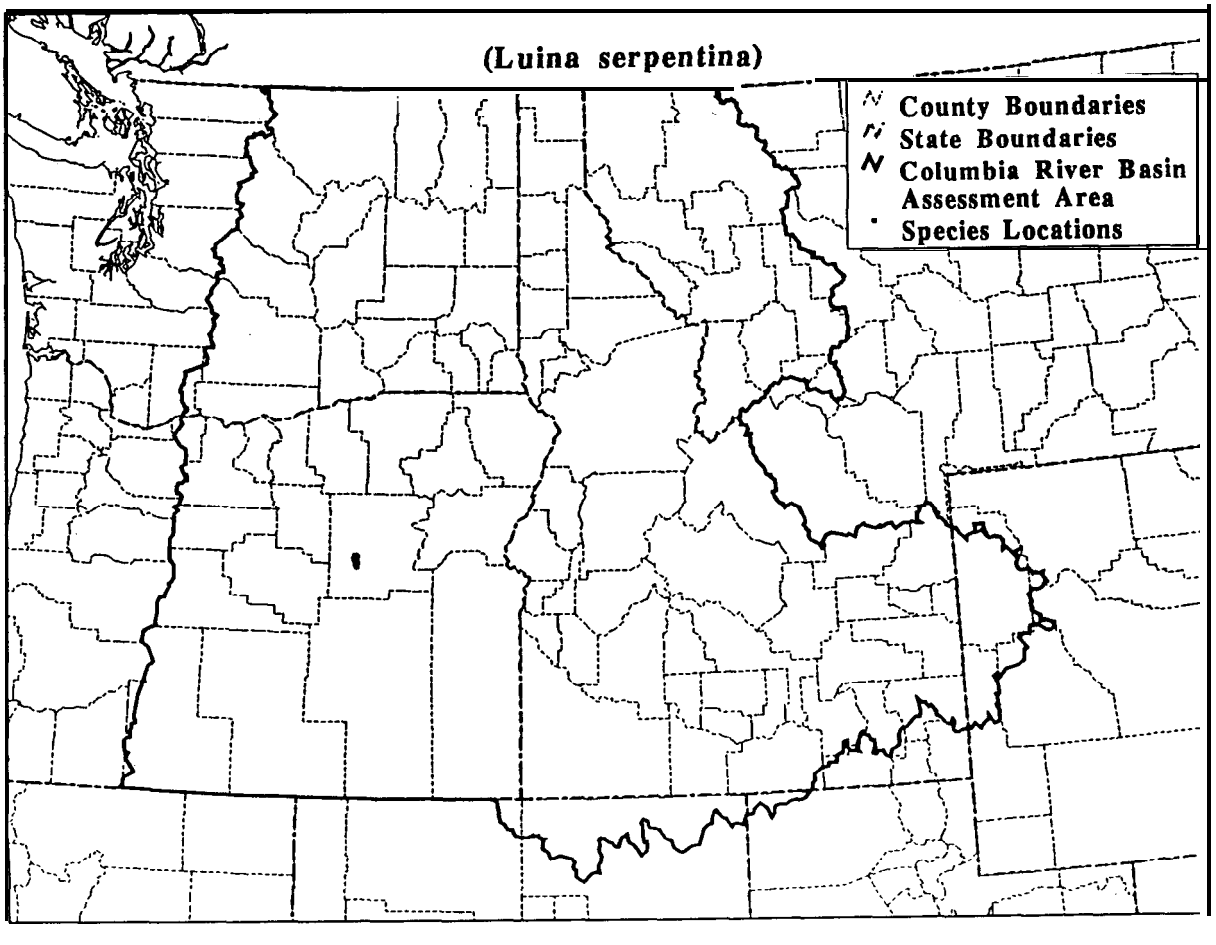
RED-FRUITED LOMATIUM
(Lomatium erythrocarpum)

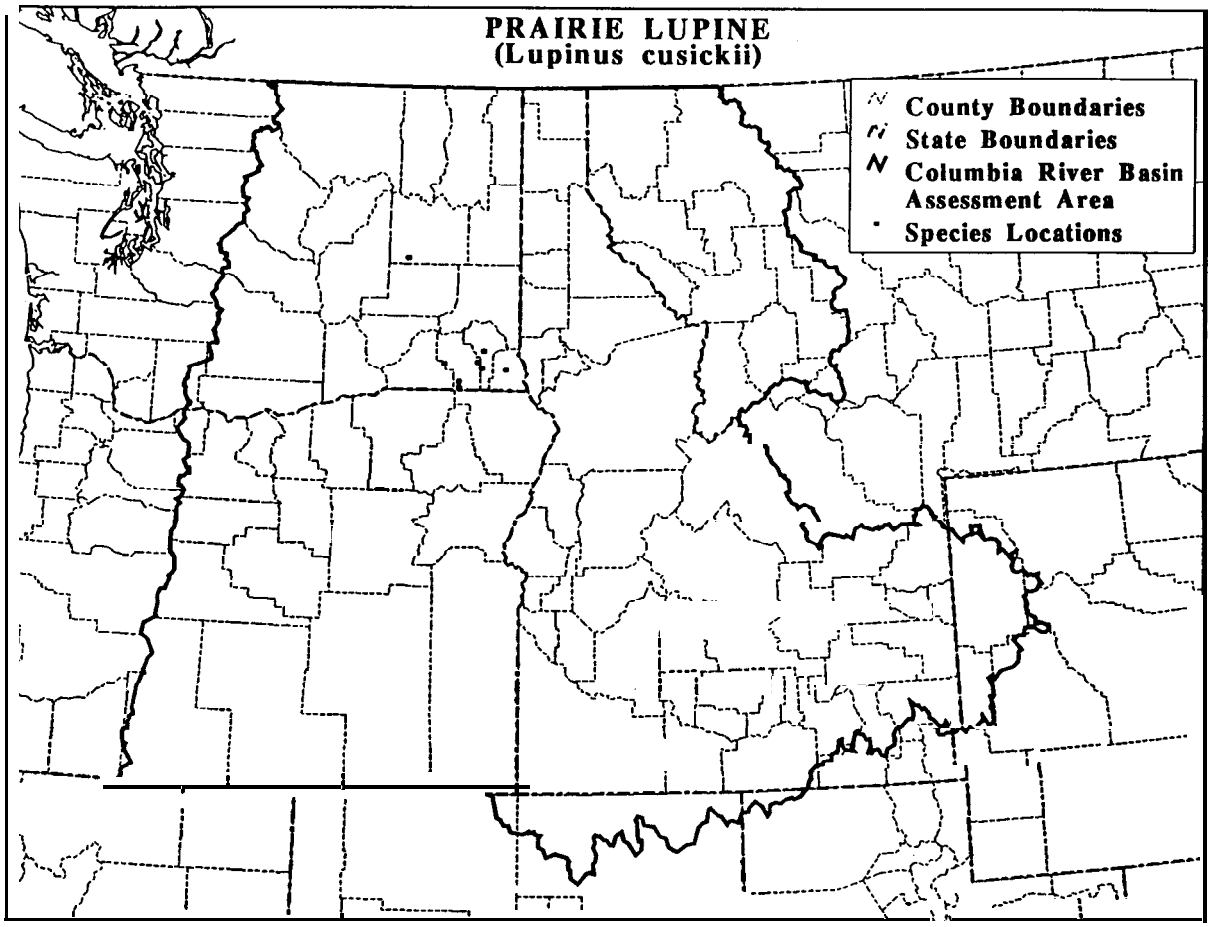


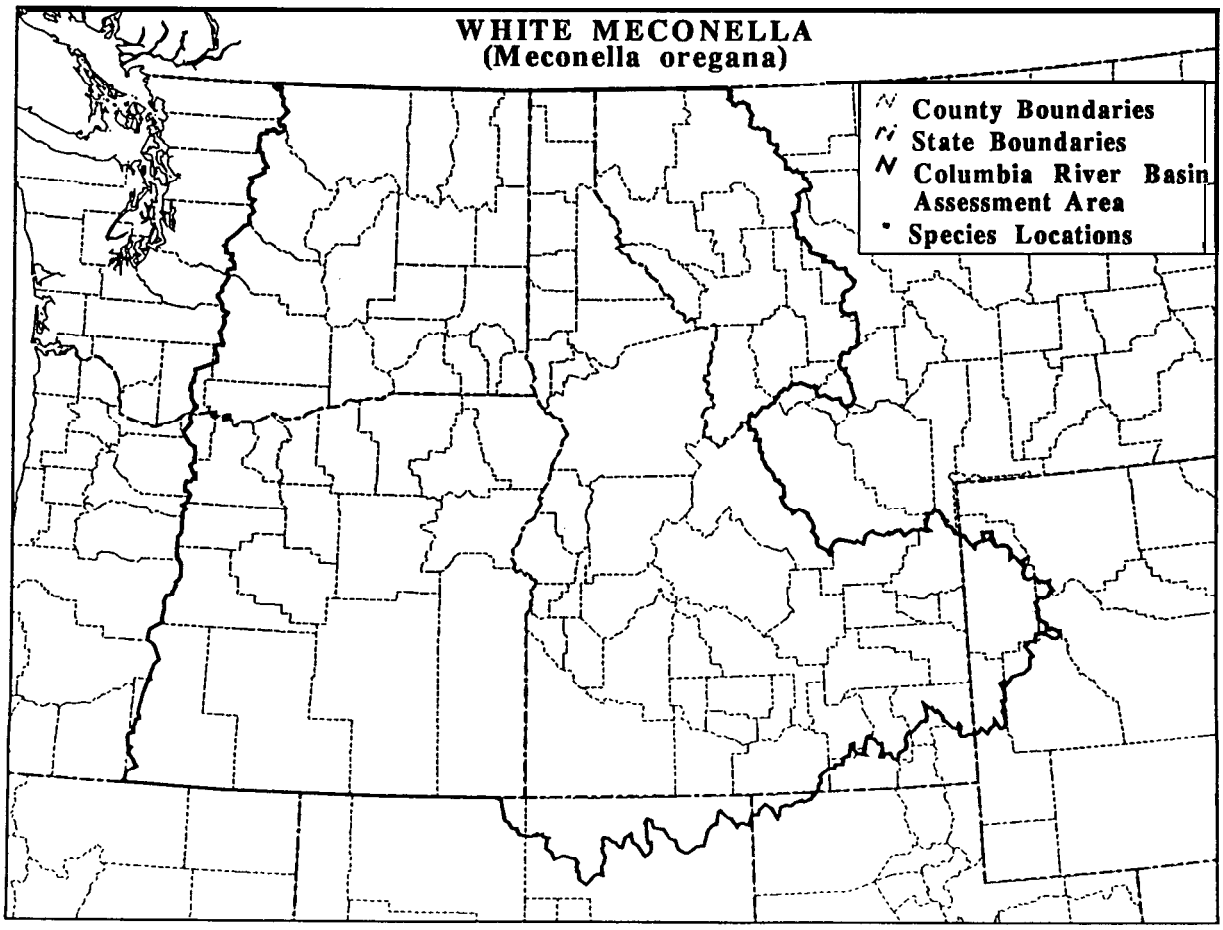

(Lomatium greenmanii)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations

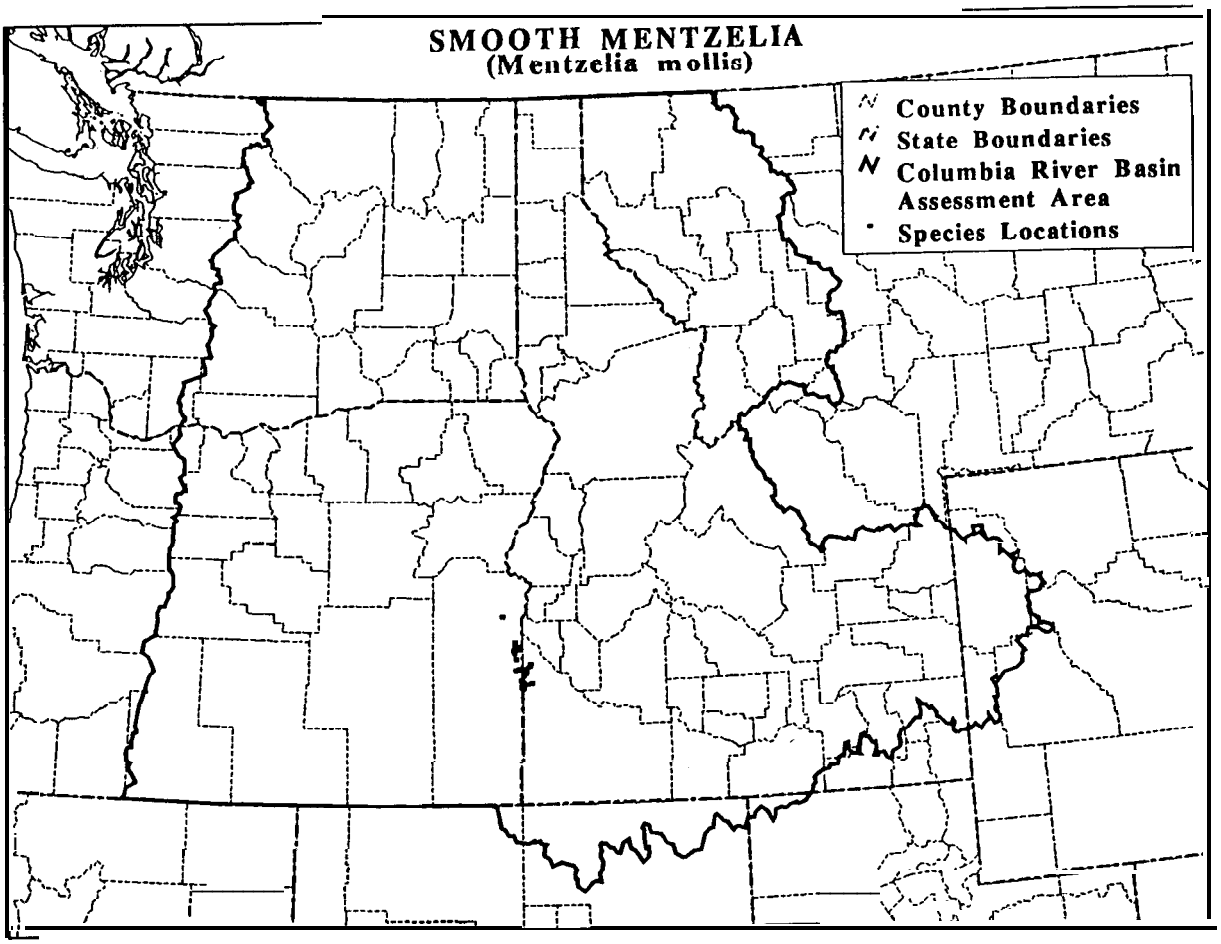

SUKSDORF'S LOMATIUM
(Lomatium suksdorfii)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations

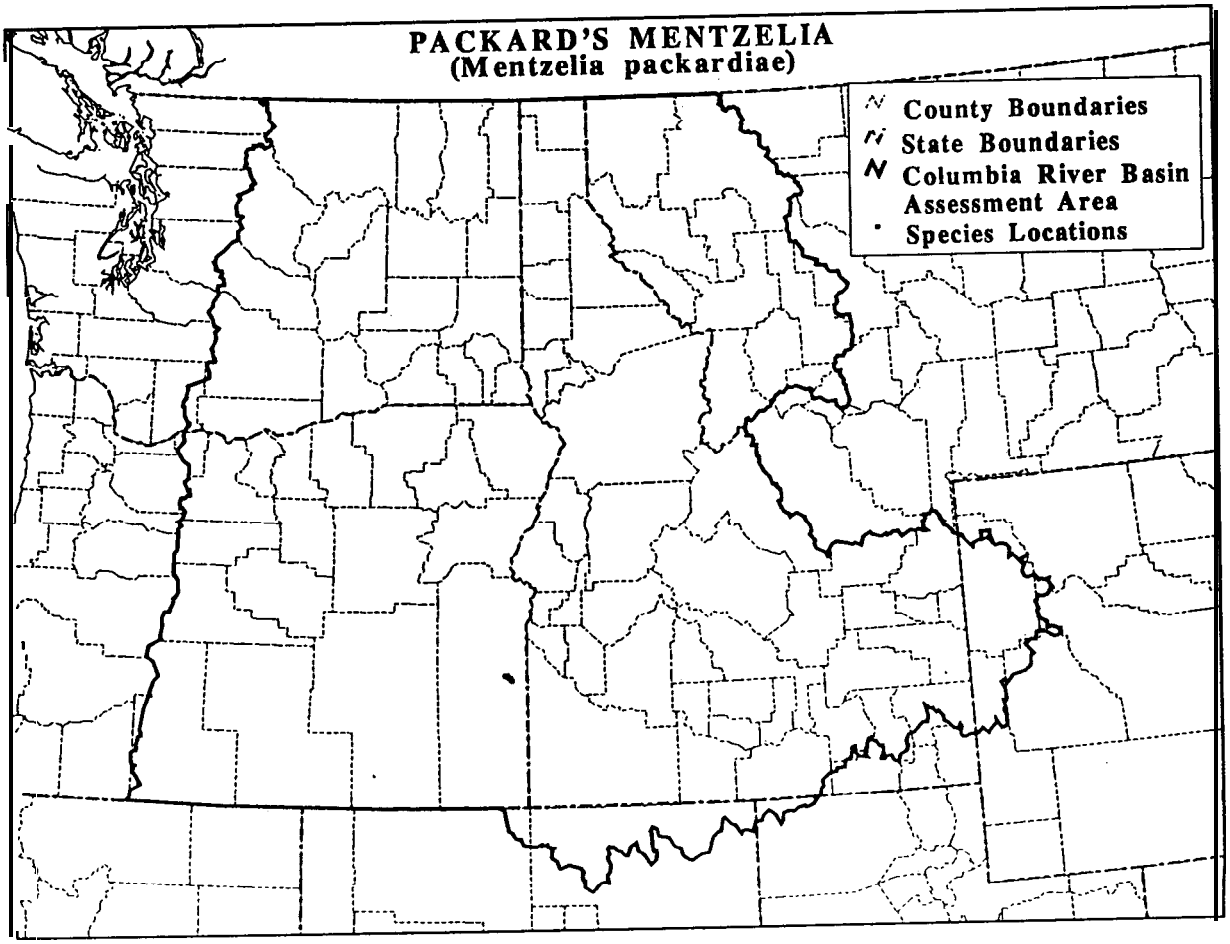

HOOVER'S DESERT-PARSLEY
(Lomatium tuberosum)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

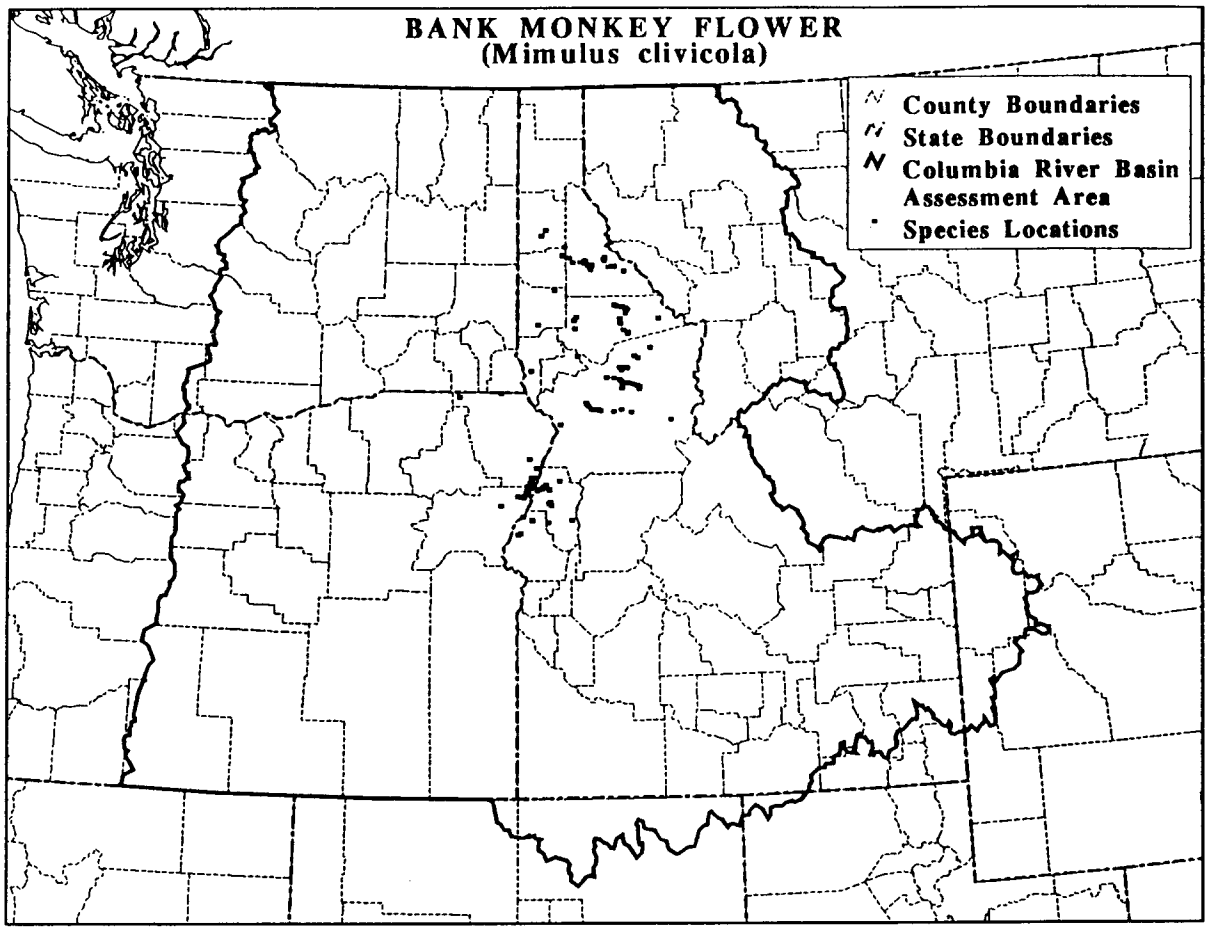

(Luina serpentina)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

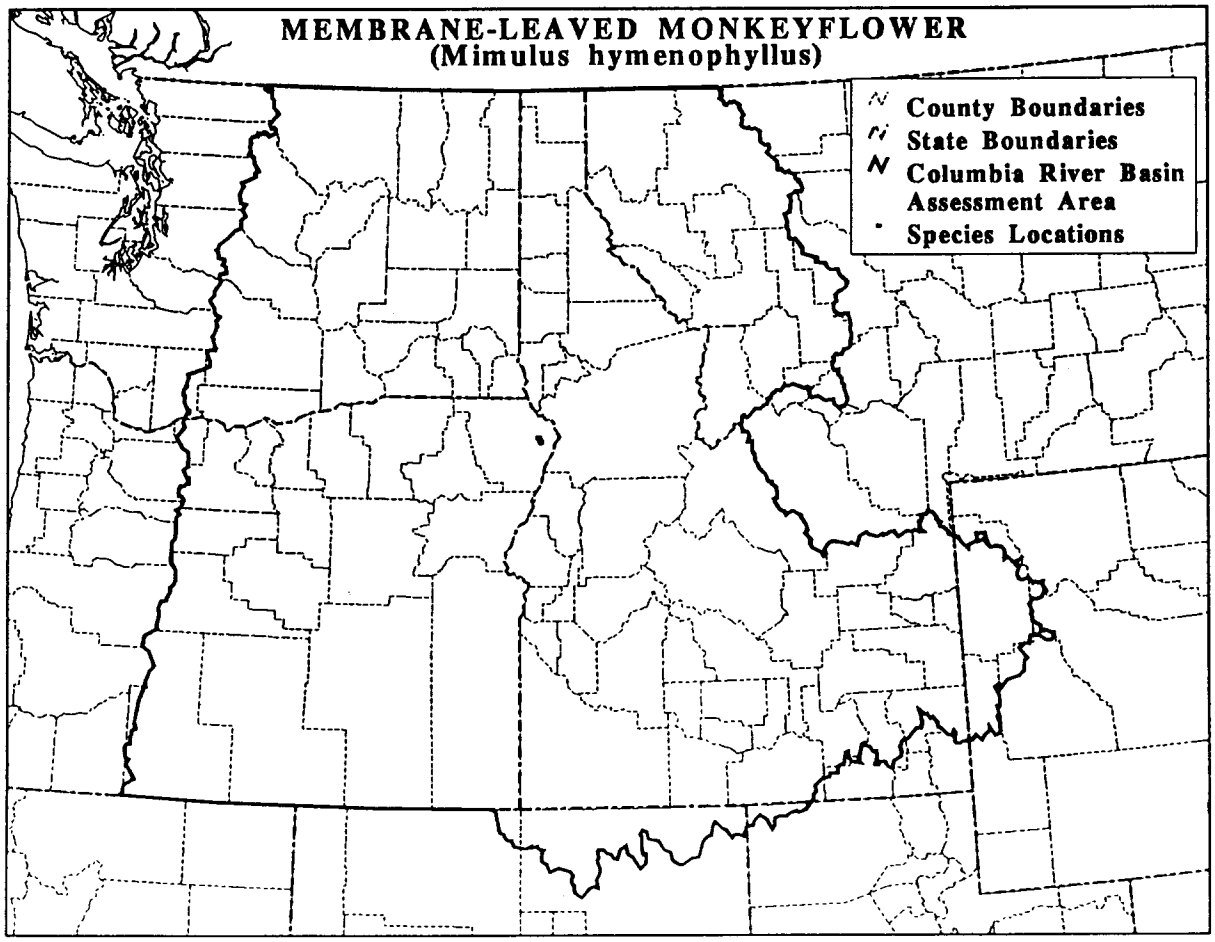

PRAIRIE LUPINE
(Lupinus cusickii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

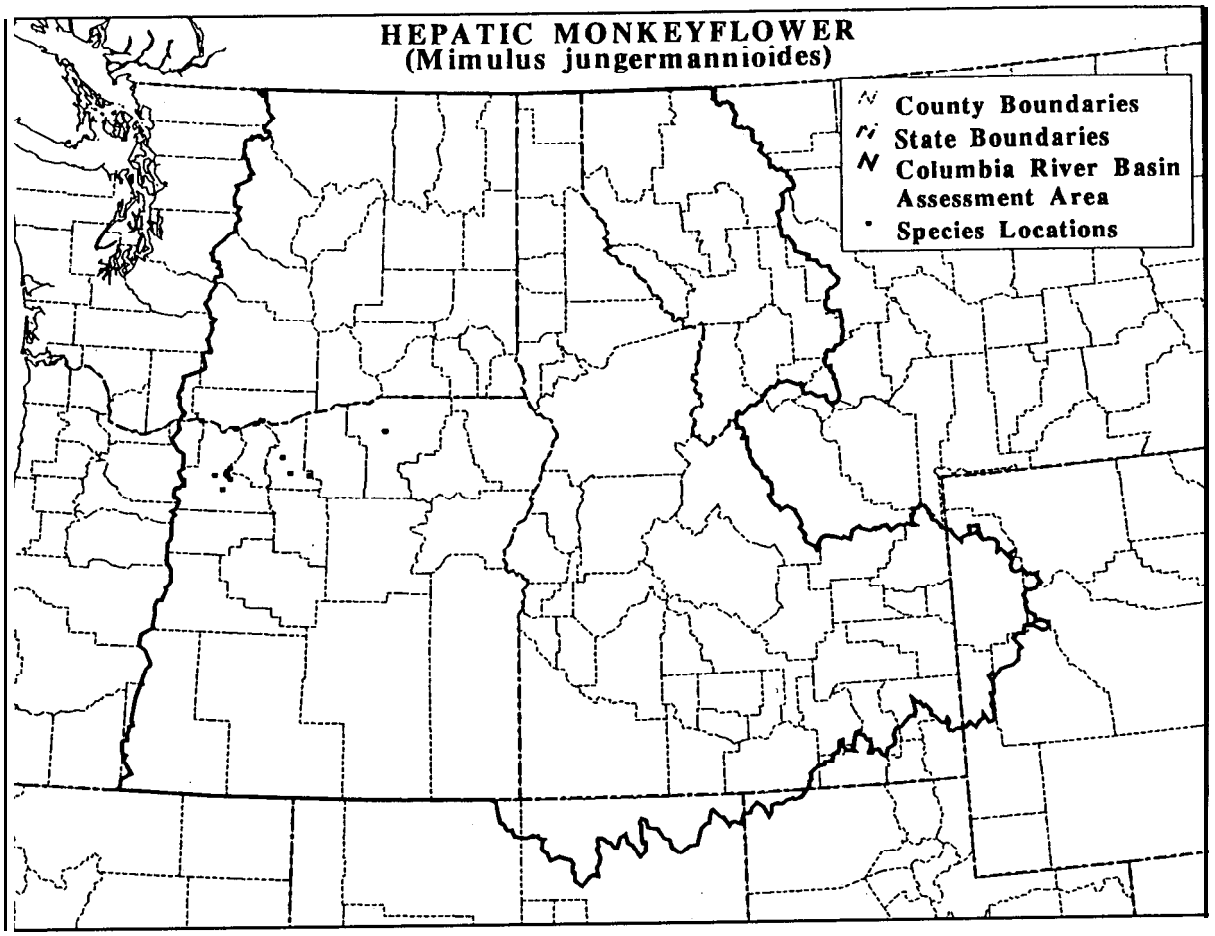

WHITE MECONELLA
(Meconella oregana)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

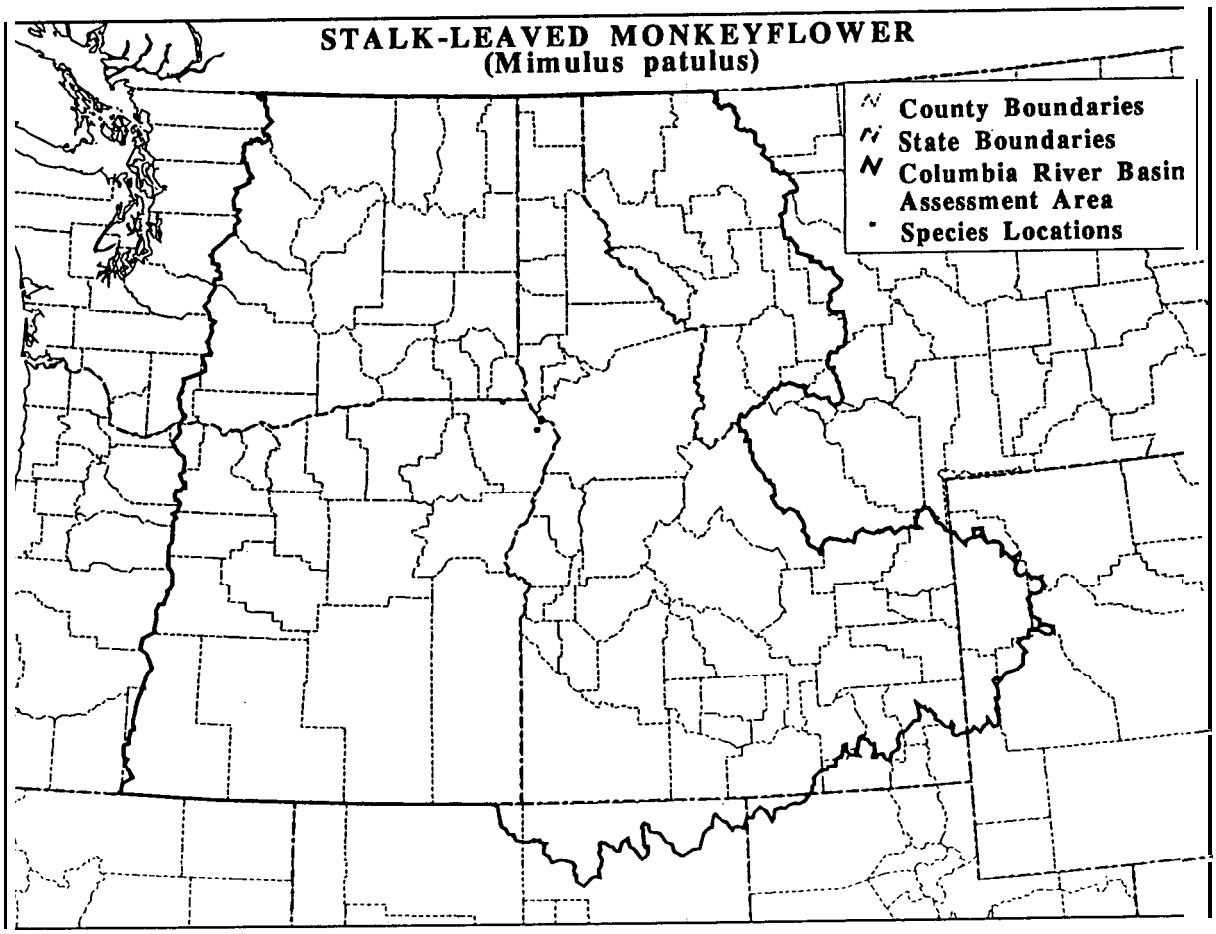

SMOOTH MENTZELIA
(Mentzelia mollis)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

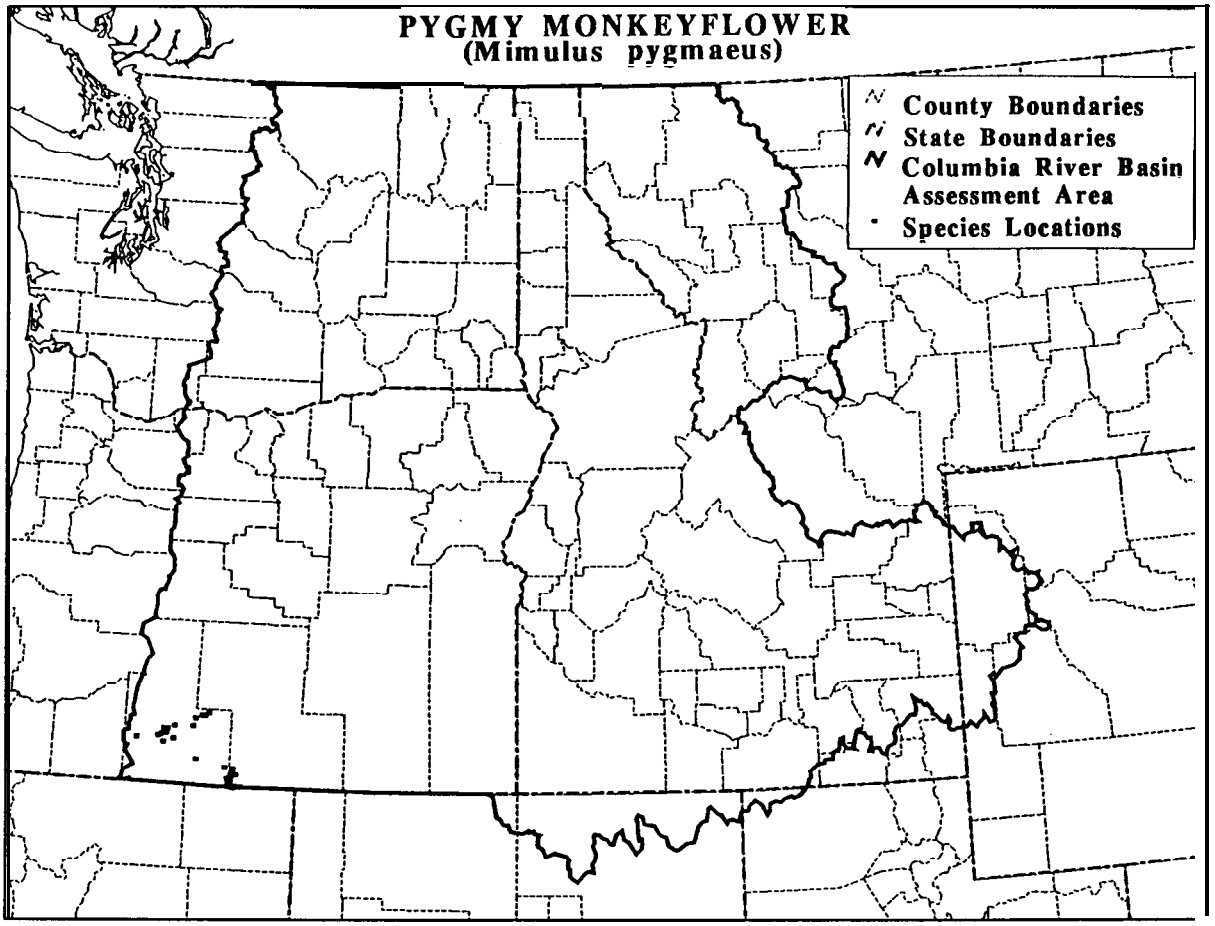

PACKARD'S MENTZELIA
(Mentzelia packardiae)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

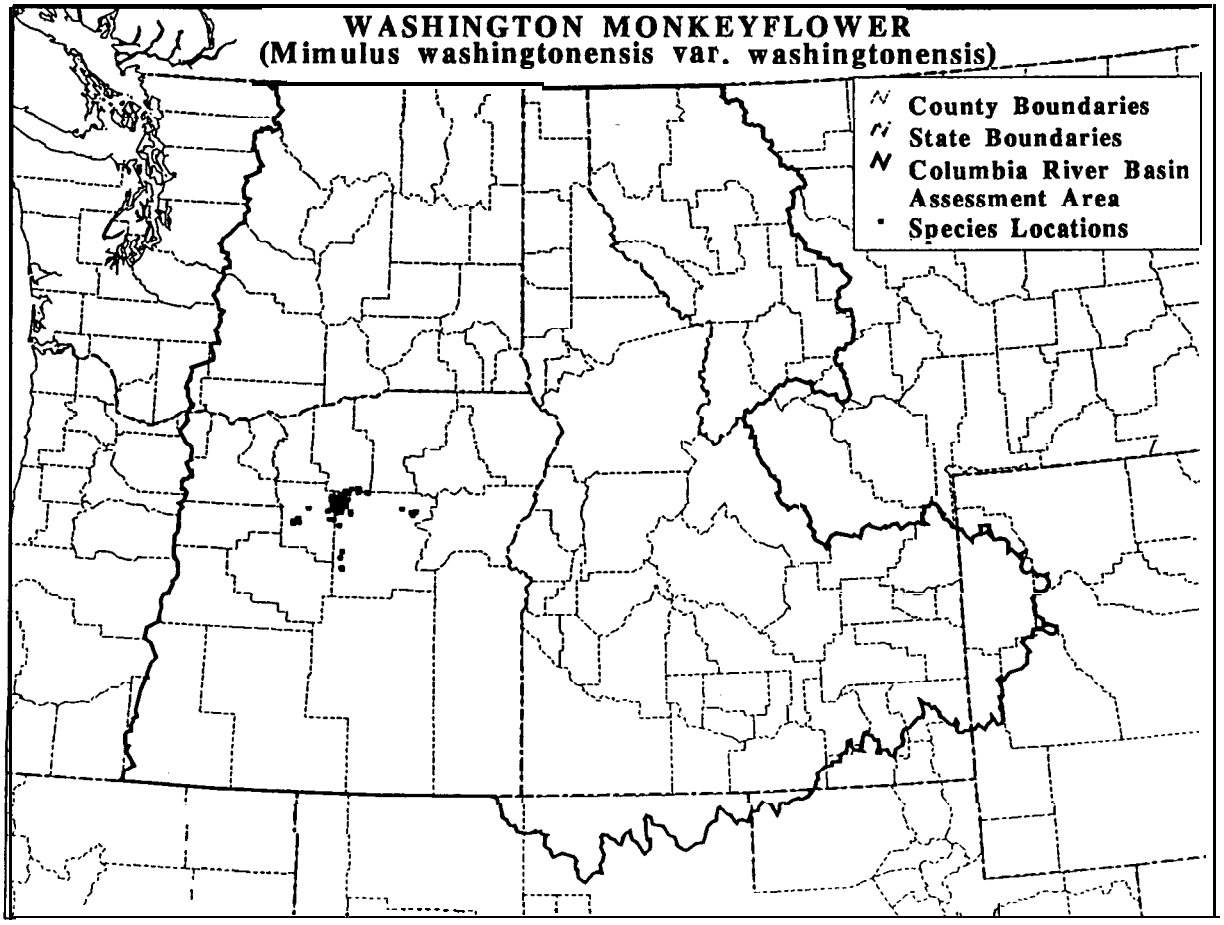

BANK MONKEY FLOWER
(Mimulus clivicola)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

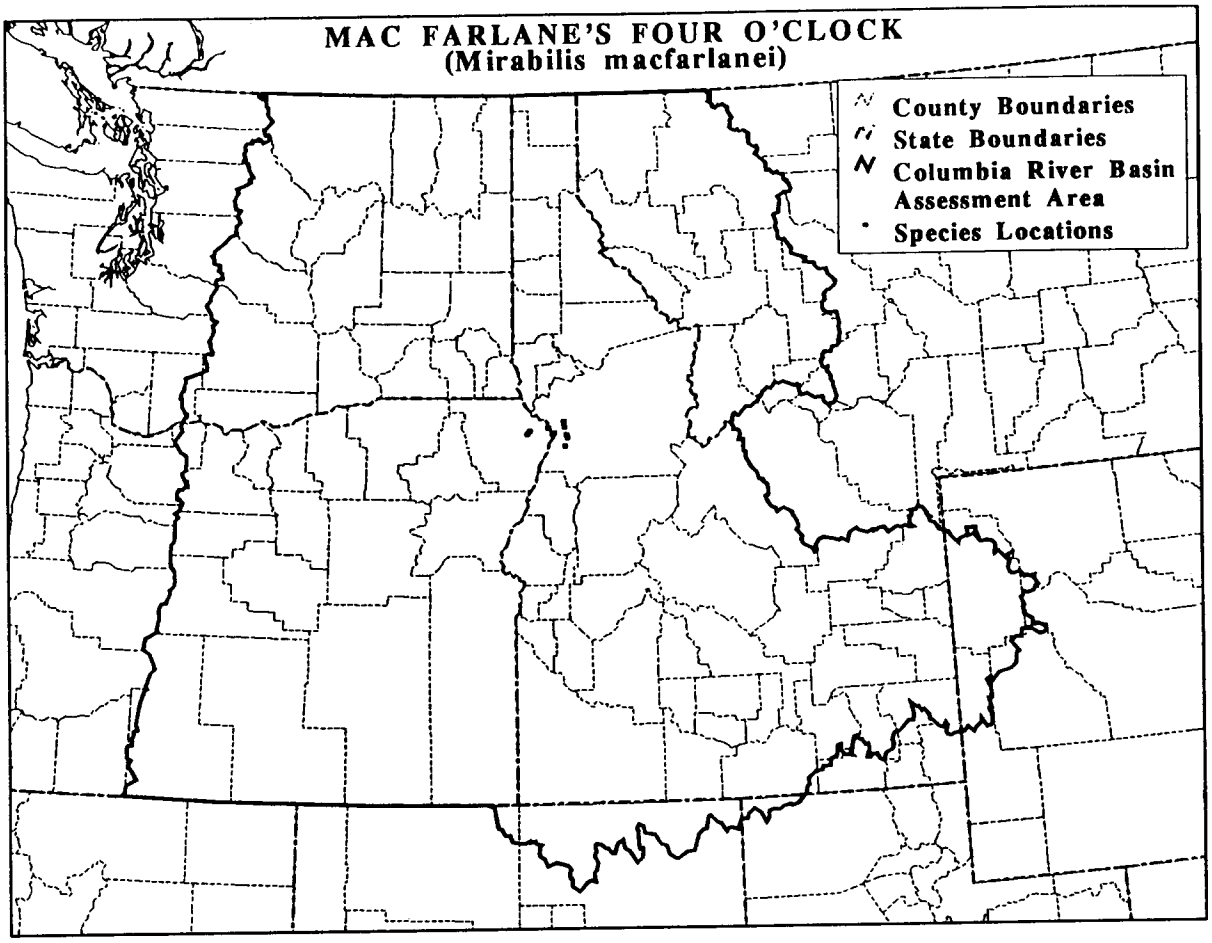

MEMBRANE-LEAVED MONKEYFLOWER
(Mimulus hymenophyllus)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

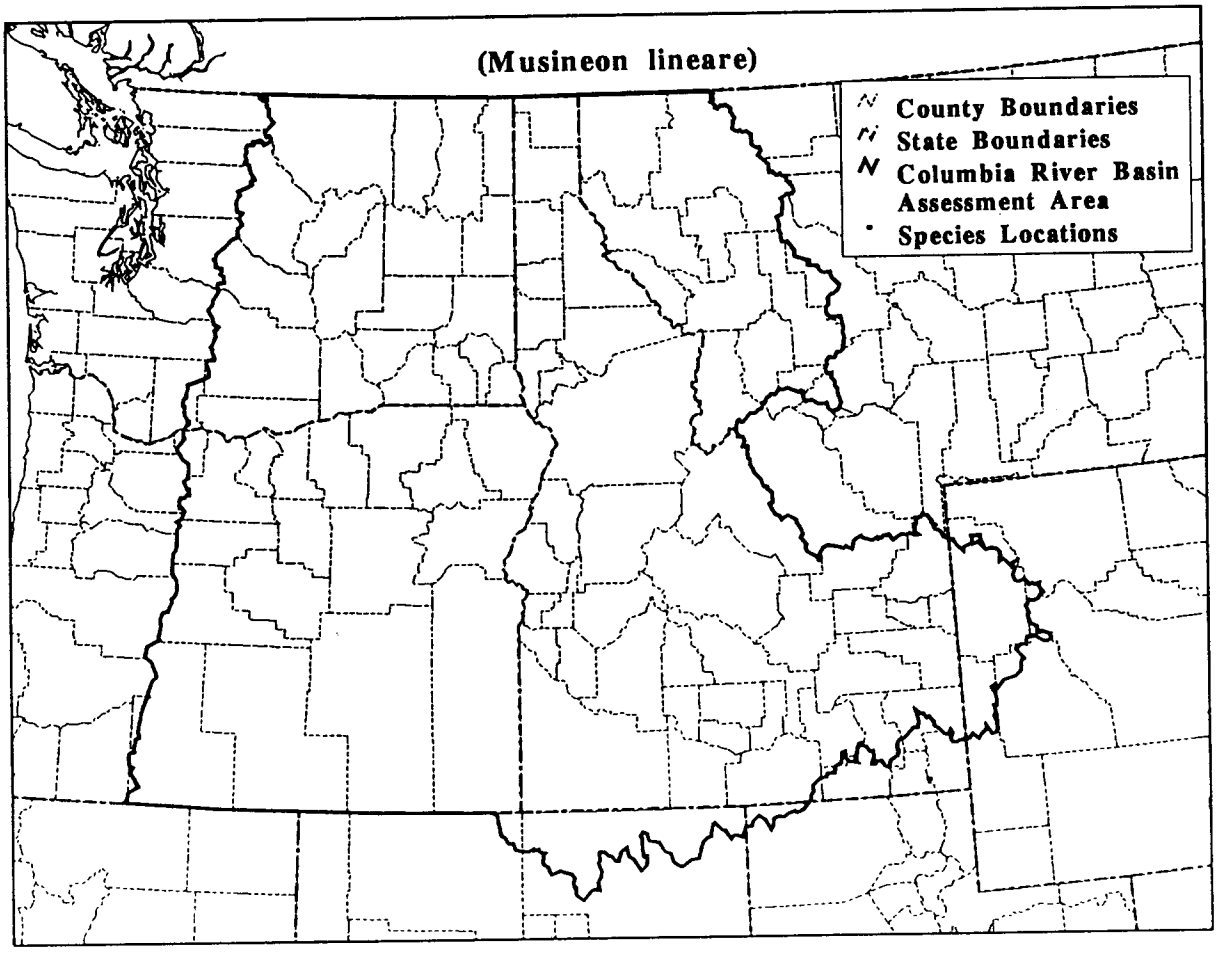

HEPATIC MONKEYFLOWER
(Mimulus jungermannioides)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

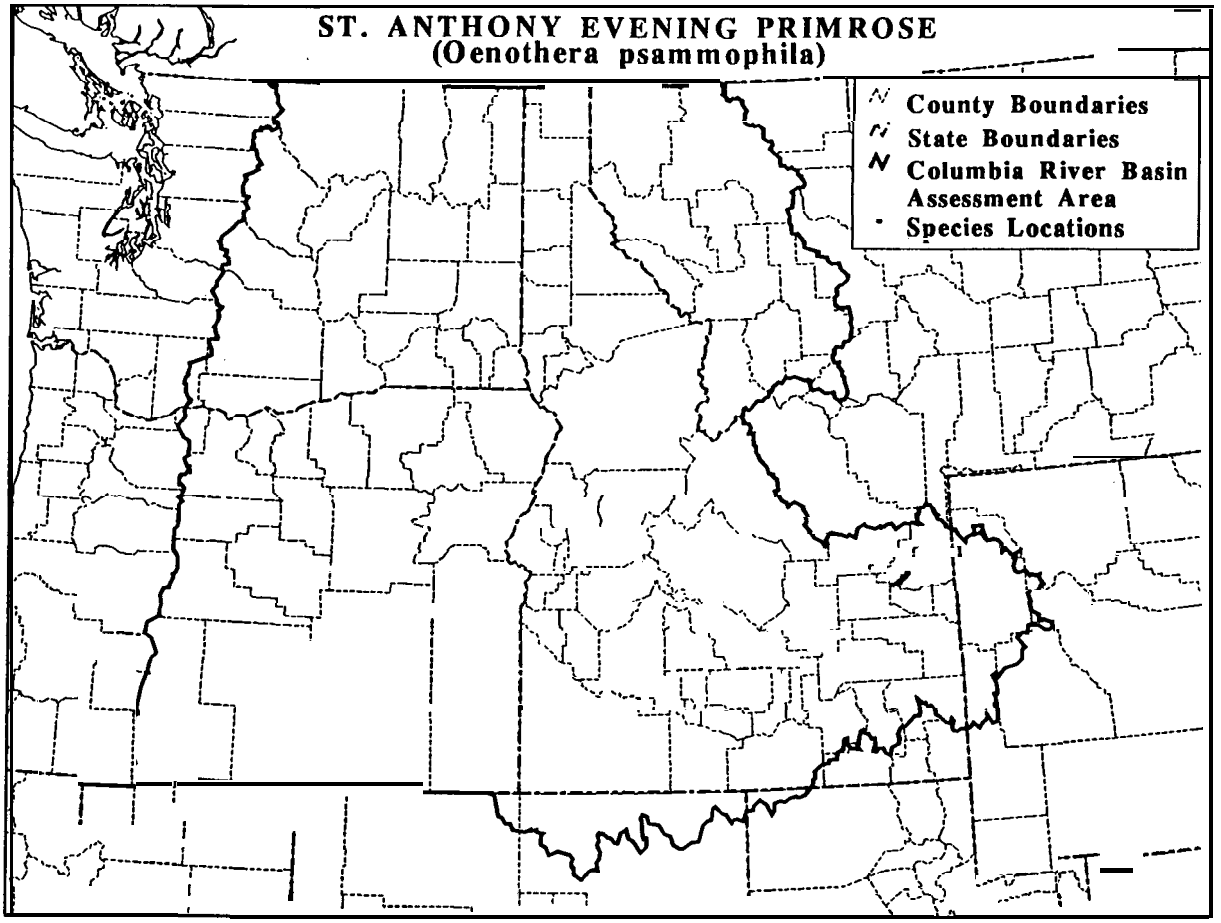

STALK-LEAVED MONKEYFLOWER
(Mimulus patulus)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

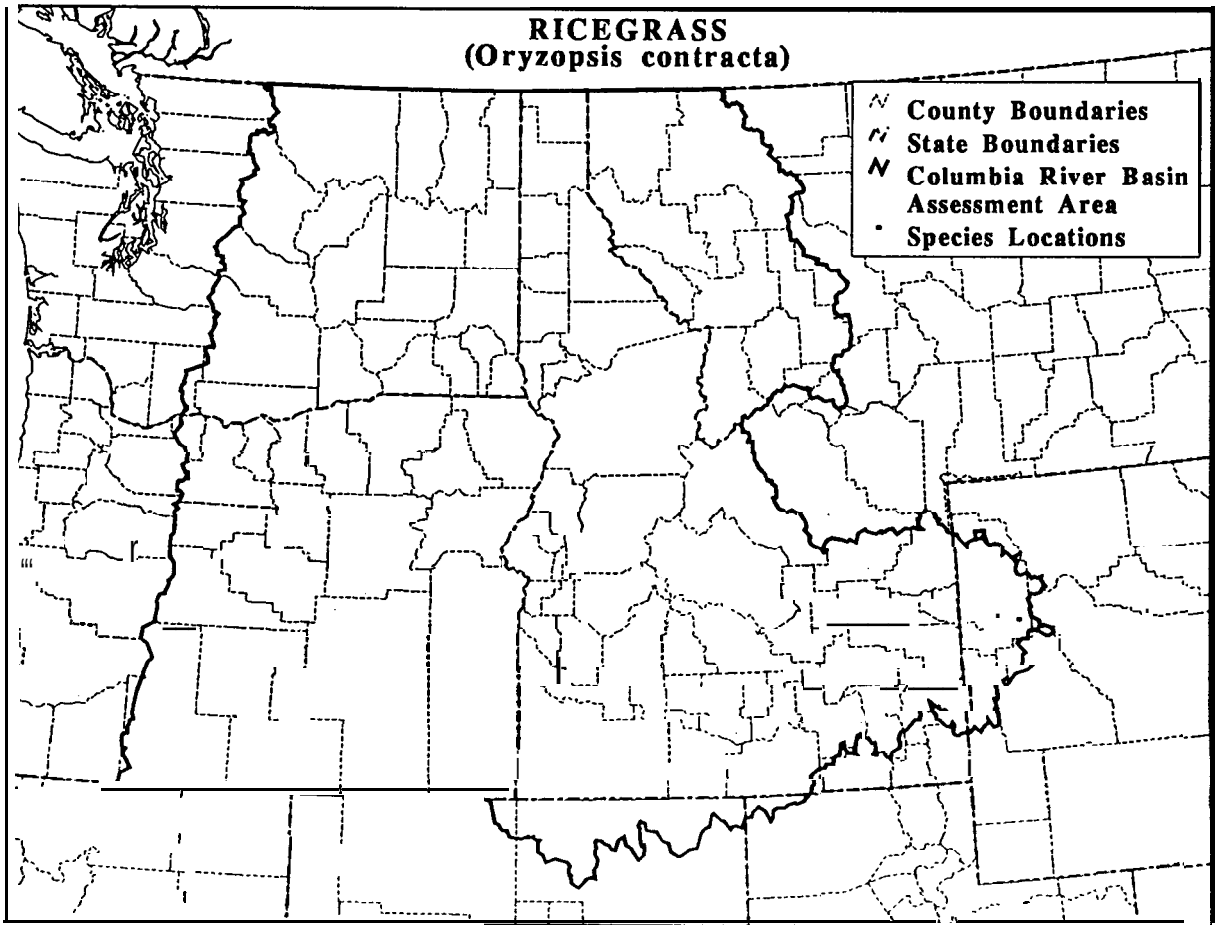

PYGMY MONKEYFLOWER
(Mimulus pygmaeus)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

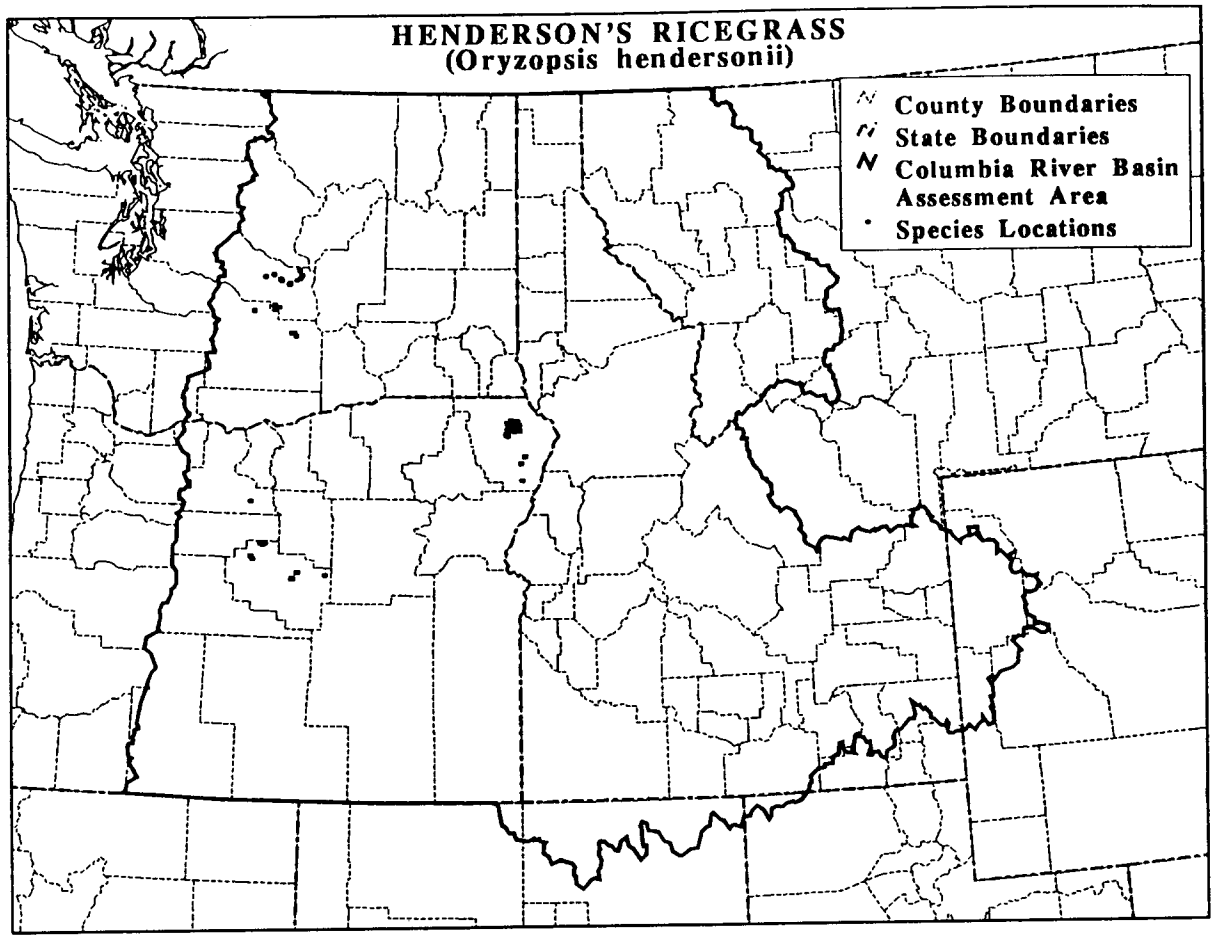

WASHINGTON MONKEYFLOWER
(Mimulus washingtonensis var. washingtonensis)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

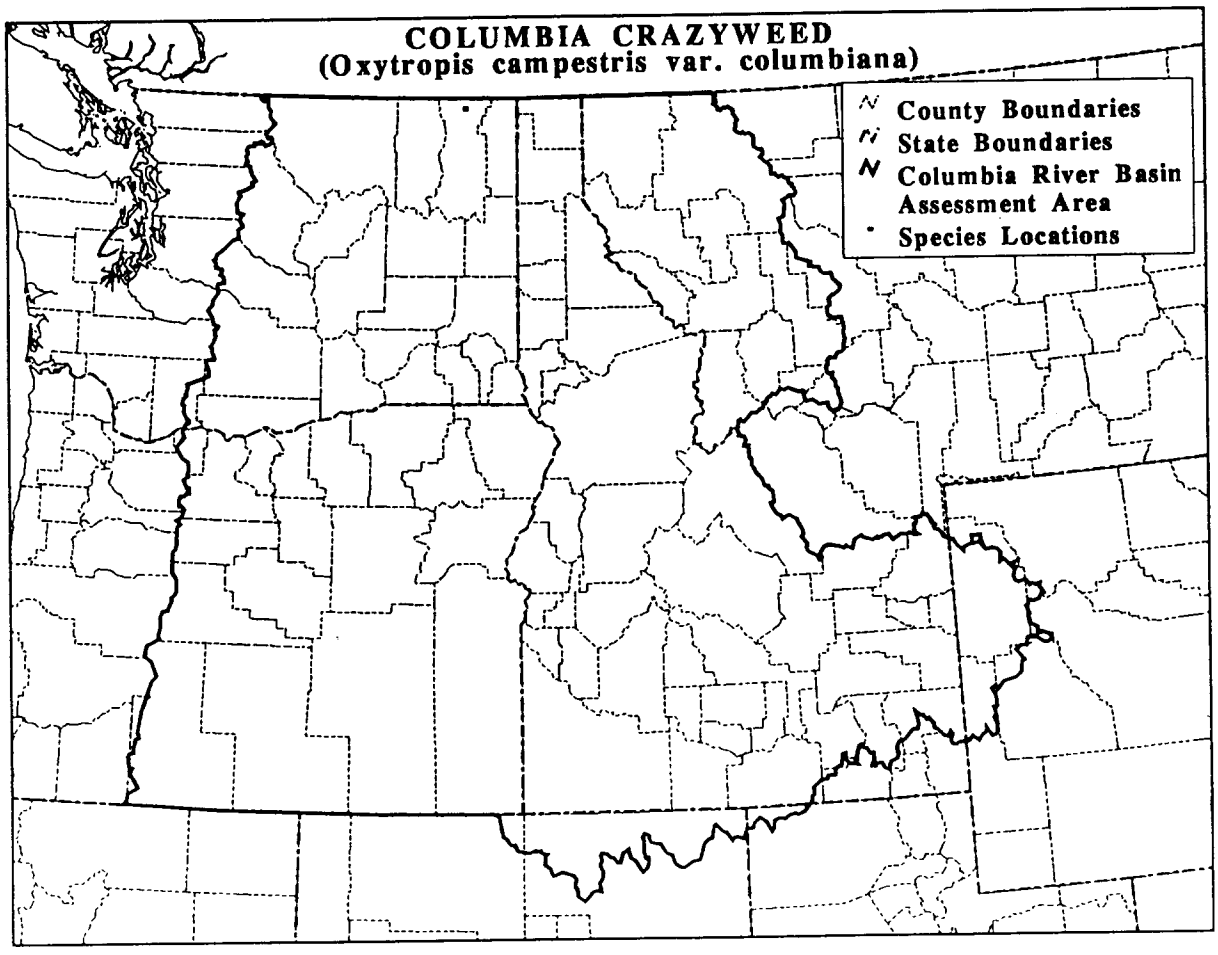

MAC FARLANE'S FOUR O'CLOCK
(Mirabilis macfarlanei)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

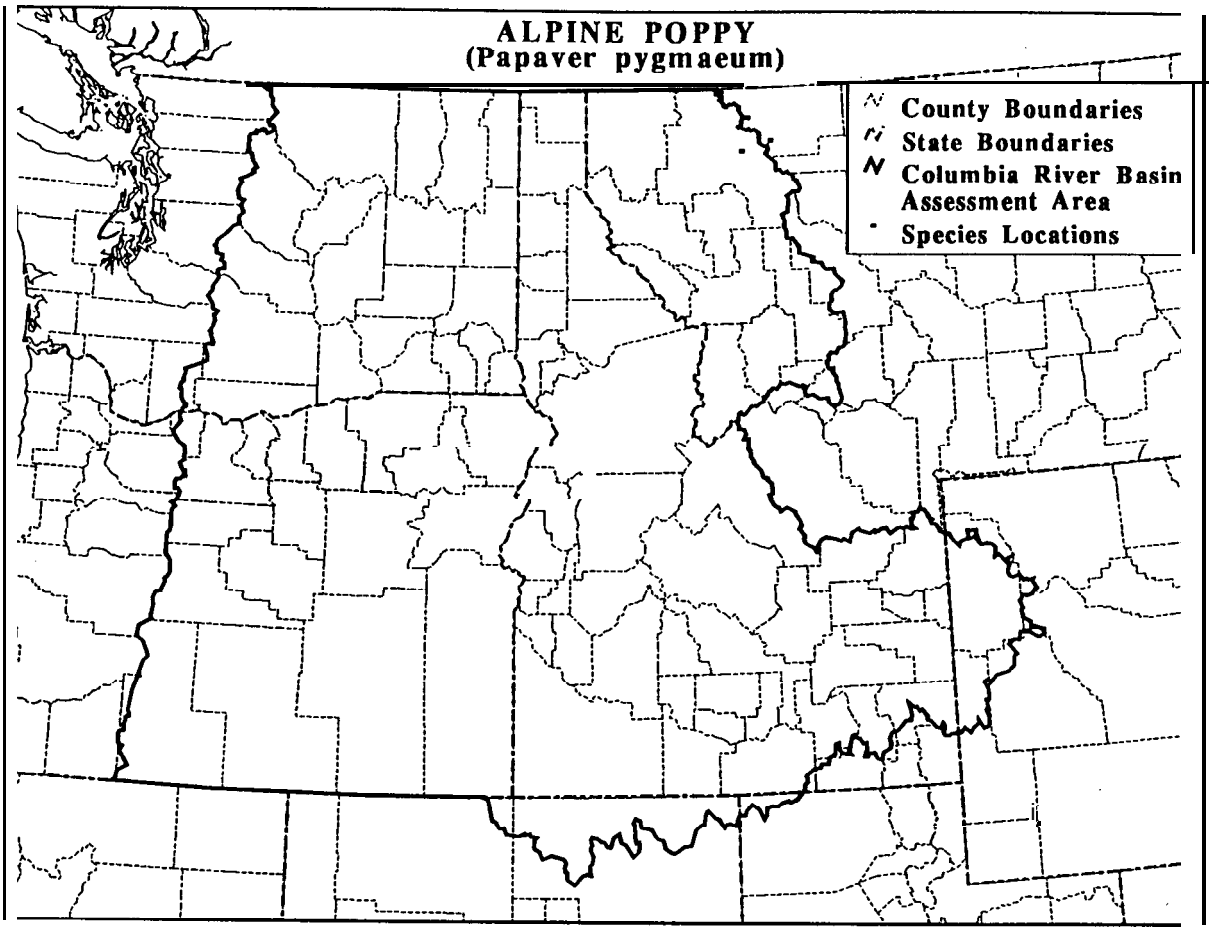

(Musineon lineare)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

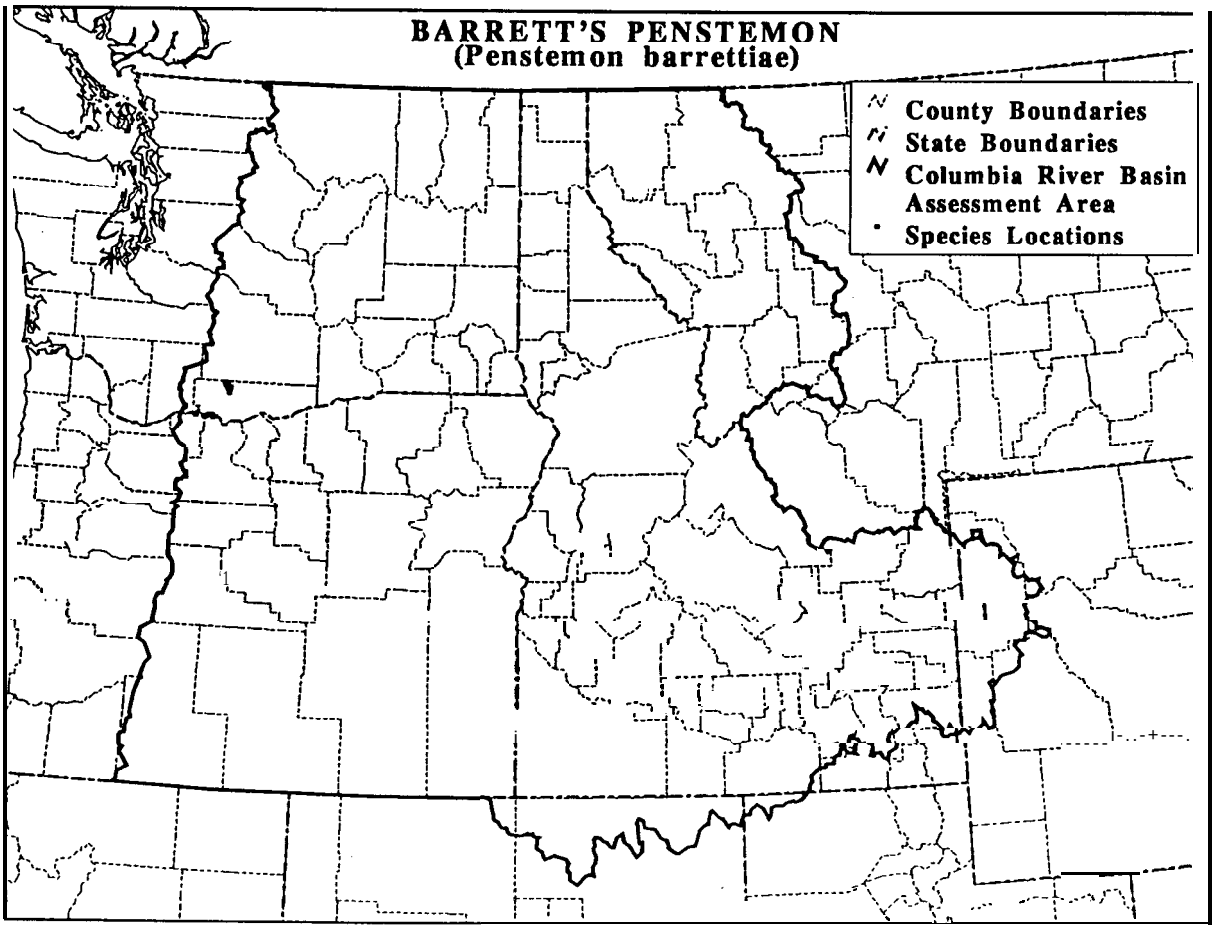

ST. ANTHONY EVENING PRIMROSE
(Oenothera psammophila)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

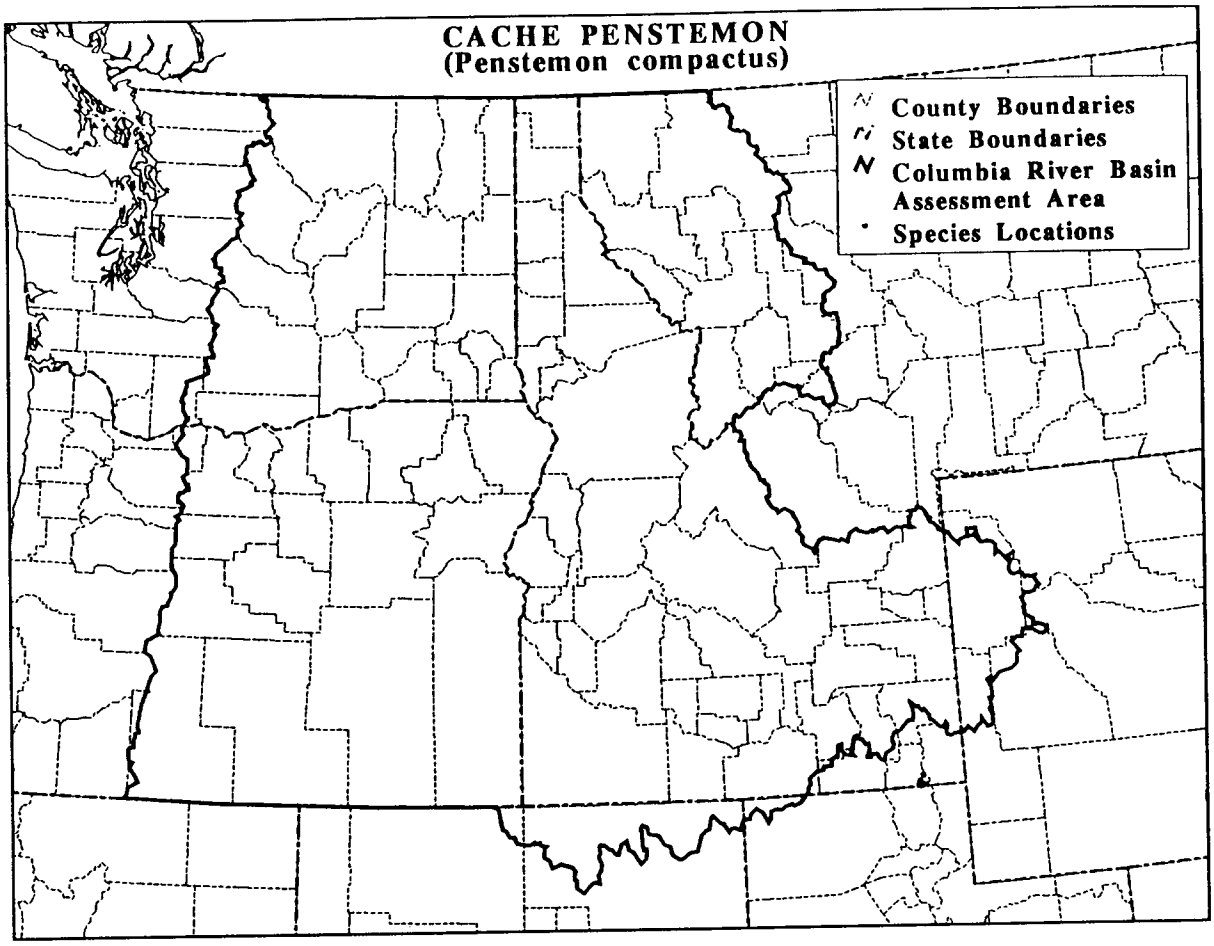

RICEGRASS
(Oryzopsis contracta)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

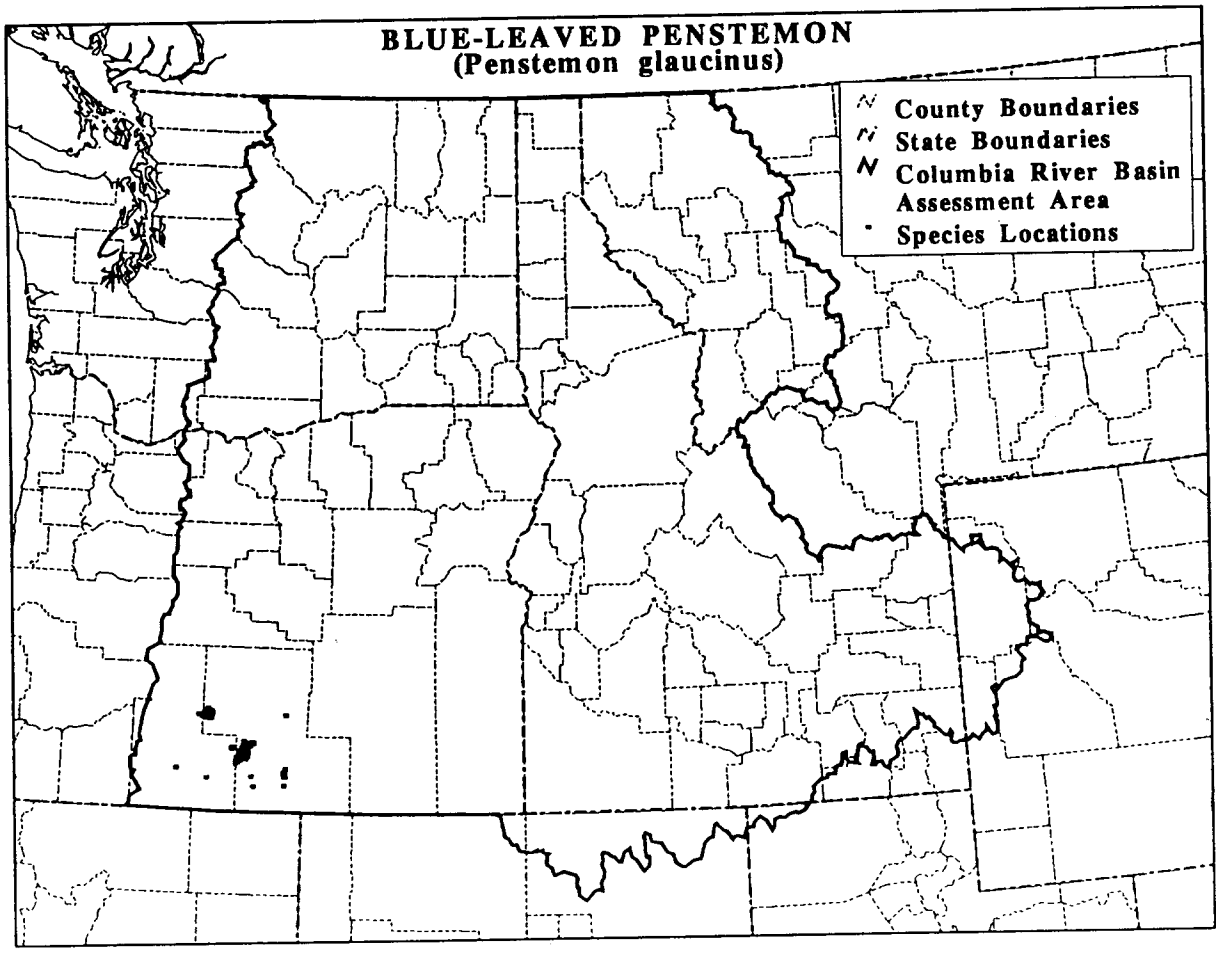

HENDERSON'S RICEGRASS
(Oryzopsis hendersonii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

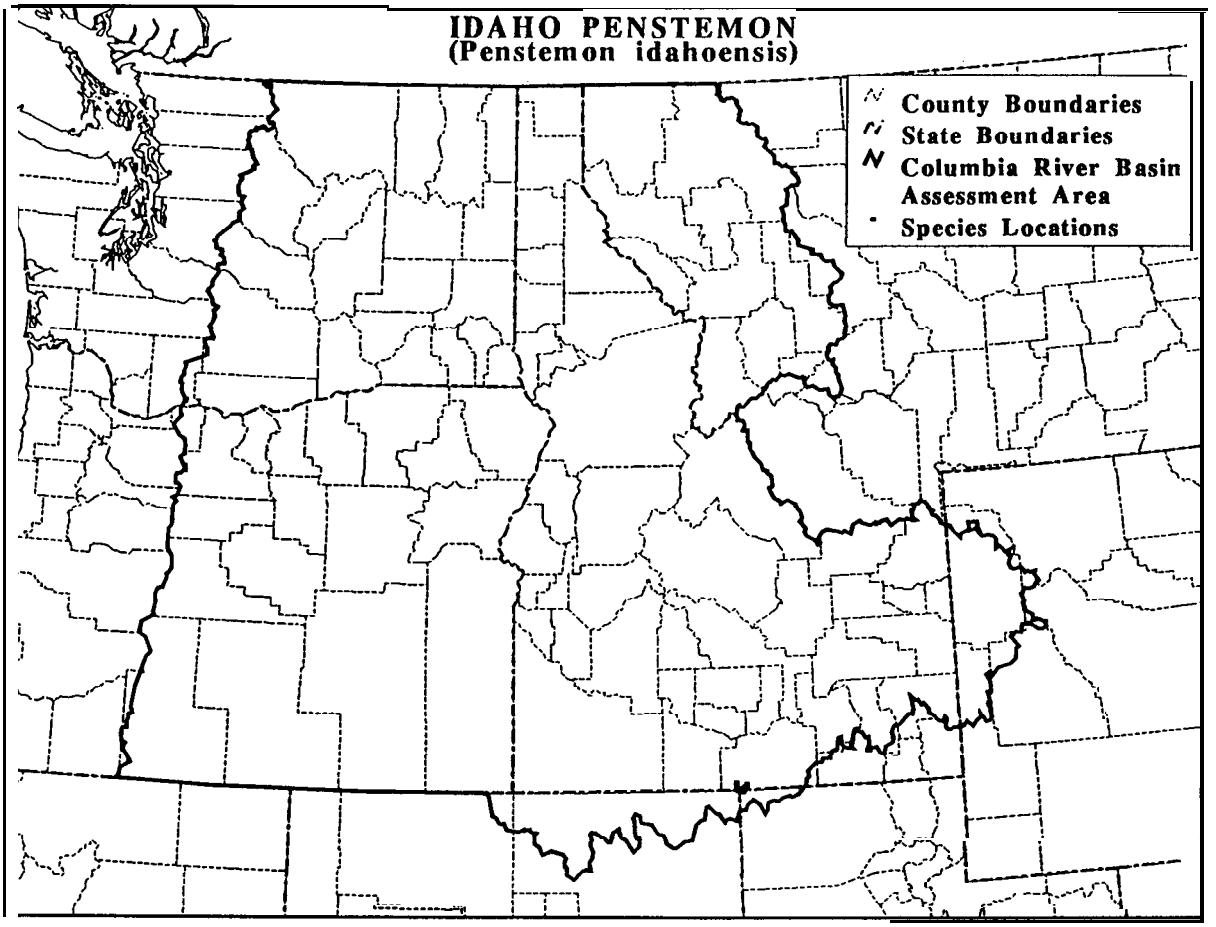

COLUMBIA CRAZYWEED
(Oxytropis campestris var. columbiana)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

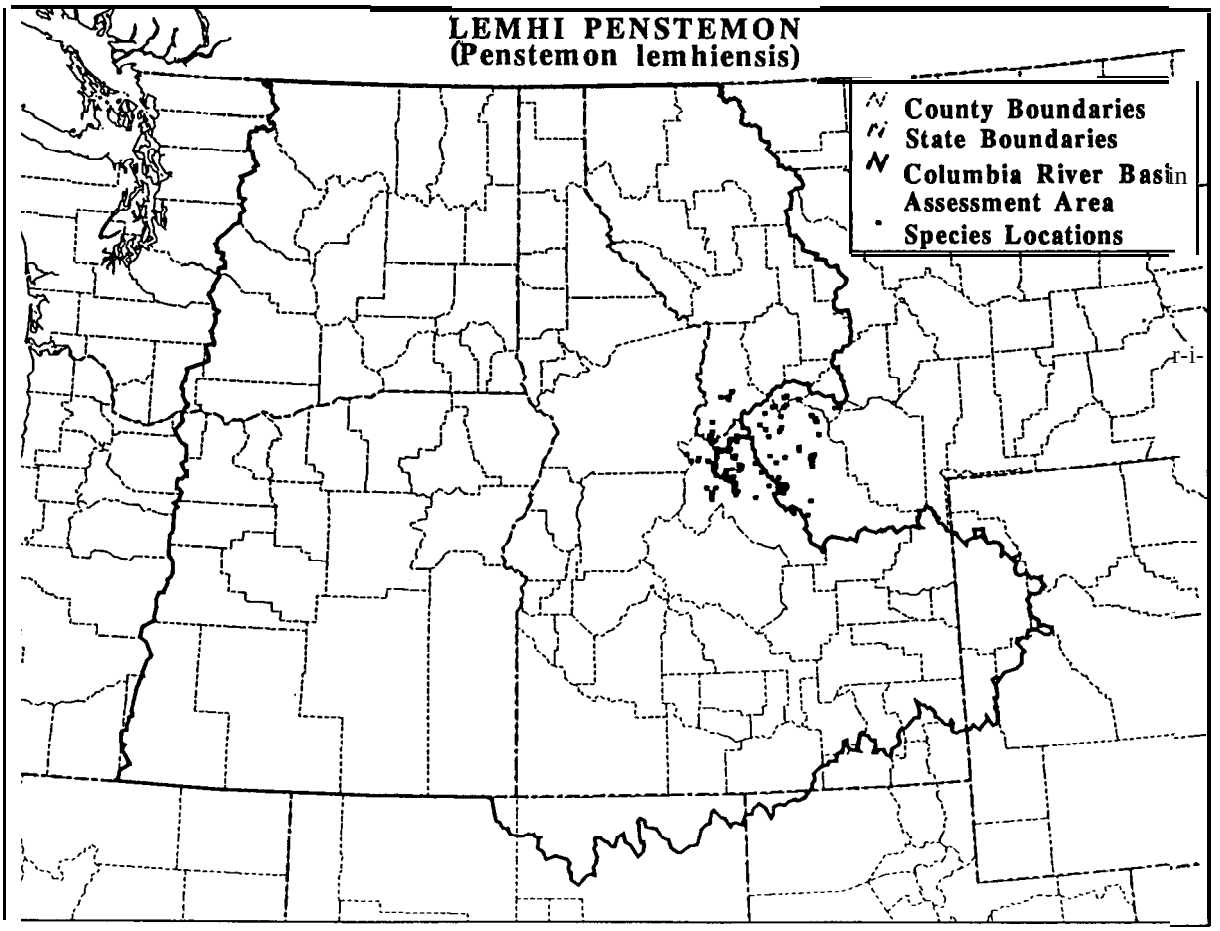

ALPINE POPPY
(Papaver pygmaeum)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations

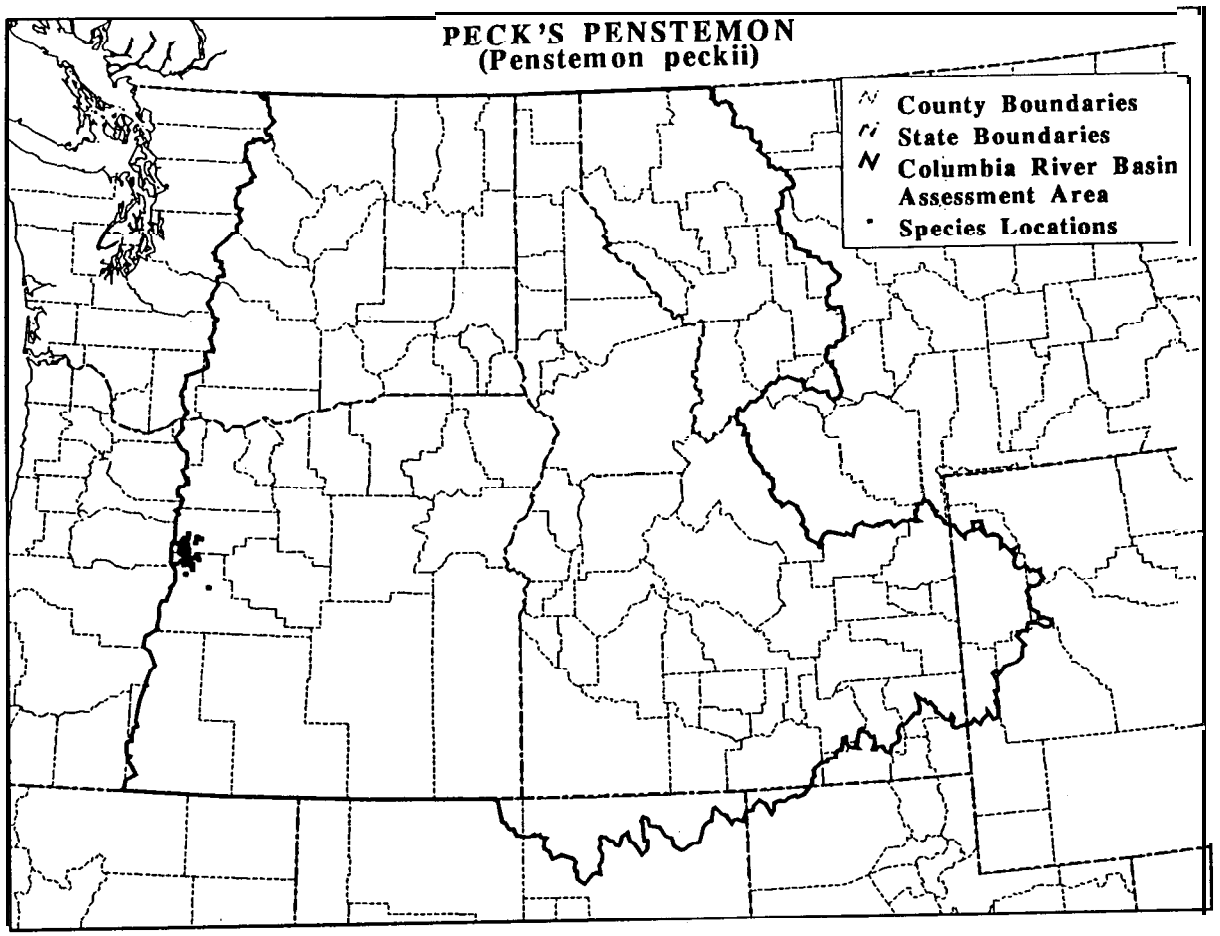

BARRETT'S PENSTEMON
(Penstemon barrettiae)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations

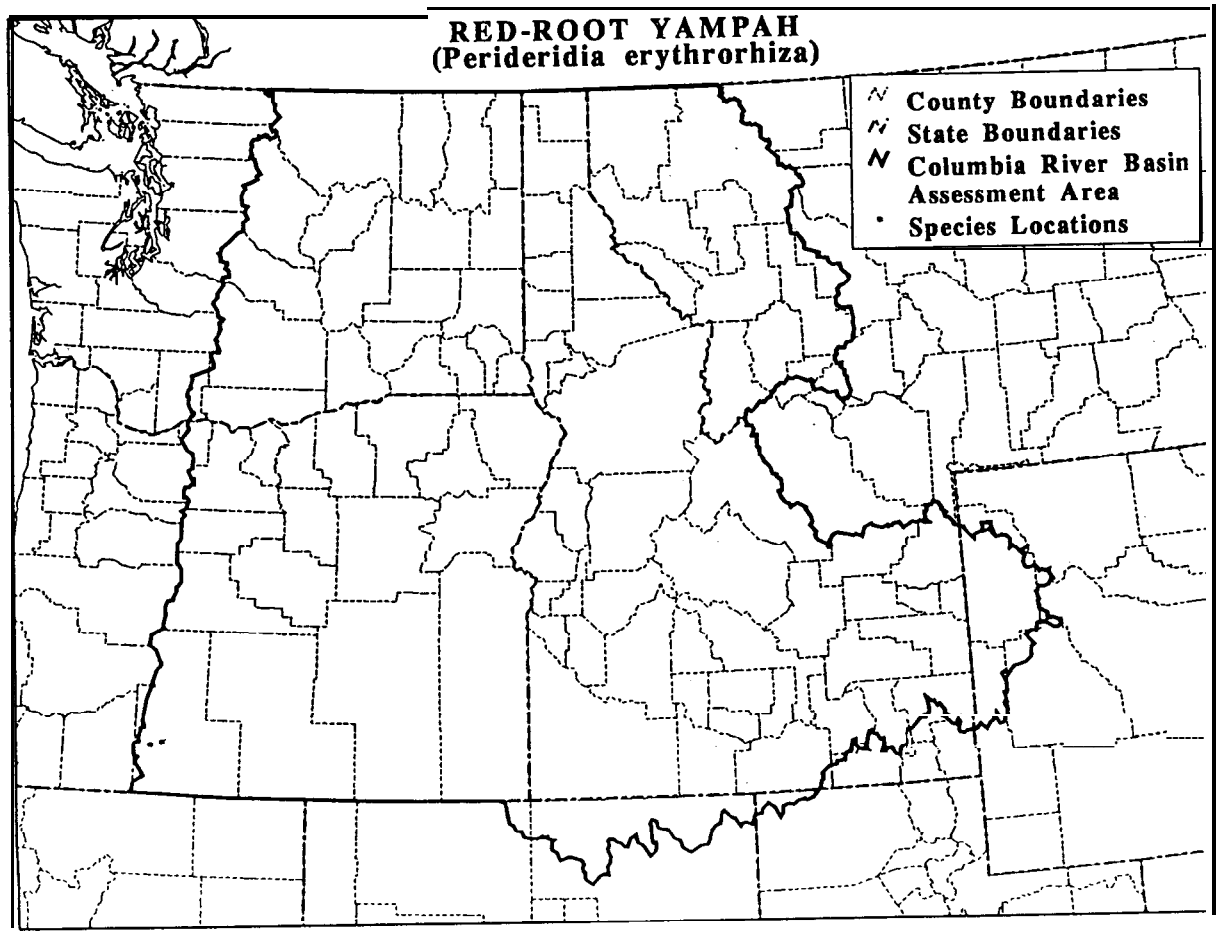

CACHE PENSTEMON
(Penstemon compactus)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

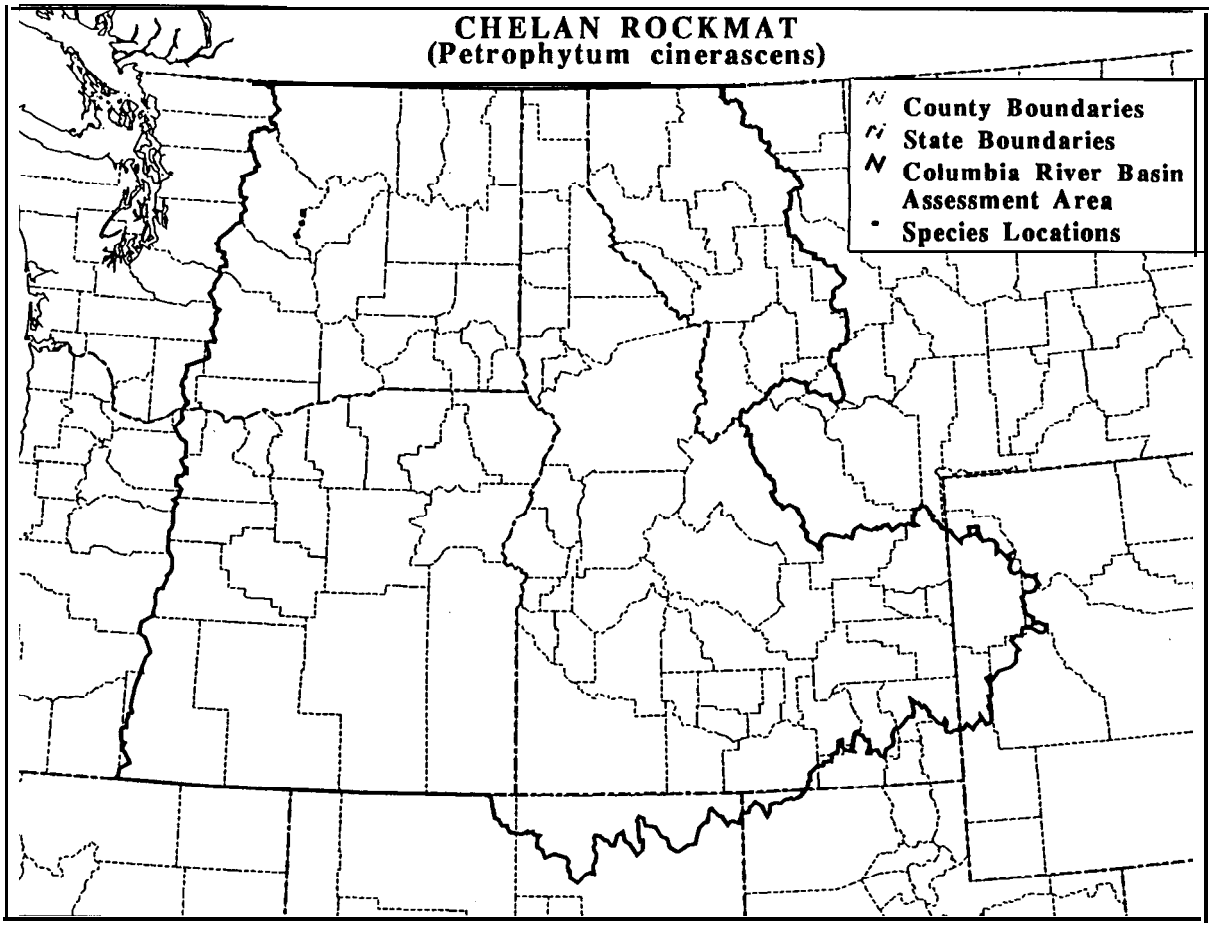

BLUE-LEAVED PENSTEMON
(Penstemon glaucinus)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

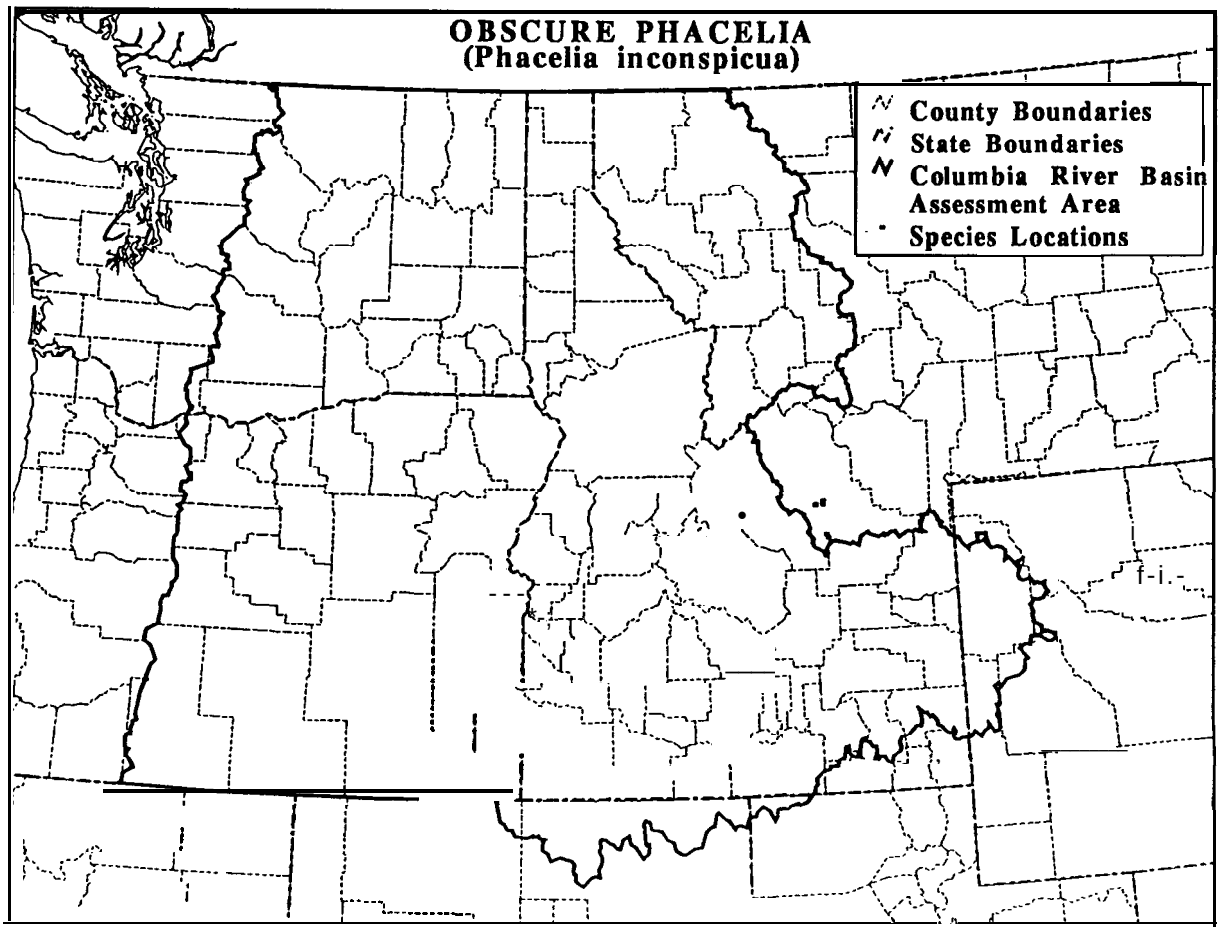

IDAHO PENSTEMON
(Penstemon idahoensis)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

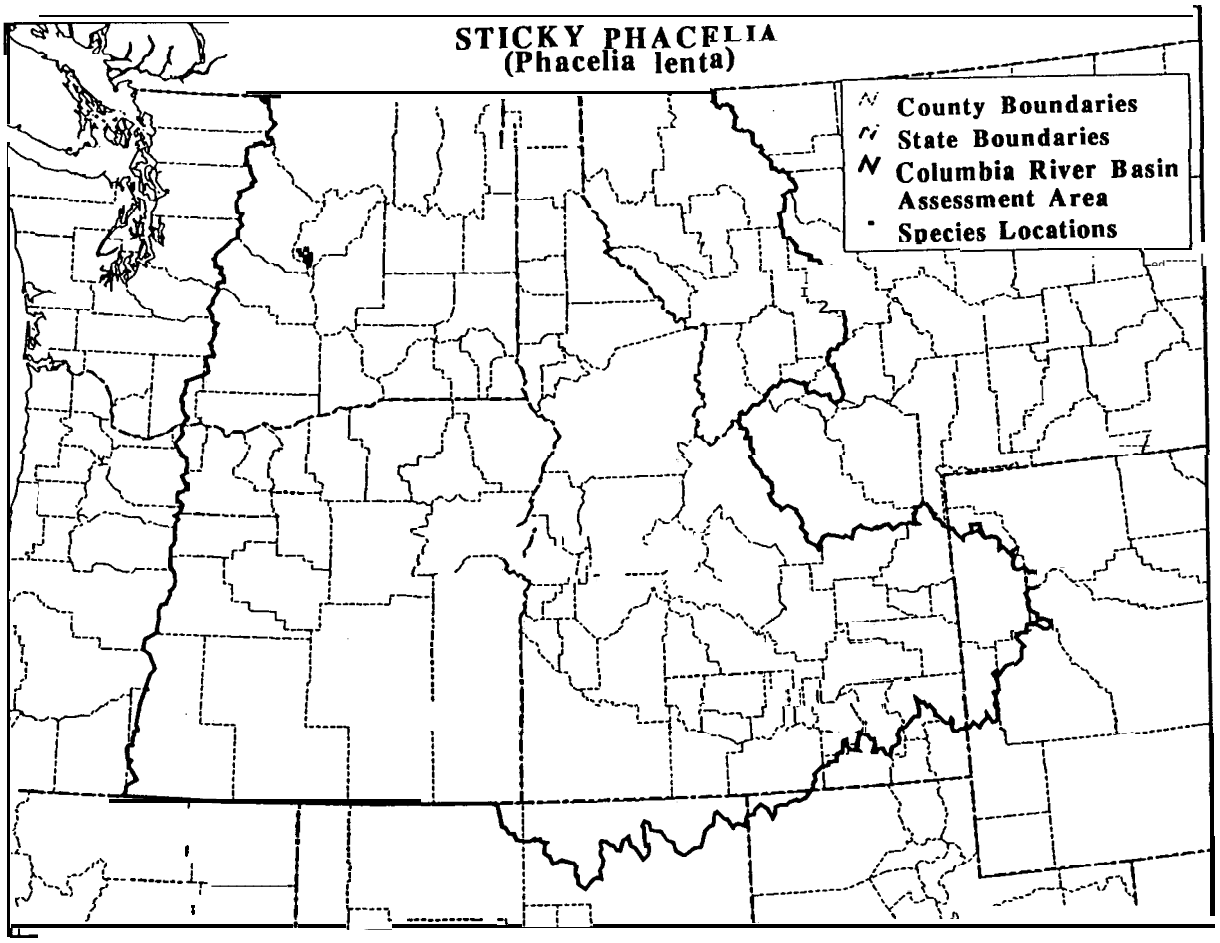

LEMHI PENSTEMON
(Penstemon lemhiensis)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

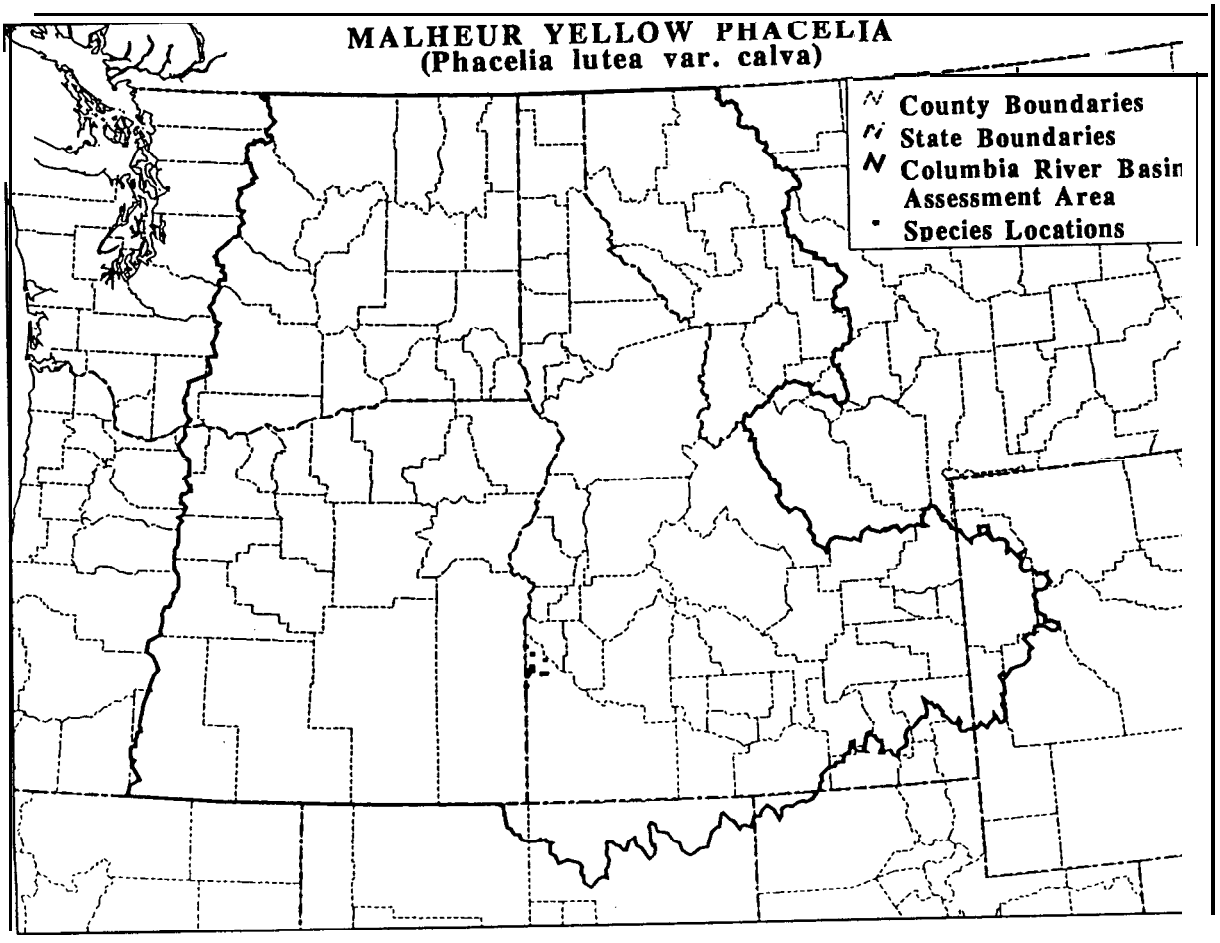

PECK'S PENSTEMON
(Penstemon peckii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

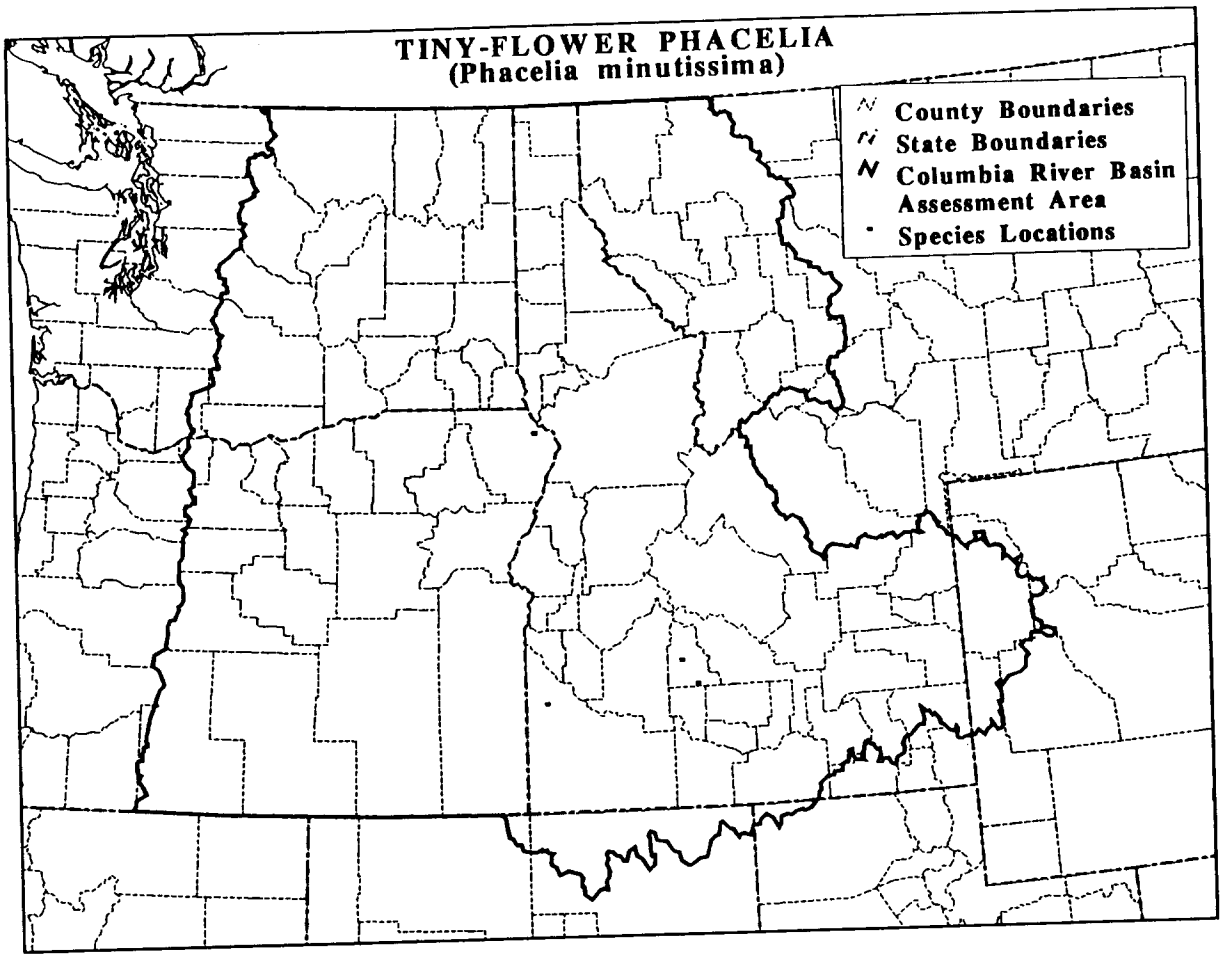

RED-ROOT YAMPAH
(Perideridia erythrorhiza)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

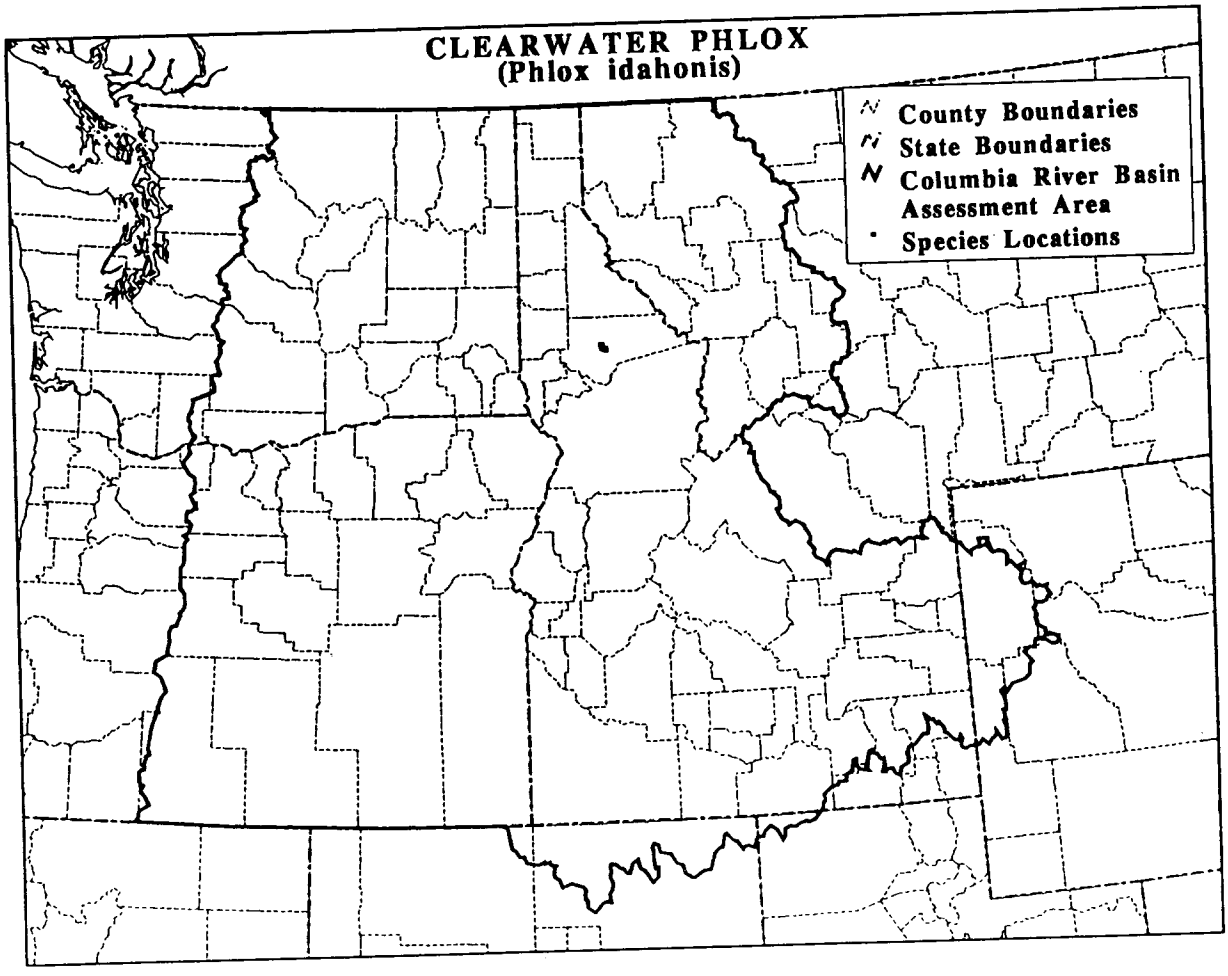

CHELAN ROCKMAT
(Petrophytum cinerascens)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

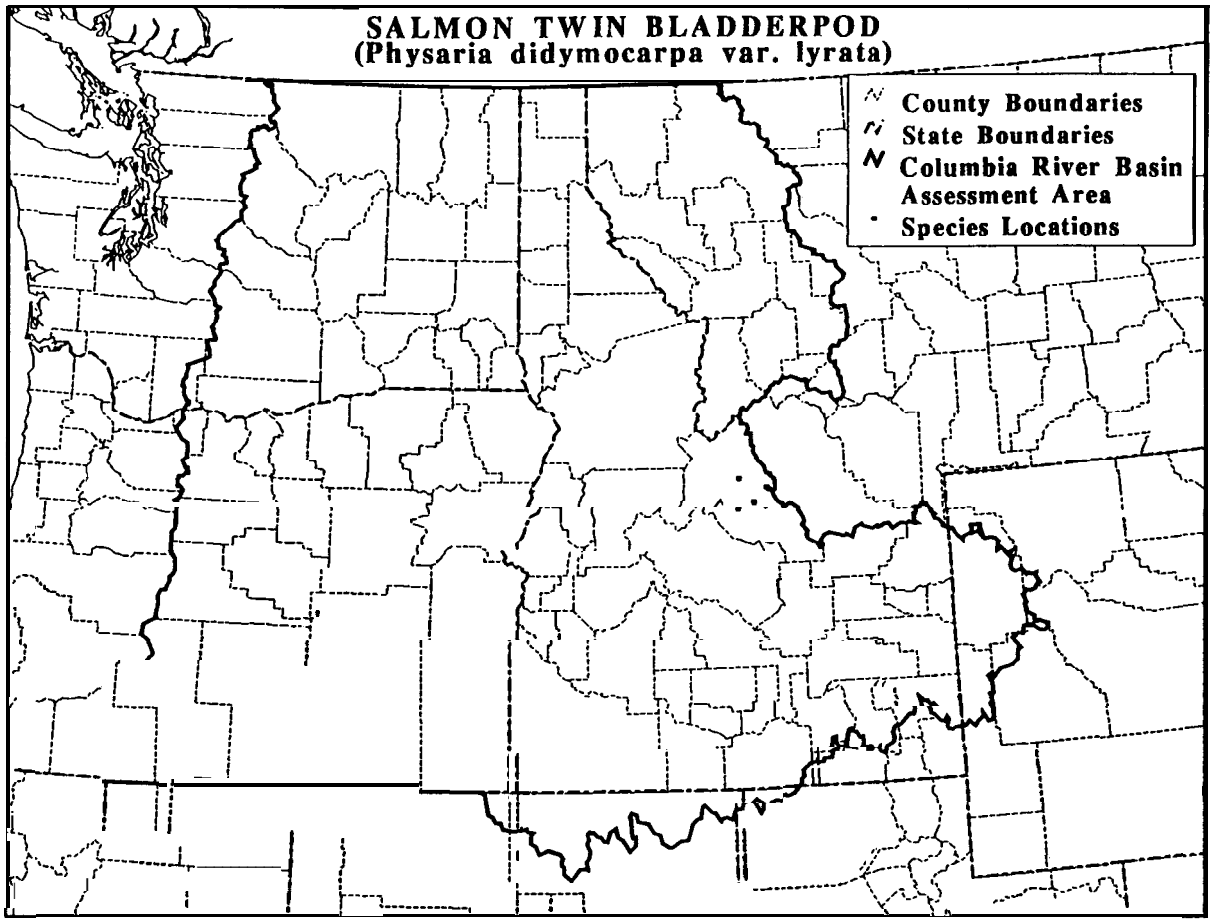

OBSCURE PHACELIA
(Phacelia inconspicua)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

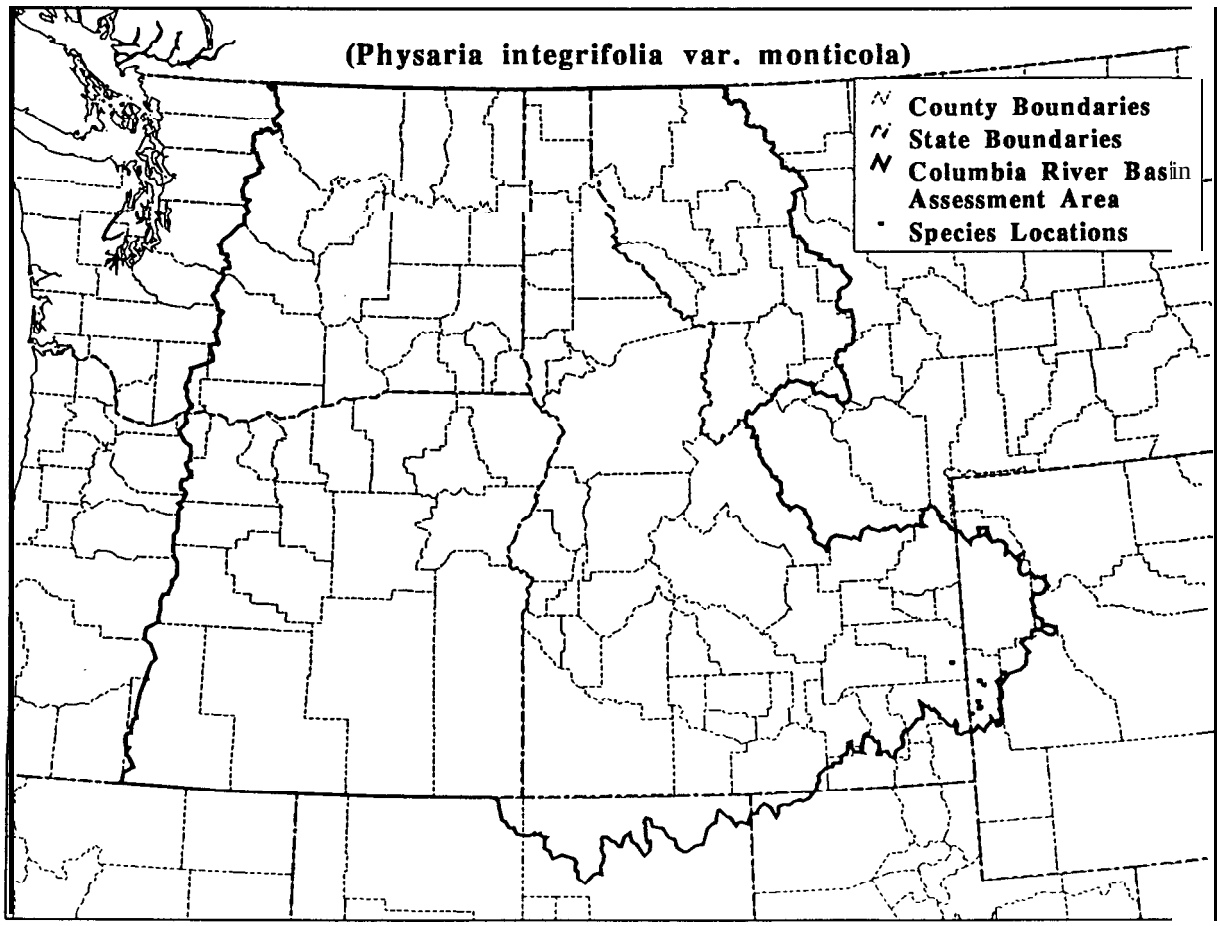

STICKY PHACELIA
(Phacelia lenta)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

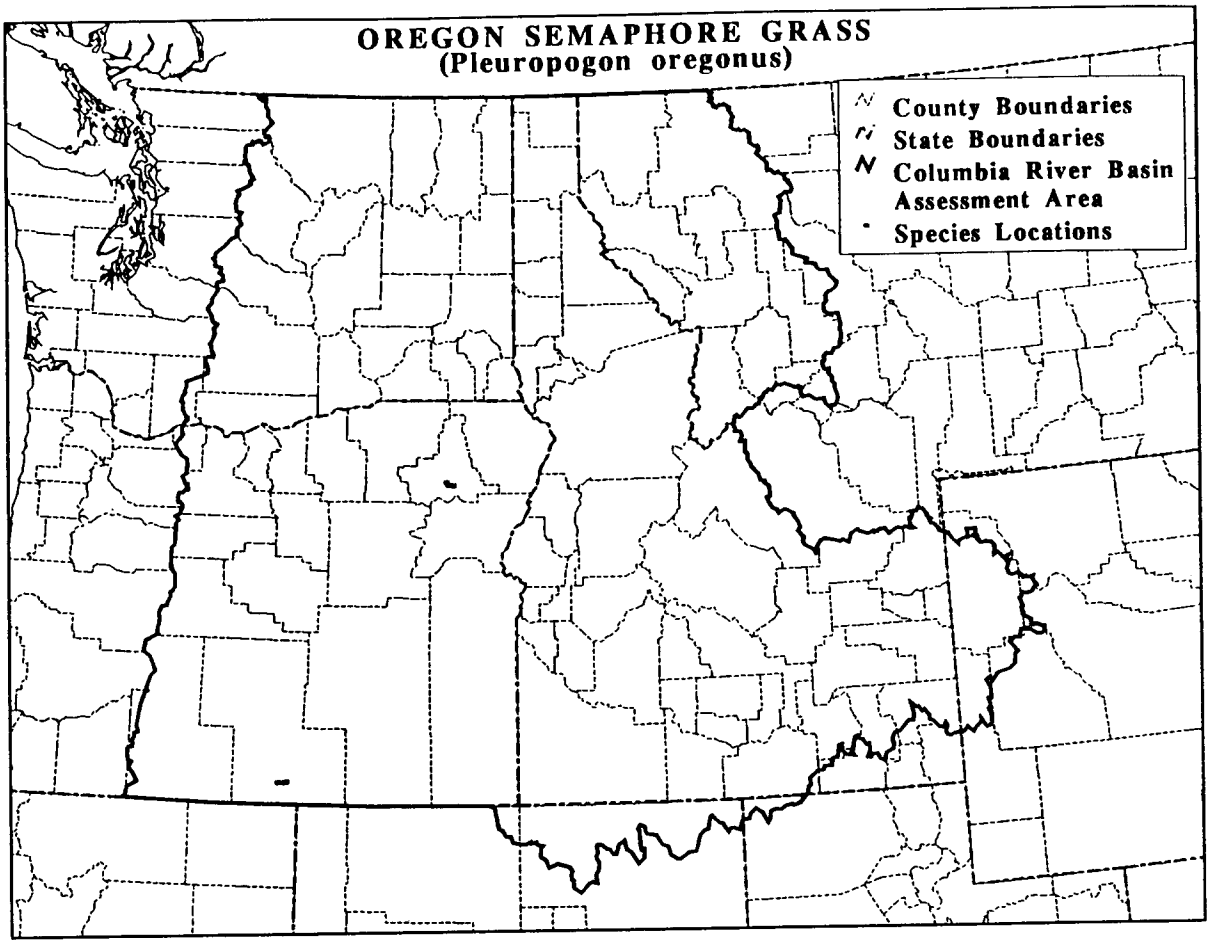

MALHEUR YELLOW PHACELIA
(Phacelia lutea var. calva)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

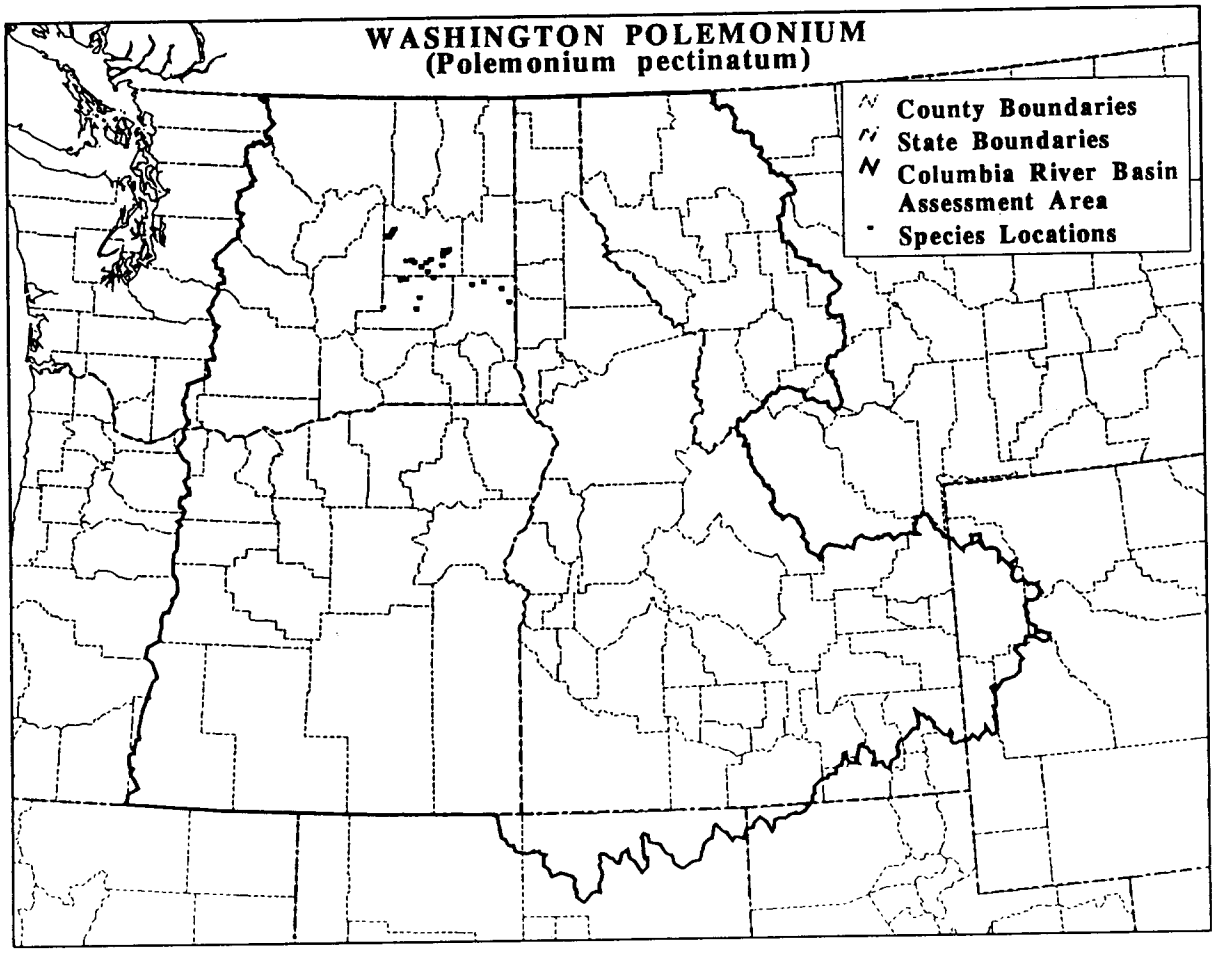

TINY-FLOWER PHACELIA
(Phacelia minutissima)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

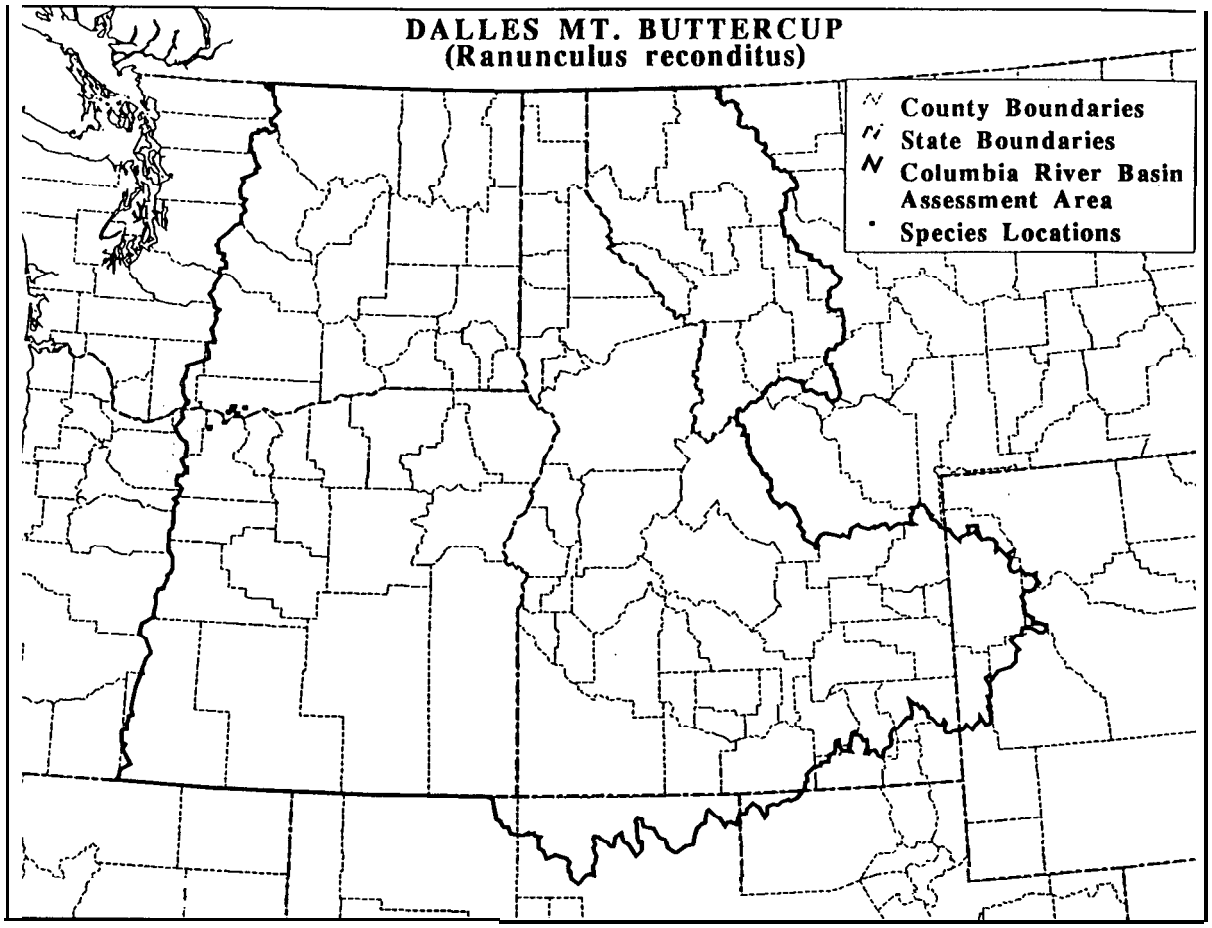

CLEARWATER PHLOX
(Phlox idahonis)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

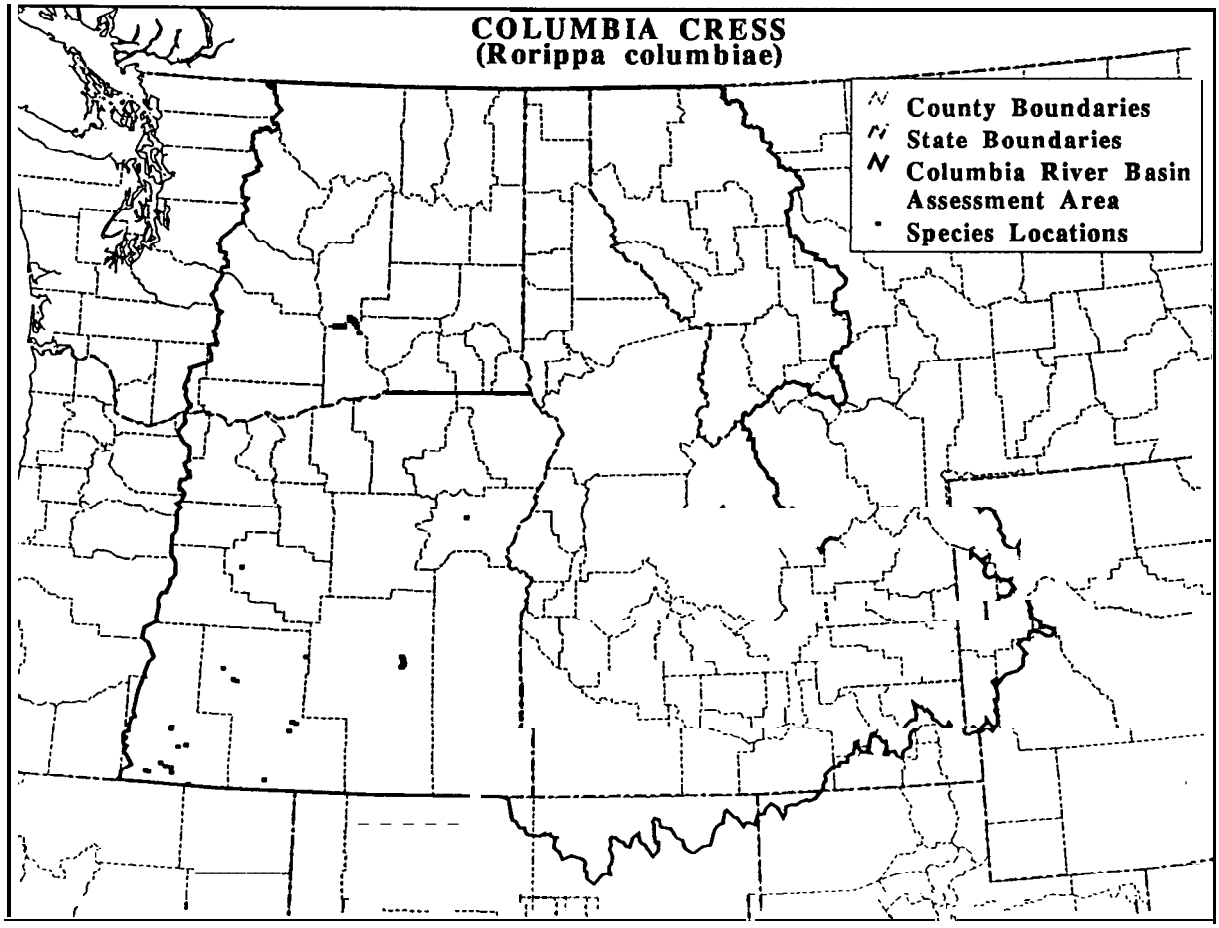

SALMON TWIN BLADDERPOD
(Physaria didymocarpa var. lyrata)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

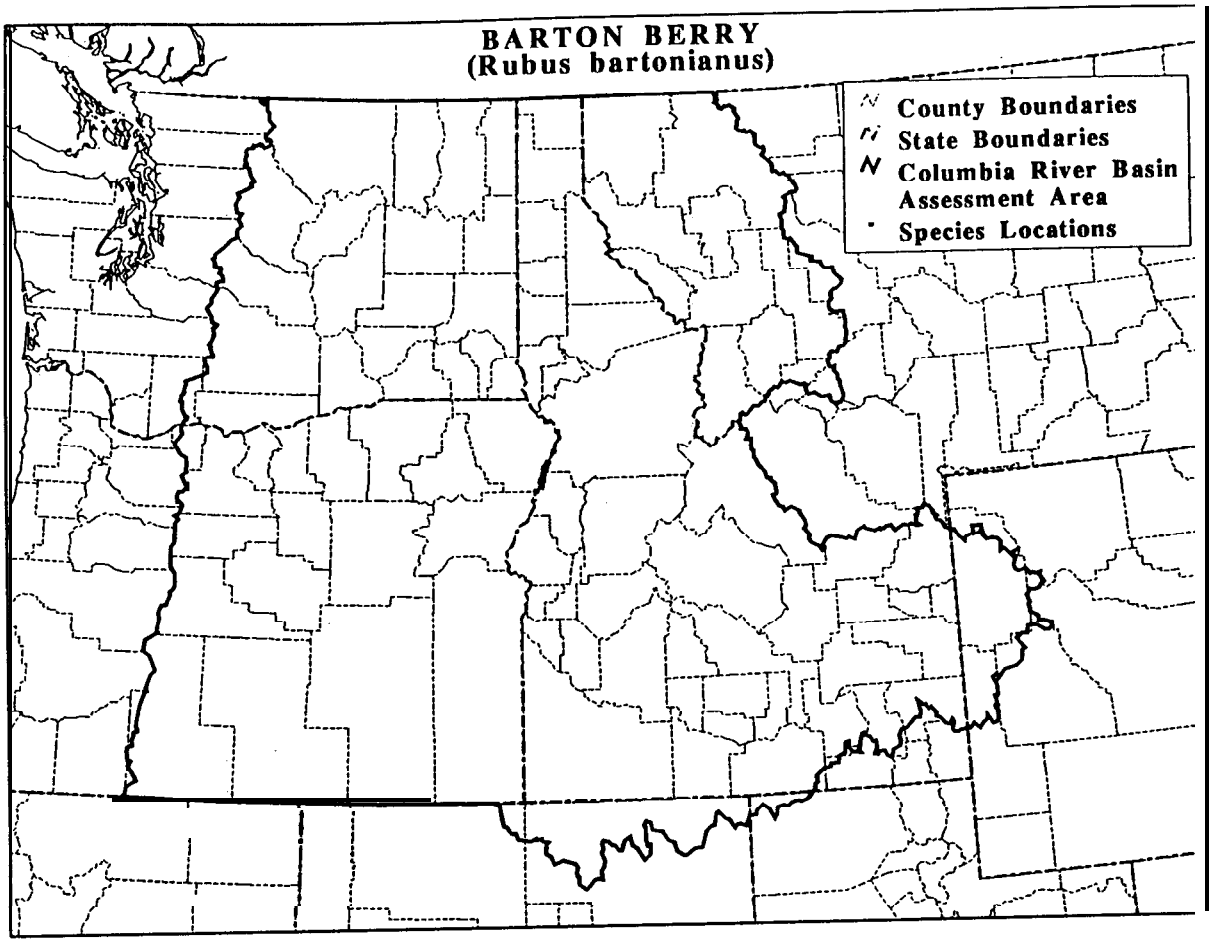

(Physaria integrifolia var. monticola)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

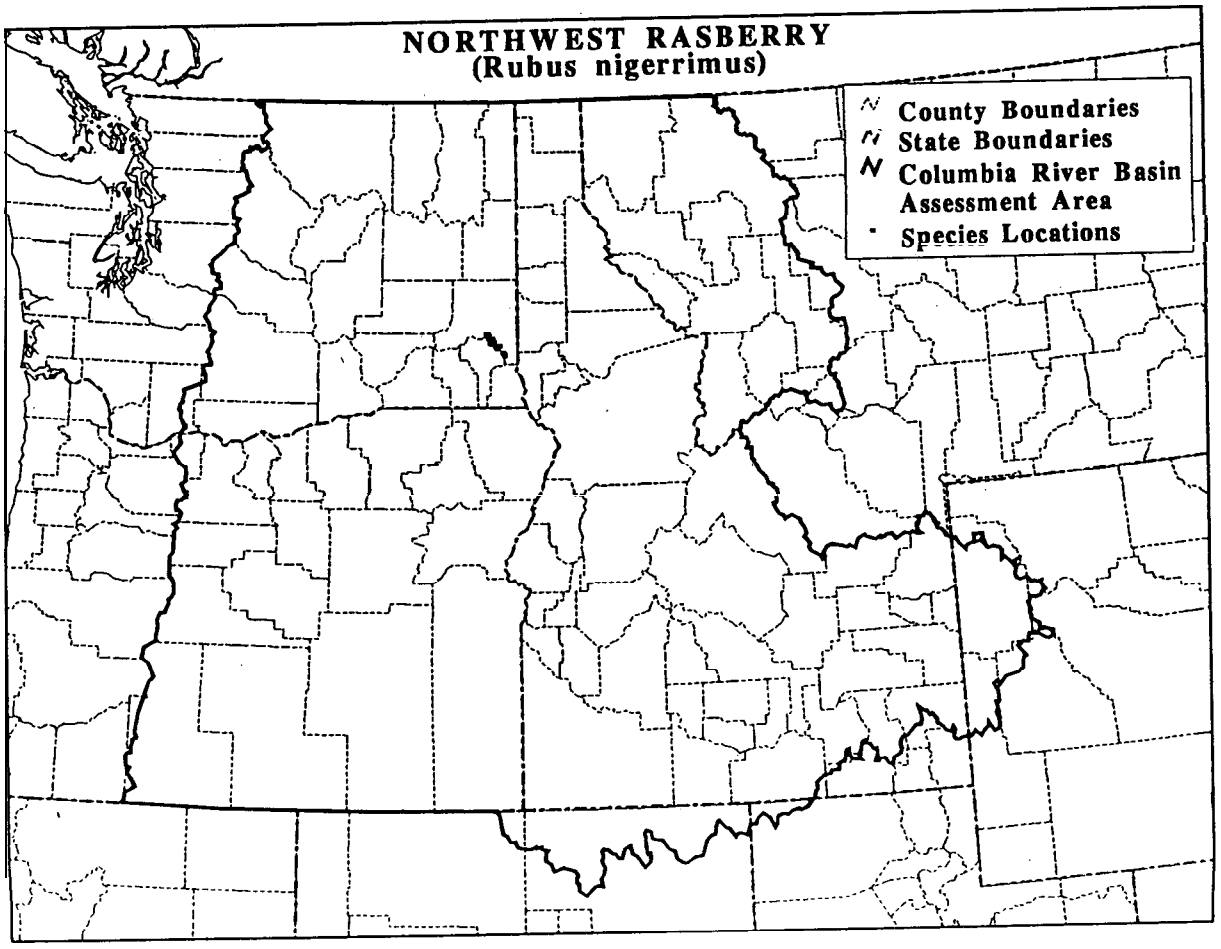

OREGON SEMAPHORE GRASS
(Pleuropogon oregonus)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


WASHINGTON POLEMONIUM
(Polemonium pectinatum)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

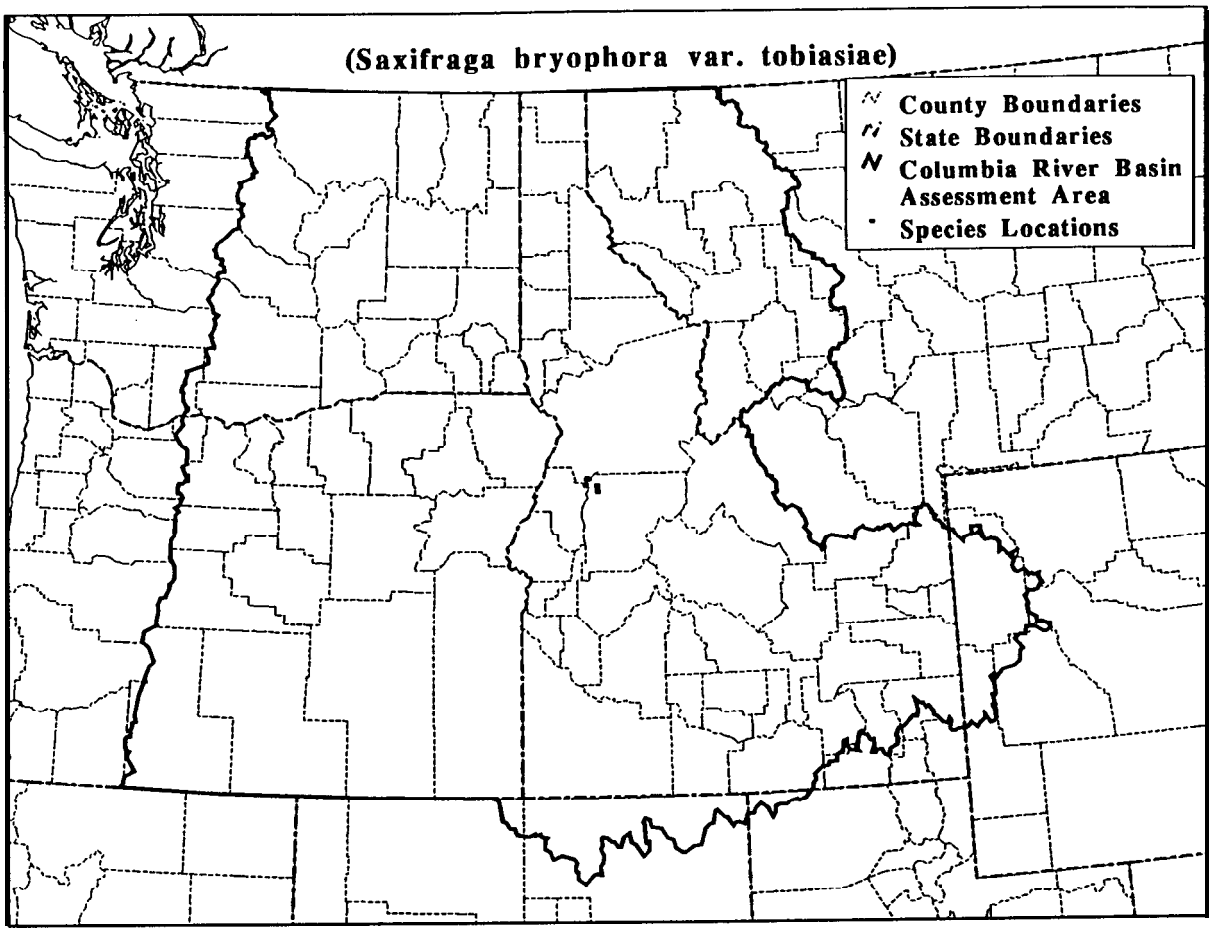

DALLES MT. BUTTERCUP
(Ranunculus reconditus)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


COLUMBIA CRESS
(Rorippa columbiae)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

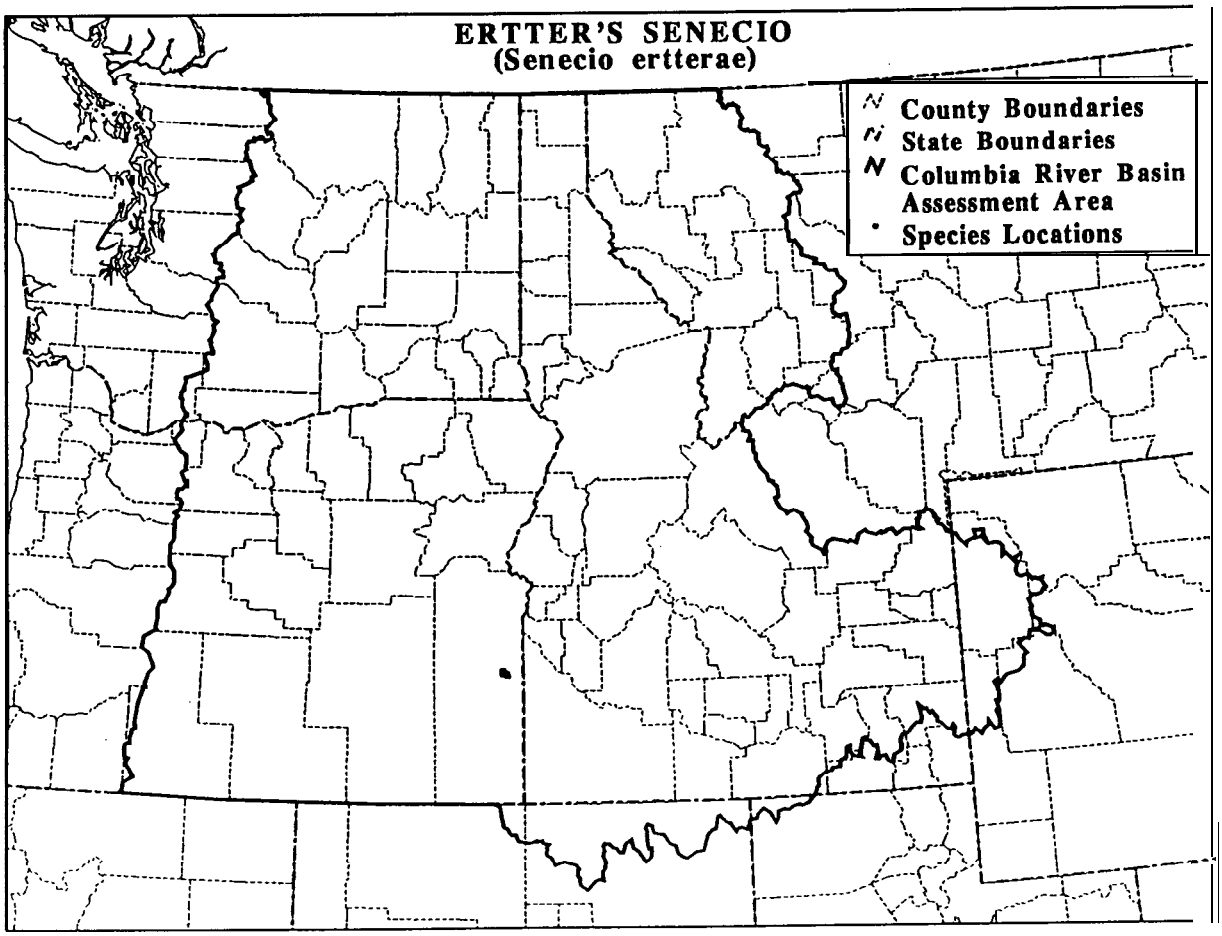

BARTON BERRY
(Rubus bartonianus)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

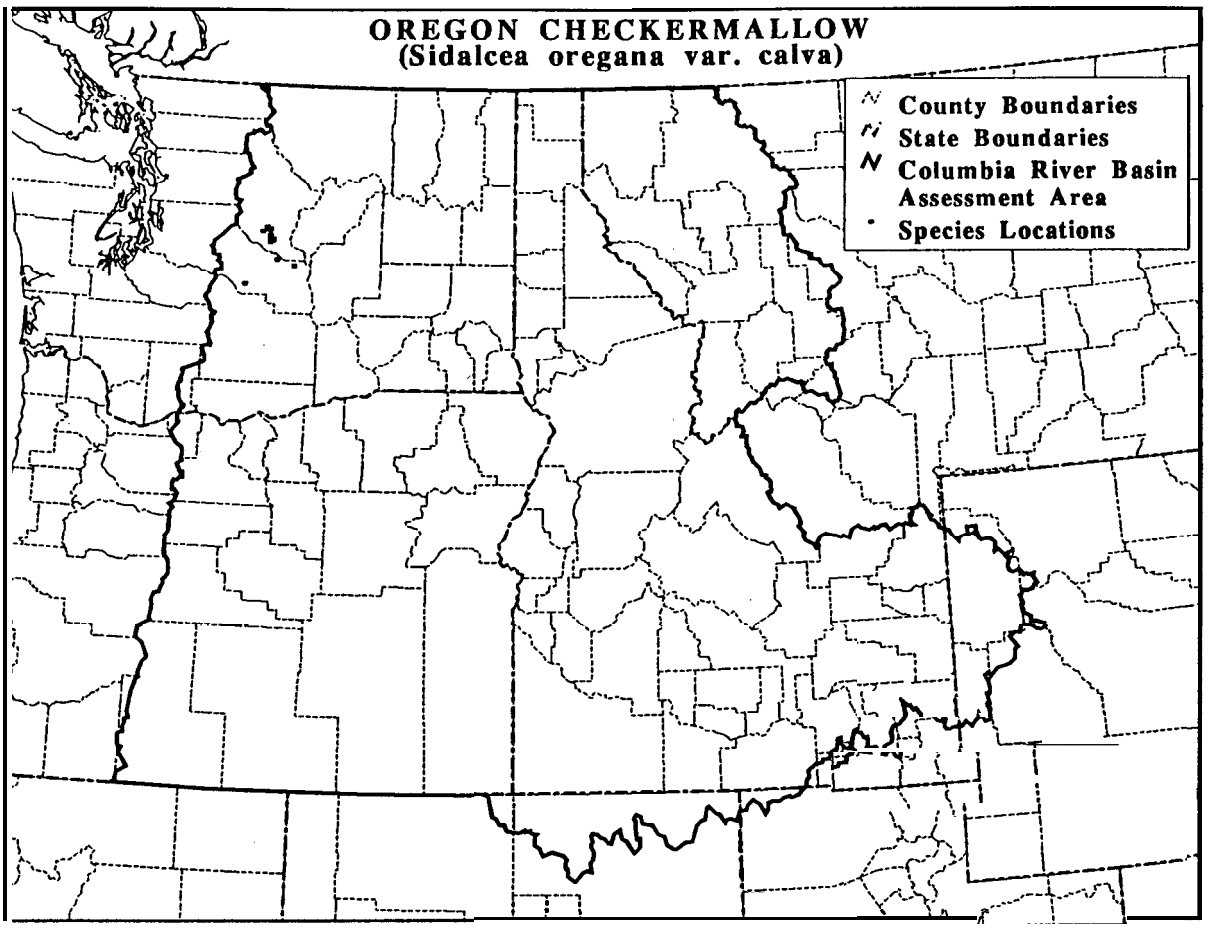

NORTHWEST RASBERRY
(Rubus nigerrimus)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

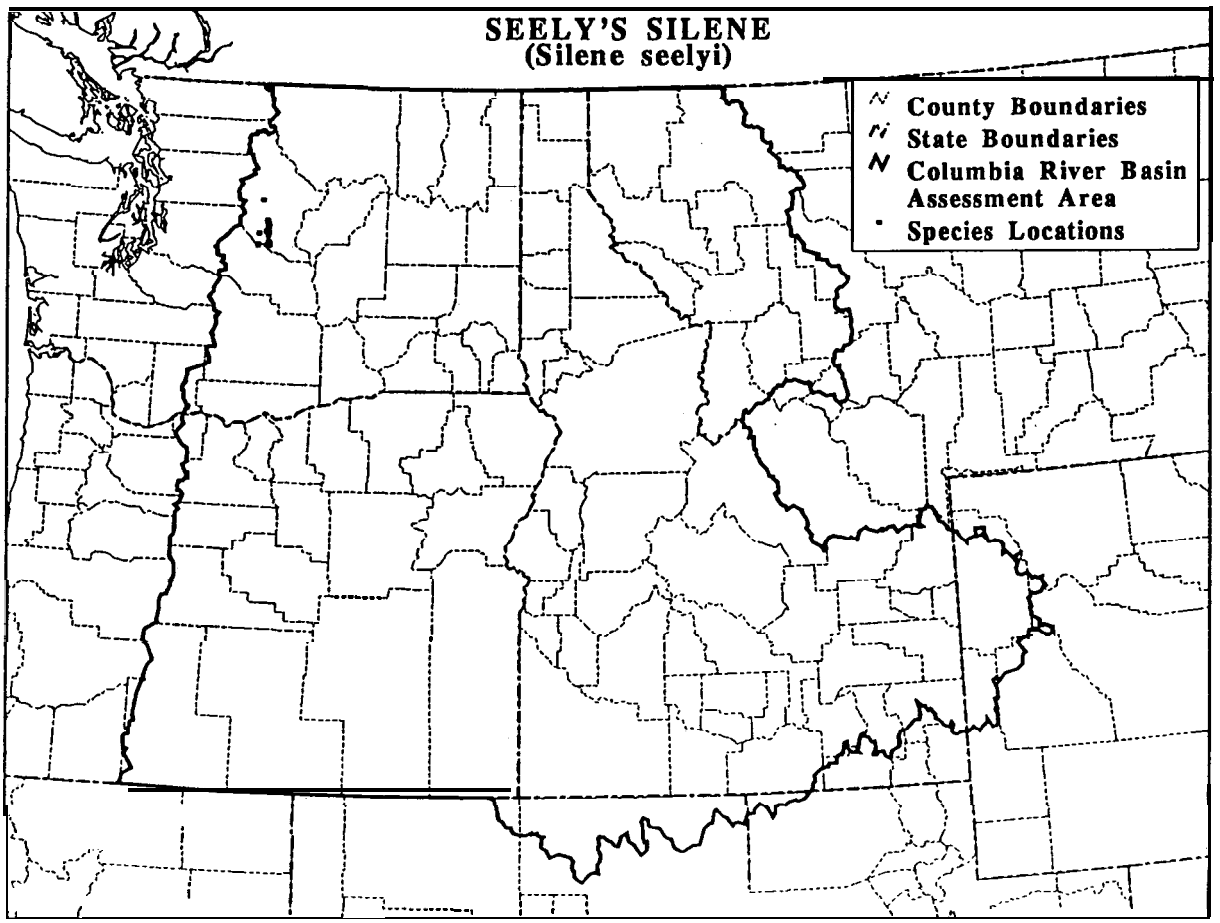
(Saxifraga bryophora var. tobiasiae)

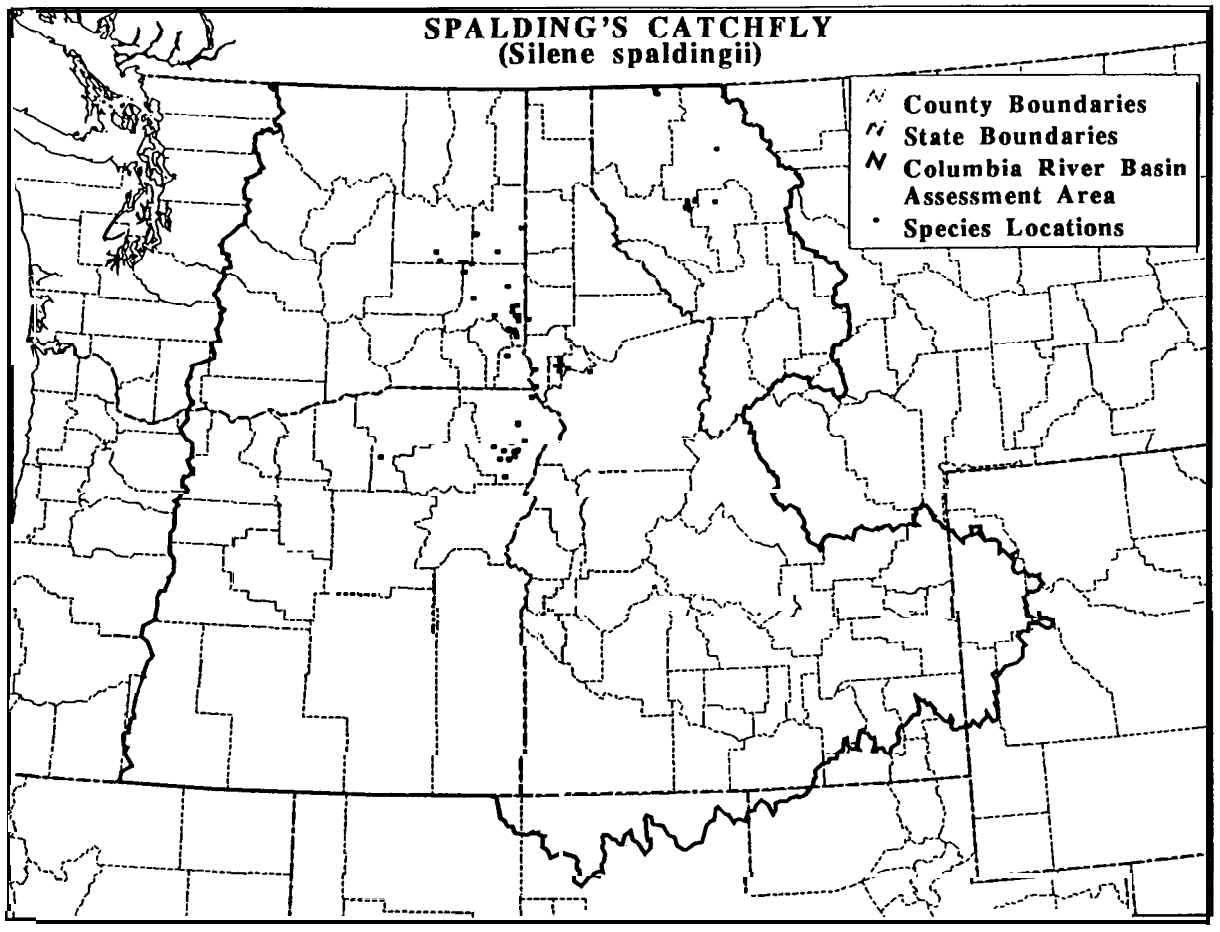


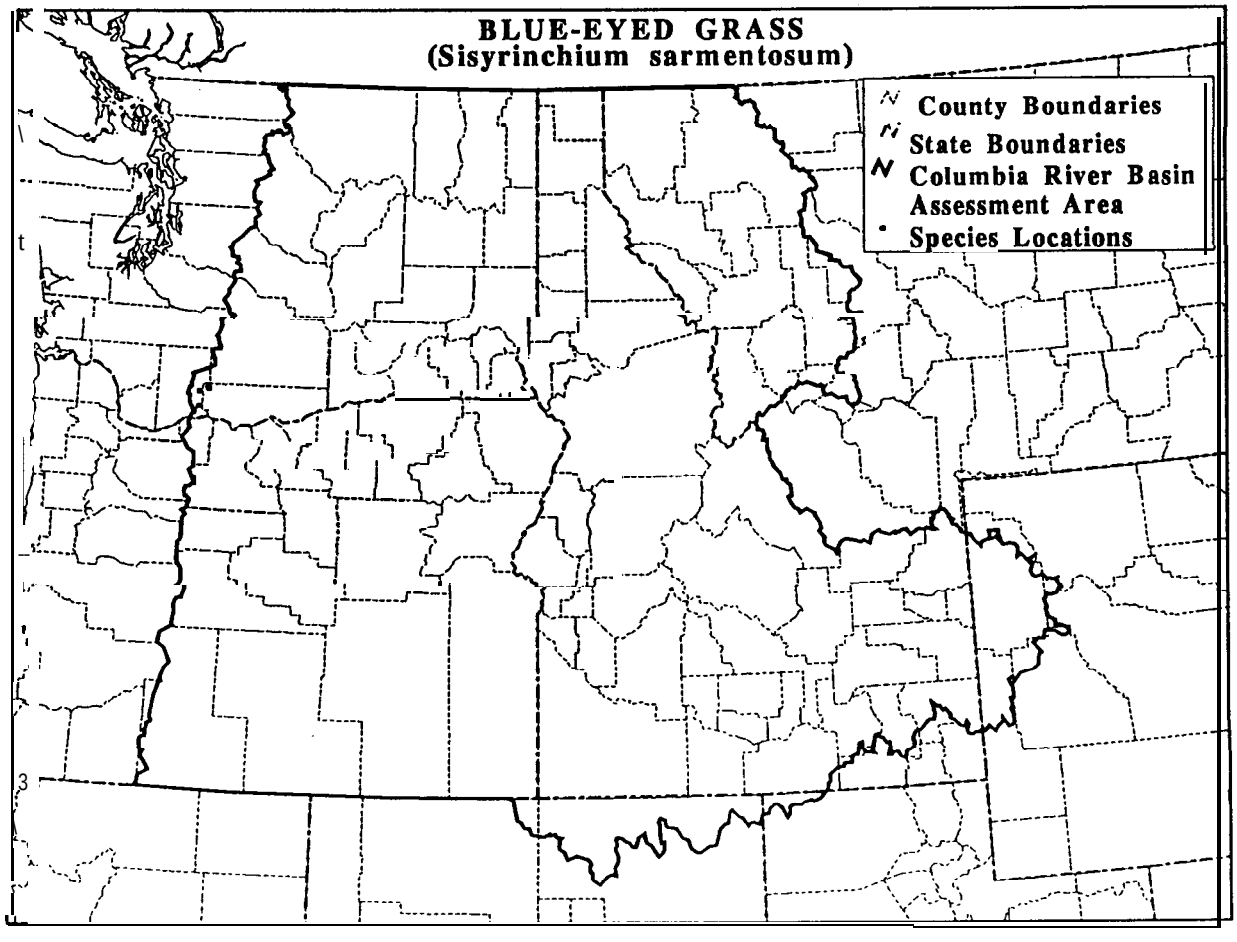
ERTTER'S SENECIO
(Senecio ertterae)

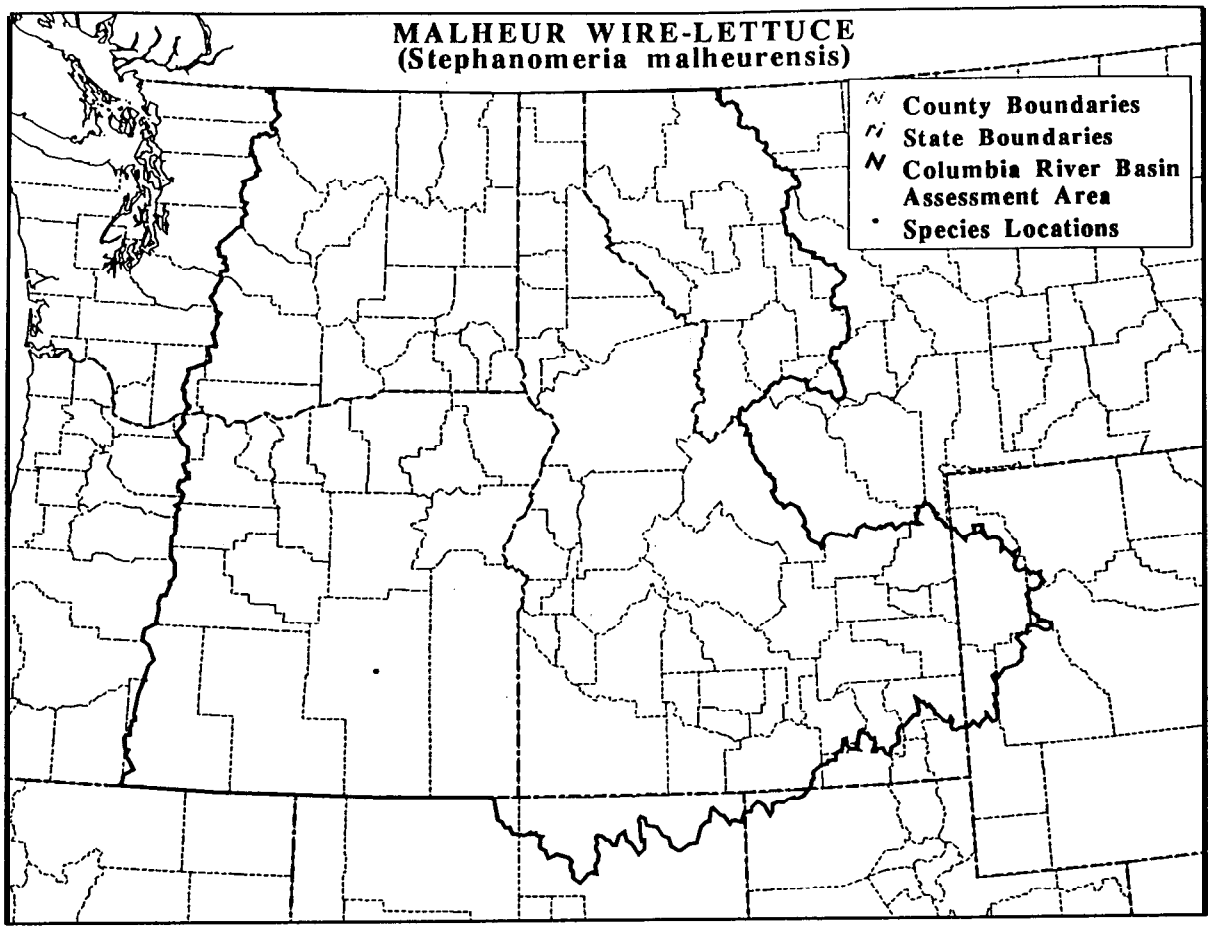


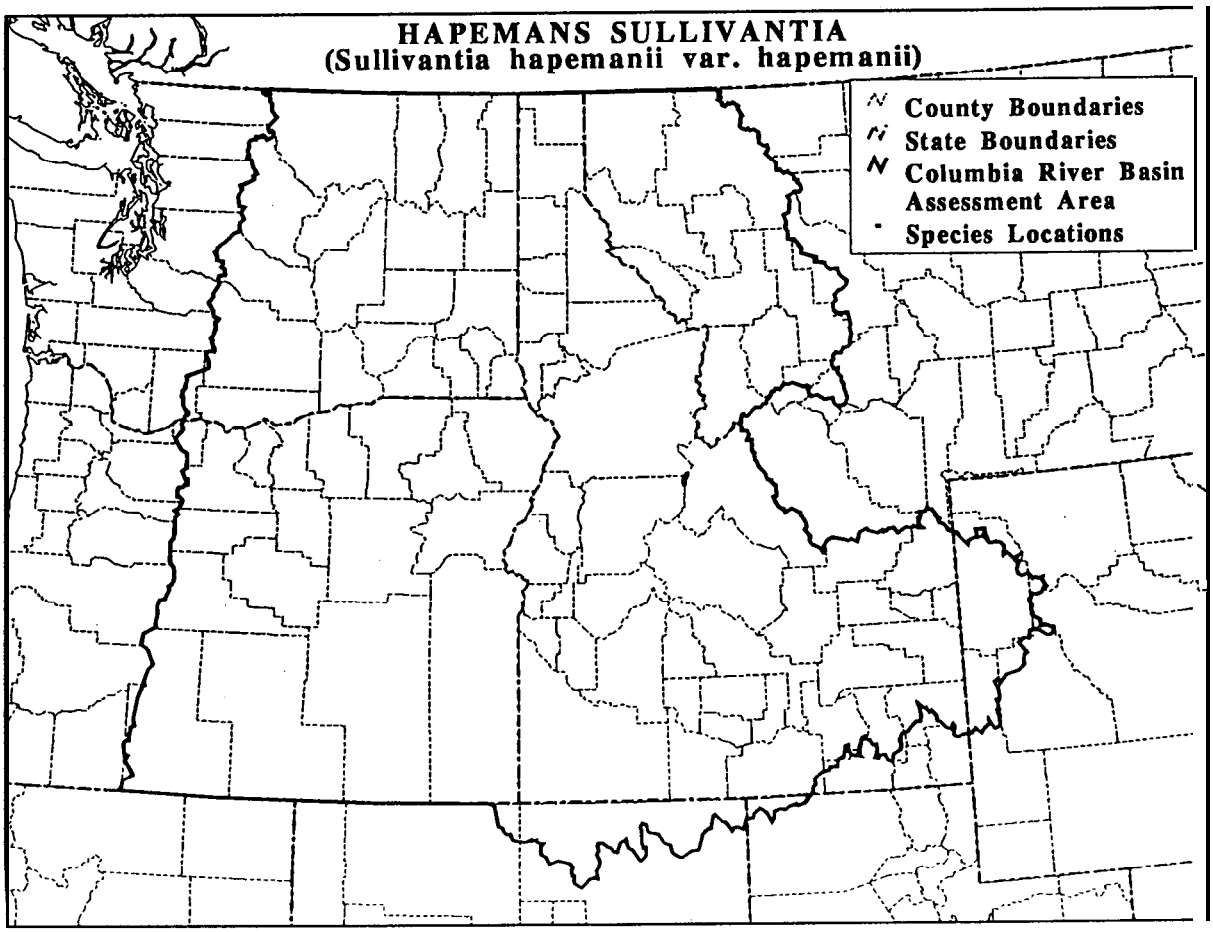

OREGON CHECKERMALLOW
(Sidalcea oregana var. calva)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations

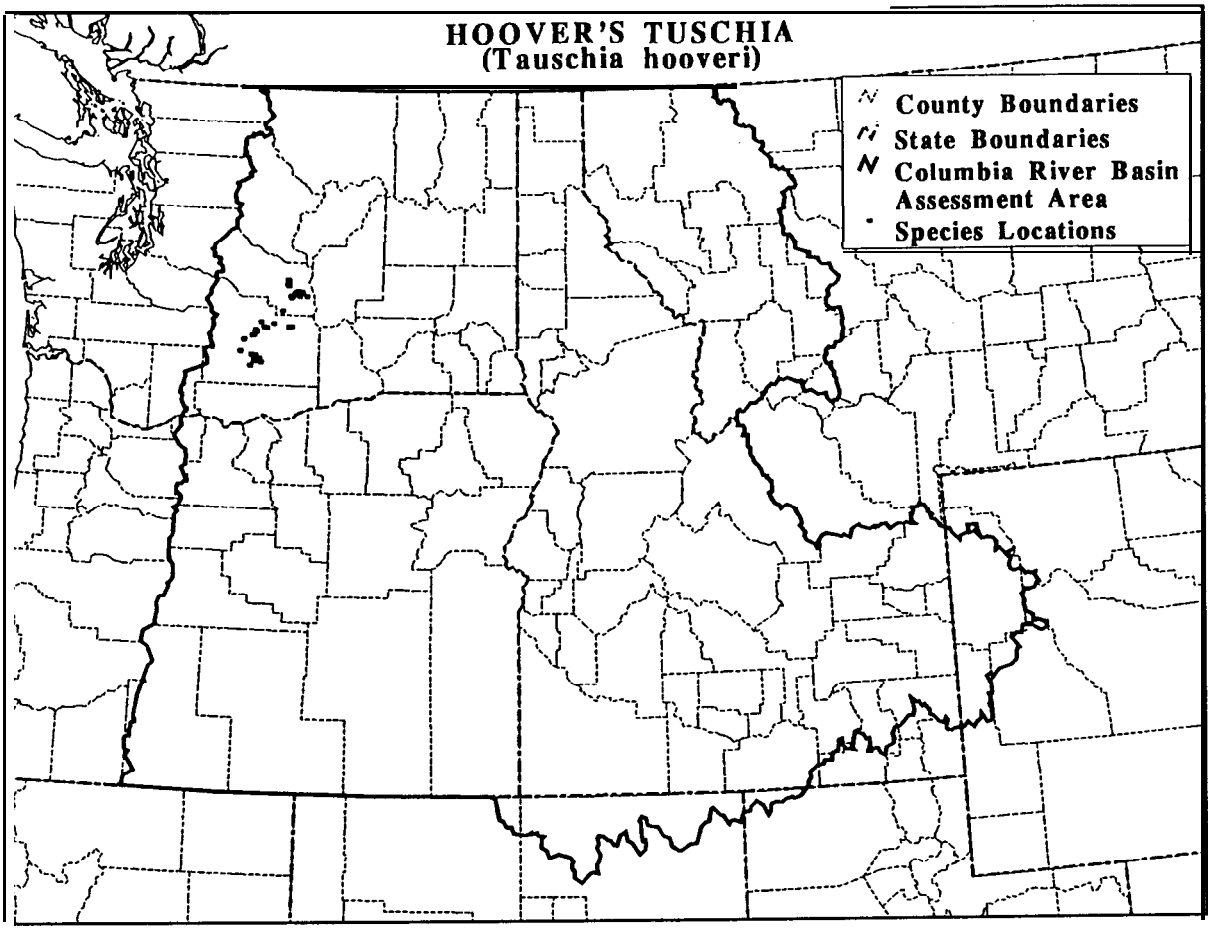

SEELY'S SILENE
(Silene seelyi)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations

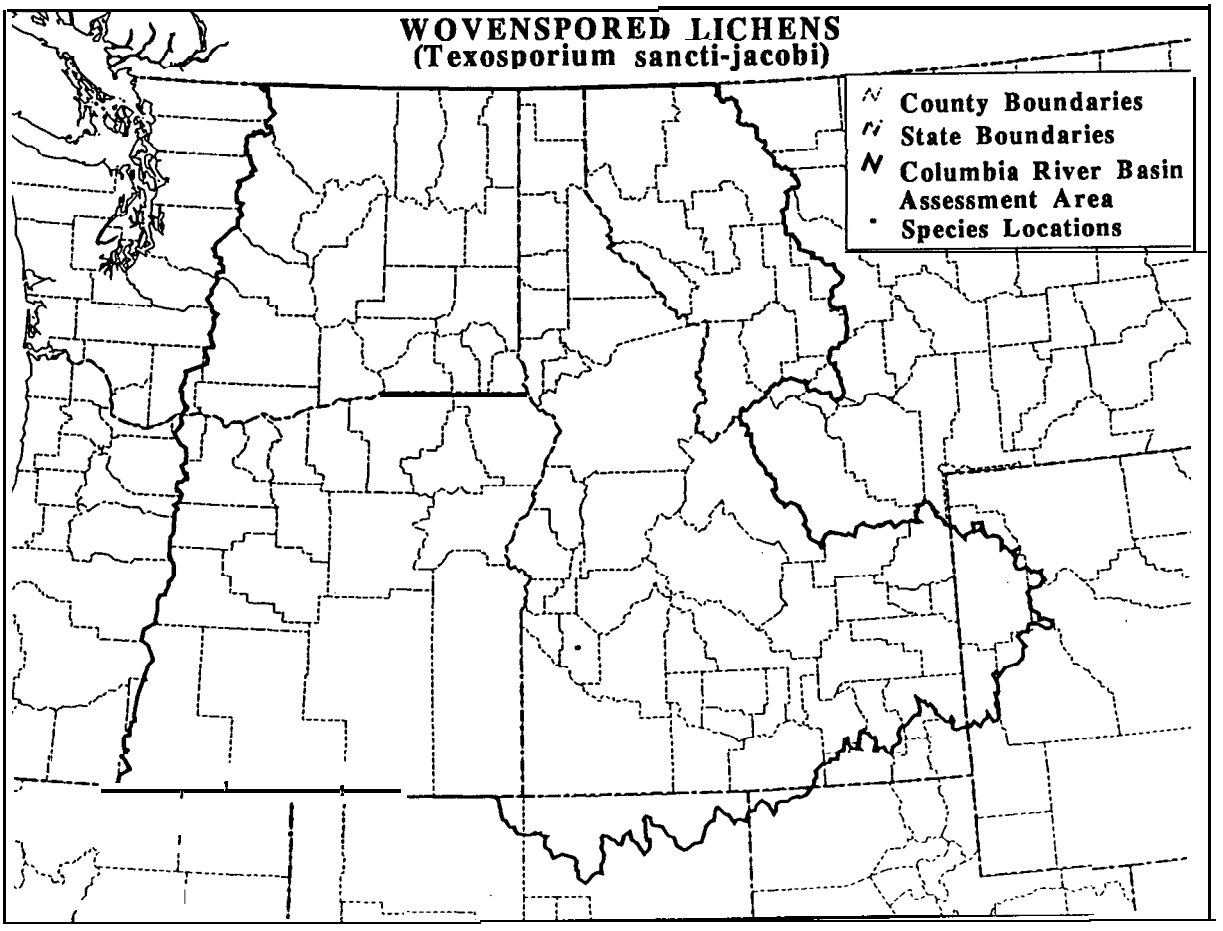

SPALDING'S CATCHFLY
(Silene spaldingii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

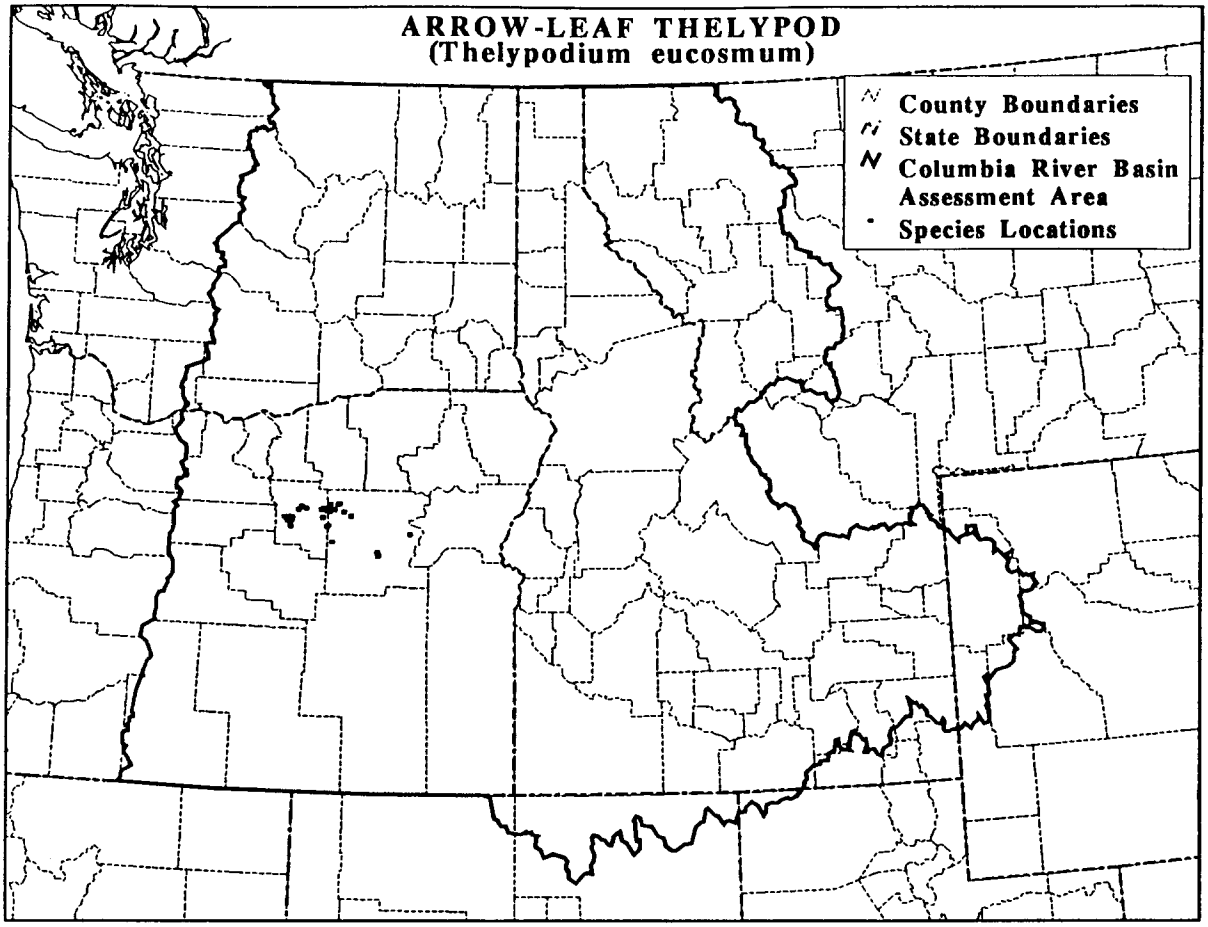

BLUE-EYED GRASS
(Sisyrinchium sarmentosum)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

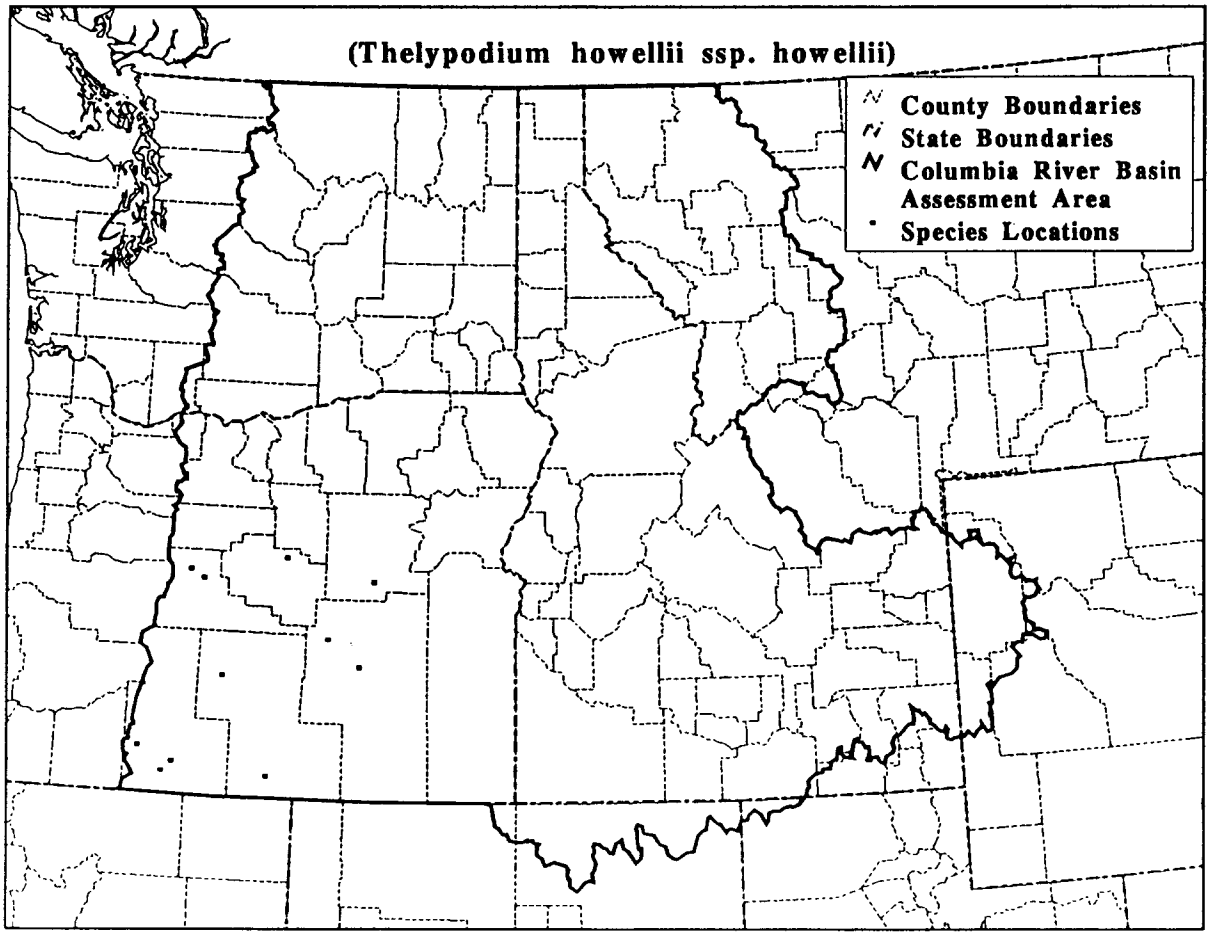

MALHEUR WIRE-LETTUCE
(Stephanomeria malheurensis)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

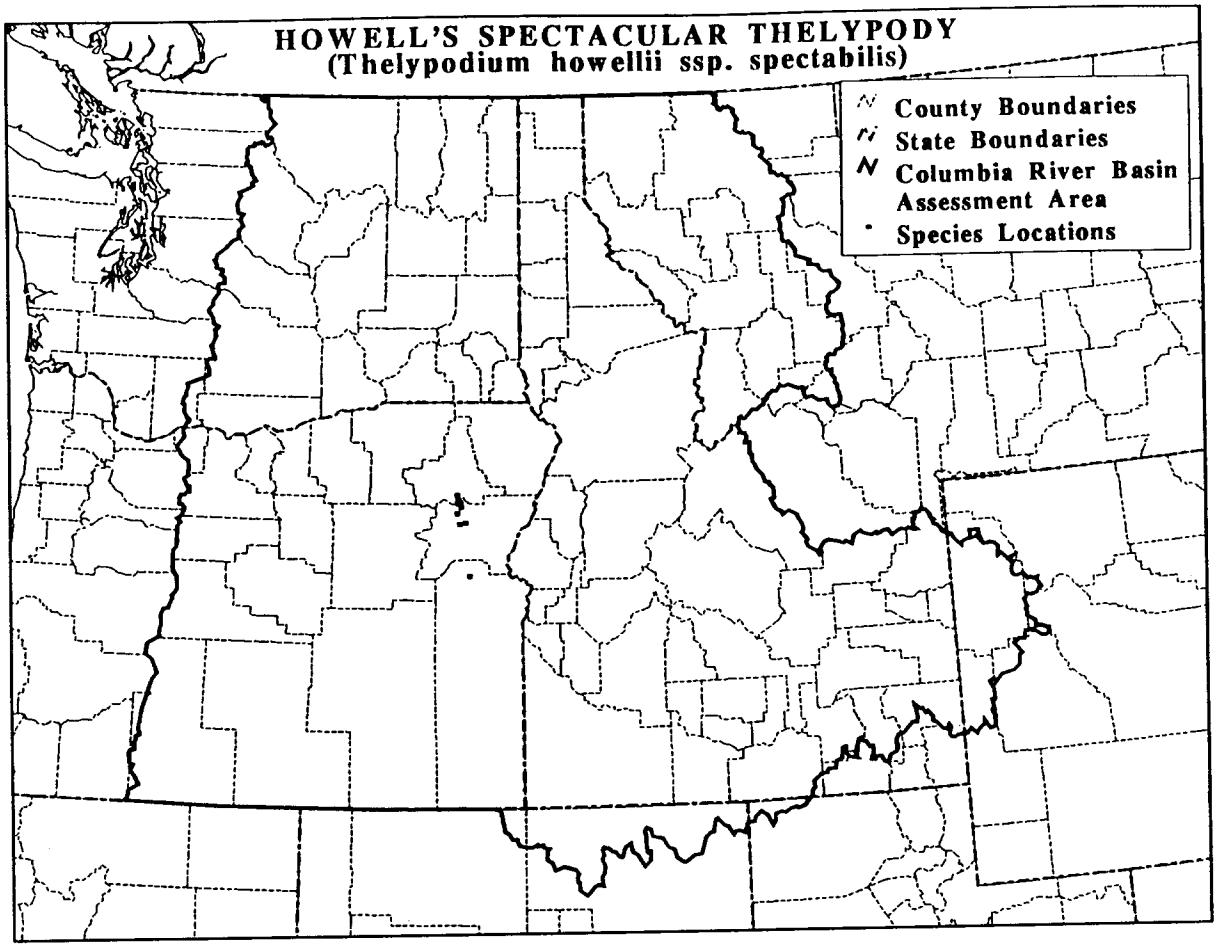

HAPEMANS SULLIVANTIA
(Sullivantia hapemanii var. hapemanii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

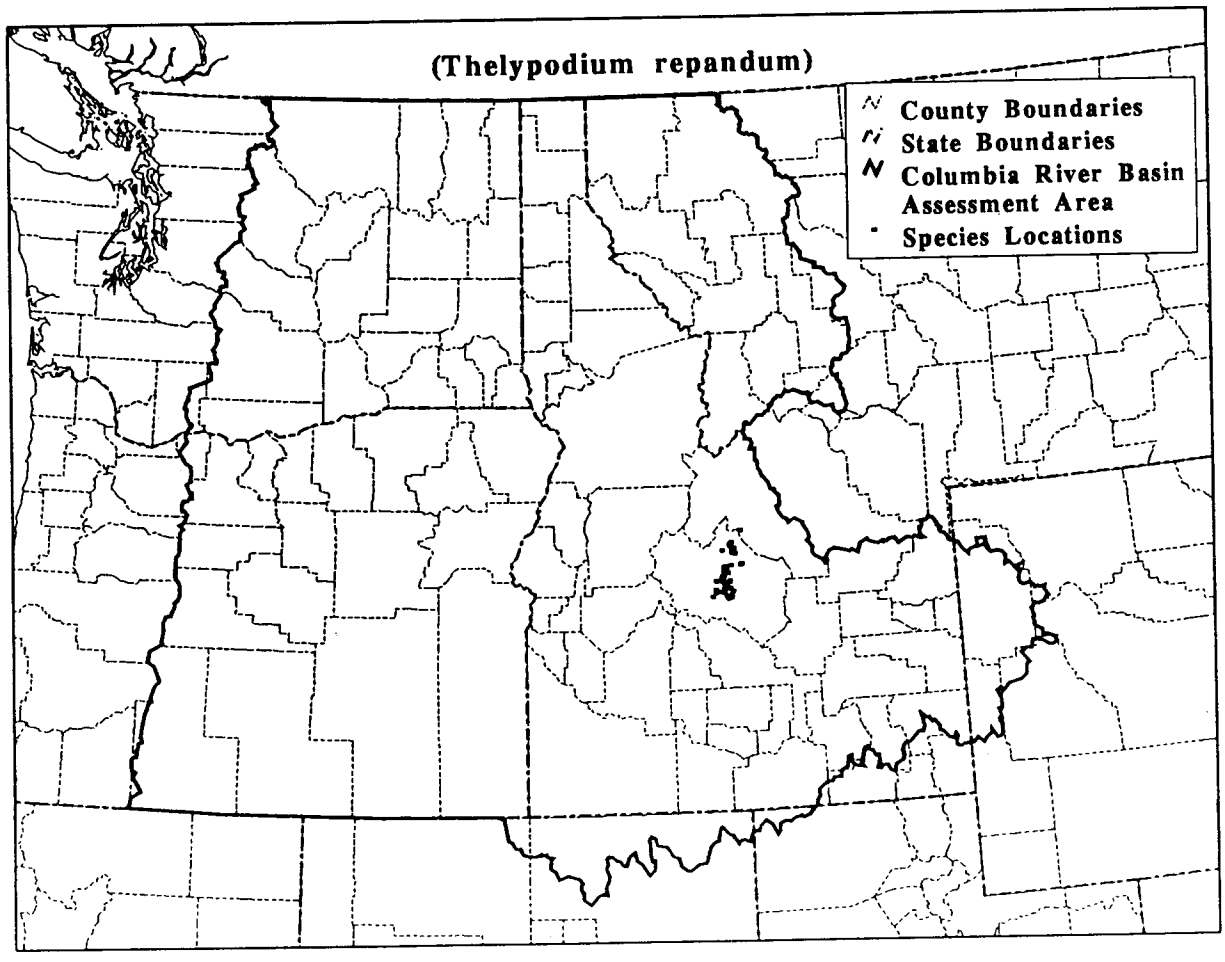

HOOVER'S TUSCHIA
(Tauschia hooveri)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

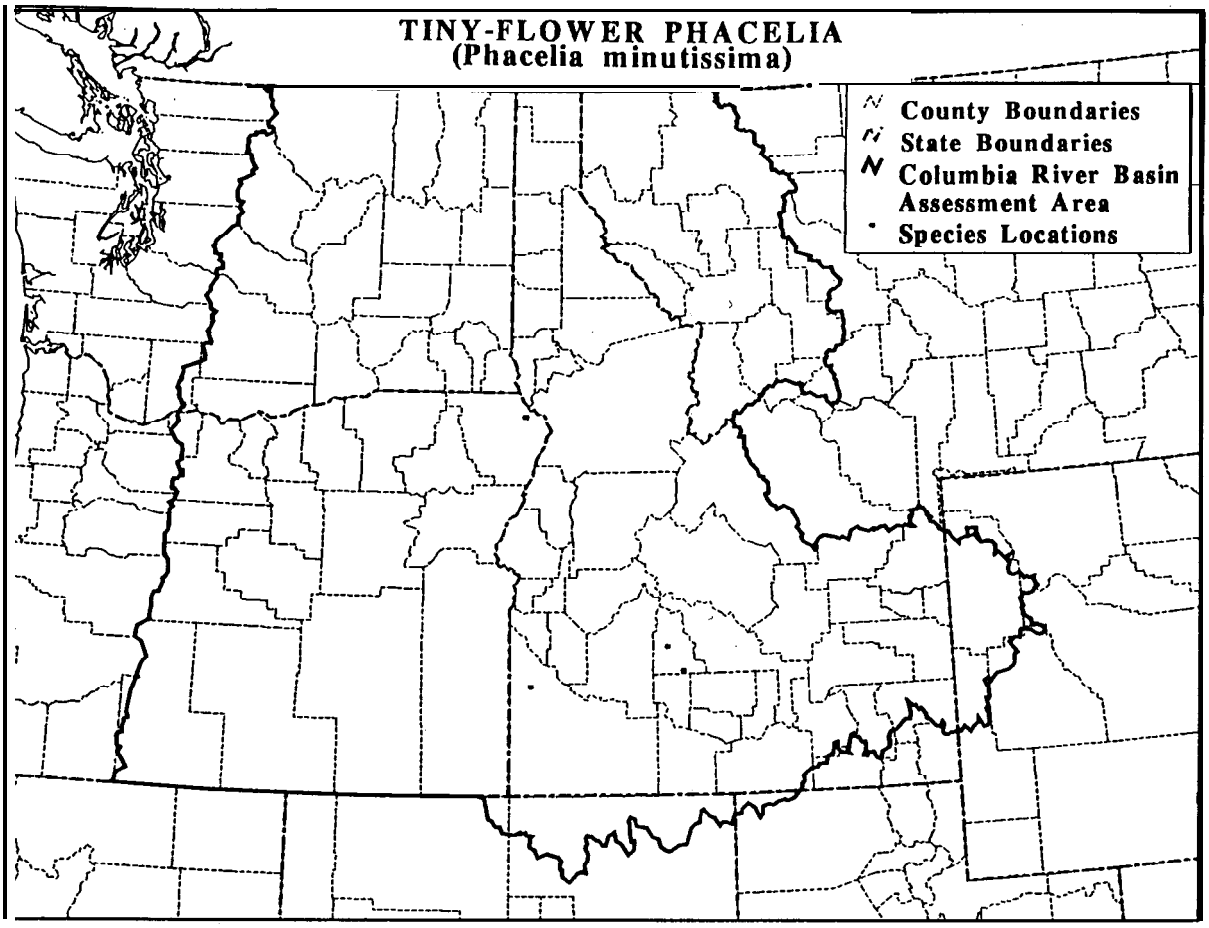

WOVENSPORED LICHENS
(Texosporium sancti-jacobi)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

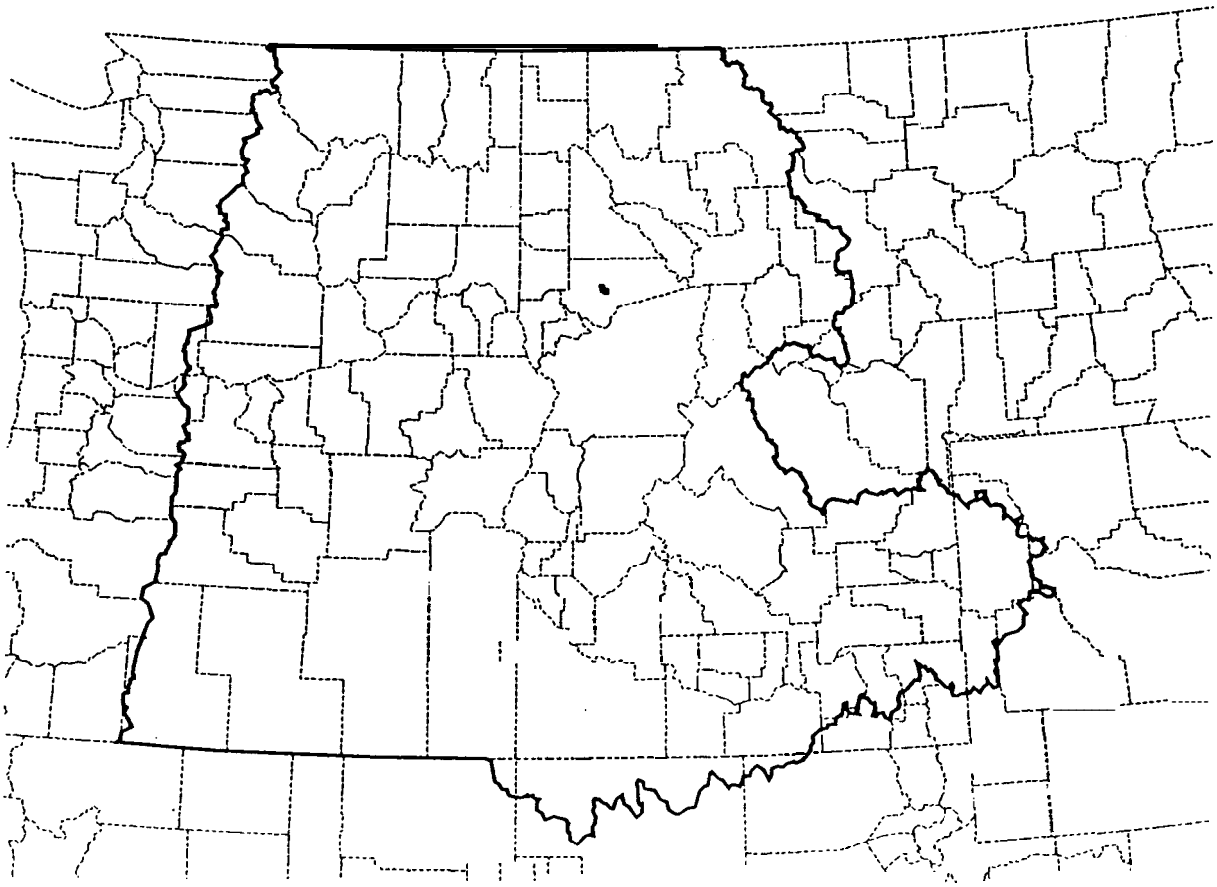

ARROW-LEAF THELYPOD
(Thelypodium eucosmum)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

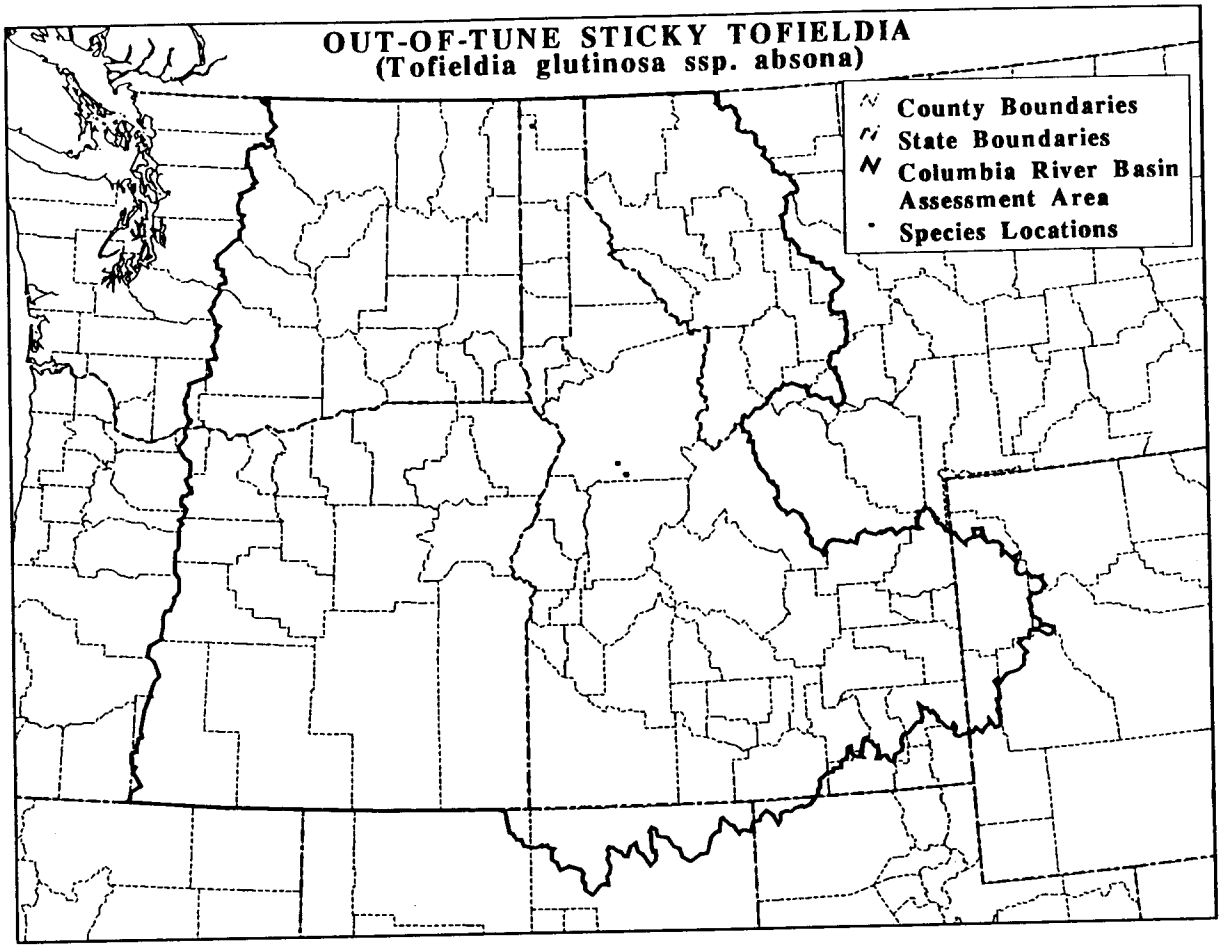

(Thelypodium howellii ssp. howellii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

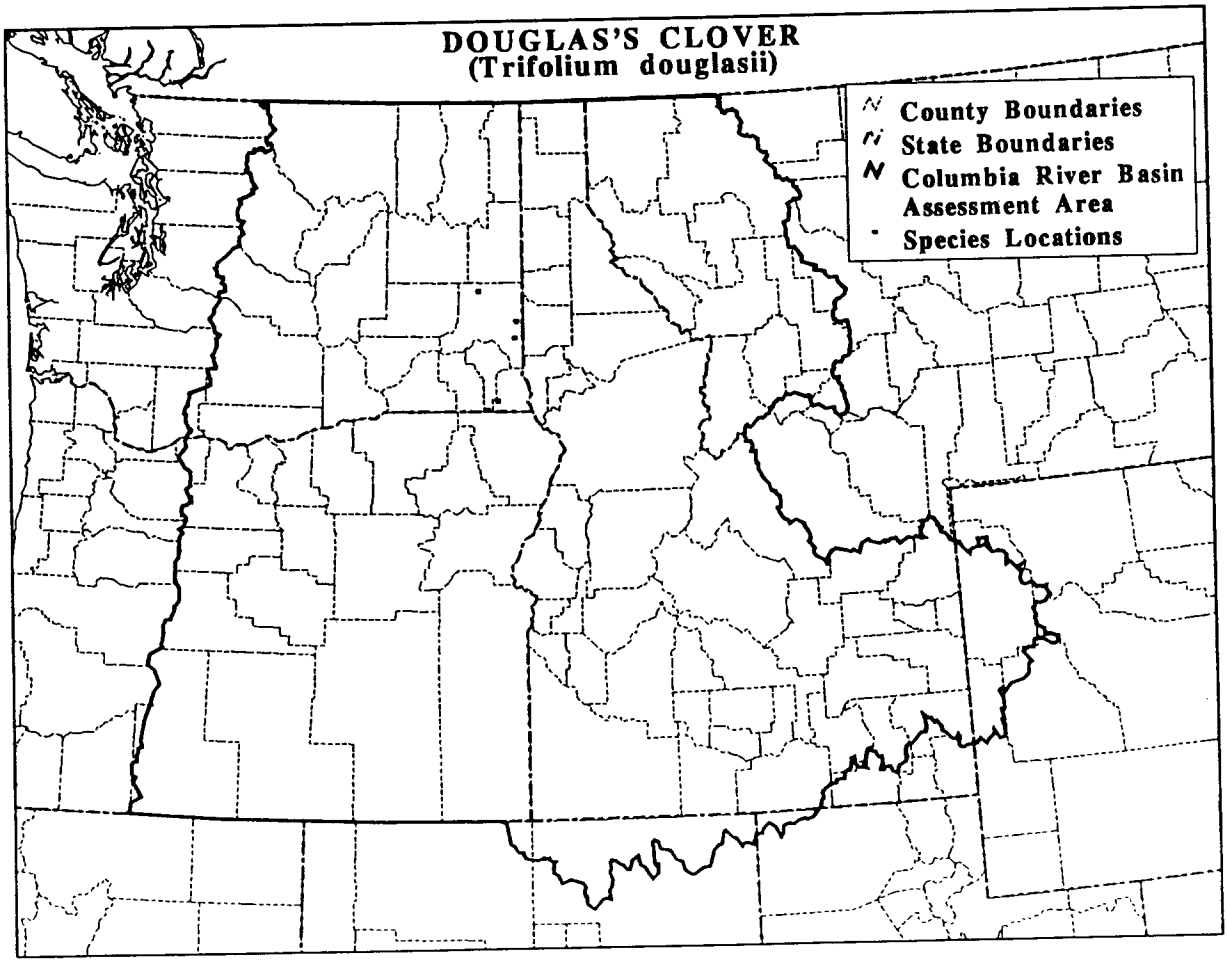

HOWELL'S SPECTACULAR THELYPODY
(Thelypodium howellii ssp. spectabilis)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

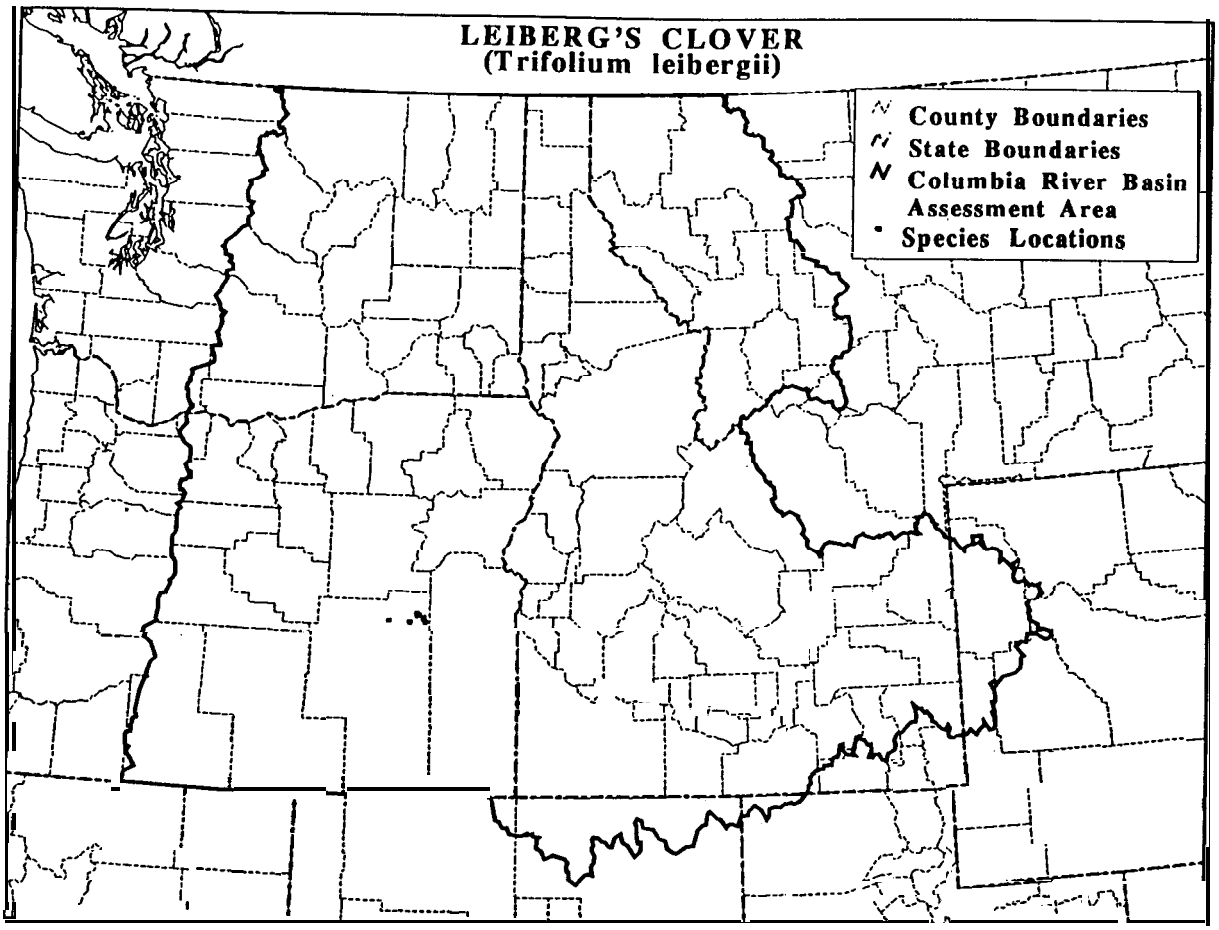

(Thelypodium repandum)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

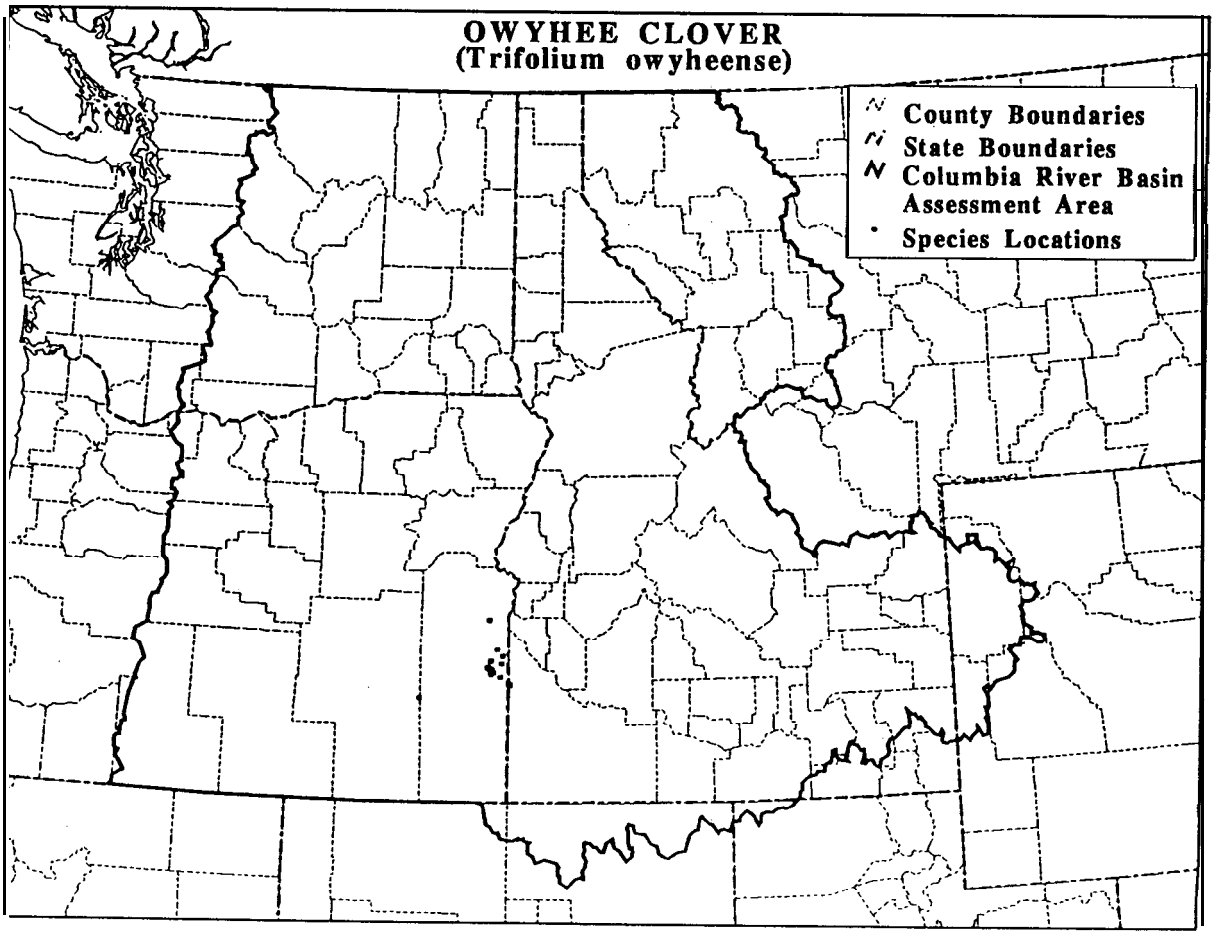

TINY-FLOWER PHACELIA
(Phacelia minutissima)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations

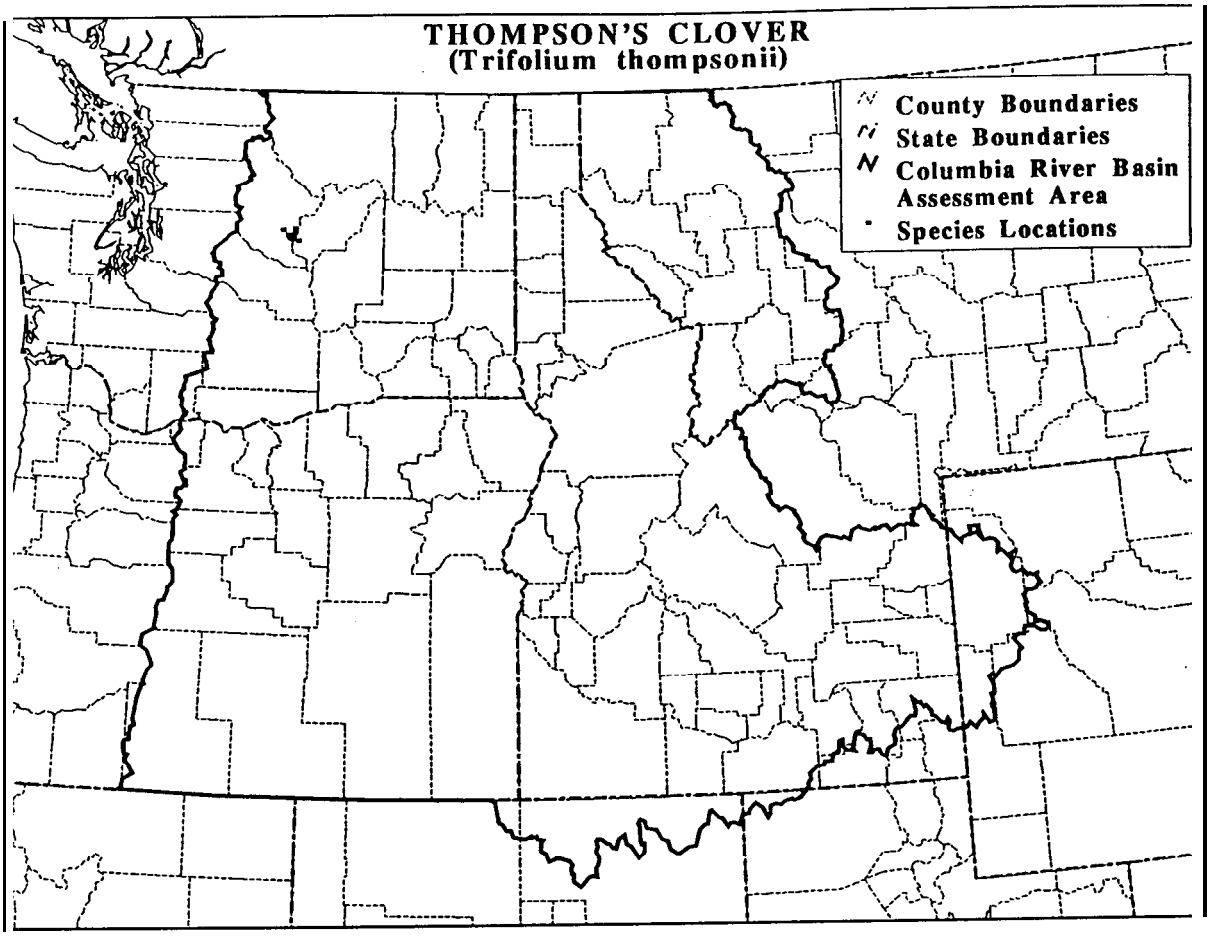



OUT-OF-TUNE STICKY TOFIELDIA
(Tofieldia glutinosa ssp. absona)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


DOUGLAS'S CLOVER
(Trifolium douglasii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


LEIBERG'S CLOVER
(Trifolium leibergii)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


OWYHEE CLOVER
(Trifolium owyheense)
County Boundaries
State Boundaries
Columbia River Basin
Assessment Area
Species Locations


THOMPSON'S CLOVER
(Trifolium thompsonii)
County Boundaries
State Boundaries
Columbia River Basin Assessment Area
Species Locations

APPENDIX 2

List of Species Conservation Reports

Conservation strategies
Conservation agreements

Taxon	Title	Author	Area	Status/Approval
Amsinckia carinata	Conservation agreement	Vale BLM	VAL	Signed, 1992
Astragalus mulfordiae	Conservation agreement	Vale BLM	VAL	Signed, 1992
Astragalus sinuatus	Conservation agreement	Camp, P.	Wash.	Draft
Eriogonum cusickii	Conservation agreement	Taylor, Housely	LKV, BRN	In preparation
Howelia aquatilis	Conservation agreement	Benner, B.	Wash.	Draft
Ivesia rhypara, Eriogonum crosbyae	Conservation agreement	Housely	LKV	In preparation
Lepidium davisii	Conservation agreement	Vale, Burns BLM	VAL, BRN	Final, waiting for signature
Polemonium pectinatum	Conservation agreement	Benner, B.	Wash.	Draft
Rorripa columbiae	Conservation agreement	Kaye, T.	Rangewide - OR, WA	In preparation
Senecio ertterae, Mentzelia packardiae, Ivesia rhypara var. rhypara	Conservation agreement	Vale BLM	VAL	Signed, 1992
Silene spaldingii	Conservation agreement	Benner, B.	Wash.	Draft
Stephanomeria malheurensis	Conservation agreement	Carlson, J.	BRN	Signed, 1990
Allotropa virgata	Conservation strategy	Lichthardt, J.	BVR, BIT, DRL, LOL, NEZ, PAY	Draft
Asarum wagnerii	Conservation strategy	Baldwin	WIN	Draft
Blechnum spicant	Conservation strategy	Blake, J., C. Ebrahimi	PAN	Signed, 1992
Botrychium minganense, B. montanum, B. pinnatum	Conservation strategy	Zika, P.	MTH	Draft
Botrychium pumicola	Conservation strategy	O'neil, Hopkins	DES	Draft
Botrychium pumicola	Conservation strategy	Vrilakas, S.	EC	Draft, ONHP, 1987
Calochortus longebarbatus var. longebarbatus	Conservation strategy	Kaye, T., rvsd; R. Wooley	FRE	Signed 1995
Calochortus nitidus	Conservation strategy	Caicco, S.L.	NEZ	Implemented / Not signed, 1992
Castilleja chlorotica	Conservation strategy	Kaye, T., W. Messinger	ODA & FRE	Draft, 1991
Castilleja chlorotica	Conservation strategy	Wooley, R., S. Phillips	FRE	Signed 1994
Castilleja fraterna	Conservation strategy	Kagan, J.	OBM, CGF - USFS & ONHP	Draft, 1987
Castilleja rubida	Conservation strategy	Kagan, J.	OBM, CGF - USFS & ONHP	Draft, 1987
Collomia mazama	Conservation strategy	Jean, C.	WIN	In preparation
Cornus nutallii	Conservation strategy	Loraine, C.C.	CLW, NEZ	Implemented / Not signed
Cypripedium fasciculatum	Conservation strategy	Harrod, R., D. Knecht	WEN	In preparation
Cypripedium fasciculatum	Conservation strategy	Kagan, J.	KLA	Draft, 1990
Delphinium viridescens	Conservation strategy	Lillybridge, T.	WEN	Signed, 1989
Dryopteris filix-mas	Conservation strategy	Zika, P.	UMA	Draft
Grindelia howellii	Conservation strategy	Loraine, C.C.	PAN	Implemented / Not signed
Grindelia howellii	Conservation strategy	Loraine, C.C.	St. Joe N.F., ID	Draft, IDNHP, IDF&G, 1991
Hackelia venusta	Conservation strategy	Lillybridge, T.	WEN	In preparation
Haplopappus radiatus	Conservation strategy	Taylor-Grant, Debolt, Hanson	PAY	In preparation
Howellia aquatilis	Conservation strategy	Shelly, J.S.	FLT	Signed, 1994
Listeria borealis	Conservation strategy	Ahlenslager, K.	COL	Draft
Lomatium greenmanii	Conservation strategy	Kagan, J.	CCS, TNC & USFS, WAW	Draft, 1987
Luina serpentina	Conservation strategy	Vander Schaaf, D.	CGF, TNC & USFS, MAL	Draft, 1987
Luina serpentina	Conservation strategy	Yates, G.	MAL	Draft
Mimulus clivicola	Conservation strategy	Loraine, C.C.	CLW, NEZ	Implemented / Not signed
Mimulus clivicola	Conservation strategy	Loraine, C.C.	Rangewide R1 - CLW, PAN, NEZ / R4, R6	Implemented / Not signed
Mimulus pygmaeus, M. tricolor	Conservation strategy	Meinke, R.	WIN, FRE	Signed 1994
Mimulus washingtonensis	Conservation strategy	Meinke, R.	UMA	Draft
Penstemon glaucinus	Conservation strategy	Wooley, R.	FRE	Signed 1993
Penstemon lemhiensis	Conservation strategy	Elzinga, C.	Rangewide R1-BVR,BIT,DRL / R4 -SAL /BLM - ID,MT	In Preparation
Penstemon peckii	Conservation strategy	O'neil	DES	Implemented / Signed 1992
Petrophyton caespitosum	Conservation strategy	Lillybridge, T.	WEN	Draft
Platanthera obtusata	Conservation strategy	Beck, K.	OKA	Draft
Rorippa columbiae	Conservation strategy	Kaye, T.	WIN, SPO, BRN, LKV	In preparation

Conservation strategies
Conservation agreements

Silene spaldingii	Conservation strategy	Kagan, J.	WAW	Draft, 1989
Thelypteris phegopteris	Conservation strategy	KOO	KOO	Signed, 1993
Trifolium thompsonii	Conservation strategy	Lillybridge, T.	WEN	Draft
Calochortus longebarbatus var. longebarbatus	Conservation strategy(interim)	Goldenberg, C. Jean	WIN	Draft
Limnanthes floccosa ssp. bellingeriana	Conservation strategy/agreement	Masintonn, Severs	KLA	Final draft
Oryzopsis hendersonii	Conservation strategy	Vrilakas, S.	?????	Draft

Status reports

Taxon	Title	Author	Area	On File at...,Date
Agoseris lackschewitzii	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Agoseris lackschewitzii	Status review	D. Pavek, L.A. Schassberger	Gallatin NF	MTNHP, 1990
Allium dictuon	Status report	Gamon, J.	USFWS, WA	WANHP, 1986
Allium madidum	Status report	Atwood, D.	ID	IDCDC, 1987
Allium madidum	Status report	Bernatas, S.	WAW	IDCDC, 1988
Allium tolmiei var. persimile	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Allium tolmiei var. persimile	Status report	Bernatas, S.	Rocky Comfort Flat RNA, ID	NPS, IDCDC, 1989
Allotropa vergata	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Allotropa virgata	Status review	Roe, L.S.	BIT, DRL	MTNHP, 1992
Amsinckia caranata	Status survey	Meinke, R.	OU, Malh	ODA, for BLM, 1990
Antennaria arcuata	Status report	Atwood, D.	ID	IDCDC, 1980
Arabis fecunda	Status report	Lesica, P.	MT	MTNHP, 1985
Arabis fecunda	Status report	Lesica, P.	MT	USFWS, MTNHP, 1993
Arabis fecunda	Status report	Schassberger, L.A.	MT	USFWS, MTNHP, 1988
Arabis fecunda	Status report	Schassberger, L.A.	BVR	MTNHP, 1990
Arabis fecunda	Status report update	Schassberger, L.A.	MT	MTNHP, 1990
Artemesia campestris var. wormskjoldii	Status report	Gamon, J.	USFWS, WA	WANHP, 1989
Asplenium trichomanes	Status report	Caicco, S.L.	CLW	IDCDC, 1987
Astragalus amblytropis	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Astragalus amnis-amissi	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Astragalus anserinus	Status report	Baird, G.I., J. Tuhy, M.A. Franklin	UT, ID	UTNHP, BLM, 1990
Astragalus anserinus	Status report	Mancuso, M., R.K. Moseley	ID, UT	IDCDC, 1991
Astragalus applegatei	Status report	Yamamoto, S.	EC, Klam	ONHP, 1985
Astragalus aquilonius	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Astragalus columbianus	Status report	Gamon, J.	USFWS, WA	WANHP, 1990
Astragalus gilviflorus	Status report	Cholewa A.F.	ID Ntl. Engineering Lab. site, ID	U of ID Herbarium, 1982
Astragalus paysonii	Status report	Caicco, S.L.	NEZ	IDCDC, 1989
Astragalus vexilliflexus var. nubilus	Status report	Moseley, R.K.	ID	IDCDC, 1994
Astragalus yoder-williamsii	Status report	Mancuso, M., R.K. Moseley	ID	IDCDC, IDP&R, 1993
Botrychium crenulatum	Status report	Bernatas, S.	WAW	IDCDC, 1988
Botrychium lanceolatum var. lanceolatum	Status report	Bernatas, S.	WAW	IDCDC, 1988
Botrychium minganense	Status report	Bernatas, S.	WAW	IDCDC, 1988
Botrychium pumicloa	Status report	D. Wagner, S. Vrilakas	EC	ONHP, 1988
Calamagrostis tweedyi	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Calochortus longebarbatus var. longebarbatus	Status report	Gamon, J.	USFWS, WA	WANHP, 1990
Calochortus nitidus	Status report	Caicco, S.L.	NEZ	IDCDC, 1987
Calochortus nitidus	Status report	Caicco, S.L.	CLW	IDCDC, 1988
Calochortus nitidus	Status report	Caicco, S.L.	ID	IDP&R, IDCDC, 1988
Cardamine constancei	Status report	Caicco, S.L.	NEZ	IDCDC, 1987
Cardamine constancei	Status report	Caicco, S.L.	Aqaurius NRA, ID	NPS, IDCDC, 1987
Carex aenea	Status report	Caicco, S.L.	PAN	IDCDC, 1988
Carex buxbaumii	Status report	Caicco, S.L.	PAN	IDCDC, 1988
Carex californica	Status report	Caicco, S.L.	PAN	IDCDC, 1988
Carex californica	Status report	Caicco, S.L.	NEZ	IDCDC, 1989
Carex flava	Status report	Caicco, S.L.	PAN	IDCDC, 1988
Carex hendersonii	Status report	Caicco, S.L.	Aqaurius NRA, ID	NPS, IDCDC, 1987
Carex hendersonii	Status report	Caicco, S.L.	PAN	IDCDC, 1988
Carex lenticularis	Status report	Lesica, P.	MT	Glacier N.P., 1988
Carex livida	Status report	Caicco, S.L.	PAN	IDCDC, 1988
Carex purpercula	Status report	Caicco, S.L.	PAN	IDCDC, 1988
Carex tumulicola	Status report	Caicco, S.L.	PAN	IDCDC, 1988
Castilleja chlorotica	Status report	Popovich, S.J.	FRF	1990
Castilleja christii	Status report	Atwood, D.	ID	IDCDC, 1984
Castilleja cryptantha	Status report	Gamon, J.	USFWS, WA	WANHP, 1990

Status reports

Taxon	Title	Author	Area	On File at...,Date
Catilleja christii	Status report	Moseley, R.K.	Albion Mtns, SAW, City of Rocks Ntl. Preserve,ID	SAW, IDCDC, 1991
Chaenactis cusickii	Status report	Moseley, R.K.	ID	BSE, IDCDC, 1994
Cymopteris douglassii	Status report	Atwood, D.	ID	IDCDC, 1983
Cymopterus davisii	Status report	Moseley, R.K.	Albion Mtns, SAW, City of Rocks Ntl. Preserve,ID	SAW, IDCDC, 1991
Cypripedium calceolus var. parviflorum	Status report	Chadde, S.	KOO	IDCDC, 1989
Cypripedium fasciculatum	Status report	Caicco, S.L.	Aqaurius NRA, ID	NPS, IDCDC, 1987
Cypripedium fasciculatum	Status report	Caicco, S.L.	CLW	IDCDC, 1988
Cypripedium passerinum	Status review	Shelly, J.S.	FLT, Lewis & Clark NF	MTNHP, 1988
Dasynotus daubenmirei	Status report	Caicco, S.L.	NEZ	IDCDC, 1989
Delphinium viridescens	Status report(revision)	Gamon, J.	USFWS, WA	WANHP, 1987
Douglasia idahoensis	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Draba trichocarpa	Status report	Caicco, S.L.	ID	IDCDC, 1988
Epipactis gigantea	Status review	Schassberger, L.A.	FLT	MTNHP, 1988
Erigeron basalticus	Status report	Gamon, J.	USFWS, WA	WANHP, 1988
Erigeron lackschewitzii	Status review	D. Pavek, L.A. Schassberger	MT	Gallatin N.F., MT, 1990
Erigeron lackschewitzii	Status report	Heidel, B.L.	MT	USFWS, MTNHP, 1993
Erigeron lackschewitzii	Status report	Heidel, B.L.	USFWS	MTNHP, 1993
Erigeron salmonensis	Status report	Mancuso, M., R.K. Moseley	ID	IDCDC, 1992
Eriogonum chrysops	Status report	Wright, C.	OU	OHNP, 1989
Goodyera repens	Status report update	Achuff, P.L.	Lewis & Clark NF	MTNHP, 1992
Goodyera repens	Status review	Schassberger, L.A., P. Achuff	Lewis & Clark NF	MTNHP, 1991
Grindelia howellii	Status report update	D.S. Pavek	MT	USFWS, MTNHP, 1991
Grindelia howellii	Status report	Shelly, J.S.	MT	MTNHP, 1986
Grindelia howellii	Status review	USFWS	MT	USfWS, 1980
Grindelia howellii	Status report	Watson, T.J.,C20 Jr.	MT	MTNHP
Hackelia cronquistii	Status report	Yamamoto, S., J. Kagan	OU, Malh	ONHP, 1985
Hackelia venusta	Status report(revision)	Gamon, J.	USFWS, WA	WANHP, 1988
Halimolobos perplexa var. perplexa	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Haplopappus insecticruris	Status report	Atwood, D.	ID	IDCDC, 1983
Haplopappus liatriformis	Status report	Gamon, J.	USFWS, WA	WANHP, 1991
Haplopappus radiatus	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Haplopappus radiatus	Status report	Kaye, T., S. Massey, W. Messinger, R. Meinke, T. Magee	BM, OU, Bake, Malh	ODA, BLM, 1990
Howella aquatilis	Status report	Gamon, J.	USFWS, WA	WANHP, 1992
Howellia aquatilis	Status report update	Roe, L.S.C95, J.S. Shelley	MT	FLT, MTNHP, 1992
Howellia aquatilis	Status report	Shelly, J.S.	MT	USFWS, MTNHP, 1988
Howellia aquatilis	Status review	Shelly, J.S.	FLT	MTNHP, 1988
Howellia aquatilis	Status review addendum	Shelly, J.S.	FLT	USFS, MTNHP, 1989
Howellia aquatilis	Status report update	Shelly, J.S., L.A. Schassberger	MT	FLT, MTNHP, 1990
Howellia aquatilis	Status report update	Shelly, J.S., L.A. Schassberger	MT	FLT, MTNHP, 1991
Howellia aquatilis	Status report	Shelly, J.S., R. Mosley	OR, WA, MT, ID	ONHP, 1988
Lepidium davisii	Status report	DeBolt, A., J. Doremus	BOI	IDCDC, 1989
Lepidium papilliferum	Status report	Moseley, R.K.	ID	IDP&R, USFWS, IDCDC, 1994
Lesquerella carinata	Status report	Vanderhorst, J.	BLM, USFWS	MTNHP, 1995
Lesquerella carinata, L. paysonii	Status review	Schassberger, L.A.	MT	DRL, MTNHP, 1991
Lesquerella carinata, L. paysonii	Status review	Schassberger, L.A.	DRL	MTNHP, 1991
Lesquerella humilis	Status review	Shelly, J.S.	BIT	MTNHP, 1988
Lesquerella humilis	Status report	Shelly, J.S., P.L. Achuff	MT	USFWS, MTNHP, 1990
Lomatium erythrocarpum	Status report	Meinke, R.	BM, Bake	1987, ONHP
Lomatium greenmanii	Status report	Meinke, R., T. Kaye	BM, Wall	Unpublished at ONHP
Mentzelia mollis	Status report	Greenleaf, J.	ID	IDCDC, 1980
Mertensia bella	Status report	Lichthardt, J.J.	IDF&G	IDF&G, 1992
Mertensia bella	Status review	Roe, L.S.	LOL	MTNHP, 1991
Mimulus clivicola	Status report	Caicco, S.L.	CLW	IDCDC, 1987
Mimulus clivicola	Status report	Caicco, S.L.	NEZ	IDCDC, 1987

Status reports

Taxon	Title	Author	Area	On File at...,Date
Mimulus clivicola	Status report	Caicco, S.L.	Aqaurius NRA, ID	NPS, IDCDC, 1987
Mimulus clivicola	Status report	Caicco, S.L.	CLW	IDCDC, 1988
Mimulus clivicola	Status report	Gamon, J.	USFWS, WA	WANHP, 1993
Oxytheca dendroidea	Status report	Cholewa A.F.	ID Ntl. Engineering Lab. site, ID	U of ID Herbarium, 1982
Penstemon compactus	Status report	Atwood, D.	ID	IDCDC, 1988
Penstemon glaucinus	Status report	Popovich, S.J.	FRE	on file @ ONHP, 1990
Penstemon idahoensis	Status report	Baird, G.I., J. Tuhy, M.A. Franklin	UT, ID	UTNHP, BLM, 1990
Penstemon idahoensis	Status report	Mancuso, M., R.K. Moseley	ID, UT	IDCDC, 1991
Penstemon lemhiensis	Status report	ACZ, Inc.	SAL,	SAL, 1990
Penstemon lemhiensis	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Penstemon lemhiensis	Status survey	Moseley, R.K.C154, M. Mancuso, J. Hilty	ID	IDNHP, IDF&G
Penstemon lemhiensis	Status report	Shelly, J.S.	MT	USFWS, MTNHP, 1990
Penstemon lemhiensis	Status review	Shelly, J.S.	MT	USFS, MTNHP, 1990
Penstemon lemhiensis	Status survey	Shelly, J.S.	BVR, BIT	MTNHP, 1987
Petrophytum cinerascens	Status report	Gamon, J.	USFWS, WA	WANHP, 1989
Phacelia lenta	Status report	Gamon, J.	USFWS, WA	WANHP, 1986
Phlox kelseyi var. missoulensis	Status review	Schassberger, L.A., P. Achuff	Lewis & Clark NF	MTNHP, 1991
Polemonium pectinatum	Status report	Gamon, J.	USFWS, WA	WANHP, 1985
Polypodium glycyrrhiza	Status report	Caicco, S.L.	Aqaurius NRA, ID	NPS, IDCDC, 1987
Ranunculus reconditus	Status report	Schuller, R., N. Sprague	WA	for USFWS by WNHP, 1985
Rorippa columbiae	Status report	Scherer, N.	Pierce Island, CR	TNC, Wa. 1991
Rubus nigerrimus	Status report	Gamon, J.	USFWS, WA	WANHP, 1989
Salix farriae	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Saxifraga bryophora var. tobiasiae	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Saxifraga cernua	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Scirpus subterminalis	Status report	Chadde, S.	KOO	IDCDC, 1989
Senecio ertterae	Status report	Kaye, T , W. Messinger, S. Massy	OU, Malh	for USFWS by ODA, 1991
Sidalcea oregana var. calva	Status report	Gamon, J.	USFWS, WA	WANHP, 1987
Silene seelyi	Status report	Arnett, J., J. Gamon	USFWS, WA	WANHP, 1991
Silene spaldingii	Status report	Gamon, J.	WA	WNHP, 1991
Silene spaldingii	Status report	Gamon, J.	USFWS, WA	WANHP, 1991
Silene spaldingii	Status report	Lorain, C.	ID	IDFG, 1991
Silene spaldingii	Status report	Schassberger, L.A.	BM, Wall	ONHP, 1988
Sisyrinchium sarmentosum	Status report	Gamon, J., N. Sprague	WA	WNHP, 1986
Sisyrinchium sarmentosum	Status report	Gamon, J., N. Sprague	USFWS, WA	WANHP, 1986
Synthyris platycarpa	Status report	Caicco, S.L.	NEZ	IDCDC, 1989
Tauschia hooveri	Status report	Gamon, J., D. Salstrom	USFWS, WA	WANHP, 1993
Thelypodium howellii ssp. spectabilis	Status report	Kagan, J.	BM, OU, Bake, Malh, Unio	for USFWS by ONHP, 1985
Thelypodium repandum	Status report	Caicco, S.L.	ID	IDCDC, 1988
Thelypteris nevadensis	Status report	Caicco, S.L.	Aqaurius NRA, ID	NPS, IDCDC, 1987
Tofieldia glutinosa ssp. absona	Status report	Atwood, D., N. Charlesworth	ID	IDCDC, 1987
Trientalis latifolia	Status report	Caicco, S.L.	Aqaurius NRA, ID	NPS, IDCDC, 1987
Trifolium thompsonii	Status report(revision)	Gamon, J.	USFWS, WA	WANHP, 1988

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Adoxa moschatellina	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Agoseris lackschewitzii	Botanical survey	Achuff, P.L., L.S. Roe	Goat Flat proposed research natural area, DRL	DRL, MTNHP, No date
Agoseris lackschewitzii	Botanical survey	Heidel, B., J. Vanderhorst	Tobacco Root mtns., BVR, DRL	BVR, DRL, 1994
Agoseris lackschewitzii	Botanical survey	Mathews, S.	Gallatin NF	USFS, MTNHP, 1989
Agoseris lackschewitzii	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Agoseris lackschewitzii	Botanical survey	Vanderhorst, J., B.L. Heidel	Tobacco Root mtns., Madison Co., MT	BVR, DRL, MTNHP, 1995
Agoseris lackschewitzii	Field survey	Armstron, J., V. Standa	Kings Hill RD, MT.	USFS, 1992
Agoseris lackschewitzii	Field survey	D. Pavek	Gallatin NF	Gallatin NF, 1990
Agoseris lackschewitzii	Resources inventory	Layser, E.F.	Onion Park Research Natural Area, MT	Lewis and Clark NF, 1992
Agoseris lackschewitzii	Unpublished new species report	Fertig, W.	Bridger-Teton NF	WNDD, TNC, 1993
Allium aaseae	Botanical survey	Moseley, R.K., M. Mancuso, J. Hilty	Boise Foothills, Ada county, ID	IDCDC, 1992
Allium aaseae	Technical report	Bolin, R., R. Rosentreter	Biology	IDCDC, 1986
Allotropa virgata	Botanical survey	Poole, J.M.	BVR, DRL	MTNHP, 1992
Allotropa virgata	Field survey	Poole, J.M.	Bitterroot & Pioneer Mtns., MT	1992
Allotropa virgata	Field survey	Poole, J.M.	Sapphire & Anaconda ranges, DRL	DRL, 1992
Allotropa virgata	Masters thesis	Lorain, C.C.	History & distribution of coastal disjunct plants	University of Idaho, 1988
Allotropa virgata	Monitoring report	Kaye, T., N. Fredericks, J. Gamon	GIF	ODA, Plant Conservation, 1991
Allotropa virgata	Population monitoring	Lichthardt, J.J.	NEZ	IDFG, 1992
Antennaria arcuata	Botanical survey	Douglass, R., K. Snyder-Douglass, K. Neilsen	TAR	IDCDC, 1978
Antennaria arcuata	Botanical survey	Eidemiller, B.J.	SHS	IDCDC, 1977
Antennaria arcuata	Botanical survey	Harrison, B.F.	SHS	IDCDC, 1981
Antennaria densifolia	Botanical survey	Achuff, P.L., L.S. Roe	Goat Flat proposed research natural area, DRL	DRL, MTNHP, No date
Arabis fecunda	Botanical survey	Lesica, P.	Big Hole River & Whitehall Valley, MT BLM	MTNHP, 1994
Arabis fecunda	Botanical survey	Lesica, P.	Highland Mtns., DRL	MTNHP, 1992
Arabis fecunda	Demographic report	Lesica, P., J.S. Shelley	MT	MTNHP, 1991
Arabis fecunda	Demographic report	Lesica, P., J.S. Shelley	Ravalli & Beaverhead counties, MT	BVR, MTNHP, 1994
Arabis fecunda	Effects	Lesica, P., J.S. Shelley	MT	MTNHP, 1991
Arabis fecunda	Effects	Lesica, P., J.S. Shelley	MT	MTNHP, 1991
Arabis fecunda	Electrophoretic variation	Mitchell-Olds, T.	MT	MTNHP, 1991
Arabis fecunda	Establishment report	Roe, L.S.	BUT	BLM, MTNHP, 1992
Arabis fecunda	Grazing effects	Lesica, P.	BUT	BLM, MTNHP, 1993
Arabis fecunda	Lecture	Achuff, P.L., L.A. Schassberger Roe	Weeds and Rare Native Plants in MT.	Proc. Weed Symposium, 1992
Arabis fecunda	Masters thesis	Walsh, R.	MT	U of M, Missoula, 1992
Arabis fecunda	Monitoring report	Lesica, P.	BVR	MTNHP, 1991
Arabis fecunda	Monitoring report	Lesica, P., J.S. Shelley	Sapphire range, MT	MTNHP, 1991
Arabis fecunda	Monitoring report	Lesica, P., J.S. Shelley	Sapphire & Beaverhead ranges, MT	MTNHP, 1991
Arabis fecunda	Occurrence report	Lesica, P.	MT BLM	BLM, MTNHP, 1992
Arabis fecunda	Progress report	Lesica, P., J.S. Shelley	MT	MTNHP, 1988
Aster jessicae	Thesis	Dean, M.L.	OSU	Dissertation, OSU, 1966
Astragalus anserinus	Field guide	Atwood, D. J. Holland, R. Bolander	Intermountain region	USDANF, Ogden, Ut., 1991
Astragalus atratus var. inseptus	Botanical survey	Eidemiller, B.J.	SHS	IDCDC, 1977
Astragalus mulfordiae	Botanical survey	Moseley, R.K., M. Mancuso, J. Hilty	Boise Foothills, Ada county, ID	IDCDC, 1992
Astragalus mulfordiae	Recommendation	Moseley, R.K.	Bruneau Resource Area, BSE	BSE, 1987
Astragalus oniciformis	Botanical survey	Harrison, B.F.	SHS	IDCDC, 1981
Astragalus paysonii	Botanical survey	Horton, L.E.	Lower Salmon River, ID	USDA, IDCDC, 1972
Astragalus purshii var. ophiogenes	Botanical survey	Eidemiller, B.J.	SHS	IDCDC, 1977
Astragalus sterilis	Thesis	Grimes, J.W.	Leslie Gulch, Malheur Cty., OR.	Thesis, USU, 1979
Balsamorhiza macrophylla	Botanical survey	Mathews, S.	Gallatin NF	USFS, MTNHP, 1989
Blechnum spicant	Thesis	Cousens, M.I.	WSU	WSU, 1973
Botrychium	Demographic report	Lesica, P., K. Ahlenslager	Waterton N.P., Alta.	Waterton N.P., USFWS, MTNHP, 1995
Botrychium	Monitoring report	Lesica, P., K. Ahlenslager	Waterton Lakes Park, Alberta	MTNHP, 1989

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Taxon	Report Type	Author	Area/Subject	Area/File/Publication
Botrychium	Monitoring report	Lesica, P., K. Ahlenslager	Waterton N.P., Alta.	Waterton N.P., USFWS, MTNHP, 1994
Botrychium	Species guide	Wagner, D.H.	OR	USFS, 1992
Botrychium hesperium, B. paradoxum	Draft Manuscript	Ahlenslager, K., P. Lesica	Waterton NP	USFWS, MTNHP, 1995
Botrychium hesperium, B. Paradoxum	Observation report	Ahlenslager, K., P. Lesica	MT	Waterton N.P., USFWS, MTNHP, 1995
Botrychium minganense	Botanical survey	BioSystems Analysis, Inc.	PGT-PGE&E Pipeline, ID, WA, OR, CA	BioSystems Analysis Inc., 1990
Botrychium minganense	Field investigation	Caicco, S.L.	PAN	IDNHP, IDFG, 1987
Botrychium paradosum	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Botrychium paradoxum	Field survey	Shelly, J.S.	Lewis & Clark, Pondera, and Meagher Co's., MT	1986
Botrychium paradoxum	Field survey	Vanderhorst, J.	Storm Lake, DRL	USFWS, MTNHP, 1993
Botrychium paradoxum	Field survey	Vanderhorst, J.	DRL	DRL, MTNHP, 1993
Botrychium paradoxum	Survey report	Vanderhorst, J.	Storm lake, DRL	USFWS, MTNHP, 1993
Botrychium simplex	Technical report	Johnson, C.G., S.A. Simon	WAW, Wallowa-Snake province	WAW, R6-ECOL-TP-255A-86, 1987
Botrychium sp.	Field survey	Achuff, P.L.	Ninemile valley, Missoula co., MT.	1991
Calamagrostis tweedyi	Biological evaluation	Caruso, L.B.	WEN	IDCDC, 1988
Calochortus macrocarpus maculosus	Botanical survey	Hill, J.L.	Wapshilla Ridge area/ Craig Mtn., ID	IDCDC, 1991
Calochortus nitidus	Botanical survey	Hill, J.L.	Wapshilla Ridge area/ Craig Mtn., ID	IDCDC, 1991
Calochortus nitidus	Monitoring report	Caicco, S.L.	ID	IDCDC, 1988
Calochortus nitidus	Monitoring report	Caicco, S.L.	ID	IDCDC, 1989
Caltilleja gracillima	Botanical survey	Mathews, S.	Gallatin NF	USFS, MTNHP, 1989
Camassia cusickii	Technical report	Johnson, C.G., S.A. Simon	WAW, Wallowa-Snake province	WAW, R6-ECOL-TP-255A-86, 1987
Camassia cusickii	Thesis	Jewell, J.E.	Taxonomy	U of I, 1978
Camissonia andina	Distribution report	Lesica, P., P.L. Achuff	Pryor Mtn. Desert, Carbon Co., MT	BLM, MTNHP, 1992
Cardamine canstancei	Botanical survey	Johnson, F.S., R.C. Crawford	N. ID	U of ID, 1978
Cardamine constancei	Botanical survey	Johnson, F.	Clearwater Basin, ID	IDCDC, 1978
Cardamine constancei	Monitoring report	Crawford, R.C.	Northern ID	U of ID, 1980
Cardamine rupicola	Field survey	Heidel, B.L.	Crown Mt., MT.	1992
Cardamine rupicola	Field survey	Heidel, B.L.	Steamboat Mt. Lookout, MT.	1992
Carex buxbaumii	Botanical survey	Johnston, B.C.	Swamp Lake Botanical Area, SHS	SHS, 1987
Carex cawei	Botanical survey	Lesica, P.	Pine Butte Reserve, MT	MTNHP, 1991
Carex flava	Botanical survey	BioSystems Analysis, Inc.	PGT-PGE&E Pipeline, ID, WA, OR, CA	BioSystems Analysis Inc., 1990
Carex leptalea	Botanical survey	Johnston, B.C.	Swamp Lake Botanical Area, SHS	SHS, 1987
Carex leptalea	Field guide	Atwood, D. J. Holland, R. Bolander	Intermountain region	USDANF, Ogden, Ut., 1991
Carex livida	Botanical survey	Lesica, P.	Pine Butte Reserve, MT	MTNHP, 1991
Carex livida	Field investigation	Caicco, S.L.	PAN	IDNHP, IDFG, 1987
Carex livida	Field survey	Shelly, J.S.	Indian meadows, MT	1987
Carex maritima	Botanical survey	Achuff, P.L., L.S. Roe	Goat Flat proposed research natural area, DRL	DRL, MTNHP, No date
Carex neurophora	Botanical survey	Vanderhorst, J., B.L. Heidel	Tobacco Root mtns., Madison Co., MT	BVR, DRL, MTNHP, 1995
Carex paupercula	Botanical survey	Chadde, S., F. Rabe	Hawkins pond, Three rivers RD, KOO	KOO, 1994
Carex paupercula	Thesis	Cousens, M.I.	WSU	WSU, 1973
Carex vallicola	Botanical survey	Lesica, P.	Highland Mtns., DRL	MTNHP, 1992
Carix vallicola	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Castilleja gracillima	Botanical survey	Vanderhorst, J., B.L. Heidel	Tobacco Root mtns., Madison Co., MT	BVR, DRL, MTNHP, 1995
Castilleja gracillima	Field survey	Vanderhorst, J.	Gallatin NF	MTNHP, 1993
Castilleja pilosa var. steenensis	Masters thesis	Whalen, L.	BR	Utah State? 1991
Ceanothus prostratus ssp. prostratus	Technical report	Brown, R.W., R.H. Ruf, E.E. Farmer	Revegetaion	USDA, Ogden, UT, 1971
Chrysosplenium tetrandrum	Botanical survey	Kratz, A.	Region 1, USFS	USFS, 1989
Cornus nuttallii	Monitoring report	Johnson, F.D.	N. ID	IDCDC, 1988
Cornus nuttallii	Technical bulletin	Davidson, R.M. Jr., R.S. Byther	WA	EM 4421, WSU, 1979
Cornus nuttallii	Technical bulletin	Davidson, R.M. Jr., R.S. Byther	WA	Extension Bulletin 0972, WSU, 1989
Cornus nuttallii	Technical report	Bertagnolli, C.L., A.D. Partridge	Northern ID	U of ID, 1990
Corydhantha vivipara	Botanical survey	Henderson, D.M.	CHA, Middle fork RD	Uofl Herbarium, 1982

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Crepis bakeri ldahoensis	Botanical survey	Hill, J.L.	Wapshilla Ridge area/ Craig Mtn., ID	IDCDC, 1991
Cryptantha caespitosa	Field guide	Atwood, D. J. Holland, R. Bolander	Intermountain region	USDANF, Ogden, Ut., 1991
Cryptantha simulans	Technical report	Johnson, C.G., S.A. Simon	WAW, Wallowa-Snake province	WAW, R6-ECOL-TP-255A-86, 1987
Cypeipedium fasciculatum	Technical report	Brownell, V.R.	Distribution	IDCDC, 1985
Cypripedium calceolus	Botanical survey	Hoitsma, T.	Fortine RD, KOO	KOO, 1992
Cypripedium calceolus	Field survey	Heidel, B.L.	Anderson Hill, MT.	1992
Cypripedium calceolus var. parviflora	Botanical survey	Lesica, P.	Pine Butte Reserve, MT	MTNHP, 1991
Cypripedium calceolus var. parviflorum	Botanical survey	Chadde, S.	Pinkham analysis area, Fortine & Rexford RDs, KOO	KOO, 1991
Cypripedium calceolus var. parviflorum	Botanical survey	Heidel, B.	Garnet Resource area, BUT	MTNHP, 1992
Cypripedium calceolus var. parviflorum	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Cypripedium fasciculatum	Botanical survey	Moseley, B.	Aquarius Research Natural Area, ID	TNC, 1988
Cypripedium fasciculatum	Field guide	Atwood, D. J. Holland, R. Bolander	Intermountain region	USDANF, Ogden, Ut., 1991
Cypripedium fasciculatum	Field survey	Moseley, B.	Bronco Beauty analysis area, CDANF	IDCDC, 1992
Cypripedium fasciculatum	Thesis	Crawford, R.C.	North-central ID	U of ID, 1983
Cypripedium passerinum	Botanical survey	Hoitsma, T.	Fortine RD, KOO	KOO, 1992
Cypripedium passerinum	Botanical survey	Horn, F.	Headwaters Resource Area, BUT	BUT, 1980
Cypripedium passerinum	Field survey	Shelly, J.S.	Lewis & Clark, Pondera, and Meagher Co's., MT	1986
Cypripedium passerinum	Field survey	Shelly, J.S.	Bob Marshall Wilderness, MT	1988
Cypripedium passerinum	Field survey	Shelly, J.S.	Rocky Mtn. Front range, MT	1988
Dasynotus daubenmirei	Monitoring report	Crawford, R.C.	Northern ID	U of ID, 1980
Dasynotus dubenmirei	Botanical survey	Johnson, F.S., R.C. Crawford	N. ID	U of ID, 1978
Draba apiculata	Botanical survey	Fox, L., R.K. Moseley	White Cloud Peaks, Boulder Mtns., ID	IDCDC, 1991
Draba densifolia	Botanical survey	Heidel, B., J. Vanderhorst	Tobacco Root mtns., BVR, DRL	BVR, DRL, 1994
Draba densifolia	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Draba incerta	Botanical survey	Fox, L., R.K. Moseley	White Cloud Peaks, Boulder Mtns., ID	IDCDC, 1991
Draba trichocarpa	Monitoring report	Moseley, R.K., M. Mancuso	Stanley Basin, ID	IDCDC, 1991
Draba trichocarpa	Monitoring report	Moseley, R.K., M. Mancuso	Stanley Basin, ID	SAW, IDCDC, 1993
Drosera linearis	Field survey	Shelly, J.S.	Indian meadows, MT	1987
Dryopteris cristata	Abstract	Greuter, W., B. Zimmer, H.D. Bdhnke		XIV Internation Botanical Conference, 1987
Dryopteris cristata	Field investigation	Caicco, S.L.	PAN	IDNHP, IDFG, 1987
Eleocharis rostellata	Botanical survey	Heidel, B.	Bluewater Fish Hatchery, MT.	MDFWP, 1994
Eleocharis rostellata	Botanical survey	Lesica, P.	Pine Butte Reserve, MT	MTNHP, 1991
Eleocharis rostellata	Unpublished report	Heidel, B.	Bluewater fish hatchery (MDFWP)	MTNHP, no date
Eleocharis rostellata	Botanical survey	Vanderhorst, J., B.L. Heidel	Tobacco Root mtns., Madison Co., MT	BVR, DRL, MTNHP, 1995
Epilobium palustre	Botanical survey	Johnston, B.C.	Swamp Lake Botanical Area, SHS	SHS, 1987
Epipactis gigantea	Botanical survey	Henderson, D.M.	CHA, Middle fork RD	Uofl Herbarium, 1982
Epipactis gigantea	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Epipactis gigantea	Botanical survey	Vanderhorst, J., B.L. Heidel	Tobacco Root mtns., Madison Co., MT	BVR, DRL, MTNHP, 1995
Epipactis gigantea	Field survey	Achuff, P.L.	Swan valley peatlands, Lake co., MT.	1991
Epipactis gigantea	Field survey	Schassberger, L.A.	Flathead & Lake co's., MT	1988
Epipactis gigantea	Status Publication	Brunton, C.F.	Canada	Canadian Field Naturalist. 100:414-417
Epipactis gigantea	Thesis	Mantas, M.	Ecology and Reproductive biology	University of Idaho, 1993
Erigeron lackschewitzii	Field survey	Heidel, B.L.	Crown Mt., MT.	1992
Erigeron lackschewitzii	Field survey	Heidel, B.L.	Steamboat Mt. Lookout, MT.	1992
Erigeron lackschewitzii	Field survey	Heidel, B.L.	Swift Reservoir, MT.	1992
Erigeron lackschewitzii	Field survey	Heidel, B.L.	Washboard Reef, MT.	1992
Erigeron lackschewitzii	Field survey	Heidel, B.L., H.W. Phillips	Mt. Wright, MT.	1992
Erigeron lackschewitzii	Field survey	Heidel, B.L., T. & H. Kerstetter	Our Lake, MT.	1992
Erigeron lackschewitzii	Field survey	Schassberger, L.A.	Front range Mtns., MT	1989
Erigeron lackschewitzii	Interim taxonomy report	Kerstetter, T.	MT	MTNHP, 1994
Erigeron lackschewitzii	Interim taxonomy report	Kerstetter, T.	USFWS	MTNHP, 1994

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Erigeron lackschewitzii	Masters thesis	Kerstetter, T.	MT	MSU, Bozeman, MT. 1994
Erigeron lackschewitzii	Masters thesis	Kerstetter, T.	Taxonomic investigation	Montana State University, 1994
Erigeron lackschewitzii	New species report	Fertig, W.	BRT	Wyoming TNC, 1993
Erigeron lackschewitzii	Preliminary taxonomy report	Kerstetter, T.	MT	USFWS, MTNHP, 1993
Erigeron lackschewitzii	Preliminary taxonomy report	Kerstetter, T.	USFWS	MTNHP, 1993
Eriogonum meledonum	Monitoring report	Moseley, R.K., M. Mancuso	Stanley Basin, ID	IDCDC, 1991
Eriophorum viridicarinatum	Botanical survey	Johnston, B.C.	Swamp Lake Botanical Area, SHS	SHS, 1987
Eriophorum viridicarinatum	Botanical survey	Lesica, P.	Pine Butte Reserve, MT	MTNHP, 1991
Eriophorum viridicarinatum	Botanical survey	Moseley, R.K.	Fremont & Teton Co's., ID	IDFG, 1991
Gaultheria ovatifolia	Masters thesis	Lorain, C.C.	History & distribution of coastal disjunct plants	University of Idaho, 1988
Gentiana prostrata	Botanical survey	Achuff, P.L., L.S. Roe	Goat Flat proposed research natural area, DRL	DRL, MTNHP, No date
Gentianopsis simplex	Field survey	Heidel, B.L.	Lima fen, MT.	1992
Gentianopsis simplex	Field survey	Shelly, J.S.	Carbon Co., MT	1989
Goodyera repens	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Goodyera repens	Field survey & monitoring	Schassberger, L.A.	Little belt Mtns., MT	1990
Grindelia howellii	Field investigation	Caicco, S.L.	PAN	IDNHP, IDFG, 1987
Grindelia howellii	Lecture	Achuff, P.L., L.A. Schassberger Roe	Weeds and Rare Native Plants in MT.	Proc. Weed Symposium, 1992
Grindelia howellii	Population monitoring	Kratz, A.	LOL	Seeley Lake, MT, 1989
Hallmolobos perplexa var. perplexa	Technical report	Johnson, C.G., S.A. Simon	WAW, Wallowa-Snake province	WAW, R6-ECOL-TP-255A-86, 1987
Haplopappus insecticruris	Botanical survey	Eidemiller, B.J.	SHS	IDCDC, 1977
Haplopappus macfarlanei	Inventory	Moseley, R.K.	Lower Salmon River, CDA	CDA, IDCDC, 1993
Haplopappus macronema var. macronema	Botanical survey	Schassberger, L.A.	East Pioneer Mtns., BVR	MTNHP, 1991
Haplopappus macronema var. macronema	Field survey	D. Pavek	Pioneer Mtns., MT	1990
Haplopappus radiatus	Field investigation	Mancuso, M.	PAY	IDCDC, 1991
Heterocodon rariflorum	Botanical survey	Schassberger, L.A.	East Pioneer Mtns., BVR	MTNHP, 1991
Howellia aquatilis	Abstract	Shelly, J.S.	Lack & Missoula counties, Mt.	Proc. Mont. Acad. Sci. 48:12, 1988
Howellia aquatilis	Ecological assessment	Lesica, P.	Swan valley, Mt.	FLT, Conservation biology research, 1990
Howellia aquatilis	Masters thesis	Rice, D.J.	MT	WSU, Pullman, Wa. 1990
Howellia aquatilis	Monitoring progress report	Lesica, P.	Swan river oxbow preserve, MT.	MTNC, 1991
Howellia aquatilis	Monitoring progress report	Lesica, P.	Swan river oxbow preserve	MTNC, 1994
Howellia aquatilis	Population report	Lesica, P., R.F. Leary, F.W. Allendorf	MT	MTNC, 1987
Hutchinsia procumbens	Botanical survey	Vanderhorst, J.P.	Tendoy mtns., Beaverhead Co., MT	BUT, MTNHP, 1994
Juncus covillei	Ecological assessment	Vanderhorst, J.P.	Southcentral MT	MDFWP, MTNHP, 1993
Juncus hallii	Botanical survey	Lesica, P.	Highland Mtns., DRL	MTNHP, 1992
Juncus hallii	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Juncus hallii	Environmental analysis	OEA research	Beal Mining Co., German Gulch, MT	OEA, 1981
Juncus hallii	Field survey	Poole, J.M.	Elkhorn & Big Belt Mtns., Helena NF, MT	Helena NF, 1992
Juncus hallii	Plant survey	Dieffenbach, T.	Caribou Mountains, ID	IDCDC, 1977
Kobresia simpliciuscula	Botanical survey	Johnston, B.C.	Swamp Lake Botanical Area, SHS	SHS, 1987
Lepidium davisii	Botanical survey	Eidemiller, B.J.	SHS	IDCDC, 1977
Lepidium davisii	Monitoring report	Bernatas, S., R.K. Moseley	Mountain Home AFB, ID	IDCDC, 1991
Lepidium davisii	Monitoring report	DeBolt, A., J. Doremus	BOI	IDCDC, 1990
Lepidium davisii	Monitoring report	Doremus, J., A. DeBolt	Kuna Planning area, BOI	BOI, 1987
Lepidium papilliferum	Botanical survey	Moseley, R.K., M. Mancuso, J. Hilty	Boise Foothills, Ada county, ID	IDCDC, 1992
Leptodactylon pungens ssp. hazeliae	Field survey	Moseley, R.K.	Hells Canyon Ntnl. Recreation Area, CDANF	IDCDC, 1992
Lesquerella carinata	Field survey	D. Pavek	MT	1190
Lesquerella carinata	Field survey	Heidel, B.L.	Rattler Gulch, MT.	1992
Lesquerella carinata	Field survey	Schassberger, L.A.	Granite Co., MT	1989
Lesquerella carinata	Field survey	Schassberger, L.A.	Granite Co., MT	1990
Lesquerella carinata	Lecture	Achuff, P.L., L.A. Schassberger Roe	Weeds and Rare Native Plants in MT.	Proc. Weed Symposium, 1992
Lesquerella carinata var.langulda	Unpublished report	Greenlee, J.	Conservation Biology	TNC, 1994

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Taxon	Report Type	Author	Area/Subject	Area/File/Publication
Lesquerella klausii	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Lomatium laevigatum	John Day Dam Survey	Kagan, J.	John Day Dam	Final report, 1988 - ONHP
Lomatium laevigatum	Survey report	Vrilakas, S.C185, J. Kagan	The Dalles, Foster Lake, Detroit Dam	Final report, Army Corps, ONHP, no date
Lycopodium inundatum	Botanical survey	Moseley, R.K.	Fremont & Teton Co's., ID	IDFG, 1991
Lycopodium inundatum	Field investigation	Caicco, S.L.	PAN	IDNHP, IDFG, 1987
Madia minima	Botanical survey	Schassberger, L.A.	East Pioneer Mtns., BVR	MTNHP, 1991
Mentzelia mollis	Distribution and Occurrence report	Smithman, L.C.	VAL	Vale BLM, 1989
Mentzelia mollis	Thesis	Glad, J.B.	OSU	Thesis, OSU, 1975
Mentzelia packardiae	Masters thesis	Glad, J.B.	OU	OSU, 1975
Mertensia bella	Masters thesis	Lorain, C.C.	History & distribution of coastal disjunct plants	University of Idaho, 1988
Mimulus primuloides	Botanical survey	Schassberger, L.A.	East Pioneer Mtns., BVR	MTNHP, 1991
Mimulus primuloides	Field survey	D. Pavek	Pioneer Mtns., MT	1990
Mirabilis macfarlanei	Botanical survey	Johnson, C.A	Lower Salmon River, CDA	CDA, IDCDC, 1983
Mirabilis macfarlanei	Botanical survey	Moseley, R.K., S. Bernatas	Lucile Caves Area, CDA	IDCDC, 1991
Mirabilis macfarlanei	Monitoring report	Johnson, C.A	Mgmt. techniques	IDCDC
Mirabilis macfarlanei	Technical report	Johnson, C.G., S.A. Simon	WAW, Wallowa-Snake province	WAW, R6-ECOL-TP-255A-86, 1987
Muhlenbergia racemosa	Botanical survey	Johnston, B.C.	Swamp Lake Botanical Area, SHS	SHS, 1987
Orchis rotundifolia	Botanical survey	Chadde, S.	Pinkham analysis area, Fortine & Rexford RDs, KOO	KOO, 1991
Orchis rotundifolia	Botanical survey	Hoitsma, T.	Fortine RD, KOO	KOO, 1992
Orchis rotundifolia	Botanical survey	Horn, F.	Headwaters Resource Area, BUT	BUT, 1980
Orchis rotundifolia	Field survey	Shelly, J.S.	Bob Marshall Wilderness, MT	1988
Orchis rotundifolia	Field survey	Shelly, J.S.	Rocky Mtn. Front range, MT	1988
Orobanche corymbosa	Botanical survey	Heidel, B.	south of Elkhorn mtns., MT.	MTBLM, 1994
Orobanche corymbosa	Botanical survey	Lesica, P.	Highland Mtns., DRL	MTNHP, 1992
Oxytheca dendroidea	Science bulletin	Atwood, D.	Ditribution, Taxonomy	BYU, Vol. XI(4), 1970
Oxytropis lagopus var. conjugens	Botanical survey	Lesica, P.	Pine Butte Reserve, MT	MTNHP, 1991
Oxytropis lagopus var. conjugens	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Oxytropis podocarpa	Field survey	Schassberger, L.A.	Front range Mtns., MT	1989
Pediocactus simpsonii var. robustior	Botanical survey	Hill, J.L.	Wapshilla Ridge area/ Craig Mtn., ID	IDCDC, 1991
Pediocactus simpsonii var. robustior	Technical bulletin	Daubenmire, R.	WA	Tech. Bull. 62, WSU, 1970
Penstemon compactus	Botanical survey	Franklin, M.A.	CCS, Wasatch-Cache NF, UT	UNHP, IDCDC, 1990
Penstemon compactus	Field guide	Atwood, D. J. Holland, R. Bolander	Intermountain region	USDANF, Ogden, Ut., 1991
Penstemon idahoensis	Field guide	Atwood, D. J. Holland, R. Bolander	Intermountain region	USDANF, Ogden, Ut., 1991
Penstemon lemhiensis	Botanical survey	Lesica, P.	Highland Mtns., DRL	MTNHP, 1992
Penstemon lemhiensis	Botanical survey	Mathews, S.	Gallatin NF	USFS, MTNHP, 1989
Penstemon lemhiensis	Masters thesis	Ramstetter, J.	MT	U of M, Missoula, MT, 1983
Penstemon lemhiensis	Monitoring progress report	Achuff, P.L., J.S. Shelly	BVR	MTNHP, 1991
Penstemon lemhiensis	Monitoring progress report	Shelly, J.S., B.L. Heidel	BVR	MTNHP, 1992
Penstemon lemhiensis	Monitoring report	Achuff, P.L.	MT	BLM, MTNHP, 1992
Penstemon lemhiensis	Monitoring report	Heidel, B.L., J.S. Shelly	Dillon Resource Area, Mt.	BLM, MTNHP, 1992
Penstemon lemhiensis	Monitoring report	Shelly, J.S., P.L. Achuff	BVR	MTNHP, 1992
Penstemon peckii	PhD Dissertation	Field, K.G.	EC	U of O, 1985
Peraphyllum ramosissimum	Technical report	Johnson, C.G., S.A. Simon	WAW, Wallowa-Snake province	WAW, R6-ECOL-TP-255A-86, 1987
Phacelia inconspicua	Science bulletin	Atwood, D.	Ditribution, Taxonomy	BYU, Vol. XI(4), 1970
Phlox kelseyi var. missoulensis	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Phlox kelseyi var. missoulensis	Field survey	D. Pavek	MT	1990
Phlox kelseyi var. missoulensis	Field survey	Schassberger, L.A.	Granite Co., MT	1990
Phlox kelsyi var. missoulensis	Field survey	Schassberger, L.A., D.L. Pavek	Mcdonald pass & Little belt Mtns., MT	1990
Phlox kelsyi var. missoulensis	Thesis	Campbell, L.M.	Biosystematics	University of Montana, 1992
Picea glauca	Botanical survey	Johnston, B.C.	Swamp Lake Botanical Area, SHS	SHS, 1987
Polygonum douglasii ssp. austinae	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993

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Polygonum douglasii ssp. austinae	Botanical survey	Heidel, B., J. Vanderhorst	Tobacco Root mtns., BVR, DRL	BVR, DRL, 1994
Polygonum douglasii ssp. austinae	Botanical survey	Vanderhorst, J., B.L. Heidel	Tobacco Root mtns., Madison Co., MT	BVR, DRL, MTNHP, 1995
Polygonum douglasii ssp. austinae	Field survey	Heidel, B.L.	Hunters Gulch, Helena NF, MT.	Helena NF, 1992
Polygonum douglasii ssp. austinae	Field survey	Heidel, F.L.C291, P. Lesica	Pike Gulch & Burnt Creek, Helena NF, MT	Helena NF, 1992
Polystichum kruckebergii	Botanical survey	Achuff, P.L., L.S. Roe	Goat Flat proposed research natural area, DRL	DRL, MTNHP, No date
Potamogeton obtusifolius	Field survey	Watson, L.	near Cygnet Lake, MT	BUT, MTNHP, 1994
Potentilla quinquefolia	Botanical survey	Vanderhorst, J., B.L. Heidel	Tobacco Root mtns., Madison Co., MT	BVR, DRL, MTNHP, 1995
Primula alcalina	Ecological and Floristic inventory	Moseley, R.K.	Birch Creek Fen, Lemhi and Clark Cty's, ID	TAR, SMN, IDCDC, 1992
Ranunculus jovis	Field survey	Heidel, B.L.	Targhee Pass, MT.	1992
Ranunculus verecundus	Botanical survey	Lesica, P.	Highland Mtns., DRL	MTNHP, 1992
Rubus bartonianus	Field survey	Moseley, R.K.	Hells Canyon Ntnl. Recreation Area, CDANF	IDCDC, 1992
Rubus bartonianus	Species guide	Bingham, R.T., D.M. Henderson	Hells Canyon, OR	Hells Canyon NRA, 1980
Salix candida	Botanical survey	Johnston, B.C.	Swamp Lake Botanical Area, SHS	SHS, 1987
Salix candida	Field guide	Brunsfeld, S.J., F.D. Johnson	East-Central Idaho	U of ID, 1985
Salix cascadensis	Botanical survey	Achuff, P.L., L.S. Roe	Goat Flat proposed research natural area, DRL	DRL, MTNHP, No date
Salix cascadensis	Ecological assessment	Vanderhorst, J.P.	Southcentral MT	MDFWP, MTNHP, 1993
Salix cascadensis	Field survey	Vanderhorst, J.	Gallatin NF	MTNHP, 1993
Salix farriae	Field guide	Brunsfeld, S.J., F.D. Johnson	East-Central Idaho	U of ID, 1985
Salix wolfii var wolfii	Ecological assessment	Vanderhorst, J.P.	Southcentral MT	MDFWP, MTNHP, 1993
Salix wolfii var. wolfii	Botanical survey	Achuff, P.L., L.S. Roe	Goat Flat proposed research natural area, DRL	DRL, MTNHP, No date
Salix wolfii var. wolfii	Botanical survey	Mathews, S.	Gallatin NF	USFS, MTNHP, 1989
Salix wolfii var. wolfii	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Salix wolfii var. wolfii	Field survey	Vanderhorst, J.	Gallatin NF	MTNHP, 1993
Sanicula marilandica	Botanical survey	BioSystems Analysis, Inc.	PGT-PGE&E Pipeline, ID, WA, OR, CA	BioSystems Analysis Inc., 1990
Saturega douglasii	Field survey	Achuff, P.L.	Ninemile valley, Missoula co., MT.	1991
Saussurea weberi	Botanical survey	Achuff, P.L., L.S. Roe	Goat Flat proposed research natural area, DRL	DRL, MTNHP, No date
Saxifraga tempestiva	Botanical survey	Achuff, P.L., L.S. Roe	Goat Flat proposed research natural area, DRL	DRL, MTNHP, No date
Saxifraga tempestiva	Botanical survey	Lesica, P.	Highland Mtns., DRL	MTNHP, 1992
Saxifraga tempestiva	Botanical survey	Schassberger, L.A.	East Pioneer Mtns., BVR	MTNHP, 1991
Scheuchzeeria palustris ssp. americana	Field investigation	Caicco, S.L.	PAN	IDNHP, IDFG, 1987
Scheuchzeria palustris	Botanical survey	BioSystems Analysis, Inc.	PGT-PGE&E Pipeline, ID, WA, OR, CA	BioSystems Analysis Inc., 1990
Scheuchzeria palustris ssp. americana	Botanical survey	Moseley, R.K.	Fremont & Teton Co's., ID	IDFG, 1991
Scirpus cespitosus	Botanical survey	Lesica, P.	Pine Butte Reserve, MT	MTNHP, 1991
Scirpus nevadensis	Botanical survey	Chadde, S.	Pinkham analysis area, Fortine & Rexford RDs, KOO	KOO, 1991
Scirpus subterminalis	Botanical survey	Hoitsma, T.	Fortine RD, KOO	KOO, 1992
Scirpus subterminalis	Botanical survey	Moseley, R.K.	Fremont & Teton Co's., ID	IDFG, 1991
Scirpus subterminalis	Field survey	Shelly, J.S.	Indian meadows, MT	1987
Sidalcea oregana var. calva	Botanical survey	Vanderhorst, J.	Gallatin NF	Gallatin NF, MTNHP, 1994
Sidalcea oregana var. calva	Ecological assessment	Vanderhorst, J.P.	Southcentral MT	MDFWP, MTNHP, 1993
Sidalcea oregana var. calva	Field survey	Vanderhorst, J.	Gallatin NF	MTNHP, 1993
Sphenopholis obtusata var. major	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Spiraea X pyramidata	Botanical survey	Schassberger, L.A.	East Pioneer Mtns., BVR	MTNHP, 1991
Synthyris platycarpa	Botanical survey	Johnson, F.S., R.C. Crawford	N. ID	U of ID, 1978
Synthyris platycarpa	Monitoring report	Crawford, R.C.	Northern ID	U of ID, 1980
Synthyris platycarpa	Technical bulletin	Daubenmire, R., J.B. Daubenmire	E. WA, N. ID	Tech. Bull. 60, WSU, 1968
Synthyris platycarpa	Technical report	Cooper, S.V., K.E. Neiman, R. Steele, D.W. Roberts	Northern ID	USDA, Ogden, UT, 1987
Synthyris platycarpa	Thesis	Crawford, R.C.	North-central ID	U of ID, 1983
Thalictrum alpinum var. hebetum	Botanical survey	Vanderhorst, J.P.	Tendoy mtns., Beaverhead Co., MT	BUT, MTNHP, 1994
Thelypodium sagittatum var. sagittatum	Botanical survey	Vanderhorst, J.P.	Tendoy mtns., Beaverhead Co., MT	BUT, MTNHP, 1994
Thlaspi parviflorum	Botanical survey	Lesica, P.	Highland Mtns., DRL	MTNHP, 1992
Thlaspi parviflorum	Botanical survey	Vanderhorst, J.P.	Tendoy mtns., Beaverhead Co., MT	BUT, MTNHP, 1994

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Townsendia nuttallii	Botanical survey	Vanderhorst, J.P.	Tendoy mtns., Beaverhead Co., MT	BUT, MTNHP, 1994
Trifolium owyheense	Thesis	Grimes, J.W.	Leslie Gulch, Malheur Cty., OR.	Thesis, USU, 1979
Veratrum californicum	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993
Viola renifolia	Botanical survey	Poole, J.M., B.L. Heidel	Big Belt & Elkhorn Mtns., Helena NF, MT	Helena NF, MTNHP, 1993

Listing packages

Taxon	Title	Author	Area	On File at..., Date
Amsincia caranata	LIsting package	ORNPS	OU	ONHP, 1991
Astragalus mulfordiae	Listing package	Parenti, R.	ID, OU	USFWS, 1991
Astragalus sterilis	Listing package	ORNPS	OU ; ID	ONHP, 1991
Eriogonum crosbyae	Listing package	ORNPS	BR ; NV	ONHP, 1991
Ivesia rhypara var. rhypara	Listing package	ORNPS	BR, OU	ONHP, 1991
Mentzelia mollis	Listing package	ORNPS	OU;NV,ID	ONHP, 1991
Mentzelia packardiae	Listing package	Kagan, J.	OU	ORNPS, 1991
Senecio ertterae	Listing package	Kagan, J.	OU, Malh	for USFWS by ORNPS, ONHP, 1991
Stephanomeria malheurensis	Recovery plan	USFWS	BR, Ham	USFWS, 1990

PUBLICATIONS

Taxon	Author	Subject	Publication, Date
Agoseris lackschewitzii	Henderson, D.M., R.K. Moseley, A.F. Cholewa	Taxonomy	Systematic Botany. 15(3):462-465, 1990
Allium aaseae	Holsinger, K.E.	Biology	C of I, IDCDC, 1978
Allium fibrillum	Badr, A., T.T. Elkington	Genetics topic	Plant Systematics and Evolution. 144:17-24, 1984
Allotropa vergata	Castellano, M.A., J.M. Trappe	Biology	Mycologia. 77(3):499-502, 1985
Allotropa virgata	Castellano, M.A., J.M. Trappe	Mycorrhizal associations	? 77(3):499-502, 1985
Allotropa virgata	Copeland, H.F.	Genus Structure	Madrono 4:137-168, 1938
Allotropa virgata	Copeland, J.F.	Biology	Madrono. 4:137-153, 1938
Allotropa virgata	Furman, T.E., J.M. Trappe	Biology	Quarterly Review of Biology. 46:219-225, 1971
Allotropa virgata	Furman, T.E., J.M. Trappe	Phylogeny and Ecology	Quarterly Revie of Biology 46: 219-225, 1971
Allotropa virgata	Wallace, G.D.	Pollination ecology	Amer. Journal of Botany 64:199-206, 1977
Antennaria arcuata	Cronquist, A.	Distribution, Taxonomy	Lflts. of Western Botany. 6(2):41-56, 1950
Antennaria densifolia	Bayer, R.J.	A systematic and phytogeographic study.....	Madrono 36:248-259, 1989
Antennaria densifolia	Bayer, R.J.	Patterns of isozyme variation.....	Am. Journal of Botany 76:679-691, 1989
Arabis fecunda	Lesica, P., J.S. Shelley	MT	Am. Midl. Nat. 128:53-60, 1992
Arnica alpina var. tomentosa	Bridgland, F., J.M. Gillet	Distribution	Can. Field-Naturalist. 97(3):279-292, 1983
Arnical alpina var. tomentosa	Douglas, G.W., M.J. Ratcliffe	Distribution	Can. Journal of botany. 56:1710-1711, 1978
Aster jessicae	Bates, V.	Taxonomy	Taxon. 35:170-171, 1986
Aster jessicae	Dean, M.L., K.L. Chambers	Genetics, Taxonomy	Brittonia. 35(3):189-196, 1983
Aster jessicae	Jones, A.G.	Taxonomy	Madrono. 31(2):113-122, 1984
Aster jessicae	Jones, A.G.	Taxonomy	Taxon. 36(1):142, 1987
Astragalus amnis-amissi	Henderson, D.M., S. Brunsfeld, P. Brunsfeld	Distribution	Madrono. 28(2):88-90, 1981
Astragalus anserinus	ATwood, N.D., S. Goodrich, S.L. Welsh	Taxonomy	Great Basin Naturalist. 44(2):263-264, 1984
Astragalus bisulcatus	Clement, S.L., D.H. Miller	Biology	Pan-Pacific Entomologist. 58(1):38-41, 1982
Astragalus gilviflorus	Goodrich, S., D. Henderson, A. Cholewa	Distribution	Madrono. 30:63, 1983
Astragalus leptaleus	Caicco, S.L.	Distribution	Modrono. 30:64, 1983
Astragalus riparius	Barneby, R.C.	Taxonomy	Am. Midland Naturalist. 55(2):477-503, 1956
Astragalus sterilis	Barneby, R.C.	Taxonomy	Lflts of Western Botany. 5(12):193-195, 1949
Astragalus sterilis	Grimes, J.W.	Community ecology, Distribution	Madrono. 31(2):80-85, 1984
Astragalus vexilliflexus var. nubilus	Barneby, R.C.	Taxonomy	Am. Midland Naturalist. 55(2):477-503, 1956
Astragalus yoder-williamsii	Barneby, R.C.	Taxonomy	Brittonia. 32(1):30-32, 1980
Bacopa rotundifolia	Barrett, S.C.H., J.L. Strother	Distribution, Taxonomy	Systematic Botany. 3(4):408-419, 1978
Betula pumial var. glandulifera	Connoly-McCarthy, B.J., D.F. Grigal	Community ecology	Forest Science. 31(4):1011-1017, 1985
Betula pumila var. glandulifera	Brunsfeld, S.J., F.D. Johnson	Distribution, Taxonomy	Madrono. 33:-147-148, 1986
Betula pumila var. glandulifera	Dugle, J.R.	Genetics, Taxonomy	Can. Journal of Botany. 44:929-1007, 1966
Blechnem spicant	Cousens, M.I.	Biology, Community ecology	Disss. Abtracts Int. 34/08-B:3672, 1973
Blechnum spicant	Chambers, K.L.	Distribution	Madrono. 22(3):105-114, 1973
Blechnum spicant	Cousens, M.I.	Biology, Community ecology	Botanical Gazette. 142(2):251-258, 1981
Blepharidachne kingii	Hunziker, A.T., A.M. Anton	Taxonomy	Brittonia. 31(4):446-453, 1979
Botrychium lanceolatum var. lanceolatum	Farrar, D.R., C.L. Johnson-Groh	Biology	Am. Journal of Botany, 77(9):1168-1175, 1990
Botrychium minganense	Alverson, Ed.	Taxonomy	Douglasia. 9(3):2-4
Botrychium minganense	Farrar, D.R., C.L. Johnson-Groh	Biology	Am. Journal of Botany, 77(9):1168-1175, 1990
Botrychium pedunculosum	Wagner, W.H. Jr., F.S. Wagner	OBM	American Fern Journal 76(2):33-47
Botrychium simplex	Alverson, Ed.	Taxonomy	Douglasia. 9(3):2-4
Botrychium simplex	Farrar, D.R., C.L. Johnson-Groh	Biology	Am. Journal of Botany, 77(9):1168-1175, 1990
Botrychium sp.	Paris, C.A., F.S. Wagner, W.H. Wagner	Cryptic species, delimitation, taxonomy	Amer. Fern Journal 79:46-54, 1989
Botrychium sp.	Vij, S.P., G.C. Gupta	New species	Amer. Fern Journal 71:20-30, 1981
Botrychium sp.	Wagner, W.H. Jr., F.S. Wagner	New species	Amer. Fern Journal 76(2):3347, 1986
Botrychium sp.	Wagner, W.H. Jr., F.S. Wagner	Notes	Amer. Fern Journal 80:73-81, 1990

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Taxon	Author	Subject	Publication, Date
Botrychium sp.	Wagner, W.H. Jr., F.S. Wagner, C. Haufler, J.K. Emerson	New nothospecies	Can. Journal of Botany 62:629-634, 1984
Botrycium crenulatum	Alverson, Ed.	Taxonomy	Douglasia. 9(3):2-4
Calochortus nitidus	Caicco, S.L.	Biology, Monitoring	Northwest Science. 64(2):108. Abstract # 71, 1990
Calochortus nitidus	Henderson, L.F.	Distribution, Taxonomy	Torrey Botanical Club. 27:342-359, 1900
Carex breweri paddoensis	Howell, J.T.	Taxonomy	Lflts. of Western Botany. 2(2):36-40, 1947
Carex buxbaumii	Bogs, K., P. Hansen, R. Pfister, J. Joy	Community ecology	U of MT, 1990
Carex buxbaumii	Hansen, P., K. Boggs, R. Pfister, J. Joy	Community ecology	UofM, Missoula, MT.,1990
Carex buxbaumii	Hansen, P., S. Chadde, R. Pfister, J. Joy, D. Svoboda, J. Pierce, L. Myers	Community ecology	UofM, Missoula MT., 1988
Carex buxbaumii	Hansen, P.L., S.W. Chadde, R.D. Pfister	Community ecology, Distribution, Mgmt. techniques	Uof M. Publ. 49, Missoula, MT., 1988
Carex chordorrhiza	Bernard, J.M.	Biology	Can. Journal of Botany. 68:1441-1448, 1989
Carex chordorrhiza	Bowles, M.L., M.M. DeMauro, N. Pavlovic, R.D. Hiebert	Community ecology, Management techniques	Natural Areas Journal. 10(4):187-200, 1990
Carex chordorrhiza	Fernald, M.L.	Distribution	Rhodora. 21(243):41-67, 1919
Carex chordorrhiza	Schuyler, A.E.	Glacier NP	Rhodora 82:519, 1980
Carex comosa	Bernard, J.M.	Biology	Can. Journal of Botany. 68:1441-1448, 1989
Carex comosa	Bryson, C.T.	Distribution	Sida. 14(2):311-312, 1990
Carex flava	Bernard, J.M.	Biology	Can. Journal of Botany. 68:1441-1448, 1989
Carex flava	Crins, W.J., P.W. Ball	Taxonomy	Can. Journal of Botany. 67:1048-1065, 1989
Carex flava	Hansen, P.L., S.W. Chadde, R.D. Pfister	Community ecology, Distribution, Mgmt. techniques	Uof M. Publ. 49, Missoula, MT., 1988
Carex flava	Howell, J.T.	Distribution	Lflts. of Western Botany. 4(8):206-208, 1945
Carex flava	Johnson, F.D., S.J. Brunsfeld	Distribution	Madrono. 30:259, 1983
Carex leptalea	Hansen, P.L., S.W. Chadde, R.D. Pfister	Community ecology, Distribution, Mgmt. techniques	Uof M. Publ. 49, Missoula, MT., 1988
Carex livida	Cooper, D.J.	Community ecology, Distribution	Madrono. 38(2):139-143, 1991
Carex livida	Evert, E.F., R.D. Dorn, R.L. Hartman, R.W. Lichvar	Distribution	Madrono. 33:313-315, 1986
Carex livida	Lesica, P.	Pine Butte Fen, Teton Co., MT.	Great Basin Naturalist 46:22-32, 1986
Carex paupercula	Cranston, D.M., D.H. Valentine	Transplant Experiments	Biological Conservation 26:175-191
Carex paupercula	Fearn, C311G.M.	Genetics	Watsonia 11(3):254, 1977
Carex paupercula	Fernald, M.L.	Taxonomy	Rhodora. 8:73-77, 1906
Castilleja christii	Holmgren, N.H.	Distribution, Taxonomy	Torrey Botanical Club. 100(2):83-93, 1973
Chrysosplenium tetrandrum	Bohm, B.A., William Collins, F. & R. Bose	Flavonoids...	Pytochemistry 16:1205-1209
Chrysosplenium tetrandrum	Leck, M.A.	Germination	Arctic and Alpine Research 12(3):343-349
Chrysothamnus parryi var. montanus	Anderson, Loran C.	Distribution, Taxonomy	Phytologia. 38(4):309-320
Chrysothamnus parryi var. montanus	Anderson, Loran C.	Distribution, Taxonomy	USDA, Ogden, UT. 1986
Cicuta bulbifera	Berenbaun, M.	Taxonomy	Ecology. 62(5):1254-1266, 1981
Clarkia rhomboidea	Holslinger, K.E.	Nomenclature status	Taxon 34(4):707-708, 1985
Claytonia lanceolata var. flava	Davis, R.J.	Distribution, Taxonomy	Brittonia. 18:285-303, 1966
Collomia debilis var. camporum	Chuang, T., W.C. Hsieh, D.H. Wilken	Taxonomy	Am. Journal of Botany. 65(4):450-458, 1978
Collomia debilis var. camporum	Hitchcock, C.L., J.W. Thompson	Distribution	Lflts. of Western Botany. 4(8):197-206, 1945
Collomia renacta	Joyal, E.	New species report	Brittonia (38)3:243-248, 1986
Cornus nuttalli	Atkinson, R.G.	Biology	Can. Journal of Botany. 43:1471-1475, 1965
Cornus nuttallii	Funk, A., A.K. Parker	Biology	Can. Journal of Botany. 50:1623-1625, 1972
Cornus nuttallii	Guppy, G.A.	Distribution	Davidsonia. 8(2):24-30, 1977
Cornus nuttallii	Halpern, C.B.	Community ecology	Ecology. 70(3):704-720, 1989
Cymopterus davisii	Hartman, R.L.	Taxonomy	Brittonia. 37(1):102-105, 1985
Cymopterus douglassii	Hartman, R.L., L. Constance	Distribution, Taxonomy	Brittonia. 37:88-95, 1985
Cypripedium calceolus var. parviflorum	Arditti, J., J.D. Michaud, P.L. Healey	Morphometry of Orchid Seeds	Am. Journal of Botany. 66(10):1128-1137, 1979
Cypripedium calceolus var. parviflorum	Fernald, M.L.	Distribution	Rhodora. 48(565):4, 1946
Cypripedium calceolus var. parviflorum	Harms, V.L.	Distribution	Rhodora. 75(803):491, 1973
Cypripedium calceolus var. parviflorum	Harms, V.L.	New record	Rhodora 75:491, 1973

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Taxon	Author	Subject	Publication, Date
Cypripedium calceolus var. parviflorum	Lesica, P.	Pine Butte Fen, Teton Co., MT.	Great Basin Naturalist 46:22-32, 1986
Cypripedium calceolus var. parviflorum	Linden, B.	Aseptic germination	Ann. Bot. Fennici 17:174-182
Cypripedium calceolus var. parviflorum	Nekola, J.C.	Rare plant notes, R.V. Drexler herbarium	Journal Iowa Academy of Sciences 97:55-73, 1990
Cypripedium fasciculatum	Brownell, V.R.	Distribution, Taxonomy	Lindleyana. 2(1):53-57, 1987
Cypripedium fasciculatum	Brownell, V.R., P.M. Catling	Distribution and Taxonomy	LINDLEYANA 2:53-57
Cypripedium fasciculatum	Brownell, V.R., P.M. Catling	MT	LINDLEYANA 2:53-57, 1987
Cypripedium fasciculatum	Fowlie, J.A.	Community ecology, Distribution	The Orchid Digest, 52(3):137-139, 1988
Cypripedium passerinum	Arditti, J., J.D. Michaud, P.L. Healey	Morphometry of Orchid Seeds	Am. Journal of Botany. 66(10):1128-1137, 1979
Cypripedium passerinum	Catling, P.M.	Autogamy	Naturaliste Canada 110:37-53, 1983
Cypripedium passerinum	Keddy, C228CJ. , P.A. Keddy, R.J. Planck	Ecological study	Can. Field Naturalist 97(3):268-274, 1983
Cypripedium passerinum	Linden, B.	Aseptic germination	Ann. Bot. Fennici 17:174-182
Dasynotus dauenmirei	Johnston, I.M.	Taxonomy	Journal of the Arnold Arboretum. 29:227-241, 1948
Dimeresia howelli	Barneby, R.C.	Distribution	Leaflets of Western Botany. 5(4):61-66, 1947
Douglasia idahoensis	Henderson, D.M.	Taxonomy	Brittonia. 33(1):52-56, 1981
Draba apiculata	Hitchcock, C.L.	Distribution, Taxonomy	UofW Press, 1941
Draba fladnizensis	Bridgland, F., J.M. Gillet	Distribution	Can. Field-Naturalist. 97(3):279-292, 1983
Draba fladnizensis	Hitchcock, C.L.	Distribution, Taxonomy	UofW Press, 1941
Draba incerta	Chambers, J.C., J.A. MacMahon, R.W. Brown	Biology	Ecology. 71(4):1323-1341, 1990
Draba incerta	Hitchcock, C.L.	Distribution, Taxonomy	UofW Press, 1941
Dryoopteris cristata	Carlson, T.M., W.H. Wagner Jr.	Distribution	U of MI Herbarium. 15:141-162, 1982
Dryopteris cristata	Britton, D.M.	The Spores....	Canadian Journal of Botany 50:2027-2029
Dryopteris cristata	Carlson, T.M., W.H. Wagner	Distribution	Contr. Univ. Mich. Herb. 15:141-162, 1982
Dryopteris cristata	Cody, W.J., D.M. Britton	Phytogeography	Can. Field Naturalist 99(1):101-102
Dryopteris filix-mas	Cody, W.J., D.M. Britton	Phytogeography	Can. Field Naturalist 99(1):101-102
Eatonella nivea	Barneby, R.C.	Distribution	Leaflets of Western Botany. 5(4):61-66, 1947
Epipactis gigantea	Allen, Don R.	Distribution	Am. Orchid Society Bulletin. 51(10):1038-1040
Epipactis gigantea	Arditte, F., J.D. Michaud, A.P. Oliva	Biology	Botanical Gazette. 142(4):442-453, 1981
Epipactis gigantea	Arditte, F., J.D. Michaud, A.P. Oliva	Biology	Am. Orchid Society Bulletin. 51(2):162-171, 1982
Epipactis gigantea	Brunton, D.F.	Biolgy, Distribution	Can. Field-Naturalis. 100(3):414-417, 1986
Epipactis gigantea	Burns-Balogh, P., D.L. Szlachetko, A. Dafni	Evolution, Pollination, and Systematics	Pl. Syst. Evol. 156:91-115
Epipactis gigantea	Coleman, R.A.	Distribution	Orchid Digest. 50(2):66-68, 1986
Epipactis gigantea	Coleman, R.A.	Distribution	Orchid Digest. 51(4):203-204, 1987
Epipactis gigantea	Vanderhorst, J.P.	Genetics	Cytologia 40:613-621, 1975
Epipactis gigantea	Burns-Balogh, P., D.L., Szlachetko, A. Dafni	Biology, Taxonomy	Plant Systematics and Evolution. 156:91-115, 1987
Erigeron lackschewitzii	Neson, G.L., W.A. Weber	MT	Madrono 30:245-249, 1983
Erigeron lackschewitzii	Neson, G.L., W.A. Weber	New species	Madrono 30:245-249, 1983
Eriphorum viridicarinatum	Lesica, P.	Pine Butte Fen, Teton Co., MT.	Great Basin Naturalist 46:22-32, 1986
Gentiana glauca	Iltis, H.H.	Transfers and phytogeography	Sida 2:129-153, 1965
Gentiana prostrat	Iltis, H.H.	Transfers and phytogeography	Sida 2:129-153, 1965
Gentianopsis simplex	Iltis, H.H.	Transfers and phytogeography	Sida 2:129-153, 1965
Glytopleura marginata	Barneby, R.C.	Distribution	Leaflets of Western Botany. 5(4):61-66, 1947
Goodyera repens	Alexander, C., G. Hadley	Mycorrhizal effects	New Phytology 97:39-400, 1984
Goodyera repens	Barclay-Estrup, P., P. Duralia, T.E. & A.G. Harris	Flowering sequence of the genus Goodyera...	Rhodora 93(874):141-147, 1991
Goodyera repens	Catling, P.M.	Autogamy	Naturaliste Canada 110:37-53, 1983
Goodyera repens	Phillips, C360H.W.	Noteworthy collection	Madrono 36:174, 1989
Goodyera repens	Vij, S.P., G.C. Gupta	Genetics	Cytologia 40:613-621, 1975
Hackelia ophiobia	Carr, R.L.	Taxonomy	Madrono. 22:390-392, 1974
Hallmolobos perplexa var. perplexa	Henderson, L.F.	Distribution, Taxonomy	Torrey Botanical Club. 27:342-359, 1900

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Haplopappus aberrans	Hall, H.M.	Phylogenetic study of Genus	Carnegie Institution of Wash. pub. #389, 1928
Haplopappus insecticruris	Henderson, L.F.	Distribution, Taxonomy	Torrey Botanical Club. 27:342-359, 1900
Haplopappus insecticruris	Anderson, Loran C.	Taxonomy	Am. Journal of Botany. 61(6):665-671, 1974
Haplopappus liatriformis	Anderson, Loran C.	Taxonomy	Am. Journal of Botany. 61(6):665-671, 1974
Haplopappus macronema var. macronema	Hall, H.M.	Phylogenetic study of Genus	Carnegie Institution of Wash. pub. #389, 1928
Haplopappus pygmaeus	Hall, H.M.	Phylogenetic study of Genus	Carnegie Institution of Wash. pub. #389, 1928
Haplopappus radiatus	Anderson, Loran C.	Taxonomy	Am. Journal of Botany. 61(6):665-671, 1974
Howellia aquatilis	Lesica, P.	MT	Ecological applications 2(4):411-421, 1992
Howellia aquatilis	Lesica, P., R.F. Leary, F.W. Allendorf, D.E. Bilderback	MT	Conservation Biology 2:275-282, 1988
Howellia aquatilis	McCune, B.	MT	Madrono 29:123-124, 1982
Kobresia simpliciuscula	Arnold, S.M.	Biology	New Phytologia. 72:583-593, 1973
Kobresia simpliciuscula	Bridgland, F., J.M. Gillet	Distribution	Can. Field-Naturalist. 97(3):279-292, 1983
Kobresia simpliciuscula	Cooper, D.J.	Community ecology, Distribution	Madrono. 38(2):139-143, 1991
Kobresia simpliciuscula	Cranston, D.M., D.H. Valentine	Biology, Mgmt. techniques	Biological Conservation. 26(2):175-191, 1983
Lepidium papilliferum	Henderson, L.F.	Distribution, Taxonomy	Torrey Botanical Club. 27:342-359, 1900
Leptodactylon pungens ssp. hazeliae	Meinke, R.	BM ; ID	Madrono 35(2):105-111, 1988
Lewisia kelloggii	Hitchcock, C.L., J.W. Thompson	Distribution	Lflts. of Western Botany. 4(8):197-206, 1945
Lomatium erythrocarpum	Meinke, R., L. Constance	New species report	1984, Torreya 111: 222-226
Lomatium geyeri	Schlessman, C510M.A.	Systematics	Syst. Bot. Mono. 4:1-55, 1984
Lycopodium inundatum	Andreas, B., G.E. Host	Community ecology	Ohio Journal of Science. 83(5):246-253, 1983
Lycopodium inundatum	Bowles, M.L., M.M. DeMauro, N. Pavlovic, R.D. Hiebert	Community ecology, Management techniques	Natural Areas Journal. 10(4):187-200, 1990
Lycopodium inundatum	Gillespie, J.P.	Taxonomy	Am. Fern Journal. 52:19-26, 1962
Lycopodium sitchense	Beitel, J.M.	Taxonomy	The Michigan Botanist. 18(1):3-13, 1979
Maianthemum dilatatum	Chambers, K.L.	Distribution	Madrono. 22(3):105-114, 1973
Mentzelia mollis	Glad, J.B.	Taxonomy	Madrono. 23(5):283-292, 1976
Mentzelia packardiae	Glad, J.B.	Taxonomy	Madrono 23:283-292, 1976
Mentzelia torreyi var. acerosa	Barneby, R.C.	Distribution	Leaflets of Western Botany. 5(4):61-66, 1947
Mertensia bella	Williams, L.O.	Monograph	Annals of Miss. Botanical Garden 14:17-159, 1937
Mimulus clivicola	Greenleaf, J.	Distribution, Taxonomy	Erythea. 7(11):115-120, 1989
Mimulus hymenophyllus	Meinke, R.	OBM	1983
Mimulus primuloides	Douglas, D.A.	Reproduction	Journal of Ecology 69:295-310, 1981
Mimulus ringens	Cooperrider, T.S.	Distribution	Ohio Journal of Science. 78:15, 1978
Mimulus washingtonensis ssp. ampliatus	Argue, C.L.	Taxonomy	Can. Journal of Botany. 64(7):1331-1337, 1986
Mirabilis macfarlanei	Constance, L., R. Rollins	Taxonomy	Bio. Society of WA. 49:147-150, 1936
Nemacladus rigidus	Barneby, R.C.	Distribution	Leaflets of Western Botany. 5(4):61-66, 1947
Oxytheca dendroidea	Ertter, B.	Distribution, Taxonomy	Brittonia. 32(1):70-102, 1980
Oxytheca dendroidea	Ertter, B.	Taxonomy	Brittonia. 33(1): 37-38, 1981
Pacelia inconspicua	Henderson, L.F.	Distribution, Taxonomy	Torrey Botanical Club. 27:342-359, 1900
Papaver kluanense	Henderson, D.M., S. Brunsfeld, P. Brunsfeld	Distribution	Madrono. 28(2):88-90, 1981
Pediocactus simpsonii var. robustior	Arp, G.	Community ecology	Cactus Succulent Journal. 44(3):108-110, 1972
Pediocactus simpsonii var. robustior	Arp, G.	Taxonomy	Cactus Succulent Journal. 42(1): 40-43, 1970
Penstemon idahoensis	Atwood, D., S.L. Welsh	Distribution, Taxonomy	Great BAsin Naturalist. 48(4):495-498, 1988
Penstemon janishiae	Holmgren, N.H.	Distribution, Taxonomy	Brittonia. 31(2):217-242, 1979
Peraphyllum ramosissimum	Blauer, A.C., A.P. Plummer, E.D. McArthur, R. Stevens, B.C. Guinta	Biology, Distribution	USDA, Ogden, UT, 1975
Peteria thompsoniae	Barneby, R.C.	Distribution	Leaflets of Western Botany. 5(4):61-66, 1947
Phacelia lyallii	Henderson, D.M.	Ditsribution	Madrono. 25:172-174, 1978
Phacelia minutissima	Henderson, L.F.	Distribution, Taxonomy	Torrey Botanical Club. 27:342-359, 1900
Picea glauca	Corns, I.G.W.	Community ecology	Can. Journal of Botany. 13(5):995-1010, 1983

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Polypodium glycyrrhiza	Berch, S.M.	Community ecology	Can. Journal of Botany. 66(10):1924-1928, 1988
Potamogeton obtusifolius	Aulio, K., M. Salin	Enrichment of Copper, Zinc, Manganese, and Iron, etc.	Bull. Environm. Contam. Toxicol. 29:320-325, 1982
Potamogeton obtusifolius	Danell, K.	Plant succession	Journal of Applied Ecology 14:933-947, 1977
Potamogeton obtusifolius	Pip, E.	Ecology	Hydrobiologia 153:203-216, 1987
Potamogeton obtusifolius	Toivonen, H., C. Nybom	Succession	Ann. Bot. Fennici 26:1-14, 1989
Potamogeton obtusifolius	Toivonen, H., S. Back	Eutrophication caused changes	Ann. Bot. Fennici 26:27-38, 1989
Primula alcalina	Cholewa A.F., D.M. Henderson	Distribution, Taxonomy	Brittonia. 36(1):59-62, 1984
Ranunculus gelidus	Benson, L.	Taxonomy	Am. Midland Naturalist. 40(1): 1-261, 1948
Ranunculus pygmaeus	Benson, L.	Taxonomy	Am. Midland Naturalist. 40(1): 1-261, 1948
Rhynchospora alba	Cody, W.J.	Distribution	Can. Field-Naturalist. 92(2):137-143, 1978
Ribes wolfii	Anderson, R. Scott, David S. Shafer	Community ecology	Madrono. 38(4):287-295, 1991
Ribes wolfii	Dye, A.J., W.H. Moir	Community ecology	Am. Midland Naturalist. 97(1):133-146, 1977
Rubus pubescens	Corns, I.G.W.	Community ecology	Can. Journal of Botany. 13(5):995-1010, 1983
Salix candida	Argus, G.W.	Taxonomy	U of WY Publications. 21(1):1-63, 1957
Salix candida	Bogs, K., P. Hansen, R. Pfister, J. Joy	Community ecology	U of MT, 1990
Salix candida	Cooper, D.J.	Community ecology, Distribution	Madrono. 38(2):139-143, 1991
Salix candida	Hansen, P., K. Boggs, R. Pfister, J. Joy	Community ecology	UofM, Missoula, MT.,1990
Salix candida	Johnson, F.D., S.J. Brunsfeld	Distribution	Madrono. 30:259, 1983
Salix farriae	Argus, G.W.	Taxonomy	U of WY Publications. 21(1):1-63, 1957
Salix farriae	Dorn, R.D.	Taxonomy	Can. Journal of Botany. 53(15):1491-1522, 1975
Salix farriae	Hansen, P.L., S.W. Chadde, R.D. Pfister	Community ecology, Distribution, Mgmt. techniques	Uof M. Publ. 49, Missoula, MT., 1988
Salix farriae	Hitchcock, C.L., J.W. Thompson	Distribution	Lflts. of Western Botany. 4(8):197-206, 1945
Salix glauca	Argus, G.W.	Taxonomy	Gray Herbarium #196, 1965
Saxifraga cernua	Bridgland, F., J.M. Gillet	Distribution	Can. Field-Naturalist. 97(3):279-292, 1983
Saxifraga tempestiva	Elvander, P.E.	Taxonomy	Systematic Botany Monographs 3:1-44, 1984
Saxifraga tempestiva	Elvander, P.E., M.F. Denton	New Species report	Madrono 23:346-354, 1976
Scheuchzeria palustris	Cody, W.J.	Distribution	Can. Field-Naturalist. 89:69-71
Scirpus subterminalis	Beer, S., R.G. Wetzel	Biology	Plant Physiology. 70(2):488-492, 1982
Scirpus subterminalis	Brodberg, R., T.R. Fisher	Distribution	Ohio Journal of Science. 76(3):109-110, 1976
Scirpus subterminalis	Catling, P.M., B. Freedman., C. Stewart, J.J. Kerekes, L.P. Lefkovitch	Community ecology, Distribution	Can. Journal of Botany. 64(4):724-729, 1986
Scirpus subterminalis	Hough, R.A.	Biology	Limnology & Oceanography. 19(6):912-927, 1974
Sedum rupicolum	Clausen, R.T.	Distribution, Taxonomy	Cornell U. press, 1975
Solidago spectabilis	Bjorkman, O., M. Nobs, H. Mooney	Biology	Carnegie Inst. 73:748-757, 1974
Sphaeromeria potentilloides	Holmgren, A.H., L.M. Shultz, T.K. Lowrey	Taxonomy	Brittonia. 28(2):255-262, 1976
Stephanomeria malheurensis	Gottlieb, L.	BR, Harn	Kalmiopsis, 1991. NPS
Stipa viridula	Anderson, Howard G., Arhur W. Bailey	Community ecology	Can. Journal of Botany. 58(8):985-996
Stipa viridula	Barkworth, M.E., J. Maze	Taxonomy	Taxon. 31(2):290-299, 1982
Stipa viridula	Fulbright, T.E., E.F. Redente, A.M. Wilson	Biology	Journal of Range Mgmt. 36(3):390-394, 1985
Stipa viridula	Fulbright, T.E., E.F. Redente, A.M. Wilson	Biology	Journal of Range Mgmt. 37(5):462-464, 1984
Stipa viridula	Fulbright, T.E., E.F. Redente, A.M. Wilson	Biology	Journal of Range Mgmt. 38(3):266-270, 1985
Streptopus streptopoides var. brevipes	Fasset, N.C.	Taxonomy	Rhodora. 37:88-113, 1935
Tellima grandiflora	Chambers, K.L.	Distribution	Madrono. 22(3):105-114, 1973
Thelypodium repandum	Alverson, Ed.	Taxonomy	Douglasia. 9(3):2-4
Thelypteris phegopteris	McLaughin, W.T.	Flora of Glacier NP	Rhodora 37:362-365, 1935
Tofieldia glutinosa ssp. absona	Hitchcock, C.L.	Taxonomy	Am. Midland Naturalist. 31:487-498, 1944
Tofieldia glutinosa ssp. brevistyla	Hitchcock, C.L.	Taxonomy	Am. Midland Naturalist. 31:487-498, 1944
Trientalis latifolia	Anderson, R.C., O.L. Loucks	Biology, Distribution	Ecology. 54(4):798-808, 1973
Trientalis latifolia	Berch, S.M.	Community ecology	Can. Journal of Botany. 66(10):1924-1928, 1988

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Taxon	Author	Subject	Publication, Date
Trientalis latifolia	Chambers, K.L.	Distribution	Madrono. 22(3):105-114, 1973
Trientalis latifolia	Halpern, C.B.	Community ecology	Ecology. 70(3):704-720, 1989
Trifolium owyheense	Gilkey, H.M.	Distribution, Taxonomy	Madrono. 13:167-169, 1956
Trifolium owyheense	Grimes, J.W.	Community ecology, Distribution	Madrono. 31(2):80-85, 1984
Trifolium plumosum var. amplifolium	Gillett, J.M.	Taxonomy	Can. Journal of Botany. 50(10):1975-2007, 1972
Vaccinium oxycoccos	Angelo, R.	Distribution	Rhodora. 81(826):285-286, 1988
Vaccinium oxycoccos	Ballard, N.	Community ecology	Arboretum Bulletin. 39(2):32, 1976
Viola renifolia	Canne, J.M.	Genetics	Can. Journal of Botany 65(4):653-655, 1987
Viola renifolia	Nekola, J.C.	Rare plant notes, R.V. Drexler herbarium	Journal Iowa Academy of Sciences 97:55-73, 1990

APPENDIX 3

Rare Habitat Group Analysis

Appendix 3

Introduction

The combining of sensitive species into habitat groups was accomplished to provide a habitat based analysis of plant communities that harbor rare plants that was both sufficient to foster protection and doable within the time and resource constraints of the project. In each section below, a list of species by major habitat group is provided with GIS attributes and themes. this information is given to facilitate planning efforts for future ecosystem management projects. Each section is prefaced with a short description of the important general physical attributes of each habitat group and a short discussion of the impacts of current and historic land use practices. In each case, the generalities have been stressed. We recognize that there is and always will be variation within the Basin with respect to the intensity and nature of the threats.

ALPINE

For this analysis, alpine includes true alpine and high subalpine habitats. These areas within the Interior Columbia Basin (ICB) are limited in extent though not infrequent. Our alpine areas are diverse in structure and composition. The more severe alpine areas include barren rocky outcrops, shallow residuum, and talus slopes. Areas with park-like subalpine fir and whitebark pine forests and forb meadows are significantly less arduous. The pattern and quantity of vegetation at high elevations is largely determined by snowpack, wind, and exposure. The economic uses of alpine areas in the ICB are essentially limited to sheep grazing and mining, though recreation-based commerce (e.g., outfitters and guides) is locally important. The most common human use of high elevation areas is recreational activities such as hiking and hunting. Alpine areas are very important to wildlife, especially as sites for reproduction and raising offspring (e.g., mountain goats and nutcrackers). The floristic diversity of high elevation habitats vary from low in harsh sites to high in moist meadows. Alpine areas contribute significantly to the beta-diversity (between site diversity) of local ecosystems because high portions of the species there are endemic to some degree.

Historically, alpine areas throughout the ICB were heavily used by domestic sheep. This use has declined significantly in the past 50 years though scars created between 1880 and 1930 are still readably evident. Today's sheep operations are smaller and better managed. Mining (usually gold or heavy metals such as antimony or uranium) at high elevations is generally devastating on a local scale (discounting the associated heavy road construction through subtending forest) but is scattered and infrequent. The pace of mineral exploration and extraction is highly dependent on the market price of the ore being sought. Beginning around 1920, white pine blister rust began infecting and devastating whitebark pine stands throughout the ICB. Today, this pathogen is still impacting high elevation woodlands. Exotic plant species (mostly grasses) are well represented in high elevation habitats though these areas are rarely as severely altered as low

elevation vegetation types. In many cases, exotic plants were purposely introduced either for or by sheep grazers to improve forage production. The recreational use of alpine habitats is usually of little to no consequence; however, popular and frequently uses areas (e.g., the northern Cascades of Washington and the Trinity Lakes region of central Idaho) can suffer greatly from trampling, compaction, and increased rill erosion.

Idaho North

Subgroup: Alpine
Themes and/or Attributes: CRBOOS, CRB006, SAF206, SAF208

Species
Arnica alpina tomentosa
Artemisia campestris borealis purshii
Carex brewerii paddoensis
Carex incurviformis incurviformis
Carex straminoformis
Diaphasiastrum sitchense
Draba apiculata
Draba fladnizensis
Draba incerta
Erigeron radicatus
Phacelia lyallii
Ranunculus gelidus
Ranunculus pygmaeus
Saxifraga cemua
Silene uralensis montana
Thamnoha vermicularis

Oregon, Blue Mountains

Subgroup: Alpine barrens
Themes and/or Attributes: CRBOOS, CRB006

Species
Allium campanulatum
Anemone multitida tetonensis
Antennaria aromatica
Arenaria rossii rossii
Asplenium trichomanes
Astragalus robbinsii alpiniformis
Bupleurum americanum
Carex nardina
Castilleja rubida
Cymopteris nivalis
Draba lemmonii cyclomorpha
Dryas drummondii
Epilobium latifolium
Eriogonum scopulorum
Eritrichium nanum
Geum rossii turbinatum
Hulsea algida
Lesquerella kingii diversifolia
Lomatium cusickii
Lomatium erythrocarpum
Lomatium greenmanii
Penstemon spatulatus
Poa suksdorfii
Polemonium viscosum
Polystichum kruckebergii
Ranunculus verecundus
Salix wolfii
Selaginella watsonii
Townsendia montana
Townsendia parryi

Subgroup: Snow Banks
Themes and/or Attributes: CRBOOS, CRB006

Species
Thalictrum alpinum hebetum
Trollius laxus albiflorus

Subgroup: Alpine Herbaceous
Themes and/or Attributes: CRBOOS

Species
Agrostis humilis
Arenaria rossii rossii
Astragalus robbinsii alpiniformis
Bupleurum americanum
Carex nardina
Carex nova
Carex praeceptorum
Castilleja glandulifera
Epilobium latifolium
Hackelia patens patens
Lomatium grecnmanii
Penstemon spatulatus
Polemonium viscosum
Saxifraga adscendens oregonensis
Senecio dimorphophyllus
Senecio porter-i
Thalictrum alpinum hebetum

Subgroup: Alpine wetlands
Themes and/or Attributes: CRBOOS, CRB007

Species
Carex nova
Corydaiis caseana cusickii
Epilobium latifolium
Kobresia bellardii
Kobresia simpliciuscula
Platanthera obtusata
Salix brachycarpa
Salix drummondiana
Salix farriae
Thalictrum alpinum hebetum
Trollius laxus albiflorus

Oregon, Basin and Range

Subgroup: Alpine
Themes and/or Attributes: CRBOOS, CRB006, SAF206, SAF208, Steens Mountain

Species
Agrostis humilis
Botrychium lanceoiatum
Botrychium lunaria
Botrychium minganense
Botrychium pinnatum
Carex haydeniana
Carex nova
Carex praeceptorum
Castilleja pilosa howellii
Claytonia nevadensis
Claytonia megarhiza
Cryptantha humilis
Gentiana prostrata
Gentiana simplex
Gentianella tenella tenella
Kobresia bellardii
Salix brachycarpa
Salix orestera
Salix wolfii

Oregon, East Cascades South

Subgroup: Alpine Barrens and Fell Fields
Themes and /or Attribute: CRBOOS, CRB006

Species
Arabis suffrutescens horizontalis
Arnica viscosa

Botrychium pumicola
Castilleja rupicola
Collomia larsenii
Elmera racemosa puberulenta
Epilobium latifolium
Hieracium bolanderi
lvcsia shockleyi
Poa suksdorfii
Polystichum kruckebergii
Silene suksdorfii
Smelowskia ovalis ovalis

Washington, Columbia Basin

Subgroup: Alpine
Themes and/or Attributes: CRB005

Species
Pellaea brewer-i
Spiraea densiflores splendens

Washington, East Cascades North

Subgroup: Alpine
Themes and/or Attributes: CRB005, CRBS 10, SAF206

Species
Agoseris elata
Agrostis borealis
Anemone nuttalliana
Arabis lemmonii paddoensis
Arnica nevadensis
Arnica rydbergii
Aster glaucescens
Botrychium lunaria
Botrychium pinnatum
Carex atrata atrosquama
Carex atrata erecta
Carex norvegica
Carex proposita
Carex scirpoidea scirpoidea
Carex vallicola
Castilleja suksdorfii
Claytonia megarhiza nivalis
Doulgasia nivalis dentata
Draba aurea
Draba cana
Erigeron humilis
Erigeron leibergii
Erigeron salishii
Eriophorum viridicarinatum
Eritrichium nanum elongatum
Gentiana glauca
Gentianella tenella
Geum rivale
Geum rossii depressum
Lloydia serotina
Loiseleuria procumbens
Pamassia kotzebuei kotzebuei
Pedicularis rainierensis
Penstemon washingtonensis
Polemonium viscosum
Potentilla diversifolia perdissecta
Potentilla quinquefolia
Ranunculus pygmaeus
Salix tweedyi
Salix vestita erecta
Saxifraga apetala
Saxifraga cemua
Saxifraga debilis
Spiranthes porrifolia
Poa arctica arctica
Poa pancispicula
Swertia perennia
Zigadenus elegans

Washington, Okanogan Highlands

Subgroup: Barrens, tundra, snowbanks
Themes and/or Attributes: CRBOOS, CRB006

Species
Agrostis borealis
Antennaria corymbosa
Dodecatheon pulchellus watsonii
Draba aurea
Draba cana
Erigeron humilis
Eriophorum viridicarinatum
Gentiana glauca
Gentianella tenella
Poa arctica arctica
Polemonium viscosum
Potentilla nivea
Potentilla quinquefolia
Potentilla diversifolia perdissecta
Saxifraga adscendens oregonensi
Saxifraga cemua
Saxifraga debilis

Subgroup: Subalpine
Themes and/or Attributes: CRBOOS, SAF206

Species
Botrychium lunaria
Botrychium minganense
Botrychium pinnatum
Botrychium simplex
Carex atrata atrosquama
Carex atrata erecta
Carex paupercula
Carex scopulorum prinophylla
Dodecatheon pulchellum
Draba aurea
Draba cana
Gentiana glauca
Gentianella tenella
Pamassia kotzebuei kotzbuei
Salix tweedyi
Saxifraga integrifolia apetala
Spiranthes ponifolia
Trimorpha elata

Utah

Subgroup: Alpine
Themes and/or Attributes: CRBOOS, CRB006

Species
Draba incerta
Draba douglasii
Erigeron nanus

Wyoming

Subgroup: Alpine meadows
Themes and/or Attributes: CRBOOS

Species
Antennaria monocephala
Parrya nudicaulis
Pedicularis pulchella
Sausaura weberi

Subgroup: Alpine semibarrens

Themes and/or Attributes: CRBOOS. CRB006

Species
Minuartia macranthera

Townsendia leptotes

Subgroup: Alpine rock outcrops and boulder fields
Themes and/or Attributes: CRB005, CRB006

Species
Draba crassa

Draba globosa

AQUATIC AND RIPARIAN

Aquatic and Riparian areas of the Interior Columbia Basin (ICB) include a broad range of intermittent and ephemeral features, perennial streams of all orders, large and small lakes, human-made water impoundments, and geothermal waters. These water bodies are of critical importance to all forms of life within the ICB. Humans use these resources for recreation, municipal utilities, commerce, and agriculture. Wildlife use them as habitat, breeding and hunting sites, refugia, and most obviously, for drinking. Migratory wildlife from salmon to neotropical birds and waterfowl have suffered irreparable harm and may even be faced with extinction because their water dominated habitats have been significantly altered. Bodies of water are no less important for plants. Vernal pools and ephemeral water courses provide unique sites in which many annuals may dependably complete their life cycles. Lakes, both large and small, provide a spectrum of habitats for plants that require submersion, wave action, low energy water movement, shallow water tables, etc. Open stream courses are the most common water feature in the ICB. The riparian areas and wetlands surrounding streams from the high mountains to the lowest deserts add structural and floristic diversity to the landscape, qualities that benefit plant species, wildlife, and humanity, and are very important in maintaining the overall biological diversity in the ICB. In lowland areas and xeric portions of the analysis area, essentially all of the riparian areas have been heavily and adversely impacted (primarily by domestic livestock grazing) which has lead to documented and significant losses in plant, fish, animal, and arthropod diversity. Other wetlands like peatlands, hotsprings, and seeps are generally very small but provide specialized microhabitats and are commonly occupied by unique plants and animals.

Current and historic patterns of water use within the ICB pose many threats to the health of riparian and aquatic habitats. Sedimentation of streambeds and the accumulation of silts in standing water bodies (both natural and human made) degrade these habitats for many plants, wildlife and people. Domestic livestock grazing has been very destructive to riparian areas, especially in the more arid portions of the ICB where the removal and trampling of vegetation and the degradation of streambanks has reduced many streams that were once perennial and vested with diverse plant and animal communities to open, barren ephemeral gulleys (a condition that benefits no one). Eutrophication from agricultural run-off and untreated or poorly treated sewage from both humans and livestock has and continues to reduce the health and economic value of aquatic and riparian ecosystems throughout the ICB. Water diversions for agriculture,

industry, and direct human consumption has also negatively impacted water dominated plant and animal communities. The introduction of exotic plants and animals have exacted permanent alterations to aquatic and riparian communities throughout the ICB. From brook trout to purple loosestrife and reed canarygrass, exotic species have become both ubiquitous, destructive, and firmly incorporated into our biota.

Idaho North

Subgroup: Peatlands
Themes and/or Attributes: CRB007; Channel Type 10,12

Species
Andromeda polifolia
Betula pumila gladulifera
Carex buxbaumii
Carex chordorrhiza
Carex comosa
Carex tlava
Carex leptalea
Carex livida
Carex paupercula
Cicuta bulbifera
Cypripedium fasciculatum
Drosera intermedia
Dryopteris cristata
Eriophorum viridicarinatum
Gaultheria hispidula
Helodium blandowii
Hypericum majus
Ludwigia polycarpa
Lycopodiella inundata
Rhynchospora alba
Salix candida
Salix pedicellaris
Scheuchzeria palustris
Sphagnum mendocinum
Trientalis arctica
Vaccinium oxycoccos

Subgroup: Streamside
Themes and/or Attributes: CRB007, CRBS05, SAF235; Channel Type 12

Species
Agrostis oregonensis
Bryum calobryoides
Chrysosplenium tetrandrum
Collema curtisporum
Epipactis gigantea
Lobaria hallii
Ribes howellii
Salix farriae
Tofieldia glutinosa brevistyla

Subgroup: Wet Meadows
Themes and/or Attributes: CRB007; Channel Type 12

Species
Agrostis oregonensis
Allium validum
Haplopappus hirtus sonchifolius
Psilocarphus tenellus
Salix farriae

Subgroup: Aquatic
Themes and/or Attributes: CRBS20

Species
Scirpus subterminalis

Idaho South

Subgroup: Alkaline Wetlands
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 12

Species
Astragalus diversifolius
Lomatogonium rotatum
Cleomella plocaspenna
Primula incana
Salicomia rubra
Teucrium canadense occidentale

Subgroup: Bogs
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 10, 12

Species
Cicuta bulbifera
Epilobium palustre
Salix candida
Picea glauca

Subgroup: Ephemeral Wetlands
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 10, 12

Species
Downingia bacigaluppi
Machaerocarpus califomicus
Sphaeromeria potentilloides

Subgroup: Other Aquatic and Riparian Habitats
Themes and/or Attributes: CRB007, CRBSOS, CRBS20, SAF235; Channel Type 12, 20

Species
Astragalus leptaleus
Bacopa rotundifolia
Epipactis gigantea
Juncus hallii
Limosella acaulis
Salix glauca
Salix pseudomonticola

Montana

Subgroup: Peatlands
Themes and/or Attributes: CRB007; Channel Type 10, 12

Species
Carex chordorrhiza
Carex crawei
Carex livida
Carex paupercula
Carex tenuiflora
Cypt-ipedium calceolus parviflorum
Cypripedium passerinum
Drosera anglica
Drosera linearis
Eleocharis rostellata
Epipactis gigantea
Eriophorum viridicarinatum
Gentianopsis simplex
Kalmia occidentalis
Liparis loeselii
Lycopodium inundatum
Orchis rotundifolia
Scheuchzeria palustris
Scirpus cespitosus
Scirpus hudsonianus
Utricularia inter-media
Viola renifolia

Subgroup: Emergent wetlands
Themes and/or Attributes: CRBS20; Channel Type 12

Species
Carex amplifolia
Carex chordorrhiza
Carex comosa
Howellia aquatilis

Subgroup: Aquatic habitats
Themes and/or Attributes: CRBS20

Species
Bidens beckii
Brasenia schreberi
Heteranthera dubia
Lilaea scilloides
Najas guadalupensis
Nymphaea tetragona
Potamogeton obtusifolius
Scirpus subterminalis
Wolffia columbiana

Subgroup: Riparian habitats
Themes and/or Attributes: CRB007, CRBS20, SAF235; Channel Type 12, 20

Species
Aster frondosus
Carex crawei
Carex neurophora
Carex parryana idahoa
Carex scoparia
Carex sychnocephala
Centunculus minimus
Chrysosplenium tetrandrum
Cyperus acuminatus
Cyperus rivularis
Cypripedium calceolus parviflorum
Cypripedium passer-mum
Elatine americana
Elatine califomica
Epipactis gigantea
Gentianopsis simplex
Juncus covillei covillei
Mimulus primuloides
Ophioglossum vulgatum
Orchis rotundifolia
Ranunculus orthorhynchus platyphyllus
Ribes triste
Rotala ramosior
Salix wolfii wolfii
Scirpus pallidus
Spiraea x pyramidata
Stellaria crassifolia
Thalictrum alpinum
Thelypodium sagittatum sagittatum
Thelypteris phegopteris
Trifolium cyathiferum
Veratrum califomicum
Viola renifolia

Subgroup: Forested wetlands
Themes and/or Attributes: SAF206, SAF2 10, SAF2 17, SAF235; Channel Type 12, 20

Species
Carex ebumea
Carex paupercula
Cypripedium calceolus parviflorum
Cypripedium passerinum
Dryopteris cristata
Epipactis gigantea
Halenia deflexa
Kalmia occidentalis
Orchis rotundifolia
Petasites frigidus
Spiraea x pyramidata
Thelypteris phegopteris
Viola renifolia

Oregon Basin and Range and Owyhee Uplands

Subgroup: Alkaline pools, hot springs and adjacent meadows are sites of saline-alkaline affected soils.
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 10, 12

Species
Hymenoxys lemmonii
Phacelia inundata
Plagiobothrys salsus
Rorippa columbiae
Sesuvium verrucosum
Thelypodium brachycarpum

Subgroup: Vernal Pool Species
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 10, 12

Species
Bergia texana
Downingia insignis
Downingia laeta
Gratiola heterosepala
Mimulus latidens
Nama lobbii
Rotala ramosior
Sesuvium verrucosum
Thelypodium howellii howellii

Subgroup: Mud Flat Species
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 10

Species
Allium madidum
Juncus bryoides
Juncus capillaris
Juncus hemiendytus abjectus
Juncus kelloggii
Juncus tiehmii
Mimulus evanescens
Scribneria bolanderi

Subgroup: Playa Species
Themes and/or Attributes: CRB007, CRBSOS, SRM40 1; Channel Type 10,

Species
Lepidium davisii
Rorippa columbiae

Subgroup: Riverine communities
Themes and/or Attributes: SAF235; Stream Order 3, 4

Species
Carex backii
Carex hystricina
Carex sheldonii
Juncus torreyi
Penstemon pratensis
Perderidia lemmonii
Pleuropogon oregonus
Populus angustifolia
Rorippa columbiae
Salix drummondiana
Salix orestera
Salix wolfii

Subgroup: Ponds
Themes and/or Attributes: CRBS20; Channel Type IO, 12

Species

Elodca nuttallii
Lilaca scilloides
Myriophyllum sibiricum
Potamogeton diversifolius
Potamogeton tiliformis
Potamogeton foliosus fibrillosus
Rotala ramosior

Oregon, Blue Mountains

Subgroup: Herbaceous and shrub wetlands
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 12, 20

Species
Album madidum
Botrychium ascendens
Botrychium crenulatum
Botrychium lanceolatum
Botrychium minganense
Botrychium montanum
Botrychium paradoxum
Botrychium pinnatum
Calochortus longebarbatus peckii
Calochortus longebarbatus longebarbatus
Carex concinna
Carex dioica gynocrates
Carex hystricina
Carex sheldonii
Epipactis gigantea
Phacelia minutissima
Pleuropogon oregonus
Thelepodium howellii spectabilis
Thelupodium howellii howellii
Trifolium douglasii

Subgroup: High gradient streams
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 12; Rosgen Type A, B

Species
Allium robbinsii
Astragalus robbinsii alpiniformis
Boiandra oregana
Carex hendersonii
Clematis columbiana
Corydalis caseana cusickii
Dryopteris felix-mas
Lycopodium annotinum
Mimulus patulus
Rubus bartonianus

Subgroup: Low gradient streams
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 12, 20; Rosgen Type C

Species
Allium madidum
Botrychium minganense
Botrychium montanum
Calochortus longebarbatus peckii
Calochortus longebarbatus longebarbatus
Carex backii
Carex concinna
Carex hendersonii
Carex hystricina
Carex nova
Carex sheldonii
Corydalis caseana cusickii
Dryopteris felix-mas
Hackelia patens patens
Lycopodium annotinum
Mimulus washingtonensis washingtonensis
Pleuropogon oregonus
Ribes oxyacanthoides cognatum

Subgroup: Open water
Themes and/or Attributes: CRBS20

Species

Myriophyllum sibiricum

Potamogeton filiformis

Oregon, East Cascades South

Subgroup: Vernal Pools and Receeding Shorelines
Themes an/or Attributes:

Species
Juncus kelloggii
Lilaea scilloides
Limnanthes floccosa bellingeriana
Mimulus evanescens
Mimulus tricolor
Parvisedum pumilum
Phacelia inundata
Pilularia americana
Rorippa columbiae

Subgroup: Herbaceous Montane and Subalpine Meadows
Themes an/or Attributes:

Species
Agoseris elata
Botrychium lanceolatum
Botrychium minganense
Botrychium montanum
Botrychium pinnatum
Calamagrostis breweri
Calochortus longebarbatus longebarbatus
Carex buxbaumii
Carex comosa
Epilobium luteum
Gentiana newberryi newberryi
Oxypolis occidentalis
Perideridia erythrorhiza
Perideridia howellii

Subgroup: Herbaceous Aquatic and Subaquatic Bogs
Themes an/or Attributes:

Species
Coptis trifolia
Cypripedium calceolus parviflorum
Lobelia dortmanna
Lophotocarpus califomicus
Myriophyllum sibiricum
Potamogeton filiformis
Potamogeton foliosus fibrillosus
Scheuchzeria palustris americana

Subgroup: Riparian and Riverine Shrublands
Themes and/or Attributes:

Species
Artemisia ludoviciana estesii
Juncus torreyi
Salix bonplandiana

Washington, Columbia Basin

Subgroup: Riparian, riverine
Themes and/or Attributes: CRB007, CRBS05; Channel Type 12; Stream Order 2, 3, 4

Species
Astragalus riparius
Carex densa
Carex interrupta
Crassula aquatica
Cyperus bipartitus
Heuchera grossulariifolia tenuifolia
Hypericum majus
lmpatiens aurella
Limosella acaulis
Lindemia dubia
Spartina pectinata

Subgroup: Riparian, temporary pond/seep
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 10, 12, 20; Stream Order 1

Species
Damasonium cacifomicus
Downingia bacigallupii
Eleocharis atropurpurea
lsoetes nuttallii
Mimulus suksdorfii
Spiranthes porrifolia
Taushia tenuissima
Teucrinum canadense viscidum

Subgroup: Riparian, permanent pond/seep
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 10, 12, 20; Stream Order 2, 3

Species
Carex comosa
Carex flava
Carex hendersonii
Carex hystricina
Epipactis gigantea
Eleocharis rostellata
Lobelia kalmii
Muhlenbergia glomerata
Ophioglossum pusillum
Utricularia minor

Washington, East Cascades North

Subgroup: Riparian and Aquatic Wetlands
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 3, 10, 12, 20

Species
Carex buxbaumii
Carex chordorrhiza
Carex comosa
Carex densa
Carex hystricina
Carex novegica
Carex paupercula
Carex saxatilis major
Carex sychnocephala
Carex tenuiflora
Castilleja suksdorfii
Chrysosplenium tetrandrum
Cicuta bulbifera
Crassula aquatica
Cypripedium parviflorum
Eleocharis atropurpurea
Eleocharis rostellata
Epipactis gigantea
Eriophorum viridicarinatum
Eryngium petiolaria
Gentiana douglasiana
Gentiana glauca
Geum glauca
Geum rivale
Juncus kelloggii
Listera borealis
Limosella acaulis
Lindemia dubia
Liparis loeselii
Loiseluria procumbens
Oplioglossum pusillum
Platanthera chorisiana
Platanthera sparsiflora
Polypodium hesperium

Potentilla brewcri
Ribes oxyacanthoides cognatum
Rubus acaulis
Salix brachycarpa
Salix glauca
Salix sessilifolia
Salix tweedyi
Salix vcstita erccta
Sanicula marilandica
Spirdnthes porrifolia
Sisyrinchium septentrionale
Teucrinum canadense viscidum
Trimorpha elata
Zigadenus elegans

Washington, Okanogan Highlands

Subgroup: Xero-riparian
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 12; Stream Order 1, 2

Species
Botrychium lanceolatum
Botrychium lunaria
Botrychium montanum
Botrychium pinnatum
Corydalis aurea
Epipactis gigantea
lmpatiens aurella
Listera borealis
Lycopodium dendroideum
Oxytropsis campestris columbiana
Sisyrinchium septentrionale
Thalictrum dasycarpum

Subgroup: Wetlands
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 10, 12

Species
Antennaria corymbosa
Carex atrata atrosquama
Carex atrata erecta
Carex buxbaumii
Carex capillaris
Carex dioica
Carex flava
Carex hystrina
Carex paupercula
Carex rostrata
Carex scopulorum prinophylla
Carex tenuiflora
Cicuta bulbifera
Cypripedium parviflorum
Dryopteris carthusiana
Dryopteris cristata
Eriophorum viridicarinatum
Gaultheria hispidula
Gentiana glauca
Geum rivale
Lycopodium inundatum
Muhlenbergia glomerata
Platanthera obtusata
Rubus acaulis
Salix candida
Salix maccalliana
Salix tweedyi
Sanicula marilandica
Sisyrinchium septentrionale
Spartina pectinata
Spiranthes porrifolia
Trimorpha elata

Subgroup: Riverine, perennial
Themes and/or Attributes: CRBSOS; Channel Type 12; Stream Order 2, 3, 4

Species
Chrysoplenium tetrandum
Salix glauca
Salix tweedyi

Subgroup: Riverine, vernal

Themes and/or Attributes: CRB007, CRBSOS; Channel Type 12, 20; Stream Order I

Species
Crassula aquatica
Eleocharis rostellata
Ranunculus longirostris
Teucrinum canadense viscidum

Subgroup: Lacustrine
Themes and/or Attributes: CRB007, CRBSOS; Channel Type 3, 12

Species
Carex aenea
Carex sychnocephala
Teucrinum canadense viscidum

Wyoming

Subgroup: Aquatic
Themes and/or Attributes: CRBS20

Species
Eleocharis flavescens
Equisetum fluviatile
Lemna valdiviana
Marsilea oligospora
Najas guadalipensis
Potamogeton friesii
Potamogeton obtusifolius
Potamogeton robbinsii
Potamogeton zosteriformis
Spirodela polyrhiza
Scirpus subterminalis

Subgroup: Riparian
Themes and/or Attributes: CRB007, CRBSOS, SAF235; Channel Type 12

Species
Agoseris lackschewitzii
Aster junciformis (=A. borealis)
Astragalus robbinsii
Astragalus terminalis
Carex buxbaumii
Carex cusickii
Carex deweyana bolanderi
Carex diandra
Carex echinata
Carex laeviculmis
Carex leptalea
Carex limosa
Carex livida
Carex sartwellii
Cicuta bulbifera
Drosera angelica
Dulichium arundinaceum
Epipactis gigantea
Eriophomm gracile
Eriophorum viridicarinatum
Gentianopsis simplex
Heterocodon rariflorum
Heterotheca depressa
Juncus filiformis
Juncus tweedyi
Puccinellia femaldii
Scheuchzeria palustris
Selaginella selaginoides
Veronica scutellata
Viola renifolia

FORESTS

Forested ecosystems occupy a significant portion of the moisture gradient within the Interior Columbia Basin (ICB). From the Juniper woodlands of southwestern Idaho, northern Nevada, and south central Oregon to the wet temperate rain forests of western hemlock and western red cedar in northern Idaho and adjacent Washington, moisture exerts a tremendous influence on forest composition. The majority of forest types in the ICB are based on conifers though hardwoods like cottonwood, aspen, and various oak species can be locally important. Humans make intensive use of forests for recreation, commerce (e.g., outfitters and mining), and agriculture (e.g., livestock grazing and timber harvest). Forests are major and important areas for both large and small wildlife, including many endangered and threatened species such as woodland caribou, large forest owls, grizzly bears, and goshawks. The forests of the ICB are floristically rich, a consequence of widely ranging moisture conditions (which are largely due to geography and topography). Dry, open woodlands at low elevations are typically vested with a rich component of shrubs and ephemeral annuals. With increasing elevation and available moisture shrubs become more prominent only to decline in importance in the highest and wettest forest types. Annuals tend to be most important in dry forests and woodlands whereas herbaceous perennials become more important with increasing elevation and available moisture.

Current and historic patterns of resource use within the forests of the ICB pose a threat to the health of these ecosystems. Fire suppression has dramatically increased the risk of stand replacing fires in forests that evolved with periodic low intensity fires. Clear cutting has, in some cases, left sites incapable of being regenerated. Timber cutting prescriptions that focus on maximum commercial return rather than sustainability have similarly degraded many forest stands. Some types of forest (juniper, pinyon, and oak woodlands) are commonly burned or otherwise destroyed (with herbicides or heavy equipment) in order to make room for increased production of plant biomass that is more palatable to livestock, especially cattle. Forests within the ICB have become increasingly susceptible to a variety of pests, pathogens, and stand replacing fires. Insects such as pine and bark beetles, tussock moth, budworm, and borers and fungi like white pine blister rust and a variety of rots have increased in frequency and economic impact over the last 30 years. In relatively dry forest types, the frequency of localized low intensity fires has declined significantly while the recurrence time of extensive high intensity burns has shortened considerably.

Idaho North

Subgroup: Clearwater Refugium Forests
Themes and/or Attributes: SAF227

Species
Cardamine constancei
Carex hendersonii
Cladonia verruculosa
Comus nuttallii
Festuca subuliflora
Physcia semipennata
Pilophorus aciculatis
Pseudocyphellaria anthraspis
Sphaerophorus tuckermanii
Trientalis latifolia

Subgroup: Dry Forests
Themes and/or Attributes: SAF210, SAF218, SAF237

Species
Allotropa virgata
Ceanothus prostratus
Cryptantha simulans
Halimolobos perplexa perplexa
Lobaria linita
Lobaria scrobiculata
Lycopodium dendroideum
Mertensia bella
Mimulus clivicola
Psoralea physodei
Ramilina thrausta
Ribes sanguineurn
Ribes wolfii
Sanicula graveolens
Stipa pinetorum

Subgroup: Moist Forests
Themes and/or Attributes: CRBS09, SAF205, SAF206, SAF210, SAF212, SAF217, SAF218, SAF227

Species
Blechnum spicant
Botrychium lanceolatum lanceolatum
Botrychium minganense
Botrychium montanum
Botrychium pinnatum
Botrychium simplex
Cladonia transcendens
Collema furfuraceum
Hookeria lucens
Hypogymnia apinnata
Hypogymnia enteromorpha
Maianthemum dilatatum
Oxalis trilliifolia
Phegopteris connectilis
Polystichum braunii
Rubus spectabilis
Sanicula marilandica
Streptopus streptopoides brevipes
Tellima grandiflora
Thelypteris nevadensis

Idaho South

Subgroup: Pinyon juniper
Themes and/or Attributes: CRBS01, CRBS03, SAF107

Species
Astragalus newberryi castoreus
Camissonia pterosperma

Montana

Subgroup: Cold/moist forests (ABLA/LUHI, ABLA/MEFE, ABLA/CLUN)
Themes and/or Attributes: SAF206

Species
Mertensia bella
Polystichum kruckebergii

Subgroup: Cold/mesic forests (ABLA/VASC, ABLA/VAGL, ABLA-PIAL/VASC, TSME/XETE)
Themes and/or Attributes: SAF205, SAF206, SAF208

Species
Allotropa virgata
Calamagrostis tweedyi

Lewisia pygmaca nevadcnsis
Pedicularis contorta rubicunda
Synthyris missurica

Subgroup: Cold/dry forests (PIAL-ABLA, ABLA-PIAL/VASC, PIAL/VASC, ABLAICAGE, PSME/CARU)
Themes and/or Attributes: SAF208, SAF2 10

Species
Orogenia fusiformis
Penstemon attenuatus militaris
Ranunculus jovis

Subgroup: Moderate/moist forests (ABLA/CLUN, PIEN/EQAR, ABLA/LIBO, ABGR/CLUN, PIEN/CLUN, THPL/CLUN)
Themes and/or Attributes: CRBS09, SAF206

Species
Cypripedium calceolus
Cypripedium fasciculatum
Cypripedium passerinum
Goodyera repens
Orchis rotundifolia
Petasites frigidus
Ribes triste
Satureja douglasii
Viola renifolia

Subgroup: Moderate/mesic forests (THPL/CLUN, ABGR/CLUN, ABGR/LIBO, PSME/PHMA, PSME/LIBO, ABLAICLUN, ABLA/LIBO, ABLA/VACA, ABLA/VAGL, ABLA/XETE)
Themes and/or Attributes: CRBS09, SAF206, SAF210, SAF227

Species
Adoxa moschatellina
Calamagrostis tweedyi
Castilleja covilleana
Cirsium brevistylum
Cypripedium fasciculatum
Gaultheria ovatifolia
Goodyera repens
Lewisia pygmaea nevadensis
Trifohum eriocephalum piperi

Subgroup: Moderate/dry forests (PSME/CARU, PSME/SPBE, PSME/SYAL, PSME/VAGL, PSME/CAGE)
Themes and/or Attributes: SAF2 10

Species
Castilleja covilleana
Clarkia rhomboidea
Orogenia fusiformis
Penstemon lemhiensis
Trifolium gymnocarpon

Subgroup: Warm/moist forests (THPL/OPHO, THPL/ATFI, THPWGYDR, THPL/CLUN, TSHE/GYDR, TSHE/CLUN)
Themes and/or Attributes: SAF227

Species
Botrychium crenulatum
Botrychium minganense
Botrychium montanum
Lilium columbianum
Thelypteris phegopteris

Subgroup: Warm/mesic forests (PSME/SYAL, PSME/CARU)
Themes and/or Attributes: SAF2 IO

Species
Botrychium montanum
Botrychium spathulatum
Castilleja cervina
Cirsium brevistylum

Subgroup: Warm/dry forests (PIPO/AGSP, PIPO/FEID, PSME/FEID)
Themes and/or Attributes: SAF237

Species
Arctostaphylos patula
Castilleja cervina
Kelloggia galioides
Lomatium geyeri
Madia minima

Oregon, Blue Mountains

Subgroup: Juniper forests
Themes and/or Attributes: CRBS03, SRM107

Species
Allium campanulatum
Pediocactus simpsonii robustior
Silene scaposa scaposa
Thelypodium eucosmum

Subgroup: Ponderosan pine/Doug-fir forests
Themes and/or Attributes: SAF2 IO, SAF237

Species
Allium bisceptrum
Allium campanulatum
Astragalus tegetarioides
Calochortus longebarbatus peckii
Calochortus longebarbatus longebarbatus
Clematis columbiana
Cypripedium fasciculatum
Cypripedium montanum
Frasera albicaulis idahoensis
Lupinus sabinii
Mimulus evanescens
Mimulus hymenophyllus
Mimulus patulus
Mimulus washingtonensis washingtonensis
Orobanche pinorum
Ribes oxyacanthoides cognatum
Ribes oxycanthoides irriguum
Silene scaposa scaposa

Subgroup: Grand fir forests
Themes and/or Attributes: CRBS09

Species
Clematis columbiana
Cypripedium fasciculatum
Cypripedium montanum
Dryopteris felix-mas
Listera borealis
Lupinus sabinii
Lycopodium annotinum
Lycopodium complanatum
Orobanche pinorum
Ribes oxycanthoides irriguum

Subgroup: Subalpine fir forests
Themes and/or Attributes: SAF206

Species
Allium campanulatum
Castilleja glandulifera

Cypripedium montanum

Orobanche pinorum

Subgroup: Lodgepole pine forests
Themes and/or Attributes: SAF2 18

Species
Allium campanulatum
Botrychium crenulatum
Botrychium lanceolatum
Botrychium minganense
Botrychium montanum

Botrychium pinnatum
Listera borealis
Lycopodium annotinum
Platanthera obtusata

Subgroup: Whitebark pine/limber pine forests
Themes and/or Attributes: SAF208, SAF219

Species
Allium campanulatum

Oregon, East Cascades South

Subgroup: Red fir and whiter?
Themes and/or Attributes:

Species
Asarum wagneri
Carex whitney
Collomia mazama

Subgroup: Lodgepole pine
Themes and/or Attributes:

Species
Astragalus peckii
Botrychium pumicola

Castilleja chlorotica
Mimulus jepsonii

Subgroup: Western red cedar and western hemlock
Themes and/or Attributes:

Species
Botrychium montanum
Botrychium pinnatum

Huperzia occidentalis
Lycopodium annotinum

Subgroup: Juniper/sagebrush
Themes and/or Attributes:

Species
Astragalus peckii

Silene scaposa scaposa

Subgroup: Oregon white oak woodlands

Themes and/or Attributes:

Species
Lomatium suksdorfii
Meconella oreganai

Subgroup: Low elevation Ponderosa pine
Themes and/or Attributes:

Species
Allium campanulatum
Carex eleocharis
Castilleja chlorotica
Cypripedium montanum
Mimulus pulsiferae
Penstemon peckii

Subgroup: Ponderosa pine/mixed conifer woodlands
Themes and/or Attributes:

Species
Castilleja chlorotica
Cypripedium montanum
Hieracium greenei
Lithophragma campanulata
Mimulus jepsonii
Nama lobbii
Penstemon glaucinus

Utah

Subgroup: Forest
Themes and/or Attributes: CRBS01, SAF206, SAF2 10, SAF2 19

Species
Astragalus alpinus
Astragalus filipes
Astragalus iodanthus
Cryptantha spiculifera

Washington, Columbia Basin

Subgroup: Forest
Themes and/or Attributes: SAF210, SAF218, SAF237

Species
Antennaria parviflotum
Corydalis aurea
Lupinus sabinii
Mimulus pulsiferae
Orobanche pinorum
Ribes oxyacanthoides cognatum
Ribes oxyacanthoides irriguum

Subgroup: Grand fir forest
Themes and/or Attributes: CRBS09

Species
Corydalis aurea
Lupinus sabinii
Orobanche pinorum
Ribes oxyacanthoides cognatum
Ribes oxyacanthoides iniguum

Subgroup: Aspen forest
Themes and/or Attributes: SAF2 17

Species
Corydalis aurea
Cypripedium parviflorum

Subgroup: Ponderosa pine forests
Themes and/or Attributes: SAF237

Species
Antennaria parviflorum
Corydalis aurea
Lupinus sabinii
Mimulus pulsiferae
Ribes oxyacanthoides cognatum
Ribes oxyacanthoides irriguum

Washington, East Cascades North

Subgroup: Oak forests
Themes and/or Attributes: SAF233

Species
Antennaria parvifolia
Astragalus hoodianus
Carex vallicola
Cypripedium montanum
Cypripedium parviflorum
Epipactis gigantea
Hackelia diffusa diffusa
Mimulus pulsiferae
Oxalis suksdorfii

Subgroup: Douglas-fir forests
Themes and/or Attributes: SAF2 10

Species
Botrychium lanceolatum
Botrychium lunaria
Botrychium montanum
Carex buxbaumii
Carex vallicola
Corallorhiza trifida
Epipactis gigantea
Hemitome congestum
Lewisia tweedyi
Listera borealis
Montia diffusa
Orobanche pinorum
Oxalis suksdorfii
Platanthera obtusata
Pleuricospora fimbriolata
Sanicula marilandica
Veratrum insolitum

Subgroup: Subalpine fir forests
Themes and/or Attributes: SAF206

Species
Botrychium lanceolatum
Botrychium lunaria
Botrychium montanum
Carex atrata erecta
Chrysosplenium tetrandrum
Corallorhiza trifida
Hemitomes congestum
Lewisia tweedyi
Listera borealis
Platanthera obtusata

Subgroup: Subalpine larch forests
Themes and/or Attributes: CRBS IO, SAF206

Species
Carex atrata erecta
Carex vallicola

Washington, Okanogan Highlands

Subgroup: Forest
Themes and/or Attributes: SAF206, SAF2 IO, SAF2 18, SAF227

Species
Astragalus microcystis
Botrychium lanceolatum
Botrychium lunaria
Botrychium minganense
Botrychium montanum
Botrychium pinnatum
Carex xerantica
Dodecatheon pullchellum watsonii
Orobanche pinorum
Phacelia franklinii
Ribes oxyacanthoides cognatum
Ribes oxyacanthoides irriguum
Vaccinium myrtilloides
Zigadenus elegans

Wyoming

Subgroup: Dry Forests
Themes and/or Attributes: SAF218, SAF237

Species
Arceuthobium douglasii
Calamagrostis scopulorum
Carex preslii
Hieracium scouleti

Subgroup: Moist Forests
Themes and/or Attributes: CRBS09, SAF2 IO, SAF2 17, SAF2 18

Species
Botrychium virginianum
Calamagrostis scopulorum
Dryopteris expansa
Festuca occidentalis
Gymnocarpium dryopteris
Listera caurina
Listera convallarioides
Melica smithii
Ophioglossum vulgatum
Rubus acaulis
Trautvettaria caroliniensis
Viola orbiculata
Xerophyllum tenax

GRASSLANDS AND SHRUBLANDS

Grasslands and shrublands occur throughout the entire elevational range of the Interior Columbia Basin (ICB). Shrublands tend to occupy relatively xeric sites that can be as large as a landscape or as small as several meters square. Grasslands on the other hand may occur in dry or wet areas. Bunchgrasses and annual species are favored where conditions are dry (chronically or seasonally)

whereas rhizomatous grasses tend to occur where soil moisture is more abundant or consistent. Grasslands and shrublands ar important habitats for many small animals. Large animals often use these areas to browse or graze but few live there exclusively (due largely to the lack of adequate cover). Insect, reptile, rodent, and bird faunas are typically diverse in both grasslands and shrublands (though may be locally impoverished in areas under unsustainable land management practices). The floristic diversity of grasslands and shrublands tends to be strongly tied to available soil moisture (except in cases of azonal soils and lithologies). Moist grasslands, especially where soils are deep, , are commonly rich in forb diversity (e.g., the Palouse) whereas very sandy areas (e.g., St. Anthony Dunes, Idaho and portions of the Great Sandy Desert, Oregon) commonly have a mere handful of species. Mountain shrublands commonly have a diverse understory of forbs and perennial grasses whereas desert shrublands are commonly more rich with forbs and annuals.

The history of use and conversion in shrublands and grasslands extends back to pre-European settlement times. Native Americans were known to have burned some of these habitats for a variety of reasons, though usually with only local impacts. Beginning in the 1860's, when domestic livestock grazing became important throughout the ICB, grasslands and shrublands have been continuously converted or degraded. Most of these areas are or were heavily over-grazed (though the Taylor Grazing Act of 1939 instituted significant reforms). Perhaps more insidious has been the introduction and establishment of a broad range of exotic plant species that has been directly attributed to livestock grazing. Exotics such as cheatgrass and Russian thistle have converted millions of acres of relatively diverse shrublands and grasslands to depauperate, fire prone landscapes with significantly lowered economic value. Agricultural conversion has impacted grasslands more than shrublands, especially in valley bottoms. More than 95% of the extensive grasslands of northern Idaho and adjacent eastern Washington have been converted to farmland. Water diversions for agriculture have had significant dilatory effects on the shrublands and grasslands in most watersheds surrounding the major agricultural centers within the ICB. In local areas around burgeoning population centers, many acres of grasslands and shrublands have and continue to be converted for housing and industry. Significant recreational impacts to grasslands and shrublands tends to be localized but are occasionally sever. Activities involving all-terrain or off-road vehicles (including horses) are usually the most destructive often causing sever erosion, losses in vegetation, and slope failures.

Idaho North

Subgroup: Canyon grasslands
Themes and/or Attributes: CRBS06, CRBS07, SRM IO 1, SRM304

Species
Astragalus riparius
Calochortus macrocarpus maculosa
Camassia cusickii
Chrysothamnus nauseosus **nanus**
Crepis **bakeri** idahoensis
Erigeron engelmannii davisii
Mimulus washingtonensis ampliatus

Subgroup: Montane balds and ridges grasslands
Themes and/or Attributes: CRBS06, SRM IO 1, SRM304

Spccics
Astragalus bourgovii
Carex californica
Eriogonum capistratum wclshii

Subgroup: Prairie grasslands
Themes and/or Attributes: CRBS06, CRBS07, SRM101, SRM304

Species
Astragalus bisulcatus bisulcatus
Bouteloua gracilis
Thelomma occelatum
Trifolium plumosum amplifolium

Idaho South

Subgroup: Low sage grassland shrubland
Themes and/or Attributes: SRM403, SRM406

Species
Astragalus salmonis
Gymnosteris parvula
Pediocactus simpsonii robustior
Scutellaria nana nana
Stylocline filaginea

Subgroup: General grasslands and shrublands
Themes and/or Attributes: CRB003, CRBS06, CRBS07, SRM 101, SRM 104, SRM304, SRM401, SRM402, SRM403, SRM406, SRM607

Species
Allium anceps
Astragalus drummondii
Astragalus newberryi castoreus
Astragalus salmonis
Astragalus tetrapterus
Camissonia palmeri
Camissonia pterosperma
Carex tumulicola
Chaenactis stevioides
Coryphantha vivipara
Cuscuta denticulata
Et-iogonum desertorum
Gymnosteris nudicaulis
Gymnosteris parvula
lpomopsis polycladon (=Gilia polycladon)
Lomatium dissectum dissectum
Lupinus uncialis
Muhlenbergia racemosa
Oryzopsis micrantha
Oxytropis besseyi salmonensis
Pediocactus simpsonii robustior
Peraphyllum ramosissimum
Piptatherum micranthum
Psathyrotes annua
Scutellaria nana nana
Stipa viridula
Stylocline filaginea
Thelomma ocellatum
Townsendia scapigera

Subgroup: Sandy grasslands and shrublands
Themes and/or Attributes: CRBS06, CRBS07, SRM607

Species
Chaenactis stevioides
Glyptopleura marginata
Gymnosteris nudicaulis
Oxytheca dendroidea
Psathyrotes annua
Sporobolus asper

Montana

Subgroup: High-elevation Idaho fescue
Themes and/or Attributes: CRBS06, SRM304

Species
Allium simillimum
Draba densifolia
Erigeron formosissimus viscidus
Lesquerella klausii
Mimulus nanus
Penstemon lemhiensis
Potentilla'quinquefolia
Polygonum douglasii austinae
Saxifraga apetala
Thlaspi parviflorum

Subgroup: Low-elevation Idaho fescue
Themes and/or Attributes: CRBS06, SRM304

Species
Allium parvum
Astragalus convallarius convallarius
Athysanus pusillus
Camissonia andina
Erigeron linearis
Halimolobos perplexa lemhiensis
ldahoa scapigera
Lesquerella carinata languida
Penstemon lemhiensis
Penstemon payettensis
Phlox kelseyi missoulensis
Trifolium gymnocarpon
Myosotis vema

Subgroup: Bluebunch wheatgrass
Themes and/or Attributes: CRBS06, SRM 10 1

Species
Allium columbianum
Camissonia andina
Ipomopsis minutiflora
Lagophylla ramosissima
Lesquerella carinata languida
Phlox kelseyi missoulensis

Subgroup: Low-elevation rough fescue
Themes and/or Attributes: CRBS06, SRM304

Species
Aster frondosus
Astragalus convallarius convallarius
Atriplex truncata
Boisduvalia densiflora
Botrychium hesperium
Botrychium paradoxum
Delphinium burkei
Grindelia howellii
Myosotis vema
Oxytropis campestris columbiana
Oxytropis lagopus conjugens
Phlox kelseyi missoulensis
Silene spaldingii

Subgroup: High-elevation rough fescue
Themes and/or Attributes: CRBS06, SRM304

Species
Allium fibrillum
Botrychium paradoxum
Polygonum douglasii austinae

Subgroup: Low-elevation sagebrush
Themes and/or Attributes: SRM401, SRM403

Species
Agastache cusickii
Allium parvum
Arabis fecunda
Aster frondosus
Astragalus ceramicus apus
Astragalus platytropis
Astragalus scaphoides
Astragalus terminalis
Boisduvalia densiflora
Cryptantha fendleri
Delphinium bicolor no
Elymus flavescens
Erigeron linearis
Grindelia howellii
Halimolobos perplexa lemhiensis
Halimolobos virgata
Hutchinsia procumbens
Ipomopsis congesta crebrifolia
lpomopsis minutiflora
Kochia americana
Lesquerella pulchella
Lomatium attenuatum
Oenothera pallida idahoensis
Oxytropis lagopus conjugens
Penstemon lemhiensis
Phacelia scopulina
Potentilla plattensis
Ranunculus jovis
Sphaeralcea munroana
Sphaeromeria argentea
Sphaeromeria capitata
Townsendia florifer

Subgroup: High-elevation sagebrush
Themes and/or Attributes: SRM402, SRM42 1

Species
Allium acuminatum
Allium parvum
Astragalus terminalis
Calochortus bruneaunis
Erigeron formosissimus viscidus
Eriogonum caespitosum
Halimolobos perplexa lemhiensis
Haplopappus macronema lineatis
Helenium hoopsii
Ipomopsis congesta crebrifolia
Juncus hallii
Mimulus nanus
Oxytropis lagopus conjugens
Penstemon lemhiensis
Saxifraga apetala
Sphaeromeria argentea
Thlaspi parviflorum
Townsendia nuttallii

Oregon, Basin and Range

Subgroup: Mountain big sage
Themes and/or Attributes:

Species
Allium bisceptrum
Allium campanulatum
Astragalus tegetarioides
Caulanthus major
Crepis modocensis modocensis
Hackelia patens patens
Orthocarpus cuspidatus cryptanthus
Pedicularis centranthera
Penstemon janishiae
Penstemon kingii
Penstemon seorsus
Symphoricarpos longiflorus

Subgroup: Low sage
Themes and/or Attributes:

Species
Artemisia papposa
Asclepias cryptoceras
Astragalus tegetarioides
Hymenoxys lemmonii
Orthocarpus cuspidatus cryptanthus
Trifolium owyheense

Subgroup: Salt Desert Shrublands
Themes and/or Attributes:

Species
Allenrolfea occidentalis
Antirrhinum kingii
Chaenactis macrantha
Chaenactis stevioides
Cryptantha propria
Ephedra nevadensis
Ephedra viridis
Langloisia setosissima punctata
Malacothrix torreyi
Pediocactus simpsonii robustior
Phacelia gymnoclada

Subgroup: Basin big sage
Themes and/or Attributes:

Species
Astragalus alvordensis
Astragalus atratus owyheensis
Camissonia palmeri
Eriogonum brachyanthum
Hackelia cronquistii
Malacothrix glabrata
Phacelia gymnoclada
Stylocline psilocarphoides
Trifolium owyheense

Subgroup: Wyoming big sage
Themes and/or Attributes:

Species
Argemone munita rotundata
Astragalus solitarius
Astragalus tetrapterus
Caulanthus crassicaulis
Caulanthus pilosus
Cryptantha propria
Cymopterus purpurascens
Gilia salticola
Hymenoxys cooperi canescens
Lomatium ravenii
Lupinus biddlei
Pectocarya setosa
Penstemon janishiae
Penstemon kingii
Penstemon perpulcher
Penstemon seorsus
Phacelia gymnoclada
Stephanomeria malheurensis

Oregon, Blue Mountains

Subgroup: Idaho fescue grasslands
Themes and/or Attributes: CRBS06, SRM304

Species
Astragalus arthurii
Calochortus macrocarpus maculosum
Erigeron disparipilus
Erigeron engelmannii davisii
Frasera albicaulis idahoensis
Lupinus sabinii
Silene spaldingii

Subgroup: Bluebunch wheatgrass grasslands
Themes and/or Attributes: CRBS06, SRM 101

Species
Asclepias cryptocerus
Astragalus arthurii
Calochortus macrocarpus maculosum
Erigeron disparipilus
Erigeron engelmannii davisii
Frasera albicaulis idahoensis
Haplopappus radiatus
Lomatium rolhnsii
Lupinus sabinii
Mirabilis macfarlanei
Silene scaposa scaposa
Thelypodium eucosmum

Subgroup: Sandberg bluegrass grasslands
Themes and/or Attributes: CRBS06

Species
Allium brandegei
Allium geyeri
Allium tolmiei platyphyllum
Astragalus salmonis
Collomia macrocalyx
Lomatium ochocensis
Oryzopsis hendersonii
Oryzopsis wallowaensis
Primula cusickiana

Subgroup: Shrublands, general
Themes and/or Attributes: SRM104, SRM322, SRM402, SRM421

Species
Ribes cereum colubrinum
Rubus bartonianus
Silene spaldingii

Subgroup: Rigid sage
Themes and/or Attributes: SRM406

Species
Allium brandegei
Allium macrum
Oryzopsis hendersonii
Oryzopsis wallowaensis

Subgroup: Big sage
Themes and/or Attributes: SRM40 1, SRM403

Species
Allium brandegei
Astragalus atratus owyheensis
Astragalus tegetarioides
Eriogonum ochrocephalum calcareum
Haplopappus radiatus

Subgroup: Mountain big sage
Themes and/or Attributes: SRM402

Species
Allium campanulatum

Subgroup: Low sage
Themes and/or Attributes: SRM406

Species
Artemisia arbuscula thermopola
Astragalus salmonis
Oryzopsis wallowaensis

Oregon, East Cascades South

Subgroup: Low sagebrush
Themes and/or Attributes:

Species
Allium macrum
Artemisia arbuscula thermopola
Castilleja thompsonii
Claytonia umbellata
Collomia macrocalyx
Coryphantha vivipara vivipara
Lomatium farinosum hambleniae
Lomatium watsonii
Mimulus pygmaeus
Oryzopsis hendersonii
Pediocactus simpsonii robustior
Penstemon seorsus
Silene scaposa scaposa
Talinum spinescens

Subgroup: Wyoming and Mountain big sage
Themes and/or Attributes:

Species
Astragalus hoodianus
Astragalus howellii
Astragalus peckii
Astragalus salmonis
Astragalus tyghensis
Camissonia pygmaea
Castilleja chlorotica
Caulanthus pilosus
Crepis modocensis modocensis
Cryptantha propria
Cryptantha rostellata
Linanthus bolanderi
Lupinus latifolius thompsonianus
Mimulus pygmaeus
Nicotiana quadrivalis
Ranunculus reconditis
Ribes inenne klamathense
Scribneria bolanderi
Silene nuda insectivora
Silene scaposa scaposa

Subgroup: Curlleaf Mountain Mahogany
Themes and/or Attributes:

Species
Melica stricta

Oregon, High Lava Plains

Subgroup: Salt Desert Shrub
Themes and/or Attributes:

Species
Astragalus applegatei
Plagiobothrys salsus
Thelypodium brachycarpum
Thelypodium howellii howellii

Utah

Subgroup: Grassland
Themes and/or Attributes: CRBS06, CRBS07, SRM101, SRM304, SRM607

Species
Haplopappus hirtus
Ligusticum grayi
Lomatium cous
Senecio foetidus

Subgroup: Shrubland
Themes and/or Attributes: CRB003, CRBS07, SRM 104, SRM 107, SRM322, SRM401, SRM402, SRM403, SRM406, SRM421

Species
Arenaria fendleri aculeata
Aster scopulorum
Astragalus purshii glareosus
Cryptantha interrupta
Erigeron linearis
Eriogonum brevicaule desertorum
Eriophyllum lanatum
Mimulus brewer-i
Paeonia brownii
Pedicularis contorta
Phacelia ivesiana glandulifera
Silene oregana
Stipa thurberiana

Washington, Columbia Basin

Subgroup: Deep, tine textured soils
Themes and/or Attributes: CRBS06, CRBS07, SRMlO 1, SRM304, SRM607

Species
Astragalus cusickii cusickii
Collinsia sparsiflora bruceae
Erigeron piperianus
Trifolium plumosum plumosum

Subgroup: Deep, coarse textured soils
Themes and/or Attributes: CRBS06, CRBS07, SRM 101, SRM304, SRM607

Species
Hackelia hispida hispida
Lomatium rollinsii

Subgroup: Shallow soils
Themes and/or Attributes: CRBS06, CRBS07, SRMlO 1, SRM304, SRM607

Species
Draba douglasii douglasii
Eriogonum maculatum
Githopsis specularioides
Hackelia diffusa diffusa
Linanthus bolanderi
Mimulus washingtonensis
Penstemon denstus variabilis
Saxifraga integrifolia apetala

Subgroup: Shrubland Deep, fine textured soils
Themes and/or Attributes: CRBS07, SRM104, SRM322, SRM401, SRM402, SRM403, SRM406, SRh4421

Species

Astragafus arrectus
Balsamorhiza deltoidea
Cuscuta denticulata
Erigeron piperianus
Nicotiana attenuata

Subgroup: Deep, coarse textured soils
Themes and/or Attributes: CRBS07, SRM 104, SRM322, SRM401, SRM402, SRM403, SRM406, SRM42 1

Species
Arabis crucisetosa
Arenaria franklinii 'thompsonii
Cuscuta denticulata
Cryptantha leucophaea
Oenothera cespitosa
Oenothera flava

Subgroup: Deep, saline-alkali soils
Themes and/or Attributes: CRBS07, SRM104, SRM322, SRM401, SRM402, SRM403, SRM406, SRM414, SRM421

Species
Astragalus geyeri
Thelypodium howellii howellii

Subgroup: Shallow soils
Themes and/or Attributes: CRBS07, SRM104, SRM322, SRM401, SRM402, SRM403, SRM406, SRM421

Species
Allium constrictum
Astragalus arthutii
Astragalus misellus pauper
Cryptantha interrupta
Cryptantha rostillata
Eatonella nivea
Eriogonum maculatum
Hackelia hispida disjuncta
Juncus uncialis
Pectocarya setosa
Pediocactus simpsonii robustior
Phacelia tetramera
Polygonum austiniae

Washington, East Cascades North

Subgroup: Shrublands
Themes and/or Attributes: SRM104, SRM401, SRM402, SRM403, SRM406, SRM421

Species
Aster sibericus meritus
Astragalus arrectus
Astragalus hoodianus
Astragalus misellus pauper
Carex stenophylla
Collinsia sparsiflora btuceae
Delphinium xantholeucum
Erigeron pipetianus
Githopsis speculariodes
Hackelia diffusa diffusa
Hackelia hispida disjuncta
Iliamna longisepala
Linanthus bolanderi
Lomatium quintuplex
Mimulus suksdorfii
Nicotiana attenuata
Oryzopsis hendersonii
Pectocarya setosa
Pediocactus simpsonii
Pellaea brachyptera
Phacelia franklinii
Potentilla nivea
Ranunculus reconditus
Saxifraga apetala
Silene douglasii manatha
Valeriana columbiana

Subgroup: Grasslands
Themes and/or Attributes: CRBS06, SRM101, SRM304, SRM607

Species
Botrychium simplex
Cypripedium montanum
Cypripedium parviflorum
Eryngium petiolatum
Orthocarpus bracteousus
Potentilla diversifolia perdissecta
Ribes oxyacanthoides cognatum

Washington, Okanogan Highlands

Subgroup: Rhizomatous grasses dominant
Themes and/or Attributes: CRB007, CRBS06

Species
Botrychium simplex
Carex vallicola
Sisyrinchium septentrionale

Subgroup: Bunchgrass dominant
Themes and/or Attributes: SRM1 01, SRM304

Species
Carex xerantica
Cryptantha interrupta

Wyoming

Subgroup: Grasslands
Themes and/or Attributes: CRBS06, CRBS07, SRM 101, SRM304, SRM607

Species
Lomatium bicolor
Triteleia grandiflora

Subgroup: Shrublands
Themes and/or Attributes: CRBO03, CRBS07, SRM104, SRM107, SRM322, SRM401, SRM402, SRM403, SRM406, SRM42 1

Species
Artemisia spiciformis
Calochortus eurycarpus
Clarkia pulchella
Gayophytum humile
Haplopappus macronema linearis
Ipomopsis crebifolia
Kelloggia galioides
Lepidium densifolrum pubicarpum
'Monardella odoratissima glauca
Orobanche corymbosa corymbosa
Orobanche ludoviciana arenosa
Paeonia brownii
Perideridia bolanderi bolanderi
Townsendia florifer

ROCK

The rocky habitats within the Interior Columbia Basin (ICB) usually occur as inclusions within other types of habitats. They may be represented as sand dunes, cliffs, mountain tops, talus slopes, lava flows and cinder cones, and scablands. There are some large extensive areas of rocky habitats however, including the Crater's of the Moon area in Idaho and the cliffs of the Columbia River Gorge. These areas are usually low in biological (both floral and faunal) diversity but commonly harbor edaphically endemic species (especially when the rocks are azonal). Limestone and dolomite, rhyolitic ashes, and serpentine commonly have several substrate specific plant species whereas basalt and granite outcrops have very few. Animals typically use rocky habitats only occasionally, though a few species such as marmots, picas, and rock wrens live and reproduce there.

Rocky areas are habitats typically used for relatively few human activities. Mining activities are usually thoroughly destructive though mostly highly localized. Most recreational uses have little impact, the exception being off-road and all-terrain vehicles. Motorized recreation can destroy plant and animal habitat, cause or exacerbate erosion problems, and it the most destructive recreational use of rocky habitats. In some areas, livestock grazing and introduced exotic plant species have significantly impacted the quality of rock inhabiting plant communities.

Idaho North

Subgroup: High Elevation Rock
Themes and/or Attributes: CRB007

Species
Adiantum aleuticum
Cladonia luteoalba
Collomia debilis camporum
Lewisia kelloggii
Romanzoffta sitchensis

Subgroup: Talus Rock
Themes and/or Attributes: CRB007

Species
Lomatium salmoniflorum
Pentagramma triagularis triangularis
Thelypodium lacinatum streptanthoides

Idaho South

Subgroup: Badlands
Themes and/or Attributes: CRB007

Species
Aspicilia fruticulosa
Astragalus amblytropis
Astragalus aquilonius
Blepharidachne kingii
Eriogonum shockleyi packardiae
Eriogonum shockleyi shockleyi
Hymenoxys richardsonii
Ipomopsis polycladon (= Gilia polycladon)

Lupinus uncialis
Nemacladus rigidus
Penstemon janishiae
Xanthoparmelia idahoensis

Subgroup: Cinder
Themes and/or Attributes: CRB007

Species
Dimeresia howellii
Eatonella nivea

Subgroup: Clay Ash
Themes and/or Attributes: CRB007

Species
Cymopterus acaulis greeleyorum
Phacelia lutea calva

Subgroup: Non-Clay Ash
Themes and/or Attributes: CRB007

Species
Eriogonum ochrocephalum calcareum
Mentzelia torreyi acerosa

Subgroup: Rock Outcrops
Themes and/or Attributes: CRB007

Species
Asplenium viride
Astragalus gilviflorus

Oregon Basin and Range and Owyhee Uplands

Subgroup: Talus, Scree and Gravels
Themes and/or Attributes: CRB007

Species
Agastache cusickii
Antirrhirnum kingii
Collomia macrocalyx
Collomia renacta
Eriogonum nutans nutans
Eriogonum prociduum
Phacelia gymnoclada

Subgroup: Basalt and Rbyolite Rock Outcrops
Themes and/or Attributes: CRB007

Species
Agastache cusickii
Astragalus tegetarioides
Artemisia packardiae
Claytonia umbellata
Cymopterus nivalis
Draba sphaeroides cusickii
Dryopteris filix-mas
Hackelia ophiobia
Hackelia patens patens
Haplopappus macronema macronema
Ivesia shockleyi
Melica stricta
Mirabilis bigelovii retrorsa
Pediocactus simpsonii robustior
Penstemon davidsonii prateritus
Polemonium viscosum

Polystichum kruckebergii
Saxifraga adscendens oregonensis
Sedum debile

Subgroup: Succor Creek Ash
Themes and/or Attributes: CRB007

Species
Astragalus sterilis
Chaenactis cusickii
Cymopterus acaulis greeleyorum

Subgroup: Leslie Gulch Ash
Themes and/or Attributes: CRB007

Species
Astragalus sterilis
Eriogonum novonudum
Ivesia rhypara rhypara
Lomatium ravenii

Subgroup: Non-specific Ash
Themes and/or Attributes: CRB007

Species
Allium lemmonii
Amsinckia carinata
Argemone munita rotundata
Astragalus alvordensis
Astragalus sterilis
Astragalus tegetarioides
Astragalus tetrapterus
Chaenactis cusickii
Chaenactis macrantha
Chaenactis stevioides
Cryptantha propria
Cymopterus nivalis

Subgroup: Sand
Themes and/or Attributes: CRBO07

Species
Astragalus alvordensis
Astragalus atratus owyheensis
Astragalus mufordiae
Astragalus tetrapterus
Camissonia palmeri

Selaginella watsonii
Symphoricarpos longiflorus

Mentzelia mollis
Phacelia lutea calva

Mentzelia packardiae
Phacelia lutea mackenzieorum
Senecio ertterae
Trifolium owyheense

Eriogonum crosbyae
Eriogonum cusickii
Eriogonum novonudum
Eriogonium ochrocephalum
Eriogonum prociduum
Eriogonum salicomioides
Ivesia rhypara rhypara
Ivesia rhypara shellyi
Langloisia setosissima punctata
Stanleya confertiflora
Trifolium leibergii
Trifolium owyheense

Chaetadelpha wheeleri
Eriogonum nutans nutans
Hackelia cronquistii
Stylocline psilocarphoides

Oregon, Blue Mountains

Subgroup: Ash
Themes and/or Attributes: CRB007

Species
Allium pleinthum
Astragalus diaphanus diumus
Eriogonum ochrocephalum calcareum
Lomatium rollinsii
Lupinus cusickii
Thelypodium eucosmum

Subgroup: Cinder
Themes and/or Attributes: CRB007

Species
Mimulus evanescens
Mimulus hymenophyllus
Mimulus patulus

Subgroup: Cliffs
Themes and/or Attributes: CRB007

Species
Allium geyeri
Anemone multitida tetonensis
Asplenium trichomanes
Bolandra oregana
Carex nardina
Cheilanthes feei
Cryptogramma stelleri
Draba lemmonii cyclomorpha
Epilobium latifolium
Epipactis gigantea
Geum rossii turbinatum
Heuchera grossularifolia grossularifolia
Leptodactylon pungens hazeliae
Mimulus washingtonensis wash.ingtonensis
Pellaea bridgesii
Phlox multiflora
Polystichum kruckebergii
Rubus bartonianus
Salix wolfii
Selaginella watsonii

Subgroup: Scablands
Themes and/or Attributes: CRB007

Species
Allium bisceptrum
Allium dictuon
Allium geyeri
Allium tolmiei platyphyllum
Astragalus salmonis
Claytonia umbellata
Erigeron engelmannii davisii
Lewisia columbiana wallowensis
Lomatium ochocensis
Mimulus washingtonensis wash.ingtonensis
Oryzopsis hendersonii
Oryzopsis wallowaensis
Pediocactus simpsonii robustior
Primula cusickiana
Ranunculus orestetus

Subgroup: Talus
Themes and/or Attributes: CRB007

Species
Claytonia umbellata
Luina serpentina
Mirabilis macfarlanei
Ranunculus verecundus

Ribes oxyacanthoides cognatum
Rubus bartonianus

Subgroup: Other Rocks
Themes and/or Attributes: CRB007

Species
Lomatium ravenii

Suksdorfia violacea

Oregon, East Cascades South

Subgroup: Ash, Clay, Sterile Basalt Gravels
Themes and/or Attributes:

Species
Allium pleianthum
Astragalus diaphanus diaphanus
Astragalus diaphanus diumus
Chaenactis nevii

Eriogonum prociduum
Mimulus washingtonensis washingtonensis
Thelypodium eucosmum

Subgroup: Cliffs and Talus
Themes and/or Attributes:

Species
Arabis furcata
Erigeron howellii
Erigeron oreganus
Heuchera grossularifolia tenuifolia

Mimulus jungermannioides
Penstemon barrettiae
Suksdorfia violacea
Talinum spinescens

Subgroup: Scablands
Themes and/or Attributes:

Species
Allium campanulatum
Allium lemmonii
Allium macrum
Allium madidum
Artemisia papposa
Asclepias cryptoceras

Astragalus salmonis
Chaenactis macrantha
Chaenactis stevioides
Eriogonum chrysops
Phacelia gymnoclada

Subgroup: Stiff sage
Themes and/or Attributes:

Species
Allium macrum

Allium madidum

Utah

Subgroup: Rock

Themes and/or Attributes: CRB007

Species
Eupatorium occidentale
Polystichum kruckebergii

Washington, Columbia Basin

Subgroup: Bedrock/crevice
Themes and/or Attributes: CRB007

Species
Cheilanthes feei
Hackelia cinerea
Lomatium serpentinum
Lossetacon nevadensii

Subgroup: Talus/rubble
Themes and/or Attributes: CRB007

Species
Lomatium cusickii
Lomatium laevigatum
Ribes cereum columbrinum

Washington, East Cascades North

Subgroup: Rock
Themes and/or Attributes: CRB007

Species
Astragalus whitney sonneanus
Anemone nuttalliana
Bolandra oregana
Carex proposita
Carex stenophylla
Castilleja cervina
Chaenactis ramosa
Chaenactis thompsonii
Claytonia megarhiza nivalis
Cryptantha interrupta
Erigeron basalticus
Erigeron humilis
Erigeron leibergii
Erigeron piperianus
Erigeron salishii
Erihichium nanum elongatum
Geum rossii depressum
Hackelia diffusa diffusa
Hackelia hispida disjuncta
Hackelia hispida hispida
Heuchera grossulariifolia tenuifolia
Lewisia tweedyi
Lomatium cuspidatum
Lomatium tuberosum
Lomatiumwatsonii
Luzula arcuata
Nicotiana attenuata
Pamassia kotzebuei kotzebuei
Pediocactus simpsonii
Pellaea breweri
Phacelia franklinii
Poa curtifolia
Poa gracillima multnomae
Polypodium hesperium
Polystichum lemmonii
Potentilla nivea
Potentilla quinquefolia
Salix brachycarpa
Saxifraga cemua
Saxifi-aga debilis
Swertia perennis
Valeriana columbiana
Veratrum insolitum

Washington, Okanogan Highlands

Subgroup: Talus slope
Themes and/or Attributes: CRB007

Species
Ribes oxyacanthoides cognatum
Ribes oxyacanthoides irriguum
Saxifraga adscenden gonensi
Saxifraga cemua
Saxifraga debilis

Subgroup: Moist rocky substrate
Themes and/or Attributes: CRB007

Species
Cryptogramma stelleri

Subgroup: Dry rocky substrate
Themes and/or Attributes: CRB007

Species
Dryas drummondii
Talinum sediforme

Wyoming

Subgroup: Rocky Limestone
Themes and/or Attributes: CRB007

Species
Adiantum aleuticum
Antennaria aromatica
Asplenium viride
Cryptogramma stelleri
Draba borealis
Erigeron tweedyi
Pellaea glab'ella simplex

Subgroup: Ingneous and Metamorphic
Themes and/or Attributes: CRB007

Species
Aspidotis densa
Lycopodium selago
Polystichum scopulinum

APPENDIX 4

Rare Plant Communities

Rare Plant Communities

With increases in human influences on ecological processes, vegetation structure and function, there has been a significant loss of native plant communities and ecosystems across the United States (Nature Conservancy 1974). Concerns for the maintenance of diversity exists for all its interactive levels, including genetic, species, communities and ecosystems (Langner and Flather 1994). Concerns such as these prompted the need to identify and assess the status of rare plant communities within the Columbia River Basin.

Plant communities that were inherently rare because of a unique set of abiotic features, and those that were once more common, but reduced due to management, are especially vulnerable to extirpation. For example, the bunchgrass grasslands of the Palouse region, once expansive in area, have been reduced to a few remnant stands due to agricultural conversion. Low elevation cedar/hemlock old-growth forests, on the other hand, may never have occupied a large proportion of the landscape, yet have been disproportionately affected due to the extraction of large volumes of timber available in these highly productive areas. It is hoped that the information given here will assist managers by placing the concerns for sustainability of these communities in context with their status at a regional scale. In addition, potential for restoration of some communities may be prioritized and perhaps expedited by knowledge as to which communities are globally at risk, and what the known threats and trends are for these unique areas.

Plant communities are assemblages of organisms that are repeatable over the landscape (Bourgeron and Engelking 1994). Many classification systems have been applied to characterize a grouping of plant species as a definable unit. Although there is still a need for continued classification and standardization, the Natural Heritage Program Network has gone far in compiling and standardizing a classification of plant communities in the Western United States. This work (Bourgeron and Engelking 1994) was used as the basis for identifying rare plant communities that occur in the Columbia River Basin.

Results from the summarization of G1 and G2 communities in the Columbia River Basin are found below. Limited information exists on many of these plant communties. The columns in the Appendix table are defined and described as follows:

Community Name: The Latin name of the plant community. The Heritage Program uses an existing vegetation classification that is based solely on vegetation attributes (i.e. abiotic features such as soil and precipitation were not used). Although these communities represent vegetation that currently exists on the land, some also approximate a potential vegetation type when found in a very late successional stage. For details on the classification, see Bourgeron and Engelking (1994). For ease of use, communities in this table are organized alphabetically within dominant life forms, and therefore, deviates from the more complex classification hierarchy used by the Heritage Program. As mentioned, there has been a major effort by the Heritage Program to standardize community taxonomy, ensure consistent application of the techniques and concepts, and to quality control data across the Western United States. However, the system is constantly evolving as new information becomes available and the classification is refined.

G Rank: Global rank as assigned by the Natural Heritage Program. Only G1 and G2 communities are included. They are defined as, **G1**: Critically imperiled globally because of extreme rarity (5 or fewer occurrences) or because of some factor making it vulnerable to extinction; **G2:** Imperiled globally because of rarity (6 to 20 occurrences) or because other factors demonstrable making it vulnerable to extinction throughout its range.

Classification Type: Each community is identified as to whether it is a Plant Association (PA) which is the existing vegetation ; Potential Vegetation Type (PV), the site climax community; or Community Type (CT) which would dominate a site if there were no disturbance.

Rarity Class: Each community was assigned a rarity class, if known. They are defined as, **I - Intrinsically rare:** those communities that are naturally restricted due to a unique set of environmental attributes, **M - Managed Rare:** those communities that are rare as a result of human caused activities, and **B - Both:** intrinsically rare communities that are also affected by management.

Threats: Existing and potential activities known to threaten these communities are identified below:

AG	Agricultural Conversion	HC	Hydrological Regime Changes
BR	Blister Rust	MN	Mining
CI	Climax Invasion	MT	Mistletoe
DV	Development	OV	Off Highway Vehicles
EX	Exotic Plant Species	PA	Pathogens
FC	Fire, Change in Native Regime	PL	Pipelines
FF	Fire Suppression Activities	RC	Recreation
FI	Fire, Increased Frequency	RD	Road Construction
FR	Fire, In General or Nonspecific	RM	Road Maintenance
FS	Fire, Stand Replacing	RP	Riparian Disturbances
FX	Fire Exclusion	SC	Status Change
GI	Livestock Grazing, Indirect Effects	TH	Timber Harvest
GZ	Livestock Grazing	XX	Herbicide Spray and Drift

Trend: Where possible, a trend in community viability was assessed. Trend was categorized as, **I - Increasing; D - Decreasing; S - Stable; U - Unknown.**

Distribution Across the Columbia River Basin: Panel members and Heritage Program ecologists identified if a community is known to occur within the Vascular Plant Analysis Areas. Areas were coded as:

Mont - Montana
NID - Idaho/North
SID - Idaho/South
Wyo - Wyoming

Blue - Blue Mountains
NC - East Cascades North
SC/L - East Cascades South and the High Lava Plains
Colu - Columbia Basin
Okan - Okanogan Highlands
OrBa - Oregon Basin and Range and Owyhee Upland

Typically, these communities occupy small acreages on the land which precludes many types of quatitative analyses at a broad spacial scale. Furthermore, very few of these communties are mapped so even with a smaller scale assessment, analysis based on spacial information would be limited. However, some general trends and patterns can be assessed qualitatively.

Reference numbers cited in the table use the same numbers as those in the following documents that were used for the compilation of this section:

Langner, Linda L. 1994. Biological diversity:Status and trends in the United States. U.S.D.A. Forest Service. Gen. Tech. Rep. RM-244. 24 pp.

Bourgeron, P.S. and L.D. Engelking. eds. 1994. A preliminary vegetation classification of the Western United States. Unpublished report prepared by the Western Heritage Task Force for the Nature Conservancy, Boulder, CO

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
	ALPINE COMMUNITIES																
A	Carex aperta	G2	PA	I		U	X					X			X		1197
A	Carex scirpoidea-Potentilla diversifolia	G2	PV	B	GZ	D	X										1236
A	Cassiope mertensiana/Carex paysonis	G2	PV	I		S	X										1236
A	Ivesia gordonii-Arenaria obtusiloba	G2	PV			S			X								2
A	Ivesia gordonii-Eriogonum caespitosum	G2	PV	I		S			X								2
A	Ivesia gordonii-Minuartia obtusiloba	G2	PV			S			X								2
A	Salix arctica/Caltha leptosepala	G2G3															1122
A	Salix arctica/Polygonum bistortoides	G2	PA	I	GZ,HC	S	X										1236
A	Salix reticulata/Caltha leptosepala	G2	PV	I	GZ,HC	S	X										1236
	FOREST AND WOODLAND COMMUNITIES																
F	Abies concolor-Calocedrus decurrens-Pinus ponderosa/Amelanchier alnifolia	G2	PA	M	TH,FF	D							X				825
F	Abies concolor-Pinus lambertiana-Pinus ponderosa/Arctostaphylos patula	G2	PV	M	TH,FF	D							X				825
F	Abies grandis-Thuja plicata/Achlys triphylla	G2	PV	B	TH	D						X					148
F	Abies grandis/Arctostaphylos nevadensis	G2	PV	B	TH,FF	U						X					123, 156
F	Abies grandis/Athyrium felix-femina	G2	PV	B	TH,FS	U	X										1197

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
F	Abies grandis/Castinopsis chrysophylla	G2	PV	I	TH,FS	U							X				148
F	Abies grandis/Coptis occidentalis	G2	PV	I	TH,FS	S					X						124, 1185
F	Abies grandis/Taxus brevifolia	G2	PV	B	TH,FS	D		X			X				X		124
F	Abies grandis/Vaccinium caespitosum	G2	PV	I				X									145, 1185, 1190
F	Acer grandidentatum/Calamagrostis rubescens	G2	PV	I					X								1329
F	Juniperus occidentalis/Artemisia arbuscula/Danthonia unispicata-Poa secunda	G2	PV	I	GZ	S										X	1244
F	Juniperus occidentalis/Artemisia rigida/Poa secunda	G2	PV	I		S					X					X	113, 1244
F	Juniperus occidentalis/Artemisia tridentata/Carex filifolia	G1	PV	M	GZ	D							X				820
F	Juniperus occidentalis/Cercocarpus ledifolius/Carex geyeri	G2		B	GZ						X		X				1179
F	Juniperus occidentalis/Cercocarpus ledifolius/Leymus cinereus	G1		B	GZ	D										X	12
F	Juniperus occidentalis/Cercocarpus ledifolius/Symphoricarpos oreophilus	G2	PV	I	SC	S			X							X	12
F	Juniperus occidentalis/Festuca idahoensis	G2?	PV	M	SC, GZ, FX											X	113, 818, 1258
F	Juniperus osteosperma/Leymus ambiguus	G1	PV	I		S			X								1229

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
F	Juniperus osteosperma/Purshia tridentata-Symporicarpos oreophilus/PSESPI	G1	PV	I		S			X								639, 1339
F	Juniperus osteosperma/Stipa comata	G1	PV	I		S			X								1229
F	Picea engelmannii/Carex disperma	G2	PV	I	HC	D			X								25, 163, 1185
F	Picea engelmannii/Hypnum revolutum	G2	PV	I		S			X								25, 163, 1185
F	Picea engelmannii/Physocarpus malvaceus	G2	PV	I	FS	S											25, 163
F	Picea spp./Lysichiton americanum	G2	PV	I	HC	D	X										1197
F	Pinus contorta-(Populus tremuloides)/Spiraea douglasii/Carex spp.	G2											X				610
F	Pinus contorta/Elymus glaucus	G2											X				113
F	Pinus flexilis/Pentaphylloides floribunda/Distichlis stricta	G1Q		I	GZ,AG,DV	D											1044
F	Pinus flexilis/Potentilla fruticosa/Distichlis stricta	G1Q							X								1044
F	Pinus flexilis/Purshia tridentata	G1	PV	I		S			X								10, 11, 1340
F	Pinus monophylla-Juniperus osteosperma/Artemisia tridentata ssp. vaseyana/PSESPI	G1	PV	I		S			X								1075, 1228
F	Pinus monophylla-Juniperus osteosperma/Cercocarpus ledifolius/PSESPI	G1	PV	I		S			X								1075
F	Pinus monophylla-Juniperus osteosperma/Leymus cinereus	G1	PV	B	GZ, RC				X								1075

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
F	Pinus monophylla-Juniperus osteosperma/Prunus virginiana	G1	PV	B	GZ, RC	S			X								1075
F	Pinus ponderosa-Pseudotsuga menziesii	G1										X					1316
F	Pinus ponderosa-Pseudotsuga menziesii/Arctostaphylos nevadensis	G2	PA		TH,FC	D							X				148, 830
F	Pinus ponderosa-Quercus garryana/Arctostaphylos viscida/Festuca californica	G1	PA		TH,D V,FC	D											1276
F	Pinus ponderosa-Quercus garryana/Balsamorhiza sagittata	G2	PA	M	FC,TH	D							X				148
F	Pinus ponderosa/Amelanchier alnifolia	G2		I	FR	U							X				
F	Pinus ponderosa/Artemisia tridentata ssp. vaseyana/Poa nervosa	G2	PV	B									X				825
F	Pinus ponderosa/Artemisia tridentata/Stipa spp.	G1		B									X				825
F	Pinus ponderosa/Aspidotis densa	G1										X					156
F	Pinus ponderosa/Calamagrostis rubescens	G2	PV	B	FX,GZ ,TH	D		X			X	X	X	X			9, 110, 113, 136, 140, 1275
F	Pinus ponderosa/Crataegus douglasii	G1	PV	I	AG,D V,TH, GZ,RP	D		X			X						1254, 1276
F	Pinus ponderosa/Elymus glaucus	G2	PA	B	FC,FX, RD	D					X						113, 837

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
F	Pinus ponderosa/Physocarpus malvaceus	G2	PV	B	FX,FC, TH,EX	D		X						X			7, 9, 95, 110, 113, 134, 145,970, 1185, 1267
F	Pinus ponderosa/Purshia tridentata/Oryzopsis hymenoides	G1	PA	B		S						X	X			X	94, 1258
F	Pinus ponderosa/Purshia tridentata/Stipa occidentalis	G2	PA	I		S							X				822, 826
F	Pinus ponderosa/Spiraea betulifolia	G2	PV	M	FX,TH	D	X	X			X?						163, 626, 761, 808
F	Pinus ponderosa/Stipa comata	G1	PA	I		S									X	X?	7, 9, 110, 149, 1185
F	Pinus ponderosa/Wyethia mollis	G2	PA	B	FX,GZ ,TH	D					X		X				825
F	Pseudotsuga menziesii/Pachystima myrsinites	G2G3	PV	M	TH,FC	D					X	X					7, 142, 144, 162, 169, 207, 1116
F	Pseudotsuga menziesii/Purshia tridentata	G2	PA	B	FX,EX	D	X										MNHP
F	Pseudotsuga menziesii/Rosa gymnocarpa/Holodiscus discolor	G2										X					116, 151
F	Pseudotsuga menziesii/Symphorocarpos albus/Holodiscus discolor	G1										X					102, 110, 1267
F	Thuja plicata/Achlys triphylla	G2	PV	B	TH	D						X					152
F	Thuja plicata/Adiantum pedantum	G2	PV	B	TH,RC	D			X								95
F	Thuja plicata/Aralia nudicaulis	G2	PV	B	TH	D		X									145, 1190
F	Thuja plicata/Linnaea borealis	G2	PV	B	TH	D											834, 1270

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
F	Tsuga heterophylla/Athyrium filix-femina	G2	PV	I	TH	D		X									95, 1345, 1346
F	Tsuga heterophylla/Lysichiton americanum	G2		I				X				X					24, 93, 110, 116, 128, 151, 153, 831, 1213, 1274
F	Tsuga heterophylla/Menziesia ferruginea	G2	PV	B				X				X					95, 1190
F	Tsuga heterophylla/Rhododendron albiflorum	G1	PV	I				X									145
F	Tsuga heterophylla/Xerophyllum tenax	G2	PV	I	TH	D		X				X					95, 110, 116, 145, 151, 1190
F	Tsuga mertensiana/Caltha biflora	G2		B								X					118, 153, 1213
F	Tsuga mertensiana/Oplopanax horridum	G2										X					118, 119, 153, 1213
F	Tsuga mertensiana/Streptopus amplexifolius	G2	PV	B	HC,TH	D		X									95
	SHRUB STEPPE AND GRASSLAND COMMUNITIES																
S / G	Agropyron dasystachyum-Stipa comata	G1	PA	B	EX,A G,GZ	D								X			850, 860
S / G	Agropyron spicatum/Eriogonum ovalifolium	G1	PA	I	GZ,D V	D	X										MNHP
S / G	Agrostis exerata-Agrostis scabra	G2															29, 30

LF	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
S/G	Allenrolfea occidentalis	G2	PV	B	GZ	S										X	1245, 1276
S/G	Amelanchier alnifolia	G2															877
S/G	Arctostaphylos viscida-Ceanothus cuneatus/Festuca idahoensis-Stipa lemmonii	G2	PA	M	FF,FI, GZ,GI	D											830, 1276
S/G	Aristida longiseta/Sporobolis cryptandrus	G2		B	HC	D								X	X	X	124
S/G	Artemisia arbuscula ssp. thermopola/Festuca idahoensis	G2	PV	B	DV,GZ	D		X	X					X			15, 23
S/G	Artemisia arbuscula/Leymus ambiguus	G1G2	PV	I		S			X								1229
S/G	Artemisia cana ssp. viscidula/Deschampsia cespitosa	G2G3	PV	M	GZ	D							X			X	685, 1052, 1134
S/G	Artemisia cana-Artemisia tridentata ssp. vasyana/Poa cusickii	G2	PV	B	GZ	S							X			X	1276
S/G	Artemisia cana/(Elymus caninus)-Poa nevadensis	G1	PV	M		D							X				1276, 1306
S/G	Artemisia cana/Carex nebrascensis-Poa cusickii	G2	PV	M	GZ	D					X		X			X	610, 1050, 1307

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
S / G	Artemisia cana/Leymus cinereus	G1	PV	M	GZ	D										X	1276
S / G	Artemisia nova/Leymus ambiguus	G1G2	PV	I													1332
S / G	Artemisia tridentata ssp. tridentata/Hilaria jamesii	G2G4															41, 366, 528, 994, 1019, 1049
S / G	Artemisia tridentata ssp. tridentata/Leymus cinereus	G2G3	PV	M	GZ,AG,FR	D			X							X	228, 284
S / G	Artemisia tridentata ssp. tridentata/Pascopyrum smithii	G2G3	PV	M	GZ,FR	D											272, 273, 274, 325
S / G	Artemisia tridentata ssp. tridentata/Pseudoroegneria spicata-Poa secunda	G1	PV	M		D								X			1276
S / G	Artemisia tridentata ssp. tridentata/Stipa comata	G2	PV	B	DV,GZ,AG	D			X		X		X	X	X	X	ONHP
S / G	Artemisia tridentata ssp. vaseyana-Cercocarpus ledifolius/Elymus caninus-POASEC	G1	PV	I	GZ	D										X	12
S / G	Artemisia tridentata ssp. vaseyana/Stipa occidentalis	G2	PV	B		D							X				1179, 1276
S / G	Artemisia tridentata ssp. wyo.-Peraphyllum ramosissimum/Festuca idahoensis	G2	PV	B	GZ	U					X		X			X	1276

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
S / G	Artemisia tridentata ssp. wyo./Carex filifolia	G1Q											X				1336
S / G	Artemisia tridentata ssp. wyomingensis/Stipa comata	G2	PV	M		D										X	15, 1230, 1336
S / G	Artemisia tridentata-Atriplex canescens-Sarcobatus vermiculatus/(ORYHYM)	G2	PA	M	GZ	D										X	827
S / G	Artemisia tridentata-Purshia tridentata/Oryzopsis hymenoides-Stipa comata	G1	PV	B		D								X		X	835, 850
S / G	Artemisia tridentata/Leymus cinereus	G2G4	PV	I	GZ	D			X								1143,1157, 1193, 904, 1077, 1094, 1095
S / G	Artemisia tripartita/Festuca scabrella	G2	PV	B	GZ	D								X			12 67
S / G	Artemisia tripartita/Stipa comata	G1	PV	B										X			8, 15, 134, 1267
S / G	Atriplex confertifolia/Leymus ambiguus	G2	PV	I		S			X								1229
S / G	Atriplex confertifolia/Oryzopsis hymenoides	G2	PV	M	SC,GZ	S/U			X							X	228, 229, 325, 372, 1332,1093, 1096, 1138
S / G	Calamagrostis purpurascens	G2	PV	M	GZ	S			X								103

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
S / G	Carex stenophylla/Poa secunda	G2	PV	I		S			X								1337
S / G	Cercocarpus ledifolius/Calamagrostis rubescens	G2	PV	I	GZ,X X	D		X								X	12
S / G	Cercocarpus ledifolius/Festuca idahoensis	G2	PV	B	GZ,FI	D	X				X						12, 113, 1235
S / G	Cercocarpus ledifolius/Holodiscus dumosus	G1	PV	I		U			X								1343
S / G	Cercocarpus ledifolius/Leymus ambiguus	G2	PV	I	SC	U			X								1343
S / G	Cercocarpus ledifolius/Pseudoroegneria spicata-Festuca idahoensis	G2	PV	B	GZ,FI	S									X	X	12
S / G	Cercocarpus ledifolius/Symphoricarpos oreophilus	G2	PV	B	SC,GZ	D			X						X	X	12
S / G	Chrysothamnus nauseosus/Leymus flavescens/Psoralum lanceolatum	G1	PV	I		S			X								4
S / G	Danthonia californica (valley grassland)	G1	PV	M	AG,G Z,FR	D											816, 845, 855, 876
S / G	Danthonia californica-Festuca idahoensis	G1Q	PV	M	AG,D V,GZ	D											862, 1289

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
S / G	Danthonia intermedia	G2G3										X					103, 162, 222, 347, 1020, 1134
S / G	Elymus flavescens	G2	PV	I		S			X								4
S / G	Elymus glaucus	G2															1308
S / G	Eriogonum ovalifolium var. depressum	G1	PV	I		S			X								10, 11
S / G	Festuca idahoensis-Carex scirpoidea	G2	PV	B	GZ	D	X										326
S / G	Festuca idahoensis-Eriogonum caespitosum	G2	PV	I													2
S / G	Festuca idahoensis-Eriogonum heracleoides	G2	PV	M								X		X			8, 134, 1266, 1319
S / G	Festuca idahoensis-Festuca kingii	G2?	PV	B		D	X		X								1259
S / G	Festuca idahoensis-Hieracium cynoglossoides	G2	PV	B	GZ,EX	D							X	X			8
S / G	Festuca idahoensis-Symphoricarpos albus	G2	PA	M	FX,AG ,GZ	D					X						8, 141, 1252

LF	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
S/G	Festuca viridula-Festuca idahoensis	G2	PV	I	GZ	D		X			X						124
S/G	Festuca viridula-Lupinus latifolius	G2	PV	B	GZ	S					X						96, 103, 114, 117, 122, 124, 141, 842, 1252, 1256, 1318
S/G	Grayia spinosa-Sarcobatus vermiculatus/(Oryzopsis hymenoides)	G2	PV	I	GZ,EX	U										X	817
S/G	Leymus ambiguus-Enceliopsis nudicaulis	G2	PV	I		S			X								1343
S/G	Leymus ambiguus-Lupinus argenteus	G2	PV	B	GZ	S			X								1343
S/G	Leymus cinereus-Distichlis stricta	G1	PV	B	GZ,AG	S			X							X	8, 110
S/G	Leymus cinereus-bottomlands	G1	PV	M	GZ,AG	D					X		X			X	8, 817, 835, 1252, 1298
S/G	Leymus flavescens	G2															4
S/G	Leymus triticoides-Poa secunda	G2	PV	M	GZ,AG	D										X	1292
S/G	Poa cusickii	G2	PV	M	GZ,AG	D							X				610

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
S / G	Poa nevadensis-Puccinellia lemmonii-Elymus elymoides	G1	PV	B	GZ						X		X			X	859, 1289
S / G	Pseudoroegneria spicata-Aristida longiseta-Sporobolus cryptandrus	G2	PV	I	GZ	S					X	X					24, Wooton report
S / G	Pseudoroegneria spicata-Eriogonum heracleoides	G1?	PV	B	GZ	S		X					X				852, 252
S / G	Pseudoroegneria spicata-Festuca idahoensis (Palouse)	G1?	PV	M	DV,AG	D		X			X			X			8, 113, 124, 141, 813, 835, 1179
S / G	Purshia tridentata-Artemisia tridentata ssp. tridentata	G1											X				4
S / G	Purshia tridentata/(Pseudoroegneria spicata)-Festuca idahoensis	G1	PA	B	MN,FX	D			X		X	X		X			1179
S / G	Purshia tridentata/Carex pensylvanica-Stipa occidentalis	G1	PV	B	MN,GZ	S							X				822
S / G	Purshia tridentata/Chrysothamnus nauseosus	G1	PV	B		S		X	X								4
S / G	Purshia tridentata/Oryzopsis hymenoides	G1	PV	B	AG,GZ	D			X			X		X		X	8, 1233, 1267
S / G	Purshia tridentata/Poa nevadensis	G1?															1344

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
S / G	Purshia tridentata/Prunus virginiana	G1?	PV	B	FX,SC			X	X								1330
S / G	Purshia tridentata/Pseudoroegneria spicata-Leymus cinereus	G1		M					X								11
S / G	Purshia tridentata/Stipa comata	G2	PV	B	FR, GZ, DV				X			X		X			8, 835, 1266
S / G	Quercus garryana/Carex geyeri	G2															156
S / G	Quercus garryana/Ceanothus cuneatus/Festuca idahoensis	G2	PA	M	AG,DV,GZ, FX	D											1288
S / G	Quercus garryana/Elymus glaucus	G2	PA	M	AG,DV,GZ, FX	D											123
S / G	Quercus garryana/Festuca idahoensis	G1	PV	M	FX,TH ,GZ	D						X	X				123
S / G	Quercus garryana/Rhus diversiloba-Symphoricarpos albus/Elymus glaucus	G2	PA	M	FX,GZ ,TH,DV	D											1276, 1303
S / G	Rhus aromatica-Salix exigua	G2															1225
S / G	Rosa nutkana/Festuca idahoensis	G2G3	PV	B	DV, AG	U		X			X			X			8, 1252

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
S / G	Salicornia rubra	G2	CT	B	AG,G Z	U			X								497, 521, 1197
S / G	Sphaeromeria argentea-Artemisia frigida-Poa secunda	G2															1337
S / G	Sphaeromeria argentea-Oryzopsis swallenii	G2															1337
S / G	Sporobolus cryptandrus	G2	PA	M	RP,HC ,GZ	D					X						109
S / G	Sporobolus cryptandrus-Poa secunda	G2												X	X	X	8, 141, 1252
S / G	Tanacetum nuttallii/Artemisia frigida/Poa secunda	G2	PV	M	GZ	S			X								1337
S / G	Tanacetum nuttallii/Oryzopsis swallenii	G2	PV	B	GZ	S			X								1337
	WETLAND AND RIPARIAN COMMUNITIES																1134
W	Acer negundo/Equisetum arvense	G2?									X		X			X	1304, 1305
W	Alnus incana-Betula occidentalis	G1	CT	B	GZ,HC ,AG	D					X						1253
W	Alnus incana-Populus tremuloides/Betula glandulosa-Ribes /Carex	G1	CT	M	DV	D											

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
W	Alnus incana-Populus tremuloides/Cornus stolonifera	G1	CT	M	GZ,HC ,AG	D					X		X			X	1241
W	Alnus incana-Populus trichocarpa/(Salix) Carex spp.	G1	CT	B	GZ	D							X			X	610
W	Alnus incana/Spiraea douglasii	G2	CT	I	GZ	U					X		X				610
W	Alnus incana/Symphoricarpos albus	G2	CT	M	GZ,A G	D						X				X	610, 1050, 1254, 1255
W	Alnus incana/mesic forb	G2G3	PV	M		U			X		X		X				1052, 1134
W	Alnus incana/mesic graminoid (Carex)	G2G3	PV	M		S-D			X		X		X			X	1134
W	Alnus rhombifolia/Abies grandis	G2	PV	B	GZ,TH	D		X									17
W	Alnus rhombifolia/Betula occidentalis	G1	PV	B	GZ	U		X									17
W	Alnus rhombifolia/Celtis reticulata	G2	PV	B		U		X			X						17
W	Alnus rhombifolia/Philadelphus lewisii	G1	PV	B	GZ, RD	U		X			X						17
W	Alnus rhombifolia/Prunus virginiana	G2	PV	B		U		X									17
W	Alnus rhombifolia/Rosa woodsii	G1	PV	B		U		X			X						17
W	Alnus rhombifolia/Sambucus cerulea	G2	PV	B	GZ	U											17
W	Alnus sinuata	G2?	CT	I	none	S	X					X					1197
W	Betula occidentalis/Crataegus douglasii	G2	PV	B	GZ	D		X			X		X				1276
W	Betula occidentalis/Populus trichocarpa/Salix	G2									X		X				150, 1306,
W	Betula occidentalis/Purshia tridentata/Stipa comata	G1															1344

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
W	Betula occidentalis/mesic forb	G2G3	PV	M	GZ,RD	D			X								1134
W	Carex praegracilis-Carex aquatilis	G2G3	PV	M		U			X								1219
W	Crataegus douglasii	G2	PV	I	HC,GZ	U	X										950
W	Crataegus douglasii/Heracleum lanatum	G2	PV	B	BN			X						X			8
W	Crataegus douglasii/Rosa woodsii	G2	PV	M	AG			X			X			X			610, 1276
W	Deschampsia cespitosa-Carex/alkaline bottomland	G2	PV	M	DV,GZ	D					X					X	ONHP
W	Eleocharis palustris-Distichlis spicata	G2G4	PV	M	AG,GZ	D										X	1100
W	Eleocharis palustris-Juncus balticus	G2G4	PV	M	AG,GZ	D										X	1141
W	Juncus balticus-Carex rossii	G2G4															1187
W	Populus angustifolia/Acer grandidentatum	G2G3															1134
W	Populus tremuloides-Abies lasiocarpa/Shepherdia canadensis	G2?		M					X								266, 810
W	Populus tremuloides/Carex spp.	G2		B	FX,GZ,EX											X	610, 1311
W	Populus tremuloides/Rubus parviflorus	G2?	PV	B	GZ				X								266
W	Populus tremuloides/Symphoricarpos albus/Elymus glaucus	G2	PA	B	FX,GZ,EX							X				X	610, 1311
W	Populus trichocarpa/Cicuta douglasii	G1	PV	B										X			8
W	Populus trichocarpa/Crataegus douglasii	G1	PV	B	GZ, HC	D		X		X							1254, 1255

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
W	Populus trichocarpa/Salix exigua	G1	PA		GZ,RP					X			X			X	835, 1306
W	Salix amygdaloides-Salix exigua-Salix lasiandra	G1	PA	M	GZ,RP	D					X			X		X	1249
W	Salix amygdaloides-Salix fluviatilis-Salix lasiandra/Carex spp.	G1	PA	I	GZ,RP	D					X						1249
W	Salix boothii-Salix geyeriana	G2	PA	M	GZ,RP	D										X	610
W	Salix boothii-Salix geyeriana/Carex eurycarpa	G2	PA	M	GZ,RP	D							X				610
W	Salix boothii-Salix lemmonii	G2	PA	M	GZ,RP	D					X		X				610, 1306
W	Salix boothii/Carex aquatilis	G2G3	PV	I	GZ,RP	D		X			X		X				31, 1052, 1084
W	Salix boothii/Poa palustris	G1	PV	I		U		X									31, 1134
W	Salix drummondiana/Calamagrostis canadensis	G2	CT	I		U		X	X								30, 163, 191, 221, 322
W	Salix eastwoodiae	G1															31
W	Salix eastwoodiae/Carex aquatilis	G2	PV	M	GZ			X									686
W	Salix eastwoodiae/Carex rostrata	G2	PV	M	GZ			X									686
W	Salix exigua-Salix lasiandra	G1	PA	M	GZ,RP	D					X		X	X		X	1312
W	Salix exigua/mesic forb	G2Q	PV	M	GZ							X				X	1052, 1134
W	Salix geyeriana-Salix lemmonii	G2	PA	M	GZ,RP	D					X						610
W	Salix geyeriana/Poa palustris	G2	PV	M	GZ	U			X								31, 686, 1134
W	Salix geyeriana/mesic graminoid	G2G3	PV	M	GZ	U			X								31, 1052, 1134
W	Salix lasiolepis/barren	G2Q															1134

L F	Community name	G Rank	Class Type	R Class	Threats	Trend	Mont	NID	SID	Wyo	Blue	NC	SC/L	Colu	Okan	OrBa	References
W	Salix planifolia	G2															31
W	Salix wolfii/Carex nebraskensis	G2	PV	M	GZ	U			X	X							31
W	Salix wolfii/Poa palustris	G2	PV	I		U		X									31
W	Salix wolfii/Swertia perennis-Pedicularis groenlandica	G2	PV	M	GZ	S		X									29, 30
W	Scirpus americanus	G1Q	PV	I		U			X							X	29
W	Scirpus cespitosus/Carex livida	G1	PV	I		S		X									29
W	Scirpus pungens	G2G4	PV	I	HC	S											1197, 1219
W	Senecio triangularis	G2?									X		X				347, 1197

APPENDIX 5

Plants of Cultural Importance

Culturally Significant Plants
Interior Columbia Basin Ecosystem Management Project

July 10, 1995

Report Prepared by:
Richard Helliwell
Forest Botanist,
Umpqua National Forest

Species Selected For Inclusion

This list of species should **not** be considered to be a complete list of all species that are used by Indian peoples of the project area. It is apparent that there was formally much wider recognition and utilization of the native flora than there is currently. Elders stress that at one time all plants had a name and a recognized use. But even today there remains hundreds of plant species that continue to be utilized, some only by individual groups or families but others are recognized as being integral to continuing cultural practices and tribal tradition.

It would have been an unwieldy task to attempt to analyze all of the many hundreds of species for which there are recorded purposes, particularly the many that have purported but uncorroborated medicinal uses. Therefore, the decision was made to attempt to narrow the analysis to those species which are currently considered to be the most important to the seventeen tribal groups whose area of interest lies within the project area. Some of these species are very local in use and or occurrence, while others are more widespread. There are some species whose primary range and use is outside of the project area but are important enough to one or more of the tribes to warrant inclusion.

Native Taxonomy

The area encompassing this project includes the area of interest of tribes who speak many languages included within five major language families. These are Sahaptin, Interior Salish, Lutuami, Chinookin, and the Numic group of Uto-Aztecan family. many of these languages include use of sounds that are not used in the English language but more importantly they include concepts for plants and their relationship to the environment and culture which do not translate directly into English.

The plants are listed by scientific name for the purpose of being consistent with and thereby useable with the rest of the ICBEMP analysis being conducted by the Project. However, it is important to recognize that not everything that goes by a certain name by a plant taxonomist would be equally recognized by an Indian elder. *Lomatium nudicaule* would be one example of this. In spring when the first sprouts appear, this plant is called *"pt'ishpt'ish"* in Warm Springs Sahaptin, which refers to the edible first leaves. Mature plants with a stout stem are referred to

as *"xamsi"* which has an edible stem while other plants with a narrow, spindly, stem are called *"ashwaniya"* which means "slave to xamsi" (from a story) and is not eaten. These are not names for stages of growth, strictly speaking; these are individual plat names.

Taxonomy is further complicated by local differences in what one tribal group prefers relative to another and also differences within a taxa across it's range. For instance, *Lomatium piperi* and *L. gormanii* are two are closely related species that are often mistaken for one another. However in Central Washington members of the Yakama tribe readily distinguish between the two, *L. piperi* is recognized as edible while *L. gormanii* is eschewed as "groundhog food". However in southern Oregon, *L. gormanii,* is considered to be quite palatable (L. Housely, personal communication).

Summary of Information Presented

The table of information presented in Appendix 5 has been organized into three main cultural areas. There are three fields for each of these areas, with either a "1" to represent primary use, a "2" to represent a species with less important or localized use, and a blank to represent that it was essentially not used by that group. The habitat types that these taxa occur in, is in the following column. The codes used are the same as those used in the ICBEMP analysis and are explained on pages 79-81, Tables 3-4, of the main body of the document.

Management of Plant Populations

Finally, it must be noted that management of culturally significant plants is not a question of maintaining species viability but rather it is imperative that species harvestability be maintained. For the most part, these are not rare species. Most of these taxa are at least locally abundant someplace. Small, isolated or difficult to harvest populations may have no bearing. It is generally the large, healthy, accessible populations that Federal agencies must manage consistently to insure continued harvestability of these species.

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SCIENTIFICNAME	COLUMBIA PLATEAU	PAIUTE-SHOSHONE	KLAMATH-MODOC	VEGTYPE	SERALSTAGE
Allium acuminatum	2	2	2	CRBSO1, CRBS03, CRBS08, SRM104, CRBS04, SRM402, SRM406, SAF237, SAF245	OF:SS, SE:OC, SI,
Allium spp.	2	2	2	CRBS01, CRBS03, CRBS08, SRM104, CRBS04, SRM402, SRM406, SAF237, SAF245	
Alnus incana	2	2	2	CRBS05	
Amelanchier alnifolia	2	2	2	CRBS02, SRM421, CRBS09, SAF210, SAF237, SAF243, SAF245, CRB003	OF:SS,SE:OC,SI
Apocynum cannabinum	1	1	2	CRBS07, CRBS06	
Arctostaphylos nevadensis	2	2	2	CRBS02, SAF210, SAF218, SAF243, SAF245, CRB003, SAF237	OF:SS, SE:OC, SI
Arctostaphylos uva-ursi	2	2	2	CRBS02, SAF210, SAF218, SAF237, CRB003	OF:SS, SE:OC, SI
Artemisia tridentata	2	2	2	CRBS03, CRBS04, SRM402	
Atriplex confertifolia		2		CRBS05, SRM414	
Balsamorhiza hookeri		2		CRBS06, SRM406	
Balsamorhiza sagittata	2	2	2	SAF233, CRBS06, CRBS13, CRBS01, CRBS03, SAF237, SAF245	OF:SS,SE:OC, SI
Berberis nervosa	2		2	CRB008, CRBS09, SAF227	UR,YF,OF:MS, OF:SS
Brodiaea grandiflora		2		CRBS07, CRBS06	
Brodiaea hyacinthina	2	2	2	CRBS07, CRBS06	
Bryoria fremontii	1	2	1	CRBS02, SAF237, SAF243, SAF245	OF:MS,OF:SS
Calochortus macrocarpus	2	2	2	CRBS01, CRBS03, CRBS13, SRM104, CRBS04, SRM402, SRM322, SAF237	OF:SS, SE:OC, SI

SCIENTIFIC NAME	COLUMBIA PLATEAU	PAIUTE-SHOSHONE	KLAMATH-MODOC	VEGTY PE	SERAL STAGE
Calochortus nutalli		2		CRBSOl , CRBS03, CRBS06, CRBS 13, CRBS04	
Camassia leichtlinii	1			CRB007, CRBS07	
Camassia quamash	1	1	1	CRB007, CRBS07	
Claytonia lanceolata	2			SAF233, CRBS07, CRBS09, SAF206	UR, YF, OF:MS, OF:SS
Cornus stolonifera	2	2	2	CRBSOS, SAF235	
Corylus cornuta	2		2	CRBS09, SAF210, SAF233	SI, SE:OC, UR, OF:MS, OF:SS
Crataegus columbiana	2			CRBSOS, SAF235	
Crataegus douglasii	2			CRBSOS, SAF235	
Elymus cinereus		1		CRBS06, CRBS13, CRBS04	
Fragaria vesca	2	2	2	CRBS09, CRBS 11, SAF2 10, SAF212, SAF2 15, SAF243	SI, SE:OC, OF:SS
Fragaria virginiana	2	2	2	CRBS09, CRBS02, CRBS11, SAF210, SAF212, SAM 18, SAF237, SAF243, SAF245	SI, SE:OC, OF:SS
Fritillaria pudica	2	2	2	CRBSOl, CRBS03, SAF233, CRBS06, CRBS13, SRM104, CRBS04, SRM402, SRM406	
Helianthus annuus		2		CRBS03, CRBS06, CRBS04	
Heracleum lanatum	2		2	CRBSOS	
Juniperus occidentalis	2	2	2	CRBSOl, CRBS03	All
Lewisia rediviva	1	1	1	CRBS06, SRM406	
Ligusticum canbyi	2	2		CRBSOS, CRB007, CRBS07, SAF217, SAF235	

SCIENTIFIC NAME	COLUMBIA PLATEAU	PAIUTE-SHOSHONE	KLAMATH-MODOC	VEGTY PE	SERAL STAGE
Ligusticum grayi	***2***	***2***	***2***	CRBS05, CRB007, CRBS07, SAF217, SAF235	
Lomatium canybi	1	1	***2***	CRBS06, SRM406	
Lomatium cous	1	1	***2***	CRBS06, SRM406	
Lomatium dissectum	1	1		CRBSOI, CRBS03, SAF233, SRM322, SAF237, SAF2 10, SAF245	Talus and rocky openings
Lomatium farinosum var. hambleniae	***2***			CRBS06, SRM406	
Lomatium gormanii			***2***	CRBS06, SRM406	
Lomatium grayi	1			CRBS01, CRBS03, SAF233, CRBS04, SRM402, SRM406	Rocky openings
Lomatium hendersonii		1		CRBS06, SRM406	
Lomatium macrocarpum	***2***	***2***		CRBS06, SRM406	
Lomatium minus	***2***			CRBS06, SRM406	
Lomatium nudicaule	1	1		CRBSOI, CRBS03, SAF233, SRM104, CRBS04, SRM406, SAF237	
Lomatium piperi	***2***	***2***		CRBS06, SRM406	
Lomatium suksdorfii	1			CRBS06, CRBS13, SAF233	
Mentha arvensis	***2***	***2***	***2***	CRBS07	
Mentzelia albicaulis		***2***	***2***	CRBS03, CRBS06, CRBS04	
Mentzelia laevicaulis		***2***		CRBSO1, CRBS03, CRBS04	
Nicotiana attenuata	***2***	***2***	***2***	CRBS01, CRBS02, CRBS03, CRBS06, CRBS13, CRBS04, SAF237, SAF245	Sometimes cultivated

SCIENTIFICNAME	COLUMBIA PLATEAU	PAIUTE-SHOSHONE	KLAMATH-MODOC	VEGTYPE	SERALSTAGE
Nuphar polysepalum			1	CRB007, CRBS20	
Orobanche unijlora var. purpurea		2		CRBS06, SRM406	
Oryzopsis hymenoides		1		CRBS01, CRBS03, CRBS06, CRBS13, CRBS04, sRM414	
Perideridia bolanderi		1		CRBS07, CRBS06	
Perideridia etythrorhiza			2	CRBS07, CRBS06	
Perideridia gairdneri	1	1	1	CRBS07. CRBS06	
Perideridia oregana		1	1	CRBS07, CRBS06	
Phragmites communis		2		CRB007, CRBS07	
Pinus albicaulis	2			SAF208	
Pinus monophylla		1		CRBS01. CRBS03	
Pinus ponderosa		2		SAF245	
Prunus subcordata		1	1	CRBS05, SAF235, SAF243, SAF245	
Prunus virginiana		1	1	CRBS05, SRM421	
Psoralea esculeta		2		CRBS06, CRBS13	
Quercusgarryana	2			SAF233	
Rhizopterus plurijugas		2		CRBS06, SRM406	
Ribes aureum	2	2	2	CRBS05, SAF235	
Rosa nutkana	2	2	2	CRBS05, SRM421, SAF210, SAF237, SAF243, SAF245. CRBS02. CRBS09. SAF235	

SCIENTIFIC NAME	COLUMBIA PLATEAU	PAIUTE-SHOSHONE	KLAMATH-MODOC	VEGTYPE	SERALSTAGE
Rosa spp.	2	2	2	CRBS05, SRM421, SAF210, SAF237, SAF243, SAF245, CRBS02, CRBS09, SAF235	
Rubus ***spp.***	2	2	2	CRBS02, SAF210, SAF237, SAF243, SAF245, CRBS09, CRBS11, SAF227, CRB003	SI,SE:OC,OF:SS
Sagittaria cuneata	2		2	CRB007, CRBS07	
Sagittaria *latifolia*	2		2	CRB007, CRBS07	
Salix spp.	1	1	1	CRBS05, SAF235	
Sambucus *cerulea*	2	2	2	CRBS02, CRBS09, SAF210, SAF243, SAF245, CRB003	
Scirpus acutus	2	2	2	CRB007, CRBS20	
Scirpus *validus*	2	2	2	CRB007, CRBS20	
Shepherdia argentea		2		CRBS05, SRM414	
Suaeda *depressa*		2		CRBS05, SRM414	
Tauschia *hooveri*	2			CRBS06, SRM406	
Typha *latifolia*	2	2	2	CRB007, CRBS20	
Vaccinium caespitosum	2		2	SAF218, SAF227	SI, SE:OC, OF:SS
Vuccinium deliciosum	2			CRB008, SAF205, SAF206	SI, SE:OC, OF:SS
Vaccinium globulare	1			SAF210, SAF212, SAF218	SI, SE:OC,OF:SS
Vaccinium membranaceum	1	2	1	CRB008, CRBS11, SAF205, SAF218, SAF227	SI, SE:OC, OF:SS
Vaccinium *ovalifolium*	2		2	CRB008, CRBS11, SAF227	SI,SE:OC,OF:SS
Vaccinium oxycoccus	2			CRBS05, CRB007, CRBS07	
Vuleriana edulis		2	2	CRBS07, CRBS06	

APPENDIX 6

Research, Development, and Applications Database

Research, Development, and Application Needs for Rare Vascular Plants within the Interior Columbia Basin

During the vascular plant panel process, it became clear that the lack of knowledge concerning certain areas of species biology and ecology was interfering with the experts' ability to develop accurate assessments and taxa-specific management guidelines and recommendations. Broad, one size fits all, direction for rare plant management has proven to be problematic in many cases. Vague guidelines are often difficult to interpret or implement (and are hence sometimes ignored). To rectify this situation, panel members were encouraged to identify research needs that would specifically improve our ability to manage or protect species of conservation concern. The results of that assignment are summarized in the table that follows.

The Research Needs (RDA) table is divided into three columns. The "Species Name" column contains the Latin binomial for each plant with an identified research need. The "Research Need" column identifies an area of species biology or ecology that the panel felt was necessary to pursue in order to provide specific management recommendations. These needs were compiled over the three days allotted to each panel and may not represent an exhaustive list of research needs. Some species have several identified research needs, others have only one. This is not necessarily a reflection of current levels of knowledge or some inferred relative importance. In many cases, more knowledge begets more questions. Alternatively, species with few threats or management conflicts require less concern and therefore received less attention during the panel process. It should also be pointed out that panelist were drawn from a variety of backgrounds and some emphasized the need to acquire new knowledge more than did others. Finally, the "Research Needs" column does not represent the only areas of information lacking about the species in question. The column "Potential Applications" identifies one or two of the benefits of pursuing each area of research. It is important to keep in mind that the benefits of research derived information compounds and unexpected insight is commonly gained through scientific inquiry.

The RDA table is a resource that can be used by many groups in many ways. Most obviously, researchers, graduate students, and organization applying to Federal land management agencies for research funds can use the table to help justify their requests. Federal research organizations (e.g., National Biological Survey and Forest Service Research Stations) can use the RDA table to pursue areas of emphases (e.g., reproductive biology or responses to management activates) identified as important to land managers. Land managers can use the RDA table to become aware of rare plant issues within their jurisdiction. Consumptive industries will be able to use the RDA table to assess where their activates maybe in conflict with plant conservation goals. They may then choose to support research activities that will resolve the issues and clear lingering uncertainties that often constrain management options. Environmental groups and native plant organizations can use the RDA table to focus their conservation concerns, educational activities and advocacy actions. Educators may use the RDA table to help students understand the process of information gathering and to demonstrate the link between research and the application of knowledge. There are certainly other ways that the RDA table can be used. It is hoped that by identifying areas of need, information and understanding that will benefit everyone will be gained.

Species name	Research Need	Potential Application
Abronia ammophila	Are inventory efforts to document population sizes and geographic amplitude adequate for this rare species?	Inventory for this rare species could provide valuable information on pbpulation sizes and geographic distribution. This information could be incorporated into monitoring protocol and management direction,
Abronia ammophila	Are the Sublette County and Yellowstone Park populations representative of the same taxon?	Resolution of the taxonomic relationships of the two geographically-separate "populations" could provide valuable information about the geographic amplitude of the species. This information should preclude the development of management.
Abronia ammophila	Whai are the environmental requirements of this rare species?	Trend, demographic, and ecophysiological monitoring could provide valuable information about the Environmental requirements and limiting factors of this rare species. This information could be incorporated into management direction.
Agrostis rossiae	To what extent is this rare species threatened by changes in the geohydrothermal regime that supports its habitat?	Trend and demographic monitoring of populations historically, presently, and or potentially impacted by changes in the geohydrothermal regime supporting its habitat could provide valuable information which could be incorporated into management direction.
Agrostis rossiae	What are the environmental requirements of this tare grass?	Trend, demographic, and ecophysiological monitoring could provide valuable information about the environmental requirements and limiting factors of this rare species. This information could be incorporated into management direction.
Allium aaseae	To what extent is this rare species threaten&d by mining activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by mining activities could provide valuable information for incorporation into management direction.
Allium aaseae	To what extent is this rare species threatened by recreational activities, particularly traffic from off-road vehicles?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by recreational activities including off-road vehicle traffic could provide valuable information which could be incorporated into management direction.
Allium aaseae	To what extent is this rare species threatened by the invasion of its habitat by exotic species, including those introduced in seeding prescriptions?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by exotic species could provide valuable information which could be incorporated into management guidelines.
Allium aaseae	What are the environmental requirements of this species? What are its limiting factors?	Demographic and ecophysiological monitoring could provide valuable baseline information on the environmental requirements and limiting factors of the species. This information could be used in the development of monitoring protocol and management.
Allium dictuon	What are population sizes and geographic amplitude of this narrow endemic species?	Inventory of this rare species could provide valuable information on its population sizes, amplitude. and vulnerability to management activities. This information could be incorporated into monitoring designs and manaeement direction.
Allium dictuon	What are the effects of fire suppression activities on the habitat that supports this narrow endemic species?	Trend, demographic, and ecophysiological monitoring of populations impacted by fire suppression activities (the construction of fire lines, in particular) could provide valuable information for incorporation into management guidelines.
Allium dictuon	What are environmental requirements for this species and why is its geographic amplitude apparently so limited?	Trend, demographic, and ecolophysiological monitoring could provide valuable information on the basic hiolnev of this narrow endemic species. This information could be incorporated into management direction.

Spccics name	Research Need	Potential Application
Amsinckia carinata	Is this a valid taxon? Why was the species merged with A. tesselata in Jepson's treatment?	Resolution of the taxonomic status of this "species" precludes the development of monitoring and management plans.
Amsinckia carinata	To what extent is the genetic integrity of this species threatened by hybridization with sympatric A. tesselata?	Ecophysiological monitoring could provide information on the extent of hybridization and resultant effects on the gene pool. This information could be incorporated into management guidelines.
Amsinckia carinata	To what extent is this species threatened by the invasion of exotic species, particularly cheatgrass and Russian thistle?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by exotic species could provide valuable information for incorporation into management direction.
Amsinckia carinata	What are the environmental requirements of this species?	Ecophysiological monitoring of this species could provide valuable information on its environmental requirements. This information could be incorporated into management guidelines.
Antennaria arcuata	Is this species threatened by agricultural practices including the application of chemicals (herbicides and fertilizers) and tillage?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by these agricultural practices could provide valuable information for incorporation into management direction.
Antennaria arcuata	Is this species threatened by exotic species?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information for incorporation into management direction.
Antennaria aromatica	To what extent is this rare species threatened by development?	Trend and demographic monitoring in the portion of this species' range (Anaeroid lake) where potential for housing development exists could provide valuable information for incorporation into management guidelines.
Antennaria aromatica	To what extent is this rare species threatened by introduced mountain goats and bighorn sheep?	Trend and demographic monitoring of populations of this rare species historically, presently, and/or potentially impacted by introduced mountain goats and/or big horn sheep could provide valuable information which could be incorporated into management.
Arabis fccunda	Is this species threatened by the encroachment of its habitat by exotic species (spotted knapweed)? Would the use of herbicides for controlling exotics adversely affect the species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by exotics or the herbicides used in controlling them could be useful to management.
Arabis fecunda	What are the effects of grazing and mining on this species?	Assessment of effects on known populations of grazing, trampling associated with grazing, and mining could provide guidelines consistent with the conservation of the species for management.
Arabis fecunda	What is the population trend for this species of concern?	Assessment of the population dynamics and trend of this species could enable management direction consistent with the conservation and viability of the species to be formulated.
Arabis suffrutescens var. horizontalis	Is this rare species adversely impacted by or threatened by recreational activities, particularly trampling by hikers?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by recreational activities could provide valuable information for incorporation into management guidelines.
Arabis suffrutescens var. horizontalis	Is this taxon valid? Does this variety which is supposedly limited to the Crater Lake area also occur in California?	Resolution of the taxonomic status of this rare variety and determination of its population sizes and geographic amplitude precludes the development of monitoring and management guidelines.
Arabis suffrutescens var. horizontalis	What are the environmental requirements of this rare species?	Trend, demographic, and ecophysiological monitoring of this species could provide valuable information on its environmental requirements and limiting factors.

Species name	Research Need	Potential Application
Artemisia campestris var. worrnskioldii	How does this variety of concern respond to grazing activities?	Trend and demographic monitoring of populations historically. presently, and/or potentially impacted by grazing activities could provide valuable information for incorporation into management direction.
Artemisia campestris var. wormskioldii	To what extent is this variety of concern threatened by the conversion of habitat to agricultural production, particularly conversion to orchards?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by agricultural conversion could provide valuable information for incorporation into management direction.
Artemisia campestris var. wormskioldii	What are the impacts of recreational activities on this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by recreational activities could provide valuable information for incorporation into management direction.
Anemisia campestris var. wormskioldii	What is the reproductive biology of this rare variety? What is its viability threshold, what are its diseases, seed predators, germination requirements?	Laboratory and demographic and ecophysiological monitoring could provide valuable basic biological information about this variety of concern. The limiting factors identified in the studies mentioned above could be used to formulate management guidelines
Artemisia campestris var. wormskioldii	Will elevation of pool levels behind hydroelectric dams adversely affect this species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by changes in hydrology could provide valuable information for incorporation into management direction.
Attemisia ludoviciana ssp. “estesii”	To what extent is this unpublished taxon impacted by alterations in the hydrologic regime supporting its habitat?	Trend and demographic monitoring of populations impacted by changes in hydrology could provide valuable information which could be incorporated into management direction.
Artemisia ludoviciana ssp. “estesii”	To what extent is this unpublished taxon impacted by grazing?	Trend and demographic monitoring in populations affected by grazing could provide valuable information for incorporation into management direction.
Artemisia ludoviciana ssp. "estesii"	To what extent is this unpublished taxon impacted by recreational activities?	Trend and demographic monitoring in populations affected by recreational activities could provide valuable information for incorporation into management direction.
Artcmisia ludoviciana ssp. "estesii"	What are the sizes of the populations and geographic amplitude of this unpublished species, specifically in the Deschutes River basin?	Inventory efforts for this species could determine population sizes and geographic amplitude. This baseline information could be used in formulating monitoring and management strategy.
Artemisia ludoviciana ssp. “estesii”	What is the taxonomic status of this unpublished subspecies?	Resolution of the taxonomic status of this unpublished subspecies precludes the development of monitoring and management guidelines.
Aster jessicae	Do exotic species threaten the known populations of this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information for incorporation into management direction.
Aster jessicae	Is the remaining habitat of this species threatened by housing development on “choice view” sites?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by housing developments could provide valuable information for incorporation into management direction.
Aster jessicae	To what extent has the habitat of this species been diminished because of the agricultural conversion of its habitat?	Trend and demographic of populations historically, presently, and/or potentially impacted by the conversion of habitat to agricultural production could provide valuable information for incorporation into management direction.
Aster jcssicae	To what extent has this species been adversely impacted by fire suppression?	Trend and demographic of populations historically, presently, and/or potentially impacted by fire and/or fire suppression could provide valuable information which could be incorporated into management guidelines.

Spccics name	Research Need	Potential Application
Aster jessicae	To what extent has this species been adversely impacted by grazing activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing could provide valuable information for incorporation into management direction.
Aster jessicae	To what extent has this species been adversely impacted by the application, direct and indirect, of herbicides?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by herbicide application could provide valuable information for incorporation into management direction.
Aster jessicae	What impacts have changes in the fire regime had on this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by fire, fire suppression, and/or changes in the fire regime could provide valuable information for incorporation into management direction.
Aster jessicae	What is the reproductive biology of this species? Are there opportunities for seed banking?	Laboratory studies and demographic/ecophysiological monitoring could provide valuable information on the reproductive biology of this rare species. Seed banking and opportunities to incorporate this species into restoration projects could be identified.
Aster jessicae	Will proposed agricultural conversion further diminish the habitat and range of this rare species?	Trend and demographic monitoring of populations historically, presently, and or potentially impacted by agricultural conversion could provide valuable information for incorporation into management direction.
Aster mollis	Are inventory efforts for this rare species adequate in Wyoming?	inventory for this rare species could provide valuable information on the population sizes and geographic distribution. This baseline information could be useful in the development of monitoring and management strategies.
Astragalus anserinus	To what extent is this rare species threatened by recreational activities, particularly the use of off-road vehicles?	Trend and demographic monitoring of populations impacted by exotics and/or by recreational activities (especially off-road vehicles) could provide valuable information that could be incorporated into management guidelines.
Astragalus anserinus	To what extent is this rare species threatened by the invasion of exotic species including crested wheatgrass?	Trend and demographic monitoring of populations impacted by exotics and/or by crested wheatgrass seedings could provide valuable information which could be incorporated into management guidelines.
Astragalus anserinus	What are the environmental requirements of the species? Its limiting factors?	Demographic and ecophysiological monitoring of this species could provide valuable information on its environmental requirements and limiting factors, This could be incorporated into management direction.
Astragalus applegatei	To what extent is this rare species impacted by tire and/or fire suppression?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by natural or prescribed bums could provide valuable information for incorporation into management guidelines. Indications are for beneficial effects.
Astragalus applegatei	To what extent is this tare species threatened by grazing activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information for incorporation into management guidelines.
Astragalus applegatei	To what extent is this rare species threatened by rodents and lagomorphs?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by rodents and/or lagomorphs could provide valuable information for incorporation into management guidelines
Astragalus applegatei	What are the environmental requirements for this rare species? What are the characteristics of its breeding system, germination requirements, seed bank, etc.?	Ecophysiological monitoring could provide valuable information on the basic environmental requirements of this rare species including its pollinators, seed production and viability rates, ability to withstand transplanting, etc.

Species name	Research Need	Potential Application
Astragalus atratus var. inseptus	To what extent is this rare variety impacted by development, particularly range improvement projects?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by range improvement projects including crested wheat grass seeding could provide valuable information for incorporation into management direction.
Astragalus atratus var. inseptus	To what extent is this rate variety impacted by exotic species?	Trend and demographic monitoring of populations historicall, presently, and/or potentially impacted by the invasion of exotic species including crested wheat grass seeding could provide valuable information for incorporation into management direction.
Astragalus atratus var. inseptus	To what extent is this rare variety impacted by tire and/or fire suppression?	Trend and demographic monitoring of populations historicall, presently, and/or potentially impacted by tire, tire suppression, and/or changes in the fire regime could provide valuable information for incorporation into management direction.
Astragalus atratus var. inseptus	What are the environmental requirements and limiting factors of this rare variety?	Demographic and ecophysiological monitoring could provide valuable information on the environmental requirements of this species and its limiting factors. This information could be incorporated into management direction.
Astragalus collinus var. laurentii	Does housing development threaten this variety of concern?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by housing development could provide valuable information that could be incorporated into management direction.
Astragalus collinus var. laurentii	How is this variety of concern affected by hetbicidal application both direct and indirect?	Trend monitoring in known roadside populations that are periodically boom sprayed by the county road department should provide valuable information that can be incorporated into the formulation of management guidelines.
Astragalus collinus var. laurentii	How is this variety of concern being impacted by the invasion of exotic species?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by the invasion of exotic species could provide valuable information which could be incorporated into management direction.
Astragalus collinus var. laurentii	How is this variety of concern impacted or potentially impacted by road construction and/or maintenance?	Trend monitoring in known roadside populations that might be impacted by road construction/maintenance activities could provide valuable information which could be incorporated into management direction.
Astragalus collinus var. laurentii	Is seed banking a viable alternative for increasing this variety of concern and incorporating it into restoration opportunities?	Exploring the possibilities of seed banking may enable a seed increasing program to be developed. This variety of concern could then be used in restoration prescriptions for appropriate habitats.
Astragalus collinus var. laurentii	What is the genetic and taxonomic “status” of this variety of concern? How does it differ from its sympatric progenitor, A. collinus var. collinus?	Genetic studies could resolve the taxonomic status of this species and also determine its genetic uniformity and vulnerability. This information could be useful to management.
Astragalus columbianus	Are exotic species a threat to this rare plant?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by exotic species could provide valuable information for incorporation into management direction.
Astragalus columbianus	How does this rare species respond to mining activities, particularly those associated with the extraction of diatomaceous earth?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by mining activities could provide valuable information which could be incorporated into management guidelines.

Species name	Rcscarch Need	Potential Application
Astragalus columbianus	Is this rare species adversely affected by grazing. particularly sheep grazing?	Trend and demographic monitoring of populations historically. presently, and/or potentially impacted by grazing activities could provide valuable information for incorporation into management direction.
Astragalus columbianus	Is this species threatened by agricultural conversion of habitat, particularly conversion associated with orchard expansion?	Trend monitoring of populations proximal to orchard operations should provide valuable information which could be used in the formulation of management direction.
Astragalus columbianus	What are the effects of tire and/or fire suppression on this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by fire, tire suppression, and/or changes in the tire regime could provide valuable information for incorporation into management direction.
Astragalus columbianus	What are the effects of military maneuvers (training) on this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by military maneuvers could provide valuable information for incorporation into management direction.
Astragalus columbianus	What are the effects of recreational activities on this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by recreational activities could provide valuable information for incorporation into management direction.
Astragalus diaphanus var. diaphanus	Is scarification of seed essential for the germination of this species?	Ecophysiologic monitoring supported by laboratory work could provide valuable information on the seed physiology of this ram species. This information could be incorporated into management direction.
Astragalus diaphanus var. diumus	How can this diminutive annual species be monitored?	Development of an appropriate demographic monitoring protocol could provide a monitoring strategy for evaluating impacts of management activities to this species.
Astragalus diaphanus var. diumus	To what extent is this rare species adversely impacted by predation by insects?	Ecophysiological monitoring of this rare species could provide valuable information on its environmental requirements including seed bank, pollinators, predation of seed by insects, etc. Information could be incorporated into management direction.
Astragalus diaphanus var. diumus	What are the environmental requirements for this narrow endemic species?	Ecophysiological monitoring of this rare species could provide valuable information on its environmental requirements including seed bank, pollinators, role in nitrogen fixation. etc. This information could be incorporated into management direction.
Astragalus diaphanus var. diurnus	What is the extent of the natural seed bank of this species? What fluctuations in population dynamics are attributable to naturally-induced verses management-induced causes?	Demographic and ecophysiological monitoring could provide valuable information about the basic environmental requirements of this species including its seed bank, germination requirements, dependency upon soil bacteria, etc.
Astragalus diaphanus var. diumus	What is the genetic variability of this species across its narrow geographic range?	Determination of the genetic variability of the species could provide valuable information for predicting the vulnerability of the species to changing environmental factors.
Astragalus diaphanus var. diumus	What is the taxonomic relationship between this variety and Astragalus diaphanus var. diaphanus?	Resolution of the taxonomic relationship with progenitors or sympatric species precludes the development of monitoring strategies and/or management direction.
Astragalus howellii	How does this rare species respond to fire?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by natural or prescribed fire could provide valuable information for incorporation into management direction.
Astragalus howellii	How does this rare species respond to grazing?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing could provide valuable information for incorporation into management direction.

Species name	Research Need	Potential Application
Astragalus howellii	What is the ecological niche of this species in succession?	Trend, demographic, and ecophysiological monitoring could provide valuable information on the successional dynamics of this species.
Astragalus mulfordiae	To what extent is this rare species threatened by a combination of increased fuel load caused by exotic species and fire?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by high intensity tires attributable to accumulated fuels could provide information on fire effects, exotics, etc.
Astragalus mulfordiae	To what extent is this rare species threatened by fire and/or tire suppression?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by natural and/or prescribed fire could provide valuable information on fire effects for incorporation into management direction.
Astragalus mulfordiae	To what extent is this rate species threatened by grazing activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by grazing could provide valuable information for incorporation into management direction.
Astragalus mulfordiae	To what extent is this rare species threatened by grazing of cattle, sheep, and lagomorphs?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by domestic livestock and lagomorph grazing could provide valuable information for incorporation into management guidelines.
Astragalus mulfordiae	To what extent is this rare species threatened by herbicidal applications used in conjunction with sagebrush eradication?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by aerial herbicidal application associated with sagebrush eradication could provide valuable information for incorporation into management guidelines.
Astragalus mulfotdiae	To what extent is this rare species threatened by recreational activities, particularly the use of off-road vehicles?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by recreational activities could provide valuable information for incorporation into management direction.
Astragalus mulfordiae	To what extent is this rare species threatened by road construction and/or toad maintenance projects?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by road construction/maintenance could provide valuable information for incorporation into management direction.
Astragalus mulfordiae	To what extent is this species threatened by agricultural conversion and/or housing development?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by agricultural conversion or housing development could provide valuable information for incorporation into manaeemcnt euidelines.
Astragalus mulfordiae	To what extent is this species threatened by fire and/or tire suppression?	Trend and demographic monitoring of populations historically, presently, or potentially impacted by natural and/or prescribed fire could provide information for incorporation into management direction.
Astragalus mulfordiae	To what extent is this species threatened by grazing activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information for incorporation into management direction.
Astragalus mulfordiae	To what extent is this species threatened by the invasion of exotic species, including those in seeding prescriptions?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the invasion of exotics (or seeding of them) could provide valuable information for incorporation into management direction.
Astragalus mulfordiae	What ate the environmental requirements and limiting factors of this species?	Demographic and ecophysiological monitoring would provide information on the ecological requirements and limiting factors of this species. This information could be incorporated into management direction.

Species name	Research Need	Potential Application
Astragalus oniciformis	What are the impacts of exotic species on this rare species?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information for incorporation into management guidelines.
Astragalus oniciformis	What are the impacts of fire and/or fire suppression on this species?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by natural and/or prescribed fire could provide valuable information for incorporation into management guidelines.
Astragalus oniciformis	What are the impacts of seeding prescriptions, particularly of Agropyron cristatum, on this species?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by crested wheatgrass seedings could provide information for incorporation into management guidelines,
Astragalus onicifonnis	What is the taxonomic "status" of this species and its genetic relationship to other Astragalus species?	Determination of taxonomic status and relationship should preclude the development of monitoring protocol and management direction.
Astragalus paysonii	Has this species received adequate inventory effort in Wyoming?	Inventory conducted for this species could provide valuable information on its population sizes and geographic amplitude. This valuable information could be incorporated into monitoring protocol and management direction.
Astragalus paysonii	To what extent is this species benefited by periodic fire and its attendant opening of the forest canopy?	Trend and demographic monitoring of populations historically, presently, and potentially impacted by fire or alterations in the fire regime could provide information for incorporation into management direction.
Astragalus paysonii	To what extent is this species impacted by tire and/or fire suppression?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by natural and/or prescribed fire could provide valuable information which could be incorporated into management guidelines.
Astragalus paysonii	To what extent is this species impacted by the invasion of exotic species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information which could be incorporated into management guidelines.
Astragalus paysonii	To what extent is this species limited to early seral successional communities/associations?	Determination of the successional status and requirements of this species of concern could provide valuable information for incorporation into management direction.
Astragalus paysonii	What are the environmental requirements of this species?	Trend, demographic, and ecophysiological monitoring could provide information on the environmental requirements of this species. This information could be incorporated into management direction.
Astragalus paysonii	What is the seral status of this species in natural succession?	Ecological plot analysis combined with trend and demographic monitoring could provide information relative the species' requirement for set-al conditions.
Astragalus peckii	How does this rare species respond to fire?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by natural or prescribed fire could provide valuable information for incorporation into management direction.
Astragalus peckii	To what extent is this species threatened by housing developments?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by housing development could provide valuable information for incorporation into management direction.
Astragalus peckii	To what extent is this species threatened by recreational activities. particularly off road vehicles?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by recreational activities could provide valuable information for incorporation into management direction.

Spccics name	Research Need	Potcntial Application
Astragalus peckii	To what extent is this species threatened by timber harvest?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by timber harvest could provide valuable information for incorporation into management direction,
Astragalus peckii	What are the environmental requirements for this narrow endemic species?	Ecophysiological monitoring of this rare species could provide valuable information on its environmental requirements including seed bank, pollinators, role in nitrogen fixation, etc. This information could be incorporated into management direction.
Astragalus pulsiferae var. suksdorfii	To what extent is this rare variety threatened by tire, fire suooression. and/or chanees in the fire regime?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by natural and/or orescribed tire could orovide information for incoruoration into management direction.
Astragalus pulsiferae var. suksdorfri	To what extent is this rare. variety threatened by recreational activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened recreational activities could provide.valuable information for incorporation into management direction.
Astragalus pulsiferae var. suksdorfii	To what extent is this rare variety threatened by the invasion of exotic soecies?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by the invasion of exotic soecies could provide information for incoruoration into management direction.
Astragalus pulsiferae var. suksdorfii	To what extent is this rare variety threatened by timber harvest activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened timber harvest activities could provide valuable information for incorporation into management direction.
Astragalus pulsiferae var. suksdorfii	What are the environmental requirements of this rare species? Do these requirement cause its bicentric distribution (Washington and California)?	Trend, demographic, and ecophysiological monitoring of this rare species could provide valuable information on its environmental requirements and limiting factors. This information could be incorporated into management guidelines.
Astragalus scaphoides	To what extent is this rare species impacted by tire and/or tire suppression?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by tire and/or tire suppression could provide valuable information which could be incorporated into management guidelines.
Astragalus scaphoides	To what extent is this rare species impacted by grazing activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management guidelines.
Astragalus scaphoides	To what extent is this rare species impacted by hydrologic developments?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by projects which alter hydrologic regime could provide infomlation which could be incorporated into management guidelines.
Astragalus sinuatus	Is this rare species threatened by the encroachment of exotic plant species into its habitat?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide information for incorporation into management direction.
Astragalus sinuatus	To what extent is this rare species affected by fire, tire suppression, and/or changes in the tire regime?	Trend and demographic monitoring populations historically, presently, and/or potentially impacted by natural and/or prescribed tire could provide valuable information which could be incorporated into management guidelines.
Astragalus sinuatus	To what extent is this rare species affected by grazing activities?	Trend and demographic monitoring populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management guidelines.
Astragalus sinuatus	To what extent is this rare species affected by mining activities?	Trend and demographic monitoring populations historically, presently, and/or potentially impacted by mining activities could provide valuable information which could be incorporated into management guidelines.

Spccics name	Research Need	Potential Application
Astragalus sinuatus	To what extent is this rare species affected by road construction and/or maintenance?	Trend and demographic monitoring populations historically, presently, and/or potentially impacted by road construction/maintenance could provide valuable information which could be incorporated into management guidelines.
Astragalus sinuatus	To what extent is this rare species affected by the invasion or seeding of exotic species?	Trend and demographic monitoring populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information which could be incorporated into management guidelines.
Astragalus sinuatus	What are the effects of grazing on this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information for incorporation into management direction.
Astragalus sinuatus	What are the environmental requirements of this rare species?	Trend, demographic, and ecophysiological monitoring of this rare species could provide valuable baseline information on its environmental requirements and limiting factors. This information could be incorporated into management direction.
Astragalus sinuatus	What is its reproductive biology? Do fungi diminish seed set and viability?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the seed fungus could provide valuable information for incorporation into management direction.
Astragalus sinuatus	Would seed banking work for this species and perhaps enable it to be used for restoration?	Seed banking success could result in an increase in seed available for use in restoration activities. This information could be incorporated into management direction.
Astragalus solitarius	Does Wyoming big sagebrush prevent this rare species from being impacted by grazing?	Ecophysiologic monitoring could document the dependence of the rare species on the dominant shrub. This information could be incorporated into management guidelines.
Astragalus solitarius	How have the population sizes and geographic amplitude of this rare species been diminished by crested wheat grass seedings?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by displacement with crested wheat grass could provide valuable information for incorporation into management direction.
Astragalus solitarius	Is this rare species threatened by mining activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by mining activities could provide valuable information for incomoration into management guidelines.
Astragalus solitarius	To what extent is this species affected by impacts to its supporting species, Artemisia tridentata wyomingensis? What are the effects of tire on this relationship and/or dependency?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by fire and/or fire suppression could provide information for incorporation into management direction.
Astragalus sterilis	What are the impacts mining activities on this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the mining activities Could provide valuable information for the formulation of management direction.
Astragalus sterilis	What are the impacts of wildlife grazing on this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the grazing activities of wild animals could provide valuable information for the formulation of management direction.
Astragalus sterilis	To what extent is this rare species adversely affected by the invasion of exotic species, particularly cheatgrass?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by exotic species, particularly cheatgrass, Could provide valuable information for the formulation of management direction.

Species name	Research Need	Potential Application
Astragalus sterilis	What are the environmental requirements of this rare species?	Ecophysiological monitoring of this species could provide valuable information on its environmental requirements including pollination mechanisms, seed viability, extent of seed banking, etc. This information could be incorporated into management.
Astragalus sterilis	What is the taxonomic status of this rare species? Is it a variety of astragalus cusickii? What is its genetic relationship with A. cusickii?	Resolution of the taxonomic status of this species precludes the formulation of monitoring and/or management strategy.
Astragalus sterilis	Is this a valid taxon? What is its relationship with A. cusickii?	Resolution of the taxonomic status and systematic relationship should preclude the development of monitoring protocol and management direction.
Astragalus sterilis	What are the environmental requirements for this species? What are its limiting factors?	Demographic and ecophysiological monitoring could provide valuable information on the environmental requirements of this species and its limiting factors. This information could be incorporated into management direction.
Astragalus sterilis	How does this species respond to tire and/or tire suppression?	Trend and demographic monitoring of population historically, presently, and/or potentially impacted by natural and/or prescribed burning could provide information for incorporation into management direction.
Astragalus sterilis	How does this species respond to grazing?	Trend and demographic monitoring of population historically, presently, and/or potentially impacted by grazing could provide valuable information for incorporation into management direction.
Astragalus sterilis	How does this species respond to invasive exotics including those introduced in seeding prescriptions?	Trend and demographic monitoring of population historically, presently, and/or potentially impacted by the invasion of exotics could provide valuable information for incorporation into management direction.
Astragalus sterilis	How does this species respond to mining activities?	Trend and demographic monitoring of population historically, presently, and/or potentially impacted by mining could provide valuable information for incorporation into management direction.
Astragalus tegctarioides	How does this rare species respond to fire and/or tire suppression?	Trend and demographic monitoring of populations historically, presently, or potentially impacted by natural and/or prescribed fire could provide information for incorporation into management guidelines.
Astragalus tegetarioides	How does this rare species respond to grazing activities?	Trend and demographic monitoring of populations historically, presently, or potentially impacted by grazing activities could provide valuable information for incorporation into management guidelines.
Astragalus tegctarioides	What are the environmental requirements for this rare spccics?	Ecophysiological monitoring of this rare species could provide valuable information on its environmental requirements including reproductive success, seed bank. etc.
Astragalus tyghensis	To what extent is this species threatened by excavation (gravel pit) activities?	Trend and demographic monitoring in populations historically, presently. and/or potentially impacted by gravel pit excavation could provide valuable information for incorporation into management direction.
Astragalus tyghensis	To what extent is this species threatened by habitat fragmentation caused by agricultural conversion?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by agricultural conversion could provide valuable information for incorporation into management direction.
Astragalus tyghensis	To what extent is this species threatened by indirect and direct application of herbicides?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by herbicidal application could provide valuable information for incorporation into management direction.

Spccics name	Research Need	Potential Application
Astragalus tyghensis	To what extent is this species threatened by the invasion of its habitat by exotic species?	Trend and demographic monitoring in populations historically. presently, and/or potentially impacted by exotic species could provide valuable information for incorporation into management direction.
Astragalus tyghensis	To what extent is this species threatened fire and/or fire suppression?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by natural and/or prescribed fire could provide valuable information for incorporation into management direction.
Astragalus tyghensis	To what extent is this species threatened grazing by domestic animals and wildlife?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing of domestic and wild species could provide valuable information for incorporation into management direction.
Astragalus vexilliflexus var. nubilus	Are inventory efforts for this rare species adequate, particularly on the west side of the white cloud crest?	Inventory for this rare species could provide valuable information on population sizes and geographic amplitude of this tare species. This information could be useful in the development of monitoring protocol and management guidelines.
Astragalus vexilliflexus var. nubilus	To what extent is this species threatened by grazing activities?	Trend and demographic monitoring of populations historically, presently, and potentially impacted by grazing could provide valuable information which could be incorporated into management direction.
Astragalus yoder-williamsii	What is the genetic relationship of this species with other sympatric species such as A. mulfordiae and A. oniciformis?	Taxonomic status and relationships of this species should preclude the development of monitoring protocol and management direction.
Astragalus yoder-williamsii	How does this rare species respond to tire and/or fire suppression? Does it need periodic fire?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by natural and/or prescribed fires could provide valuable information which could be incorporated into management direction.
Astragalus yoder-williamsii	How does this rare species respond to grazing?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information for incorporation into management direction.
Astragalus yoder-williamsii	How does this rare species respond to juniper encroachment and the resultant alteration of habitat?	Trend and demographic monitoring of the species in areas where juniper encroachment is occurring could provide valuable information which could be incorporated into management direction.
Balsamorhiza rosea	Does hybridization threaten the genetic integrity of this rare species?	Genetic studies in sympatric populations could provide valuable information about the genetic integrity and vulnerability of this species. This information could be incorporated into management direction.
Balsamorhiza rosea	Have seed banking efforts been conducted in an effort to utilize this rare species in restoration prescriptions in sites having suitable habitat?	Seed banking success could result in an increase in available seed stock which could be used in restoration activities.
Balsamorhiza rosea	To what extent are populations of this rare species threatened by herbicidal drift from agricultural applications occurring on adjacent lands?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by agricultural herbicides could provide valuable information for incorporation into management guidelines,
Balsamorhiza rosea	To what extent is this tare species impacted by grazing activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by grazing activities could provide valuable information for incorporation into management direction,

Species name	Research Need	Potential Application
Balsamorhiza rosea	To what extent is this species threatened by development, particularly the construction Of wind-energy towers, microwave towers, and television towers?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by commercial (tower) development could provideinformation for incorporation into management guidelines,
Balsamorhiza rosea	To what extent is this species threatened by recreational activities, particularly off road vehicular traffic?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by recreational activities could provide valuable information for incorporation into management guidelines,
Botrychium ascendens	Are mycorrhizae essential for the reproduction of this species? If so, which mycorrhizae?	Ecophysiological monitoring could provide information on the specific mycorrhizal requirements of this species. This information could be incorporated into management guidelines.
Botrychium ascendens	How does this rare species respond to tire and/or tire suppression?	Trend monitoring in populations impacted by or potentially impacted by natural or prescribed burning could provide valuable information for incorporation into management direction.
Botrychium ascendens	How does this rare species respond to severe changes in the light and moisture regime caused by clear cutting?	Trend monitoring in populations impacted by or potentially impacted by opening of the canopy by timber harvest could provide valuable information on the species' response to such activities. This information could be incorporated into guidelines.
Botrychium ascendens	How is this species affected by timber harvest activities? By alterations in the light regime?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by logging could provide valuable information which could be incorporated into management direction.
Bottychium ascendens	To what extent does this rare species need site disturbance to survive?	Trend monitoring in various sites in which different types of disturbance have occurred or are scheduled to occur could provide valuable information for the development of management direction.
Botrychium ascendens	To what extent is this rare species impacted by tire, fire suppression, and/or changes in the fire regime?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by fire could provide valuable information which could be incorporated into management direction.
Botrychium ascendens	To what extent is this rare species impacted by grazing activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management direction.
Botrychium ascendens	To what extent is this rare species impacted by recreational activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by recreational Activities (hiking) could provide valuable information which could be incorporated into management direction.
Botrychium ascendens	What are the environmental requirements of this rare species?	Trend, demographic, and ecophysiological monitoring of this rare species could provide valuable information about its environmental requirements and limiting factors. This information could be incorporated into management direction.
Botrychium ascendens	What are the mycorrhizal requirements for this rare species?	Demographic and ecophysiological monitoring of this species could provide valuable information on its environmental requirements and limiting factors. This information could be incorporated into management direction.
Botrychium ascendens	What is the genetic relationship of this species to other Botrychiums that are usually found in association with it?	Determination of the genetic integrity of the species and its relationship with sympatric species is essential in confirming its "rare" status. From this information, management direction could be developed.

Species name	Research Need	Potential Application
Botrychium ascendens	What is the taxonomic status of this species? What are its genetic relationships with the other Botrychium species with which it frequently grows?	Resolution of the taxonomic status of this rare species through cytogenetic and electrophoretic genetic investigations should preclude the development of monitoring protocol and management direction?
Botrychium crenulatum	Have inventory efforts for this rare species been adequate?	Inventory for this rare species could provide valuable information on its population sizes and geographic amplitude. This information could be incorporated into management direction.
Botrychium crcnulatum	How does this rare species respond to fire and/or fire suppression? How does it respond to variation in the seasonality of burning?	Trend and demographic monitoring of this species in conjunction with bum history and/or prescribed tires could provide valuable information for incorporation into management direction,
Botrychium crenulatum	Is this rare species adversely affected by seeding projects which include non-native grass species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by seeding prescriptions could provide valuable information for incorporation into management guidelines.
Botrychium crenulatum	Is this rare species adversely affected by trampling by grazing animals?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information for incorporation into management guidelines.
Botrychium crenulatum	To what extent is this rare species impacted by fire, tire suppression, and/or changes in the tire regime?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by tire could provide valuable information which could be incorporated into management direction.
Botrychium crcnulatum	To what extent is this rare species impacted by grazing activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information which could be incorporated into management direction.
Botrychium crenulatum	What are the environmental requirements for this rare species? What mycorrhizae are essential for its survival?	Ecophysiological monitoring could provide valuable information about the basic environmental requirements of the species including dependency upon specific mycorrhizae. This information could be incorporated into management direction.
Botrychium crenulatum	What ate the environmental requirements of this rare species?	Trend, demographic, and ecophysiological monitoring of this rare species could provide valuable information about its environmental requirements and limiting factors. This information could be incorporated into management direction.
Botrychium crenulatum	What is the genetic relationship of this species to other botrychiums that are usually found in association with it?	Determination of the genetic integrity of the species and its relationship with sympatric species is essential in confirmine its “rare” status. From this information management direction could be developed.
Botrychium crenulatum	What is the taxonomic status of this species? What are its genetic relationships with the other Botrychium species with which it frequently grows?	Resolution of the taxonomic status of this rare species through cytogenetic and electrophorefic genetic investigations should preclude the development of monitoring protocol and management direction?
Botrychium crenulatum	Does this species depend upon specific soil mycorrhizae? What are these mycorrhizae?	Ecophysiological monitoring could provide valuable information on the interrelationship of this rare species and soil mycorrhizae. Management direction could be formulated accordingly.
Botrychium crenulatum	How does this species respond to fire and/or fire suppression?	Trend monitoring in populations impacted by or potentially impacted by natural or prescribed burning could provide valuable information from which management direction could be formulated

Species name	Kescarch Need	Potential Application
Botrychium crenulatum	How does this species respond to the opening of the canopy that is associated with timber harvest activity?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by timber harvest activities could provide useful information which could be incorporated into management direction.
Botrychium lunaria	How does this species respond to fire and/or fire suppression?	Trend monitoring in populations impacted by or potentially impacted by natural or prescribed burning could provide valuable information from which management direction could be formulated
Botrychium lunaria	How does this species respond to harvest activities that result in an opening of the canopy?	Trend monitoring in populations impacted by or potentially impacted by harvest activities could provide valuable information. These findings could be used in the development of management guidelines.
Botrychium lunaria	How genetically different is this species from the other botrychiums that have been split from it taxonomically?	Laboratory research including cytological and electrophoretic work could provide information on the taxonomic status of this rare species. This information could be incorporated into management guidelines.
Botrychium lunaria	What are the mycorrhizal requirements for this species?	Ecophysiological monitoring could provide valuable information regarding the interrelationships of this species and specific mycorrhizae. This information could be incorporated into management direction,
Botrychium paradoxum	How does this species respond to tire and/or tire suppression?	Trend and demographic monitoring conducted in conjunction with historic, present, and potential natural or prescribed bums could provide information which could be used in formulating management direction.
Botrychium paradoxum	How does this species respond to grazing?	Trend and demographic monitoring of this species in areas impacted by grazing could provide useful information which could be incorporated into management direction.
Botrychium paradoxum	How is this species dependent upon mycorrhizae? Which specific mycorrhizae?	Ecophysiological monitoring should determine any type of symbiotic relationship between this rare species and soil mycorrhizae. This information could be incorporated into management guidelines.
Botrychium paradoxum	To what extent does this rare species need site disturbance to survive?	Trend monitoring in various sites in which different types of disturbance have occurred or are scheduled to occur could provide valuable information for the development of management direction.
Botrychium paradoxum	To what extent is this rare species impacted by fire, fire suppression, and/or changes in the fire. regime?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by fire could provide valuable information which could be incorporated into management direction.
Botrychium paradoxum	To what extent is this ram species impacted by grazing activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management direction.
Botrychium paradoxum	What are the environmental requirements of this grapefem? Are specific mycorrhizae necessary for its survival?	Ecophysiological monitoring and supporting laboratory work could provide information about the ecological requirements of this species that could be incorporated into management direction.
Botrychium paradoxum	What are the environmental requirements of this rare species?	Trend, demographic, and ecophysiological monitoring of this rare species could provide valuable information about its environmental requirements and limiting factors. This information could be incorporated into management direction.
Botrychium paradoxum	What are the mycorrhizal requirements for this species? Are the same mycorrhizae present in geographically separated sites supporting this species?	Determination of the mycorrhizal associates of this species could explain its limited distribution. Assessment of the impacts of management activities on the essential mycorrhizae could provide valuable guidelines for management.

Spccics name	Research Need	Potential Application
Botrychium paradoxum	What are the responses of this species to impacts caused by unusually large Populations of wildlife, particularly elk? Impacts would include both grazing and trampling.	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing and trampling could provide valuable information for incorporation into management direction.
Botrychium paradoxum	What is the genetic "status" of this species? It usually occurs with several other Botrychium species (sympatric). Does genetic introgression threaten this species?	Determination of valid taxa within the genus Botrychium through genetic research might reduce the number of currently recognized taxa and greatly simplify the task of conserving these species through appropriate management decisions.
Botrychium paradoxum	What is the genetic relationship of this grapefem to other sympatric species?	Genetic studies could indicate whether this species is genetically unique or whether it arises spontaneously from hybridization between/among other species. Resolution of the genetic uniqueness should enable management guidelines to be developed.
Botrychium paradoxum	What is the genetic relationship of this species to the many other grapefems with which it is sympatric?	Ecophysiological monitoring supported by laboratory studies of this rare species could provide valuable information regarding the genetic integrity (and validity) of the taxon. This information could be incorporated into management direction.
Botrychium paradoxum	What is the taxonomic status of this species? What are its genetic relationships with the other Botrychium species with which it frequently grows?	Resolution of the taxonomic status of this rare species through cytogenetic and electrophoretic genetic investigations should preclude the development of monitoring protocol and management direction?
Botrychium paradoxum	What set-al stages provide optimal habitat for this species?	Trend and demographic monitoring in populations in different seral stages could provide valuable information relative to the dependency of the species upon a specific successional stage.
Botrychium pedunculosum	Is this species threatened by the invasion of exotic species? To what extent?	Trend monitoring in areas supporting the rare species proximal to areas have exotic species populations could provide valuable information on the rate of exotic spread and effects on the rare species. Management guidelines could incorporate this.
Botrychium pedunculosum	What are the mycorrhizal requirements for this rare species?	Laboratory and ecophysiological monitoring could provide information regarding the dependency of this rare species on specific mycorrhizae. This information could be incorporated into management direction.
Botrychium pumicola	Is the timing of timber harvest activities important in this species' response to timber harvest?	Trend and demographic monitoring in populations under different logging schedules could provide valuable information for incorporation into management guidelines.
Botrychium pumicola	To what extent is this species threatened by fire and/or tire suppression?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by natural and/or prescribed burning could provide information for incorporation into management direction.
Botrychium pumicola	To what extent is this species threatened by the encroachment of its habitat by lodgepole pine?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by lodgepole encroachment and its elimination could provide valuable information for incorporation into management direction.
Bottychium pumicola	What are the environmental requirements of this rare species? Does it need specific mycorrhizae?	Ecophysiological monitoring of populations could provide valuable information on the environmental requirements of this species including mycorrhizal relationships, shade requirements, etc.
Calochortus longebarbatus var. longebarbatus	How does alteration of the hydrology (channel construction) in the habitat of this variety of concern affect this plant?	Trend monitoring in areas impacted by or potentially impacted by alterations in the hydrologic regime could provide valuable information on the species' response to such activities. This information could be incorporated into management guidelines.

Species name	Research Need	Potential Application
Calochortus longebarbatus var. longebarbatus	How does this rare species respond to fire and/or fire suppression? Is the present day fuel load a threat to this species?	Trend monitoring of this rare species in conjunction with prescribed and/or natural tires could provide valuable information which could be incorporated into management direction.
Calochortus longebarbatus var. longebarbatus	How does this rare species respond to grazing activities?	Trend monitoring of populations historically, presently, and/or potentially impacted by grazing could provide valuable information which could be incorporated into management direction.
Calochortus longebarbatus var. longebarbatus	How does this rare species respond to recreational activities?	Trend monitoring of this rare species in populations historically, presently. and/or potentially impacted by recreational activities could provide valuable information for incorporation into management guidelines.
Calochortus longebarbatus var. longebarbatus	How does this rare species respond to seasonal rotation of grazing? Does spring grazing adversely impact this rare species?	Trend and demographic monitoring conducted under different seasonal rotations of grazing could provide valuable information which could be incorporated into management direction.
Calochortus longebarbatus var. longebarbatus	How does this rare species respond to seeding projects which put additional perennial grasses into its habitat?	Trend and demographic monitoring in populations historically, presently. or potentially impacted by such seeding prescriptions could provide valuable information for incorporation into management guidelines.
Calochortus longebarbatus var. longebarbatus	How is this variety of concern affected by grazing activities?	Trend monitoring in population areas known to be impacted or potentially impacted by grazing could provide valuable information upon which management direction could be formulated.
Calochortus longebarbatus var. longebarbatus	What are the effects of road construction/maintenance on this variety of concern?	Trend and demographic monitoring in areas impacted by or potentially impacted by road construction/maintenance could provide valuable information which could be incorporated into management direction?
Calochortus longebarbatus var. longebarbatus	What are the effects of timber harvest on this variety of concern? Are the casual observations that canopy opening benefits this plant correct?	Trend and demographic monitoring in areas impacted by or potentially impacted by timber harvest activities could provide valuable information which could be incorporated into management direction?
Calochortus longebarbatus var. longebarbatus	What is the genetic relationship between this variety and the variety peckii?	Genetic studies including electrophoresis and the development of morphological keys not dependent upon sampling of the capsule could provide valuable information for refining the taxonomy of these two varieties.
Calochortus longebarbatus var. peckii	What is the genetic relationship between this variety and the variety longebarbatus?	Genetic studies including electrophoresis and the development of morphological keys not dependent upon sampling of the capsule could provide valuable information for refining the taxonomy of these two varieties.
Calochortus longebarbatus var. peckii	How does this rare variety respond to competition from exotic species?	Trend monitoring in populations historically, presently, or potentially impacted by the invasion of exotics could provide valuable information for incorporation into management direction.
Calochortus longebarbatus var. peckii	t-low does this rare variety respond to competition from perennial sod-forming grasses introduced in seeding prescriptions?	Trend monitoring in populations historically. presently. or potentially impacted hy seeding projects could provide valuable information for incorporation into management direction.
Calochonus longebarbatus var. peckii	How does this rare variety respond to tire and/or fire suppression?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by fire could provide valuable information which could be incorporated into management direction.
Calochortus longeharhatus var. pcckii	How does this rare variety respond to grazing activities?	Trend monitoring in populations historically, presently, and/or potentially impacted by grazing could provide valuable information which could he incorporated into management direction.
Calochortus longebarbatus var. pcckii	Is this rare variety threatened by road construction?	Trend monitoring in populations historically, presently, or potentially impacted by road construction activity could provide valuable information for incorporation into management guidelines.

Spccics name	Research Need	Potential Application
Calochortus nitidus	To what extent has this tare species been impacted by grazing?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing could provide valuable information for management direction.
Calochottus nitidus	To what extent has this rare species been impacted by the application (direct and indirect) of herbicides?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the application of herbicides (direct and/or indirect) could provide valuable information for management direction.
Calochortus nitidus	To what extent has this rare species been impacted by the conversion of its habitat to agricultural production?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by agricultural conversion could provide valuable information for management direction.
Calochortus nitidus	To what extent is this rare species threatened by the invasion of exotic species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by exotic species could provide valuable information for management direction.
Calochottus nitidus	To what extent is this species threatened by agricultural conversion of its native habitat?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by the conversion of habitat for agricultural production could provide valuable information which could be incorporated into management direction.
Calochortus nitidus	To what extent is this species threatened by grazing activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management direction.
Calochonus nitidus	To what extent is this species threatened by the invasion of exotic species?	Historic sites should be thoroughly inventoried with special data collected on the presence of exotic species. This species is thought to have been extirpated from the state of Washington. Management guidelines can be formulated accordingly.
Camissonia pygmaea	To what extent is this species threatened by the encroachment of exotic species, particularly annual grasses that are part of seeding prescriptions?	Trend and demographic monitoring in populations impacted by or proposed to be impacted by exotic species could provide valuable information for the formulation of management guidelines.
Camissonia pygmaea	To what extent is this species threatened by the excavation of rock material (gravel pit development) from its habitat?	Trend and demographic monitoring in populations impacted by or proposed to be impacted by mining activities (gravel pit excavation) could provide valuable information for the formulation of management guidelines.
Camissonia pygmaea	What are the impacts of grazing, particularly trampling, on this annual species of concern?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management direction.
Camissonia pygmaea	What are the impacts to this species by the direct and indirect application of herbicides?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by the direct and/or indirect application of herbicides could provide valuable information which could be incorporated into management direction.
Camissonia pygmaea	What are the pollinators of this species and are they adversely affected by the application of insecticides used in agriculture?	Trend and demographic monitoring in populations impacted by or proposed to be impacted by the application of insecticides should provide information for the formulation of management guidelines.
Carex lenticularis var. dolia	What are the population dynamics of this variety of concern? Are population numbers stable?	Implement a monitoring project that will tract population dynamics of this variety of concern. This would also help assess grazing effects.

Spccics name	Research Need	Potential Application
Carex lenticularis var. dolia	Does grazing, particularly by sheep, adversely affect this variety of concern?	Implement a monitoring program to assess the effects of grazing on the species of concern.
Carex lenticularis var. dolia	What environmental factors affect recruitment of this variety of concern? What dispersal mechanism is involved? What are the germination requirements?	Gaining an understanding of the ecological requirements of this variety of concern--dispersal, germination, and conditions for improved recruitment--could conserve the variety.
Carex lenticularis var. dolia	Does the variety exhibit genetic integrity or is genetic introgression by a common variety altering its gene pool?	Opportunity to determine genetic purity of the variety of concern and to determine its genetic relationships with more common varieties.
Carex parryana ssp. idahoa	What is the response of the subspecies of concern to intensive grazing activity?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information fôr incorporation into management direction..
Carex parryana ssp. idahoa	What is the geographic amplitude of this subspecies?	Inventory for this species could provide valuable information on population sizes and geographic amplitude. This information could be incomorated into manaeement direction.
Castilleja chlorotica	To what extent is this species threatened by the invasion of its habitat by exotic species?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by exotic species could provide valuable information for incorporation into management direction.
Castilleja chlorotica	To what extent is this species threatened tire and/or tire suppression?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by natural and/or prescribed fire could provide information for incorporation into management direction.
Castilleja chlorotica	To what extent is this species threatened grazing by domestic animals?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing of domestic Species could provide information for incorporation into management direction.
Castilleja chlorotica	What are the environmental requirements of this rare species?	Ecophysiological monitoring of populations could provide valuable information on the environmental requirements of this species including pollinators, seed banks, etc.
Castilleja chlorotica	What are the impacts of timber harvest activities to this rare species?	Trend and demographic monitoring in populations historically, presently, and/or potentially threatened by timber harvest activity could provide valuable information for incorporation into management guidelines.
Castilleja chlorotica	What is its genetic “status” and how does it differ from C. elandulifera and C. viscidula?	Genetic investigations including electrophoresis could validate this taxon.
Castilleja chlorotica	What is the host-parasite relationship of this species?	Ecophysiological monitoring of populations could provide valuable information on the environmental requirements of this species including host/parasite relationships.
Castilleja christii	To what extent is this rare species threatened by road construction and/or road maintenance?	Trend and demographic monitoring of the single known population in response to road construction/maintenance activities could provide valuable information which could be incorporated into management direction.
Castilleja cryptantha	To what extent is this rare species threatened by animal damage, particularly from lagomorphs and rodents?	Trend and demographic monitoring of this rare species in habitats historically, presently, and or potentially impacted by animal damage could provide information for incorporation into management direction.
Castilleja cryptantha	To what extent is this rare species threatened by recreational activity?	Trend and demographic monitoring of this rare species in habitats historically, presently, and or potentially impacted by recreational activity could provide information for incorporation into management direction.

Species name	Research Need	Potential Application
Castilleja cryptantha	What are the environmental requirements and limiting factors of this rare species?	Trend, demographic, and ecophysiological monitoring of this rare species could provide valuable information on its environmental requirements and limiting factors. This information could be valuable in formulating monitoring and management direction.
Castilleja pilosa var. rteenensis	To what extent is this species affected by grazing activities? Is its response to sheep grazing and cattle grazing different?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing could provide valuable information which could be incorporated into management direction.
Castilleja pilosa var. rteenensis	What are the effects of roads on this species?	This species apparently responds favorably to road construction and/or maintenance. Trend monitoring could document this benefit and management direction could reflect this relationship.
Castilleja pilosa var. rteenensis	What is the symbiotic relationship of this variety to the subshrubs of its habitat? Which subshrubs is it hemipamsitic with?	Ecophysiological monitoring could elucidate the relationships of this species with the subshrubs of its habitat. This information could be incorporated into management direction, particularly as it concerns the host species.
Castilleja pilosa var. rteenensis	What is the taxonomic relationship of this variety to c. Pilosa var. Pilosa?	Resolution of the taxonomy status of this "variety" precludes the development of monitoring and/or management guidelines.
Castilleja rubida	To what extent is this tare species threatened by the impacts of introduced big horn sheep and/or mountain goats?	Trend and demographic monitoring of this rare species in populations historically, presently, and/or potentially impacted by introduced sheep and goats could provide valuable information for incorporation into management guidelines.
Chaenactis cusickii	Are inventory efforts for this species adequate, particularly in Oregon?	Inventory for this rare species could provide valuable information on population sizes, locations, and geographic distribution. This information could be incorporated into management direction.
Chacnactis cusickii	How is this rare species affected by fire suppression activities, particularly those that disturb the soil?	Trend and demographic monitoring of this species in populations historically, presently, and/or potentially impacted by fire suppression activities (especially line construction) could provide valuable information for incorporation into management direction.
Chacnactis cusickii	How is this rare species affected by grazing activities, and particularly trampling by domestic livestock?	Trend and demographic monitoring of this species in populations historically, presently. and/or potentially impacted by grazing and trampling could provide information for incorporation into management direction.
Chaenactis cusickii	To what extent is this rare species threatened by exotic species, including those introduced in seeding prescriptions.	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by exotic species could provide information which could be incorporated into management guidelines.
Chaenactis cusickii	To what extent is this rare species threatened by mining activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by mining activities could provide information which could be incorporated into management guidelines.
Chaenactis cusickii	To what extent is this species impacted by recreational activities, particularly the use of off-road vehicles?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by recreational activities (ORV's) could provide valuable information for management direction.
Chaenactis cusickii	To what extent is this species threatened by recreational activities, particularly by off-road vehicular traffic?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by recreational activities, and especially off road vehicle impacts could provide valuable information for incorporation into management guidelines.

Spccics name	Rcscarch Need	Potential Application
Chaenactis cusickii	To what extent is this species threatened by road construction and/or road maintenance?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by road construction and/or road maintenance activities could provide valuable information for incorporation into management guidelines.
Chaenactis cusickii	What are the environmental requirements and limiting factors of this species?	Ecophysiological and demographic monitoring of this species could provide valuable information on its environmental requirements and limiting factors. This information could be incorporated into management direction.
Chaenactis cusickii	What are the environmental requirements of this species?	Ecophysiological monitoring of this species could provide valuable information on its environmental requirements and limiting factors. This information could be incorporated into management direction,
Chrysothamnus parryi ssp. montanus	What are the environmental requirements and limiting factors of this rare species?	Ecophysiological, trend, and demographic monitoring could provide information on the environmental requirements of this species. This information could be incorporated into management direction.
Chrysothamnus parryi var. montanus	What are the pollinating agents for this species of concern?	Trend, demographic, and ecophysiological monitoring of this species could provide valuable information on its environmental requirements and limiting factors. This information could be used in management.
Chrysothamnus parryi var. montanus	What is the population trend of this species?	Trend monitoring could provide valuable information on the population dynamics and trend of this species. This information could be incorporated into management direction.
Chrysothamnus parryi var. montanus	How will this species respond to increased grazing pressure caused by the reintroduction of bighorn sheep and by mountain goats?	Trend and demographic monitoring in populations impacted by herbivory of big horn sheep and mountain goats could provide valuable information for incorporation into management direction.
Claytonia lanceolata var. flava	What is the taxonomic "status" of this species?	Resolution of the taxonomic status of the var. flava especially in relationship to C. rosea and C. multiscapa should preclude the development of monitoring protocol and management direction.
Claytonia umbellata	To what extent is this species threatened by aggressive exotic species, particularly annual grasses frequently included in seeding prescriptions?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information which could be incorporated into management direction.
Claytonia umbcllata	To what extent is this species threatened by excavation activities, especially gravel pit development and or enlargement?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by mining (gravel pit excavation) could provide valuable information which could be incorporated into management direction,
Collomia mazama	To what extent is this rare species affected by fire, particularly the role of fire in maintaining an open canopy?	Trend, demographic. and ecophysiological monitoring documenting this species' responses to the impacts of prescribed or natural tires could provide information for incorporation into management direction.
Collomia mazama	To what extent is this rare species affected by grazing?	Trend, demographic, and ecophysiological monitoring documenting this species' responses to grazing activities could provide valuable information for incorporation into management documents.
Collomia mazama	To what extent is this rare species affected by recreational activities?	Trend monitoring in populations of this rare species impacted by or potentially impacted by recreational activities could provide valuable information for incorporation into management direction.
Collomia mazama	To what extent is this rare species beneficially affected by timber harvest?	Trend monitoring of populations of this rare species impacted by or potentially impacted by timber harvest activities could provide valuable information for incorporation into management direction.

Species name	Research Need	Potential Application
Collomia renacta	To what extent is this rare species threatened by exotic species?	Trend and demographic monitoring of this species in populations historically, presently, and/or potentially impacted by exotic species could provide information for incorporation into management direction.
Collomia renacta	To what extent is this rare species threatened by road construction activities?	Trend and demographic monitoring of this species in populations historically, presently, and/or potentially impacted by road construction/maintenance could provide valuable information for incorporation into management direction.
Cymopteris nivalis	Is road construction a potential threat to this rare species?	Trend and demographic monitoring in populations threatened by road construction could provide valuable information which could be incorporated into management direction.
Cypripedium fasciculatum	Are inventories for this species adequate, particularly on private lands adjacent to known populations?	Inventory for this rare species could provide valuable baseline information on its population sizes and geographic distribution. This information could be used in the development of monitoring and management strategies.
Cypripedium fasciculatum	How does this rare species respond to grazing activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing could provide valuable information for incorporation into management guidelines.
Cypripedium fasciculatum	How does this species respond to tire and/or fire suppression? Is seasonality of burning important?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by fire and/or fire suppression could provide valuable information which could be incorporated into management direction.
Cypripedium fasciculatum	How is this rare species affected by fire, fire suppression, and/or changes in the fire regime?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by natural and/or prescribed tire could provide valuable information which could be incorporated into management direction.
Cypripedium fasciculatum	Is this spccics still present in the single isolated site within the Columbia Basin?	Inventory for this species could provide valuable information on its population sizes and distribution. This information could be used in the development of monitoring and management guidelines.
Cyprtpedium fasciculatum	To what extent is this rare species affected by grazing activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information for use in the development of management direction.
Cypripedium fasciculatum	To what extent is this rare species affected by timber harvest activities? In particular, how does this species respond IO opening of the canopy and changes in its light regime?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by timber harvest activities could provide valuable information for use in the development of management direction.
Cypripedium fasciculatum	To what extent is this species affected by tire and/or tire suppression?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by tire, fire suppression, excessive fuel loading, etc., could provide valuable information for management.
Cypripedium fasciculatum	To what extent is this species affected by increased recreational traffic precipitated by improved access (road construction)?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened road construction and increased recreational use could Provide information for management.
Cypripedium fasciculatum	To what extent is this species affected by timber harvest activity?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by timber harvest activities could provide valuable information for incorporation into management direction.
Cypripedium fasciculatum	What are the environmental requirements for this rare species? Are specific mycorrhizal spccics essential for its survival?	Ecophysiological monitoring could provide valuable information on the envimnmental requirements of this rare species.

Species name	Research Need	Potential Application
Cypripcdium fasciculatum	What are the environmental requirements for this rare species? What are its pollinators, it mycorrhizal requirements?	Trend, demographic, and ecophysiological monitoring of this species could provide valuable baseline information about its environmental requirements and limiting factors.
Cypripedium fasciculatum	What are the pollinators of this species of concern?	The sporadic distribution of this species indicates an unusual type of pollination biology. Understanding this biology could ensure that management decisions will not adversely impact that species.
Cypripedium fasciculatum	What are the pollinators of this species? Why is its occurrence so sporadic across its documented range?	Ecophysiological monitoring could provide valuable information regarding the population dynamics of this rare species. This information could be incorporated into management direction.
Cypripedium fasciculatum	What are the responses of this species to changes in the light regime? Particularly, how does the species respond to logging activities that result in an opening of the canopy?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the opening of the canopy associated with timber harvest could provide valuable information for management,
Cypripedium fasciculatum	What threat does timber harvest pose to this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by timber harvest activity could provide information which could be incorporated into management direction.
Cypripedium fasciculatum	Will this species tolerate alteration of the subterranean hydrology of the habitat in which it grows?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by alterations in the subterranean hydrology could provide valuable information for incorporation into management direction.
Cypripedium fasciculatum	Will this species tolerate timber harvest activities that alter the light regime by opening the canopy?	Trend monitoring in populations historically, presently, or potentially impacted by the opening of the canopy associated with timber harvest activities could provide valuable information for incorporation into management direction.
Cypripcdium fasciculatum	What are the mycorrhizal requirements for this species of concern and how do management practices, particularly those that disturb the soil, affect those mycorrhizae?	Determination of the mycorrhizal associates of this species and their responses to management activities could provide valuable information for incorporation into management direction.
Delphinium viridescens	How is this rare species affected by development?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by development could provide valuable information which could be incorporated into management directton.
Delphinium viridescens	How is this rare species affected by fire, fire suppression, and/or changes in the fire regime?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by natural and/or prescribed fire could provide valuable information which could be incorporated into management direction.
Delphinium viridescens	How is this rare species affected by grazing activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management direction.
Delphinium viridescens	How is this rare species affected by the invasion of exotic species including those deliberately seeded?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information which could be incorporated into management direction.
Delphinium viridescens	How is this rare species affected by timber harvest activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by timber harvest activities could provide information that could be incorporated into management direction.

Spccics name	Research Need	Potential Application
Delphinium viridescens	How do exotic plant species effect this taxa?	Trend monitoring of populations threatened by the invasion of exotics could provide valuable information for incorporation into management direction.
Delphinium viridescens	What are the effects of fire and/or tire suppression on this rare species?	Trend and demographic monitoring in populations historically, presently, or potentially impacted by natural or prescribed burning could provide valuable information for incorporation into management guidelines.
Delphinium viridescens	What are the effects of grazing on this rare species?	Trend and demographic monitoring of populations impacted by the trampling of domestic livestock could provide valuable information for incorporation into management direction.
Descurainia torulosa	Is this a valid taxon?	Resolution of the taxonomic status of this species should preclude the development of monitoring and management strategy.
Douglasia idahoensis	How is this species impacted by tire and/or fire suppression? Is the extent of fuel loading critical to its survival through catastrophic tires?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by tire, fire suppression, excessive fuel loading, etc., could provide valuable information for management.
Draba trichocarpa	To what extent is this rare species threatened by housing development in its habitat?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by housing development could provide information which could be incorporated into management direction.
Draba trichocarpa	What is the taxonomic relationship of this rare species to sympatric and/or taxonomically "close" relatives such as Draba paysonii var. treleasii?	Resolution of taxonomic "status" and relationship should preclude the development of monitoring protocol and management guidelines.
Erigeron basalticus	Does gravel pit excavation pose a threat to the viability of this rare species?	Trend and demographic of populations historically, presently, and or potentially impacted by gravel pit excavation could provide valuable information for incorporation into management guidelines.
Erigeron basalticus	How has road construction diminished the habitat of this rare species? Are proposed road construction projects a threat to existing populations?	Trend monitoring and an analysis of historic potential habitat could provide valuable information regarding the impacts of road construction on this ram species.
Erigeron basalticus	What are the effects of herbicidal drift on this rare species?	Trend and demographic of populations historically, presently, and or potentially impacted the direct and/or indirect application of agricultural herbicides could provide valuable information for incorporation into management guidelines.
Erigeron basalticus	What is the reproductive biology of this species and how does it affect its geographic amplitude?	Trend, demographic, and ecophysiological monitoring of this species could provide valuable baseline information on its environmental requirements and limiting factors.
Erigeron lackschewitzii	Is this species being adversely impacted by wildlife, particularly bighorn sheep?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by wildlife (bighorn sheep) could provide valuable information for incorporation into management direction.
Erigeron lackschewitzii	Is this species threatened by the invasion of exotic species? To what extent have exotics diminished the natural habitat of this species?	Trend and demographic monitoring of populations historically, presently. and/or potentially impacted by exotic species could provide valuable information for incorporation into management direction.
Erigeron lackschewitzii	To what extent is wind dispersal of the seeds of this species a factor in its limited geographic distribution?	Determination of the dispersal mechanisms of this species could provide valuable information for incorporation into management direction.

Species name	Research Need	Potential Application
Erigeron lackschewitzii	What is the genetic status of this species? Is introgression by more common species a threat to its viability?	Determination of the natural genetic variation of this species and comparisons with sympatric populations could determine whether the genetic integrity of the species is threatened by introgression.
Erigeron lackschewitzii	To what extent does the geographical amplitude of this species extend west of the continental divide? What is the geographical amplitude of the species?	Detemlination of the exact geographic amplitude would enable management direction consistent with the conservation of the species to be formulated in areas where known populations of the species occur,
Erigeron lams	To what extent is this rare species threatened by the invasion of exotic species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by exotic species could provide valuable information for incorporation into management guidelines.
Erigeron lams	To what extent is this rare species threatened by the proposed designation of its habitat as a U.S. Airforce bombing range?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by a change in land use (conversion to bombing range) could provide valuable information which could be incorporated into management direction.
Erigeron salmonensis	To what extent is this rare species threatened by global warming trends?	Long term trend monitoring could provide information on the species' response to global warming. Artificial seed banking could be employed to conserve genetic material if the species faces extinction.
Eriogonum chrysops	Are inventories for this rare species adequate? What are the population sizes and geographic amplitude of this species?	Inventory of the potential habitat of this species to document its geographic amplitude and population sizes is essential for the development of a monitoring strategy for assessing the impacts of management activities.
Eriogonum chrysops	To what extent is this rare species impacted by the application of herbicides conducted in conjunction with sagebrush eradication?	Trend and demographic monitoring in sites historically, presently, and/or potentially impacted by herbicidal application could provide valuable information for incorporation into management guidelines.
Eriogonum crosbyae	What arc the environmental requirements of this species?	Ecophysiological monitoring of this species could provide valuable information about its environmental requirements. This information could be incorporated into management guidelines.
Eriogonum crosbyae	What is the taxonomic status of this species? Is it distinct from e. pmciduum? Is it threatened by hybridization with E. prociduum?	Cytogenetic and electrophoretic laboratory analysis could help resolve the taxonomic "status" and threats from hybridization. This information should preclude the development of monitoring and management guidelines.
Eriogonum cusickii	Is this rare species threatened by the invasion of exotic species?	Trend and demographic of populations historically, presently, and/or potentially threatened by the invasion of exotic species could provide valuable information which could be incorporated into management guidelines.
Eriogonum cusickii	What are the environmental requirements for this rare species?	Ecophysiological monitoring of this rare species could provide valuable information for incorporation into management direction.
Eriogonum meledonum	What are the population dynamics of this species? Is recruitment problematic?	Ecophysiological monitoring of this species could provide information on its environmental requirements and population dynamics. This information could be valuable for the development of monitoring protocol and management direction.
Eriogonum novonudum	What are the impacts of grazing by bighorn sheep on this species?	Trend and demographic monitoring of populations historically, presently, and potentially threatened by bighorn sheep could provide valuable information which could be incorporated into management direction.
Eriogonum novonudum	What are the impacts of recreational activity on this species?	Trend and demographic monitoring of populations historically, presently, and potentially threatened by recreational activities could provide valuable information which could be incorporated into management direction,

Species name	Research Need	Potential Application
Eriogonum prociduum	To what extent is this rare species threatened by mining activities?	Trend monitoring in populations of this tare species impacted by or potentially impacted by mining activities could provide valuable information for incorporation into management guidelines.
Eriogonum prociduum	To what extent is this rare species threatened by recreational activities, particularly the use of off road vehicles?	Trend monitoring in populations of this rare species impacted by or potentially impacted by recreational activities, particularly the use of orv's, could provide valuable information for incorporation into management guidelines.
Eriogonum prociduum	To what extent is this rare species threatened by the invasion of exotic species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by exotic species could provide information which could be incorporated into management direction.
EJriogonum prociduum	What is the reproductive biology of this rare species? Why is recruitment so low? How extensive is vegetative versus sexual reproduction?	Ecophysiological monitoring and supporting laboratory work could provide valuable information about the reproductive biology of this rare species. This information could be used in the development of management strategy.
Eirythronium grandiflorum var. nudipetalum	To what extent has the historic habitat of this rare species been affected by grazing?	Trend and demographic monitoring of populations historically, presently, and or potentially threatened by grazing activities could provide valuable information about grazing and diminished habitat.
Gratiola heterosepala	To what extent is this species impacted by grazing activities?	Trend and demographic monitoring in populations historically, presently, and potentially impacted by grazing could provide valuable information for incorporation into management guidelines.
Gratiola heterosepala	What are the environmental requirements for this species?	Ecophysiological monitoring of this species could provide valuable information for incorporation into management guidelines.
Grindelia howellii	How extensively distributed is this species in its native habitat rather than artificial habitats created by human disturbance? Is its native habitat grasslands or in draw-down zones of prairie ponds?	Trend monitoring of the status of populations in natural versus disturbed sites could enable predictive modeling of population responses to various management activities.
Grindelia howellii	To what extent has this rare species been impacted by the invasion of exotics?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the invasion of exotics could provide valuable information for incorporation into management direction.
Grindelia howellii	Why does this species not occupy potential habitat, particularly along the st. Maries river?	Trend, demographic, and ecophysiological monitoring of this rare species could provide valuable information on its environmental requirements. This information could be incorporated into management direction.
tiackelia cronquistii	Has the inventory effort for this species been adequate in Idaho?	Inventory for this species could document population sizes and geographic amplitude of this species. This baseline information could be incorporated into monitoring protocol and management guidelines.
tiackelia cronquistii	To what extent is this species dependent upon tire and the attendant reduction of fuel load created by exotic species like cheatgrass?	Ecophysiological monitoring could provide valuable information on this rare species' dependency upon periodic fire. This information could be incorporated into management direction.
Hackelia cronquistii	What are the effects of grazing on this tare species?	Trend and demographic monitoring could provide valuable information on this species' response to grazing. This information could be incorporated into management guidelines.
Hackelia cronquistii	What are the effects of recreational activities, particularly the use of off-road vehicles, on this rare species?	Trend and demographic monitoring in populations historically, presently, and potentially threatened by recreational activities could provide valuable information for incorporation into management guidelines.

Species name	Research Need	Potential Application
Hackelia cronquistii	What are the environmental requirements of this species? What are its limiting factors?	Ecophysiological monitoring of this rare species could provide valuable information which could be incorporated into monitoring protocol and management direction.
Hackelia cronquistii	Would fire adversely affect this species by converting shrubland to grassland?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by fire and/or fire suppression could provide information for incorporation into management direction.
Hackelia venusta	To what extent is this rare species threatened by road maintenance (sanding) activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by road sanding activities could provide information that could be incorporated into management direction,
Hackelia venusta	What are the environmental requirements of this species? What are its limiting factors?	Trend, demographic, and ecophysiological monitoring of this species could provide valuable baseline information on the environmental requirements and/or limiting factors of this species. This information could be used in management.
Hackelia venusta	What is the taxonomic status of this species? Is it really two different taxa?	Resolution of the taxonomic status of this species could provide valuable baseline information which could preclude the development of management direction.
Haplopappus insecticruris	To what extent is this rare species threatened by herbicidal application, both direct and indirect?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by herbicides could provide valuable information which could be incorporated into management direction.
Haplopappus insecticruris	To what extent is this rare species threatened by the conversion of its habitat to agricultural production?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by agricultural conversion could provide information that could be incorporated into management direction.
Haplopappus insecticruris	What are the environmental requirements of this species? What are its limiting factors?	Trend, demographic, and ecophysiological monitoring of this rare species could provide information on its environmental requirements. This information could be incorporated into management direction.
Haplopappus liatriformis	How has this rare species been affected by changes in the fire regime?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by fire, fire suppression, and/or changes in the fire regime could provide valuable information which could be incorporated into management direction.
Haplopappus liatriformis	To what extent has natural habitat been diminished by conversion to agricultural production? Does agricultural conversion pose a threat to known populations?	Trend monitoring of known populations proximal to existing agricultural lands or lands proposed for conversion to agricultural production should provide valuable information for the development of management direction.
Haplopappus liatriformis	To what extent is this rare species threatened by exotic species?	Trend and demographic monitoring in populations threatened by exotic species could provide valuable information for incorporation into management direction.
Haplopappus liatrifonnis	To what extent is this rare species threatened by grazing activities?	Trend and demographic monitoring in populations threatened by grazing activities could provide valuable information for incorporation into management direction.
Haplopappus liatriformis	To what extent is this rare species threatened by the conversion of its habitat to agricultural production?	Trend and demographic monitoring in populations threatened by agricultural conversion could provide valuable information for incorporation into management direction.
Haplopappus liatriformis	To what extent is this species threatened by the encroachment of its habitat by exotic species?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by the invasion of exotic species could provide valuable information which could be incorporated into management direction.

Species name	Research Need	Potential Application
Haplopappus liatriformis	What is the reproductive biology of this rare species?	Demographic and ecophysiological monitoring of known populations could provide valuable information on the reproductive biology of this species. Management guidelines could be formulated accordingly.
Haplopappus radiatus	Is this a valid taxon?	Resolution of the taxonomic status of this taxa precludes the development of monitoring protocol and management guidelines for it.
Haplopappus radiatus	Is this taxon valid? What is the relationship of this species to Haplopappus carthamoides?	The resolution of the taxonomic status of this species could provide valuable information which could be incorporated into management direction.
Haplopappus radiatus	To what extent is this rare species impacted by grazing activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management direction.
Haplopappus radiatus	To what extent is this rare species threatened by grazing activities?	Trend, demographic, and ecophysiological monitoring in populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information for incorporation into management guidelines.
Haplopappus radiatus	To what extent is this rare species threatened by grazing?	Trend and demographic monitoring of populations of this rare species historically, presently, and/or potentially impacted by grazing could provide information for incorporation into management direction.
Haplopappus radiatus	To what extent is this rare species threatened by road construction and/or maintenance?	Trend and demographic monitoring of populations of this rare species historically, presently, and/or potentially impacted by road construction and/or maintenance could provide valuable information for incorporation into management direction.
Haplopappus radiatus	To what extent is this rare species threatened by the encroachment of exotic species into its habitat?	Trend and demographic monitoring of populations of this rare species historically, presently, and/or potentially impacted by exotic species could provide valuable information for incorporation into management direction.
Haplopappus uniflorus var. howellii	To what extent is this species adversely impacted by recreational activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by recreational activity (especially trampling) could provide valuable information for incorporation into management direction.
Howellia aqualilis	t-low is this rare species affected by natural aquatic succession or by accelerated eutrophication?	Trend, demographic, and ecophysiological monitoring of this species in habitats undergoing seral transition could provide valuable information on this potential threat. Management guidelines could be developed accordingly
Howellia aquatilis	Is genetic uniformity problematic for this species? Has the lack of genetic variability in this species been scientifically documented?	Genetic studies of this species across its range could determine the uniformity of its gene pool and predict its vulnerability. This information could be incorporated into management direction.
Howellia aquatilis	Is inventory information adequate? Has the lower Coeur d' Alene river been inventoried for this rare species?	inventory for this ram species could document population sizes and geographic amplitude. This information could be used in the development of monitoring protocol and management direction.
Howellia aquatilis	To what extent does timber harvest threaten this species, particularly in exposing its habitat to increased evapotranspiration?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by timber harvest activities could provide information that could be incorporated into management direction.

Species name	Research Need	Potential Application
Howellia aquatilis	To what extent is this rare species threatened by housing development projects within its habitat?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by housing development could provide valuable information for incorporation into management direction,
Howellia aquatilis	To what extent is this rare species threatened by the alteration of the hydrologic regime underlying its supporting habitat? Is housing development problematic?	Trend and demographic of populations historically, presently, and/or potentially impacted by housing development that alters the hydrologic regime of habitat could provide valuable information for incorporation into management guidelines.
Howellia aquatilis	To what extent is this species threatened by the encroachment of its habitat by exotic species, particularly reed canary grass?	Trend monitoring of known habitat relative to encroachment by exotics could provide valuable information relative to this threat. Management direction (Phalaris eradication?) could be developed accordingly.
Howellia aquatilis	What are the environmental requirements for this rare species, particularly those factors associated with seed production, viability, and recruitment?	Demographic and ecophysiological monitoring of this species could provide valuable information on all aspects in the life cycle of this poorly-understood rare species. This information could be incorporated into management guidelines.
Howellia aquatilis	What is the role of ungulates in dispersing this species? How is this finding correlated with the sporadic distribution of the species in areas with potential habitat?	Assessment of the role of ungulates in dispersing the seeds of this species of concern could resolve management issues related to grazing.
Howellia aquatilis	What are the long term effects of extreme hydrologic variation on the species of concern? What are the impacts of management practices to the hydrologic regime?	Determination of effects of different management practices on both the hydrologic regime and the populations of the species of concern would enable management direction to be developed.
Iliamna longisepala	Are the populations of this rare species east of the cascade mountains, and particularly in Douglas County, Washington, adequately inventoried? It the actual geographic amplitude of this species known?	Inventory for this rare species could provide valuable information about Population sizes and geographic distribution. This information could be incorporated into management direction.
Iliamna longisepala	How does this species respond to fire? Are casual observations that the species benefits from frequent low-intensity bums correct?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by fire. fire suppression, and/or changes in the fire regime could provide valuable information which could be incorporated into management direction.
Iliamna longisepala	What is the response of this species of concern to direct and indirect effects of herbicides?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by the direct and/or indirect application of herbicides could provide valuable information which could be incorporated into management direction.
Ivesia rhypara var. rhypara	To what extent is this species threatened by grazing activities and the associated trampling of grazing animals?	Trend and demographic monitoring in populations historically, presently, and/or potentially threatened by grazing activities could provide information which could be incorporated into management activities.
Ivesia rhypara var. rhypara	To what extent is this species threatened by road construction and/or road maintenance?	Trend and demographic monitoring in populations historically, presently, and/or potentially threatened by road construction could provide information which could be incorporated into management activities.
Ivesia rhypara var. rhypara	To what extent is this species threatened by the invasion of its habitat by exotic species?	Trend and demographic monitoring in populations historically, presently, and/or potentially threatened by exotic species could provide information which could be incorporated info management activities.
Ivcsia rhypara var. rhypara	What are the environmental requirements of this rare species? What arc its limiting factors?	Ecophysiological monitoring and supporting laboratory work could provide information on the environmental requirements of this species. This information could be incorporated into management guidelines.

Spccics name	Research Need	Potential Application
Ivesia rhypara var. shellyi	What are the environmental requirements of this rare species? What are its limiting factors?	Ecophysiological monitoring of this rare species could provide valuable information on its environmental requirements. This information could be incorporated into management direction.
Ivesia rhypara var. shellyi	What is the systematic relationship of this variety to the variety rhypara? Are they genetically distinct taxa?	Resolution of the systematic relationship of the two varieties could provide valuable information on the genetic variability of the species and its evolutionary stature. This information could be incorporated into management guidelines.
Lepidium davisii	How is this rare species impacted by the grazing and trampling activities of wild horses?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by wild horse trampling and/or grazing could provide valuable information for incorporation into management guidelines.
Lepidium davisii	Is Iva axillaris displacing this rare species?	Trend monitoring in populations supporting both the rare species and Iva axillaris could provide valuable information for incorporation into management direction.
Lepidium davisii	To what extent is this rare species threatened by alteration of the hydrology supporting its habitat?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted activities which alter the underlying hydrology could provide valuable information which could be incorporated into management direction.
Lepidium davisii	To what extent is this rare species threatened by the invasion of its habitat by exotic species, particularly Russian thistle?	Trend and demographic monitoring in populations historically, presently, an&or potentially impacted by exotic species could provide information which could be incorporated into management direction,
Lepidium davisii	What are the environmental requirements of this species? What are its limiting factors?	Bcophysiological monitoring could provide valuable information about the environmental requirements and limiting factors of this species. This information could be incorporated into monitoring protocol and management direction.
Lepidium papilliferum	What are the effects of exotic species, including deliberate introductions, on this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by exotic species could provide valuable information for incorporation into management direction.
Lepidium papilliferum	What are the effects of tire and/or tire suppression on this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by natural and/or prescribed burning could provide information for incorporation into management direction.
Lepidium papilliferum	What are the effects of grazing activities on this species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information for incorporation into management direction.
Lepidium papilliferum	What are the environmental requirements of this rare species? What are its limiting factors?	Ecophysiological monitoring of this species could provide valuable baseline information on the environmental requirements and limiting factors of this species. This information could be used in the development of monitoring protocol and management.
Leptodactylon glabrum	To what extent is this rare species threatened by dam construction, specifically hydroelectric dam construction on the Bruneau River?	Trend and demographic monitoring in populations where habitat has been altered by inundation, construction, and/or altered hydrology could provide valuable information on the responses of this species to such activities.
Leptodactylon glabrum	What are the environmental requirements of this species? What are its limiting factors?	Ecophysiological monitoring of this rare species could provide valuable baseline information on its environmental requirements and limiting factors. This information could be used in the development of monitoring protocol and management direction.

Species name	Research Need	Potential Application
Leptodactylon pungens ssp. hazeliae	Is this a valid taxon? Could genetic and electrophoretic studies confirm differences with the parental progenitor?	Resolution of the taxonomic status of this species should preclude the development of monitoring guidelines and management direction.
Leptodactylon pungens ssp. hazeliae	To what extent is this rate species threatened by the direct and/or indirect application of herbicides?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by herbicides (direct and/or drift) could provide valuable information which could be incorporated into management direction.
Leptodactylon pungens ssp. liazeliae	To what extent is this species threatened by recreational activities?	Trend and demographic monitoring in populations historically, presently, or potentially impacted by recreational activities (including trail construction) could provide valuable information for incorporation into management direction.
Leptodactylon pungens ssp. liazeliae	What is the basic reproductive biology of this rare subspecies?	Ecophysiological monitoring could provide valuable information on pollinators, seed set, seed viability, soil requirements, etc. That could be incorporated into management direction.
Leptodactylon pungens ssp. hazeliae	Why is the recruitment rate apparently low in this subspecies?	Ecophysiological and demographic monitoring could provide valuable information on pollinators, seed set. seed viability, soil requirements, etc. That could be incorporated into management direction.
Leptodactylon pungens ssp. hazeliae	Are inventories for this rare species adequate in Idaho? In Oregon?	Inventory for this rare species could provide valuable information on population sizes, locations, and geographic distribution. This information could be used in the development of monitoring and management strategy.
Lesquerella (pulchella) sp. novum	Is the species threatened by increased mining activity?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by mining activities could be useful to management.
Lesquerella (pulchella) sp. novum	What are the effects of exotic species (spotted knapweed) on this species? -How has the species responded to springtime treatment of the adjacent exotic species with herbicides?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by exotic species and/or the herbicides used in their control could be useful to management.
Lesquerella (pulchella) sp. novum	What are the population trends for this species?	Trend monitoring for the known populations of this species should provide information relative to the impacts of mining, grazing, and wildlife. This information can be incorporated into management guidelines to ensure the conservation of the species.
Lesquerella carinata	Has this species received adequate inventory effort in Wyoming?	Inventory conducted for this species could provide valuable infomtation on its population sizes and geographic amplitude. This valuable information could be incorporated into monitoring protocol and management direction.
Lesquerella carinata var. languida	What are the effects of grazing on the species of concern?	Assessment of the impacts of grazing on the known populations of this species through monitoring would enable the development of management direction consistent with the conservation of the species.
Lesquerella carinata var. languida	What are the specific edaphic requirements of this species and do these requirements cause its constrained geographic amplitude?	Determination of the chemical and physical characteristics of the soils within the known populations of this species of concern could enable predictive modeling of potential habitat and the development of management direction.
Lesquerella carinata var. languida	Why is the geographic amplitude of this species of concern so limited? Why is the amplitude confined to the garnet range in west-central Montana?	Assessment of the true geographic amplitude of this species of concern would enable the issue of edaphtc endemism to be resolved. Management direction for the known populations could then be formulated.

Species name	Research Need	Potential Application
Lesquerella carinata var. languida	Are exotic species (spotted knapweed) diminishing the populations and/or range of this species of concern?	Assessment of the impacts of exotic plant species (especially spotted knapweed) on the species of concern would enable the development of management direction consistent with the conservation of the species.
Lesquerella humilis	Does this species of concern have a specific edaphic requirement that determines its distribution?	Determination of all chemical and physical characteristics of the soils at sites of known populations would enable predictive modeling of potential habitat and enable management direction to be formulated consistent with the conservation of the species.
Lesquerella humilis	How does this species of concern respond to disturbance? How is this species affected by recreational use, particularly hiking?	Assessment of the impact on this species of concern by the potential threat of recreational usage and development through monitoring could be incorporated into management direction.
Lesquerella humilis	What is the geographic amplitude of this species of concern?	The determination of the overall geographic amplitude of this species would enable management direction consistent with the conservation of this species to be developed.
Lesquerella humilis	What is the reproductive biology of the species of concern? What is the dispersal mechanism of the species?	Determination of the dispersal aspect of the reproductive biology could yield an understanding of the distributional limits of this species of concern and enable the developmeni of management direction.
Lesquerella paysonii	Do exotic species (especially knapweed) pose a threat to this species of concern?	Assessment of the effects of exotic species upon the species of concern through monitoring could enable management direction to be formulated.
Lesquerella paysonii	Does this species of concern exhibit affinity for a specific soil type?	Determination of the chemical and physical characteristics of the soil in which this single population grows would enable predictive modeling of potential habitat and the development of management direction.
Lesquerella paysonii	Has the taxonomic validity of the identification of the specimens from the single population in Montana been determined?	Resolution of the taxonomic status of the Montana plants should preclude the development of any management opportunities or directions concerning this species.
Lcsqucrella paysonii	Have inventory efforts for this species been adequate in Wyoming?	Inventory for this species could provide valuable information on population sizes and geographic amplitude. This information should preclude the development of monitoring and management strategies.
Lesquerella paysonii	What are the environmental requirements of this rare species? What are its limiting factors?	Ecophysiological monitoring of this rare species could provide valuable baseline information on its environmental requirements and limiting factors. This information could be incorporated into monitoring protocol and management direction.
Lesquerella paysonii	What is the population trend of this species of concern?	Assessment of the population trend of the single population known to occur in Montana would enable management direction to be developed.
Lomatium "ochocensis"	What are the population sizes and geographic amplitude of this newly described taxon?	Inventory for this newly described species in high potential habitat could provide baseline information which could be used in the development of monitoring plants against which the effects of management activities could be measured.
Lomatium erythrocarpum	To what extent is this rare species threatened by wildlife, particularly mountain goats and big horn sheep?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by the grazing activities of wildlife could provide information for incorporation into management guidelines.
Lomatium erythrocarpum	What are the population sizes and geographic amplitude of this rare species?	Inventory efforts conducted for this species particularly in the Elkhorn mountains could provide valuable baseline information for the development of monitoring plans and management direction.

Species name	Research Need	Potential Application
Lomatium greenmanii	What are the impacts of grazing by wild and domestic species to this rare species?	Trend monitoring in populations historically, presently, or potentially impacted by grazing could provide valuable information which could be incorporated into management direction.
Lomatium greenmanii	What are the impacts of recreational activities (trampling by tramway customers) to this rare species?	Trend and demographic monitoring could provide valuable information which could be incorporated into management direction.
Lomatium suksdorfii	Have inventory efforts for this species been adequate?	Inventory for this rare species could provide valuable baseline information on population sizes and geographic distribution. This information could be used in the development of monitoring and management strategy.
Lomatium suksdorfii	Is there a potential threat as the medicinal values of this species are determined and demand for it increases?	Trend and demographic of populations historically, presently, and or potentially impacted native harvest (for medicinal purposes) could provide information for incorporation into management guidelines.
Lomatium suksdorfii	To what extent do exotic species threaten this rare species?	Trend monitoring of known populations of this rare species known to be impacted by the invasion of exotic species could provide valuable information for incorporation into management direction.
Lomatium suksdorfii	To what extent is this rare species impacted by grazing activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management direction.
Lomatium suksdorfii	To what extent is this tare species impacted by mining activities including gravel pit excavation and quarrying?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by mining activities could provide valuable information which could be incorporated into management direction.
Lomatium suksdorfii	To what extent is this rare species impacted by the direct and/or indirect application of herbicides?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by herbicide application could provide information which could be incorporated into management direction.
Lomatium suksdorlii	What are the effects of grazing on this rare species?	Trend, demographic, and ecophysiological monitoring could provide information on the basic biological requirements of this rare species. This information could be incorporated into management direction.
Lomatium suksdorlii	What are the limiting environmental factors that cause the geographic amplitude of this species to be so constrained?	Trend, demographic, and ecophysiological monitoring of this species could provide valuable information about its environmental requirements and limiting factors. This information could be incorporated into management direction.
Lomatium suksdorfii	What is the amplitude of this rare species?	inventory conducted for this rare species could determine its geographic amplitude and delineate populations suitable for monitoring. This information is essential for the development of management guidelines.
Lomatium tuberosum	Is excavation of gravel pits (crushed basalt) a threat to this rare species?	Trend monitoring could provide valuable information regarding the effects of excavation on this rare species. This information could be incorporated into management guidelines.
Lomatium tuberosum	To what extent does damage caused by foraging rodents threaten this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by wild animal species could provide information which could be incorporated into management direction.
Lomatium tuberosum	To what extent does harvest of this rare species by native Americans for food purposes pose a threat to this plant?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by native harvest (for food purposes) could provide valuable information which could be incorporated into management direction.

Species name	Research Need	Potential Application
Lomatium tuberosum	To what extent is this rare species threatened by recreational activities, particularly those of petrified wood collectors who frequently alter the habitat of this species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by recreational activities could provideinformation which could be incorporated into management direction.
Lomatium tuberosum	What are the sizes of known populations and what is the true geographic amplitude of the species?	Inventory for this rare species could provide valuable information on population sizes and geographic distribution of this species.
Lomatium tuberosum	What is the reproductive biology of this rare species? How dependent is this species on crustose lichens for nutrient cycling and availability?	Trend, demographic, and ecophysiological monitoring of this species could provide valuable information about its environmental requirements and limiting factors. This information could be incorporated into management direction.
Luina serpentina	Is the lack of genetic variability problematic for this species?	Laboratory research focused on genetic variability of this rare species could provide valuable information about the basic biology of the species?
Luina serpentina	To what extent is this rare species threatened by road construction projects?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by road construction activities could provide valuable information which could be incorporated into management direction.
Luina serpentina	To what extent is viable seed production involved in the population dynamics of this species?	Ecophysiological monitoring and supporting laboratory research could document low seed viability of the species. This information could be incorporated into management direction.
Lupinus biddlei	How is this rare species impacted by gold mining activities?	Trend monitoring in populations historically, presently, and/or potentially impacted by mining activities could provide valuable information for incorporation into management direction.
Lupinus biddlei	How is this rare species impacted by the invasion of seeded and non-seeded exotic species?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by the invasion of seeded or non-seeded exotic species could provide valuable information for incorporation into management direction.
Lupinus biddlei	Is this a valid taxon?	Resolution of the taxonomic status of this species through cytogenetic and electrophoretic methods should preclude the development of management direction concerning this taxa.
Lupinus biddlei	To what extent is this rare species threatened by grazing activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information which could be incorporated into management guidelines.
Lupinus cusickii	How is this rare species impacted by recreational activity?	Trend and demographic monitoring of populations historically, presently, an&or potentially impacted by recreational activities (and particularly off-road vehicles) could provide valuable information for incorporation into management direction.
Lupinus cusickii	What is the taxonomic status of this “species?”	Resolution of the taxonomic status of this rare taxa precludes the development of any type of monitoring studies and/or management direction.
Meconella oregana	Are annual exotics threatening this species?	Trend monitoring in populations impacted by and/or potentially impacted by exotic species could provide valuable information that could be incorporated into management direction.

Spccics name	Research Need	Potential Application
Meconella oregana	Are the populations and geographic amplitude of this rare species known? Have inventory efforts been sufficient?	Inventory for this species could provide baseline information on its population sizes and distributions. This information could be used in the development of monitoring and management guidelines.
Meconella oregana	Have inventory efforts for this rare species been adequate?	Inventory for this rare species could provide information on population sizes and geographic distribution. This baseline information could be useful in the development of monitoring and management strategy.
Meconella oregana	How is this species affected by grazing activities?	Trend monitoring in populations impacted by and/or potentially impacted by grazing could provide valuable information that could be incorporated into management direction.
Meconella oregana	To what extent is this rare species impacted by activities which alter the hydrologic regime supporting its habitat?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by activities which alter the hydrologic regime could provide valuable information which could be incorporated into management direction.
Meconella oregana	To what extent is this rare species impacted by grazing activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management direction.
Meconella oregana	To what extent is this rare species impacted by recreational activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by recreational activities could provide information which could be incorporated into management direction.
Meconella oregana	To what extent is this rare species impacted by the invasion of exotic species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the invasion of exotics species could provide valuable information which could be incorporated into management direction.
Meconella oregana	What are the environmental requirements for this species? What are its limiting factors?	Trend, demographic, and ecophysiological monitoring of this rare species could provide valuable information on the environmental requirements and limiting factors of this species. This baseline information could be incorporated into management direction
Mentzelia mollis	To what extent are inventories for this species adequate, particularly in Nevada?	Inventory for this species could document the sizes of its populations and geographic amplitude. This baseline information could be used in the formulation of management guidelines.
Mentzelia mollis	To what extent is this rare species threatened by exotic species, including those included in seeding prescriptions?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the invasion or deliberate introduction of exotic species could provide valuable information which could be incorporated into management direction.
Mentzelia mollis	To what extent is this rare species threatened by mechanical disruption of its habitat associated with tire suppression activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by fire suppression activities could provide valuable information which could be incorporated into management guidelines.
Mentzelia mollis	To what extent is this rare species threatened by mining activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by mining activities could provide information which could be incorporated into management guidelines.
Mentzelia mollis	To what extent is this rare species threatened by mining activities? How successful are efforts to use it in the restoration of mining sites?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by mining activities could provide valuable information for incorporation into management direction.

Species name	Research Need	Potential Application
Mentzelia mollis	To what extent is this tare species threatened by recreational activities, particularly the use of off mad vehicles?	Trend and demographic monitoring of populations historically, presently. and/or potentially impacted by recreational activity, particularly orv's, could provide valuable information for incorporation into management guidelines.
Mentzelia mollis	To what extent is this rare species threatened by the invasion of exotic species and the competition that results from such an invasion?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information which could be incorporated into management guidelines.
Mentzelia mollis	What are the environmental requirements of this rare species?	Ecophysiological monitoring of this rare species could provide valuable baseline information on its environmental requirements and limiting factors. This information could be used in developing monitoring protocol and management direction.
Mentzelia mollis	What are the environmental requirements of this rare species? What is the extent of its seed bank? What factors are involved in the dispersal of its seeds?	Ecophysiological monitoring of this rare species could provide valuable information on its environmental requirements and limiting factors. This information could be incorporated into management direction.
Mentzelia packardiae	To what extent is this rare species adversely impacted by grazing activities?	Trend and demographic monitoring of this species in populations historically, presently, and/or potentially impacted by grazing activities could provide information for incorporation into management direction.
Mentzelia packardiae	To what extent is this rare species adversely impacted by the invasion of exotic species?	Trend and demographic monitoring of this species in populations historically, presently, and/or potentially impacted by exotic species could provide information for incorporation into management direction.
Mentzelia packardiae	What environmental factors prevent this species from occupying all of its potential habitat?	Ecophysiological monitoring of populations of this rare species could provide valuable information about its environmental requirements--pollinators, seed banks, soil factors, dispersal modes. etc. This information could be incorporated into management.
Mimulus clivicola	What are the environmental requirements for this species? What are its soil moisture requirements? Its pollinators? Its seed bank?	Ecophysiological monitoring could provide valuable information about the basic biology of this species. This information could be incorporated into management direction.
Mimulus clivicola	What are the impacts of exotic species on this species of concern?	Trend monitoring in populations threatened by the invasion of exotic species could provide valuable information which could be incorporated into management direction.
Mimulus clivicola	What are the impacts of grazing to this species of concern?	Trend and demographic monitoring of populations impacted by grazing activities could provide valuable information for incorporation into management direction.
Mimulus clivicola	What are the impacts of road construction to this species of concern? Does mad construction increase available habitat for this species?	Trend and demographic monitoring in populations impacted by road construction projects could provide valuable information that could be incorporated into management direction.
Mimulus clivicola	What are the impacts of timber harvest activities on this species of concern?	Trend monitoring in populations historically, presently, and/or potentially impacted by timber harvest activities could provide valuable information which could be incorporated into management direction.
Mimulus clivicola	What monitoring protocol is most appropriate for this annual species that exhibits extreme populations annually?	The development of suitable monitoring methods could provide valuable monitoring information for measuring the impacts of management activities.

Species name	Research Need	Potential Application
Mimulus evanescens	How do alterations in the hydrologic regime affect this rare species?	Trend and demographic monitoring in populations impacted by or potentially impacted by reservoir draw-down or other alterations in the hydrologic regime could provide valuable information for incorporation into management direction.
Mimulus evanescens	To what extent is this tare species threatened by grazing activities?	Trend monitoring in populations of this rare species impacted by or potentially impacted by grazing could provide valuable information for incorporation into management guidelines.
Mimulus evanescens	What is the geographic amplitude of this newly-described rare species?	Inventory for this rare species could provide valuable information on population sizes, locations, and geographic range of the species. This information could be used in the development of management and monitoring guidelines.
Mimulus jungennannioides	Have seed banking efforts been conducted to ensure the survival of this species? How important is seed production in the propagation of this rhizomatous species?	Seed banking success could result in an increase in available seed which could enable the species to be used in restoration work.
Mimulus jungermannioides	How is this species affected by agricultural endeavors and the changes in the water table that sometimes are associated with them?	Trend and demographic monitoring of populations growing in areas in which the hydrologic regime has been. is, or will be altered by agricultural endeavors could provide valuable information which could be incorporated into management direction.
Mimulus jungermannioides	How is this species affected by grazing activities and the changes in the water table that sometimes-are associated with it?	Trend and demographic monitoring of populations growing in areas in which the hydrologic regime has been, is, or will be altered by grazing activities could provide valuable information which could be incorporated into management direction.
Mimulus jungermannioides	To what extent has the natural habitat of this rare species been diminished by the construction of hydroelectric dams and fluctuations in pool levels?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the construction of hydroelectric dams and/or by fluctuations in pool levels could provide valuable information useful for management.
Mimulus jungermannioides	To what extent is this rare species threatened by excavation activities, particularly gravel pit development?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by mining (gravel pit excavation) could provide information for incorporation into management direction.
Mimulus jungermannioides	To what extent is this rare species threatened by the direct and/or indirect application of herbicides?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the direct application of herbicides (roadside weed control) and/or indirect application (drift) could provide valuable information for management.
Mimulus jungennannioides	To what extent is this species of moist basaltic crevices affected by alteration of the hydrologic regime?	Trend monitoring in populations of this rare species impacted by or potentially impacted by changes in the hydrologic regime could provide valuable information on the species' response to alterations in hydrology.
Mimulus jungermannioides	To what extent is this species threatened by both direct and indirect application of herbicides? How can county weed control crews be kept from spraying roadside populations?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the direct and/or indirect application of agricultural herbicides could provide valuable information for incorporation into management direction.
Mimulus jungerrnannioides	To what extent is this species threatened by excavation activities?	Trend monitoring in populations impacted by or potentially impacted by excavation (grave) pit or mining activities) could provide valuable information for incorporation into management guidelines.

Species name	Research Need	Potential Application
Mimulus jungcrmannioides	What is the extent of the natural seed bank of this species? Is vegetative or sexual reproduction of greater importance in maintaining its populations?	Ecophysiological monitoring and supporting laboratory/greenhouse work could provide information on the basic reproductive biology of this species. This information could be incorporated into management direction.
Mimulus jungermannioides	What variation in the genetics of this species occurs? How is gene flow maintained within populations?	Genetic variability could be investigated in the laboratory and gene flow could be determined by ecophysiological monitoring. This information on the biological requirements of the species could be used in the formulation of management direction.
Mimulus patulus	Has inventory for this species been adequate? Has this species been extirpated from Idaho?	Inventory for this rare species could provide valuable information on its population sizes, locations, and geographic distribution. This information could be used in the development of management and monitoring strategy.
Mimulus pygmaeus	Is this rare species benefited by the trampling of ungulates?	Trend, demographic, and ecophysiological monitoring in populations impacted by or potentially impacted by trampling by grazing animals could provide information on the beneficial aspects ("capsule burying") of trampling
Mimulus pygmaeus	To what extent is this species threatened by changes in the hydrologic regime?	Trend monitoring of populations impacted by or potentially impacted by activities that alter the hydrologic regime could provide valuable information for incorporation into management direction.
Mimulus pygmaeus	To what extent is this species threatened by seeding projects that introduce perennial species into its habitat?	Trend monitoring of populations impacted by or potentially impacted by seed prescriptions which include perennial species could provide valuable information for incorporation into management guidelines, particularly the formulation of seed prescriptions.
Mimulus pygmaeus	To what extent is this species threatened by the invasion of exotic species?	Trend monitoring in populations threatened by the invasion of exotic species could provide valuable information on the rate of invasion and effects of invasion by exotic species. This information could be incomorated into management direction.
Mimulus washingtonensis var. washingtonensis	Does grazing adversely affect this species by selectively favoring an increase in a pollen competitor (Mimulus guttatus)?	Ecophysiological monitoring could provide valuable information for determining the indirect role of grazing in depressed seed set caused by increasing populations of a pollen competitor. This information could be incorporated into management direction.
Mimulus washingtoncnsis var. washingtonensis	Does this rare species have a "cold" requirement for germination? Does this adversely affect its ability to compete with sympatric species?	This rare species reportedly has a "cold" requirement that lessens its ability to compete (through pollination) with Mimulus guttatus. Laboratory investigations could determine if this requirement is a limiting factor.
Mimulus washingtonensis var. washingtonensis	To what extent is this species adversely affected by seeding prescriptions which include annual grasses?	Trend monitoring in populations impacted by or potentially impacted by seeding projects could provide valuable information for incorporation into management guidelines,
Mimulus washingtonensis var. washingtonensis	To what extent is this species threatened by the encroachment of habitat by exotic species? Do seeding prescriptions contribute to this threat?	Trend and demographic monitoring in populations impacted by the invasion of exotic species or by seeding projects which prescribe annual brome grasses could provide valuable information for incorporation into management direction.
Mimulus washingtonensis var. washingtonensis	Was the Nachez river population properly identified?	Collection of a voucher specimen and submission to an appropriate regional herbarium for the verification of identification should preclude the development of monitoring and management strategies.

Species name	Research Need	Potential Application
Mimulus washingtonensis var. washingtonensis	What is the extent of the natural seed bank and is it sufficiently replenished in wet years?	Ecophysiological monitoring and supporting laboratory work could provide valuable information on the seed bank size and viability. This information could be incorporated into management direction.
Mimulus washingtonensis var. washingtonensis	To what extent is this species threatened by activities which alter the hydrologic regime?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by activities which alter the hydrologic regime could provide valuable information which could be incorporated into management direction.
Mimulus washingtonensis var. washingtonensis	To what extent is this species threatened by the invasion of exotic species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information which could be incorporated into management direction.
Mirabilis bigelovii var. retrorsa	Are inventories for the occurrence of this variety adequate?	Inventory activities could document population sizes and determine geographic amplitude. Both of these parameters are essential in developing monitoring and management strategy.
Mirabilis bigelovii var. retrorsa	How is this variety genetically different from the typovar?	The genetic and taxonomic status of this variety could be determined by electrophoretic studies. This information could be incorporated into management direction.
Mirabilis macfarlanei	How is this rare species affected by grazing activities?	Trend monitoring in populations historically, presently, or potentially impacted by grazing could provide valuable information which could be incorporated into management direction.
Mirabilis macfarlanei	How is this rare species affected by road construction and/or maintenance?	Trend and demographic monitoring of populations threatened by road construction and/or maintenance could provide valuable information on the effects of these activities on the rare species. This information could be incorporated into management direction
Mirabilis macfarlanei	How is this rare species affected by the invasion of exotic species?	Trend and demographic monitoring of populations threatened by exotic species could provide valuable information on the invasion rate and adverse effects of exotics.
Mirabilis macfarlanei	Is the full extent of this species' populations and geographic amplitude known?	Inventory for this species could provide valuable information on its population sizes, locations, and the geographic range of the species. This information could be used in management direction.
Mirabilis macfarlanei	To what extent is this rare species threatened by livestock grazing activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information which could be incorporated into management direction.
Mirabilis macfarlanei	To what extent is this species parasitized by fungi? Does this relationship diminish vigor, seed production, etc.?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by fungal infection could provide valuable information for incorporation into management direction.
Mirabilis macfarlanei	What are the environmental requirements for this rare species?	Ecophysiological monitoring of this rare species could provide valuable information about its environmental requirements. This information could be incorporated into management guidelines.
Mirabilis macfarlanei	What is the role of asexual (vegetative) reproduction and what degree of genetic variability occurs within populations and across the range of this rare species?	Ecophysiological monitoring and supporting laboratory work could provide information about the genetic variability of this rare species. This information could be incorporated into management guidelines.

Species name	Research Need	Potential Application
Oenothera psammophila	What are the environmental requirements and limiting factors of this rare species?	Ecophysiological monitoring of this rare species could provide valuable baseline information on its environmental requirements and limiting factors. This information could be incorporated into monitoring protocol and management direction.
Oryzopsis (Achnatherum) hendersonii	Is this rare species adversely affected by recreational activities, specifically the use of off-road vehicles?	Trend and demographic monitoring of populations historically, presently, and or potentially impacted by Recreational activities could provide valuable information for incorporation into management direction.
Oryzopsis (Achnatherum) hendersonii	What is the relationship of this rare species to mycorrhizae or other cryptogamic species?	Demographic monitoring should enable the determination of such relationship. Management direction relative to the findings could then be developed.
Oryzopsis (Achnatherum) hendersonii	What is the reproductive biology of this rare species? Why is recruitment so limited?	Trend, demographic, and ecophysiological monitoring could provide baseline information about the environmental requirements of this species. This information could be incorporated into management direction.
Oryzopsis contracta	What are the demographic trends of this species?	Trend and demographic monitoring of this rare species could provide valuable information which could be incorporated into management guidelines.
Oryzopsis hendersonii var. hendersonii	To what extent are the population sizes and geographic amplitude of this species known?	Inventory for this rare species could provide valuable information on the population sizes and geographic distribution of this species. This information could be used to develop monitoring plans to facilitate proper management.
Oryzopsis hendersonii var. hendersonii	To what extent is this rare species adversely affected by grazing?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management direction.
Oryzopsis hendersonii var. hendersonii	To what extent is this rare species impacted by excavation activities, particularly gravel pit development?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by excavation projects could provide information which could be incorporated into management direction.
Oryzopsis hendersonii var. hendcrsonii	To what extent is this rare species impacted by fire and/or tire suppression activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by natural or prescribed burning could provide valuable information which could be incorporated into management direction.
Oryzopsis hendersonii var. hendersonii	To what extent is this rare species impacted by road construction or maintenance activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by road construction and/or maintenance activities could provide valuable information which could be incorporated into management direction.
Oryzopsis hendersonii var. wallowensis	To what extent are the population sizes and geographic amplitude of this species known?	Inventory for this rare species could provide valuable information on the population sizes and geographic distribution of this species. This information could be used to develop monitoring plans to facilitate proper management.
Oryzopsis hendersonii var. wallowensis	To what extent is this rare species adversely affected by grazing?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management direction.
Oryzopsis hendersonii var. wallowensis	To what extent is this rare species impacted by excavation activities, particularly gravel pit development?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by excavation projects could provideinformation which could be incorporated into management direction.

Species name	Research Need	Potential Application
Oryzopsis hendersonii var. wallowensis	To what extent is this rare species impacted by tire and/or tire suppression activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by natural or prescribed burning could provide valuable information which could be incorporated into management direction.
Oryzopsis hendersonii var. wallowensis	To what extent is this rare species impacted by road construction or maintenance activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by road construction and/or maintenance activities could provide valuable information which could be incorporated into management direction.
Oxytropis campestris var. columbiana	Is this variety of concern threatened by residential development?	Trend and demographic monitoring of populations historically,, presently, and/or potentially impacted by housing development could provide valuable information for incorporation into management guidelines,
Oxytropis campestris var. columbiana	What are the germination requirement for this variety of concern? How does it become established in areas of high wave action?	Conduct studies to determine germination requirements and monitor known populations to determine recruitment rates and mechanisms of establishment. Enables limiting factors to be identified and treated in management prescriptions.
Oxytropis campestris var. columbiana	Is the variety of concern taxonomically valid? Can molecular studies (isozymes) help resolve this taxonomic question?	Resolution of taxonomic status through cytogenetic and electrophoretic investigations precludes the development of monitoring protocol and management direction.
Oxytropis campestris var. wanapum	Do exotic species threaten this rare variety?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information which could be incorporated into management direction.
Oxytropis campestris var. wanapum	Has this rare variety been adequately inventoried to determine its populations and geographic amplitude?	Inventory for this rare species could provide valuable information about its population sizes and geographic distribution.
Oxytropis campestris var. wanapum	Is the reproductive biology and population dynamics of this rare variety adequately understood?	Trend, demographic, and ecophysiological monitoring could provide valuable baseline information about the environmental requirements and limiting factors of this species.
Oxytropis campestris var. wanapum	Is this rare variety threatened by recreational activities, particularly hang-gliding?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by recreational activities could provide infotmation which could be incorporated into management direction.
Oxytropis campestris var. wanapum	Is this rare variety threatened by the construction of microwave and television towers in its habitat on ridgetops?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by housing and other development could provide valuable information which could be incorporated into management direction.
Papaver pygmaeum	What is the taxonomic relationship between this species and Papaver radicatum?	Resolution of the taxonomic relationship between p. Pygmaeum and p. Radicatum is necessary to validate the "concern" status of this taxon.
Papaver pygmaeus	What are the population dynamics of this species of concern?	Monitoring known populations could enable determination of dynamics and identification of potential threats (although known populations are in protected areas).
Pamassia kotzebuei var. pumila	Have inventory efforts on this rare species been adequate?	Inventory for this rare species could provide valuable baseline information on population sizes and geographic distribution. This information could be incorporated into management direction and the development of monitoring strategy.

Species name	Research Need	Potential Application
Pamassia kotzebuei var. pumila	Is this a valid taxon? What is its relationship with sympatric species?	Resolution of the taxonomic status and relationship of this variety of concern should preclude the development of monitoring and management strategy.
Pamassia kotzebuei var. pumila	To what extent is this variety of concern threatened by mining activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by mining activities could provide information which could be incorporated into management direction.
Pamassia kotzebuei var. pumila	To what extent is this variety of concern threatened by natural geologic changes such as landslides?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by natural geologic phenomena could provide valuable information which could be incorporated into management direction.
Pamassia kotzebuei var. pumila	What are the environmental requirements of this species?	Trend, demographic, and ecophysiological monitoring could provide valuable information about the environmental requirements and limiting factors for this rare species. This baseline information could be incorporated into management guidelines.
Penstemon barrettiae	Does hybridization with other more common species threaten the genetic integrity of this species? Does this problem exist throughout the range of the species?	Genetic studies in sympatric populations could provide valuable information on the genetic integrity and threats of this species. This information could be incorporated into management direction.
Penstemon barrettiae	How are natural populations of this rare species maintained in the vertical cliff habitat?	Ecophysiological monitoring of this rare species could provide valuable information on how the species colonizes the vertical cliff habitat and could also identify restoration opportunities. This information could be incorporated into management guidelines.
Penstemon barrettiae	Is this rare species threatened by alterations in the hydrologic regime of its habitat?	Trend monitoring in populations impacted by or potentially impacted by alterations in the hydrologic regime could provide valuable information for incorporation into management guidelines.
I'enstemon barrettiae	To what extent has the known geographic range of this rare species been inventoried for populations of this species?	Inventory for this species could provide valuable information on population sizes and geographic distribution. This information could be used in the development of monitoring and management guidelines.
Penstemon barrettiae	To what extent have artificial seed banking efforts been successful?	Evaluation of seed banking efforts and outplanting success could provide valuable information which could be incorporated into management direction.
Penstemon'barrettiae	To what extent is genetic dilution threatening the species in areas where its distribution is sympatric with other species, particularly Penstemon fruticosus?	Genetic studies coupled with demographic monitoring of sympatric populations could provide valuable information relative to genetic dilution and introgression. This information could be incorporated into management direction.
Penstemon barrettiae	To what extent is this attractive rare species threatened by collectors, particularly Penstemon growers?	Trend monitoring in populations impacted by and/or potentially impacted by collection could provide valuable information for incorporation into management guidelines.
Penstemon barrettiae	To what extent is this rare species impacted by the direct and/or indirect application of herbicides?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the. direct (roadside weed control) and/or indirect (drift) application of herbicides could provide valuable information for management.
Penstemon barrettiae	To what extent is this rare species threatened by mining (excavation) activity?	Trend and demographic monitoring of this rare species in populations historically, presently, and/or potentially impacted by excavation activities could provide valuable information which could be incorporated into management guidelines.

Species name	Research Need	Potential Application
Penstemon barrettiae	What are the environmental factors that constrain the geographic amplitude of this rare species?	Demographic and ecophysiological monitoring of populations across the range of the species could provide valuable baseline information on its environmental requirements and geographic amplitude.
Penstemon barrettiae	What are the impacts of road construction on the habitat of this rare species and its known populations?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by road construction activities (including blasting) could provide valuable information for incorporation into management direction.
Penstemon barrettiae	What is the impact of collection ("taking") of specimens of this rare- species on its populations and geographical amplitude? Is the horticulture industry threatening this species?	Trend monitoring throughout the range of this rare species should provide baseline information on the impacts of plant collecting on this species. Management direction could be formulated according to the results.
Penstemon barrettiae	Why is the recruitment rate so low in this species?	Trend and demographic monitoring of this rare species could provide valuable information assessing the low recruitment rate. This information could be incorporated into management direction.
Penstemon glaucinus	To what extent is this rare species threatened by fire and/or fire suppression activities?	Trend monitoring in populations historically impacted by, presently impacted by, or potentially impacted by prescribed or natural tire could provide valuable information which could be incorporated into management direction.
Penstemon glaucinus	To what extent is this rare species threatened by the excavation of road building materials?	Trend monitoring in populations impacted by or potentially impacted by the excavation of road bed materials could provide valuable information for the formulation of management guidelines?
Penstemon idahoensis	To what extent is this rare species threatened by the invasion or seeding of exotic species?	Trend and demographic monitoring of this rare species in populations historically, presently, and/or potentially impacted by exotics species (including those in seeding prescriptions) could provide valuable information for management.
Penstemon idahoensis	What are the environmental requirements of this rare species? What are its limiting factors?	Ecophysiological monitoring of this rare species could provide valuable baseline information on its environmental requirements and limiting factors. This information could be incorporated into monitoring protocol and management direction.
Penstemon lemhiensis	Are exotic species a serious threat to this species of concern?	Assessment of the effects of the invasion of exotic species (knapweed) through the monitoring of known populations would enable management direction and effective control measures consistent with the conservation of the species to he devclopcd.
Penstemon lemhiensis	How does this rare species respond to competition from exotic species? Are any of these competitors included in seeding prescriptions?	Trend and demographic monitoring of populations historically. presently, and/or potentially impacted by the invasion of exotic species could pmvide information for incorporation into management direction.
Penstemon lemhiensis	How does this rare species respond to fire and/or tire suppression?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by fire. tire suppression, or changes in the tire regime could provide valuable information for incorporation into management direction.
Penstemon lemhiensis	How does this species respond to habitat disturbance, particularly the creation of road cuts?	Assessment of population dynamics in disturbed habitats through monitoring could enable management direction consistent with the conservation of the species to be formulated.
Penstcmon lemhiensis	To what extent is this rare species threatened by collection for horticultural purposes?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by plant collectors could provide valuable information for incorporation into management direction.

Species name	Research Need	Potential Application
Penstemon lemhiensis	What are the effects of grazing on this species?	Assessment of the impacts of grazing through monitoring plots, could enable management direction to be determined.
Penstemon lemhiensis	What are the environmental requirements of this rare species and what are its limiting factors?	Ecophysiological monitoring of this rare species could provide baseline information on its environmental requirements and limiting factors. This information could be used in the formulation of monitoring protocol and management direction.
Penstemon lemhiensis	What are the reproductive dynamics of the known populations of this species?	Assessment of population parameters of germination, longevity, seed viability, pollination success, etc., through monitoring would provide valuable information on the viability threshold of this species.
Penstemon lemhiensis	What are the responses of this species to a prescribed fire regime? What are the responses of this species to fire suppression?	Assessment of the effects of fire, both prescribed and natural, could enable management direction to be developed consistent with the conservation of the species.
Penstemon peckii	What is the effect of alteration of the hydrologic regime on this rare species?	Trend monitoring in populations impacted by "dewatering" of subirrigated meadowlands could provide valuable information for incorporation into management direction.
Penstemon peckii	What is the effect of tire and/or fire suppression on this rare species?	Trend monitoring in populations impacted by natural or prescribed fire could provide valuable information which could be incorporated into management direction.
Penstemon peckii	What is the effect of population fragmentation caused by recreational activities or development?	Trend monitoring in populations historically, presently, and/or potentially fragmented by recreational activity could provide valuable information for incorporation into management direction.
Perideridia erythrorhiza	What genetic differences occur between eastside and westside populations?	Ecophysiological monitoring supported by laboratory work involving electrophoresis and cytogenetics could provide valuable information about genetic differences in the two populations. This information could be incorporated into management direction.
I'crideridia erythrorhiza	Why is this species so rare while Perideridia gairdneri and P. oregana are much more abundant, even in the same habitat?	Ecophysiological monitoring of the sympatric species could provide valuable information on the dynamics of the populations. This information could be incorporated into management direction
Pctrophytum cinerascens	To what extent is this rare. shrub threatened by plant collectors, and specifically collections for horticultural usage?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by plant collection activities for horticultural purposes could provide valuable information for management. particularly regarding permits.
Petrophytum cinerascens	To what extent is this rare shrub threatened by road construction projects which impact its habitat?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by road construction could provide valuable information which could be used in the development of management guidelines.
Petrophytum cinerascens	What are the environmental requirements of this rare species?	Demographic and ecophysiological monitoring of this rare species could provide valuable baseline information on the environmental requirements and limiting factors of this rare species. This information could be incorporated into management direction.
Phacelia inconspicua	To what extent has this annual species been impacted by tire and/or tire suppression?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by natural and/or prescribed fire. could provide information for incorporation into management direction.

Spccics name	Research Need	Potential Application
Phacelia inconspicua	To what extent has this annual species been impacted by mining?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by mining activities could provide valuable information for incorporation into management direction.
Phacelia inconspicua	What are the environmental requirements for this rare species? What are its limiting factors?	Ecophysiological monitoring of this rare species could provide valuable baseline information about its environmental requirements and limiting factors. This information could be useful in the formulation of monitoring protocol and management.
Phacelia lenta	To what extent is this species threatened by gravel excavation?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by mining (gravel pit excavation) activities could provide valuable information which could be incorporated into management direction.
Phacelia lenta	To what extent is this species threatened by herbicide drift?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by the direct and/or indirect application of herbicides could provide valuable information which could be incorporated into management direction.
Phacelia lenta	What is the reproductive biology of this species? Does this contribute to its narrow geographic amolitude?	Trend, demographic, and ecophysiological monitoring could provide valuable baseline information about the environmental reauirements and limiting factors for this species.
Phacelia minutissima	To what extent is this rate species threatened by grazing activities?	Trend and demographic monitoring of populations of this rare species historically, presently, and/or potentially impacted by grazing activities could provide valuable information which could be incorporated into management nuidelines.
Phlox idahonis	To what extent is this rare species threatened by grazing activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management direction.
Phlox idahonis	To what extent is this rare species threatened by the encroachment of its meadowland habitat by trees?	Trend and demographic monitoring could provide valuable information on tree encroachment into the habitat of this species. Effects of tree removal by logging and/or periodic fire could also be determined and used in management.
Physaria didymocarpa var. lyrata	To what extent is this rare variety threatened by mining activities?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by mining activities could provide valuable information for incorporation into management guidelines.
Physaris integrifolia var. monticola	Are the morphological characteristics used to assign varietal status environmentally, rather than genetically, induced?	Resolution of the taxonomic validity of this variety of concern should preclude the development of monitoring and management strategies.
Physaris integrifolia var. nionticola .	Is this a valid taxon?	Resolution of the taxonomic validity of this variety of concern should preclude the development of monitoring and management strategies.
Pleuropogon oregonus (Lophochlaena oregona)	To what extent is this rare species threatened by alteration in the hydrological regime of its habitat and particularly by water diversion projects?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by hydrologic alterating projects could provide information for incorporation into management direction.
Pleuropogon oregonus (Lophochlaena oregona)	To what extent is this rare species threatened by fire and/or fire suppression activities?	Trend and demographic monitoring of this species in populations historically, presently, and/or potentially impacted by natural and/or prescribed burning could provide valuable information for incorporation into management direction.

Species name	Research Need	Potential Application
Pleuropogon oregonus (Lophochlaena oregona)	To what extent is this rare species threatened by grazing activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing could provide valuable information for incorporation into management guidelines.
Pleuropogon oregonus (Lophochlaena oregona)	To what extent is this rare species threatened by grazing activities?	Trend and demographic monitoring of this species in populations historically, presently, and/or potentially impacted by grazing could provide valuable information for incorporation into management direction.
Pleuropogon oregonus (Lophochlaena oregona)	To what extent is this rare species threatened by the invasion of exotic species?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by exotic species could provide valuable information for incorporation into management direction.
Pleuropogon oregonus (Lophochlaena oregona)	What are the population sizes and geographic amplitude of this rare species, particularly in the grande ronde basin?	Inventory efforts for this species in the grande ronde basin could provide baseline information on the population sizes and potential threats to those populations as well as the geographic range of the species.
Polemonium pectinatum	To what extent is this rare species threatened by the invasion of exotic species?	Trend and demographic monitoring of this species should provide valuable information on the effects of exotic species on this rare. species. This information could be incorporated into management guidelines for controlling the exotic species.
Polemonium pectinatum	To what extent is this species adversely affected by drift from herbicidal spraying?	Trend monitoring could provide valuable information regarding the responses of the species to herbicidal drift. This information could be incorporated into management direction concerning the use of herbicides in areas known to support the species.
Polemonium pectinatum	What are the effects of grazing on this rare species?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management direction.
Polemonium pectinatum	What are the effects of water diversion associated with agricultural production on this rare species?	Trend and demographic monitoring in populations historically, presently, and/or potentially impacted by agricultural practices which alter the hydrology could provide valuable information for incorporation into management direction.
Polemonium pcctinatum	What is the reproductive biology of this rare species?	Trend and demographic monitoring of this species should provide important information on seed viability, pollinators, seed bed, etc. This information is basic to understanding the rarity of the species and the development of management guidelines.
Primula alcalina	Has this rare species been adequately inventoried? What are the sizes of its populations and what is its geographic amplitude?	Inventory for this rare species could provide valuable baseline information which could be incorporated into monitoring protocol and management direction.
Primula alcalina	How is this rare species affected by exotic species?	Trend and demographic monitoring of this rare species in populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information which could be incorporated into management direction.
Primula alcalina	How is this rare species affected by grazing activities, particularly springtime grazing?	Trend and demographic monitoring of this rare species in populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information about the effects of seasonal damage to this species.
Primula alcalina	How is this rare species affected by recreational activities?	Trend and demographic monitoring of this rare species in populations historically, presently, and/or potentially impacted by recreational activities (esp. Camping) could provide valuable information which could be incorporated into management direction.

Species name	Research Need	Potential Application
Ranunculus reconditus	Is this species a valid taxon? How does it differ genetically from Ranunculus glaberrimus?	Electrophoretic comparisons of R. reconditus and R. glaberrimus should resolve any taxonomic questions associated with the rare species. This information is basic to management decisions.
Ranunculus reconditus	To what extent has the historic habitat of this species been converted to agricultural production? Is this conversion still occurring?	Trend monitoring of populations historically, presently, and/or potentially impacted by agricultural conversion could provide information on habitat diminution for incorporation into management direction.
Ranunculus reconditus	To what extent is this rare species threatened by grazing?	Trend monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information for incorporation into management direction.
Ranunculus reconditus	What are the specific habitat requirements of this rare species?	Ecophysiological monitoring of populations of this rare species could provide information about its environmental requirements. This information could be incorporated into management direction.
Rorippa columbiae	How does this species respond to activities which result in an alteration of the hydrology of its habitat?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by activities which alter the hydrologic regime of its supporting habitat could provide valuable information for management.
Rorippa columbiae	Is this rare species adversely affected by activities that alter the hydrologic regime supporting its habitat?	Trend monitoring of populations impacted by or potentially impacted by changes in the hydrologic regime could provide valuable information for incorporation into management direction.
Rorippa columbiae	Is this rare species adversely affected by grazing activities?	Trend, demographic, and ecophysiological monitoring in populations impacted by or potentially impacted by grazing activities could provide valuable information for incorporation into management direction.
Rorippa columbiae	Is this rare species threatened by the invasion of exotic species?	Trend monitoring of populations impacted by exotic species could provide valuable information for incorporation into management direction.
Rorippa columbiae	To what extent does riparian rehabilitation work adversely impact this species? Does the equipment used in riparian rehabilitation (bulldozers, spiders, etc.) present a potential threat?	Trend and demographic monitoring in populations impacted by or potentially impacted by riparian restoration activities, especially those involving heavy equipment, could provide valuable information for incorporation into management guidelines.
Rorippa columbiae	To what extent is this species threatened by diminished habitat caused by the invasion of exotic species?	Trend and demographic monitoring studies of populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information for incorporation into management direction.
Rorippa columbiae	To what extent is this species threatened by the direct and indirect application of herbicides, especially in the roadside habitat?	Trend and demographic monitoring of populations impacted by or potentially impacted by the application of herbicides could provide valuable information for incorporation into management guidelines.
Rorippa columbiae	What are the impacts of pool fluctuation on this rare species?	Trend monitoring of the species during seasonably variable pool fluctuations should provide the baseline information which can be incorporated into management guidelines.
Rorippa columbiae	What are the predicted impacts to this species' habitat associated with development?	Trend and demographic monitoring studies of populations historically, presently, and/or potentially impacted by housing developments could provide information for incorporation into management direction.
Rorippa columbiae	What is the extent of the natural seed bank of this rare specicr?	Ecophysiological monitoring could provide valuable information regarding the extent of the natural seed bank of this species. This information could be incorporated into management direction.

Spccics name	Rcscarch Need	Potential Application
Rorippa columbiae	How does this rare species respond to alteration in the hydrologic regime of its habitat?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by alteration of hydrologic regime could provide information for incorporation into management direction.
Rorippa columbiae	How is this rare species impacted by the grazing activities of cattle and antelope?	Trend and demographic monitoring of this rare species in populations historically, presently, and/or potentially impacted by grazing and wildlife utilization could provide valuable information which could be incorporated into management direction.
Rorippa columbiae	What are the environmental requirements of this rare species?	Ecophysiological monitoring of this rare species could provide valuable information about its environmental requirements and limiting factors. This information could be incorporated into management direction,
Rubus bartonianus	To what extent are the known populations of this species threatened by diseases?	Ecophysiological monitoring of populations across the range of the species combined with supporting pathological lab work could provide valuable information about pathogens of this species. This information could be incorporated into management direction.
Rubus bartonianus	To what extent has this species been inventoried, particularly on the idaho side of hells canyon?	Inventory for this rare species could provide valuable baseline information on population sizes and geographic distribution. This information is essential in the development of monitoring protocol and management direction.
Rubus battonianus	What are the population sizes and their distributions of this species on the oregon side of hells canyon?	Inventory of the potential habitat on the oregon side of hells canyon could provide valuable information on the population sizes and geographic amplitude of this species. This information could be incorporated into management guidelines.
Rubus bartonianus	What are the population trends of this rare species?	Trend monitoring could provide valuable information for incorporation into management direction.
Rubus nigerrimus	How does this rare species respond to impacts associated with grazing?	Trend and demographic monitoring in areas impacted by or potentially impacted by grazing activities could provide valuable information which could be incorporated into management direction.
Rubus nigerrimus	Is this rare species threatened by the direct or indirect use of herbicides?	Trend and demographic monitoring in areas impacted by or potentially impacted by the direct and/or indirect application of herbicides could provide valuable information which could be incorporated into management direction
Rubus nigerrimus	Is this rare species threatened by the invasion of exotic species?	Trend and demographic monitoring in areas impacted by or potentially impacted by the invasion of exotic species could provide valuable information which could be incorporated into management direction.
Rubus nigerrimus	To what extent does this rare species hybridize with sympatric rubus leucodermis? Does this hybridization threaten the genetic integrity and viability of the species?	Genetic and electrophoretic studies of this rare species in areas sympatric with rubus leucodermis could enable genetic status and health to be determined. This information could be incorporated into management direction.
Rubus nigerrimus	To what extent has the historic range and habitat of this species been affected by the construction of hydroelectric dams? Do pool level fluctuations have adverse effects on this species?	Trend, demographic, and ecophysiological monitoring of populations affected by pool level fluctuation could provide valuable information about this species' response to these fluctuations. This information could be useful to management.
Senecio ertterae	How is this tare species impacted by road construction and/or maintenance activities? Do these activities open new habitat for the species?	Trend and demographic monitoring of this rare species in populations historically, presently, and/or potentially impacted by road construction and/or road maintenance could provide valuable information which could be incorporated into management.

Species name	Research Need	Potential Application
Senecio ertterae	To what extent is this rare species threatened by the invasion of exotic species, particularly yellow star thistle?	Trend and demographic monitoring of this species in populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information for incorporation into management direction.
Senecio ertterae	What are the environmental requirements of this rare species? Its late-season pollinators? Its seed bank?	Ecophysiological monitoring of this rare species could provide information about its environmental requirements and limiting factors. Dispersal, seed bank, pollination, could all be determined in this type of monitoring.
Sidalcea oregana var. calva	Is this a valid taxon?	Resolution of the taxonomic status of this rare variety should preclude the development of monitoring and management strategies.
Sidalcea oregana var. calva	To what extent is this species impacted by activities which alter the hydrologic regime which supports its habitat?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by activities which alter the hydrology could provide valuable information which could be incorporated into management direction.
Sidalcea oregana var. calva	To what extent is this species impacted by tire, tire suppression, and/or changes in fire regimes?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by natural and/or prescribed fire could provide valuable information which could be incorporated into management direction.
Sidalcea oregana var. calva	To what extent is this species impacted by grazing activities and by wildlife grazing?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the grazing of domestic and/or wild animals could provide valuable information which could be incorporated into management direction.
Sidalcea oregana var. calva	To what extent is this species impacted by the invasion of exotic species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information which could be incorporated into management direction.
Sidalcea oregana var. calva	To what extent is this species impacted by timber harvest activities?	Trend and demographic monitoring ofpopulations historically, presently, and/or potentially impacted by timber harvest activities could provide information that could be incorporated into management direction.
Silene seelyi	What are. the environmental requirements of this rare species? What are its pollinators, rate of recruitment, seed production, etc.?	Demographic and ecophysiological monitoring of this species could provide valuable information on the environmental requirements and limiting factors for this species. This baseline information could be used in the development of management strategy.
Silene spaldingii	Is this rare species threatened by diminished habitat attributable to agricultural conversion?	Trend monitoring of populations potentially impacted by agricultural conversion could provide important information which could be incorporated into management direction.
Silene spaldingii	Is this rare species threatened by fire and/or fire suppression?	Fire effects on this rare species could be determined with trend and demographic monitoring conducted in conjunction with natural or prescribed bums. This information could be incorporated into management direction.
Silene spaldingii	Is this rare species threatened by grazing activities?	Trend and demographic monitoring in populations threatened by grazing activities could provide valuable information which could be incorporated into management direction.

Species name	Research Need	Potential Application
Silene spaldingii	Since this species develops late in the season, what are its responses to the natural tire cycle and to prescribed burning outside the natural "window" of fire events?	Trend monitoring in populations with known fire histories and also conducted in conjunction with prescribed burning could provide information which could be incorporated into management direction.
Siiene spaldingii	To what extent has the natural range of this species been diminished because of the conversion of its habitat to agricultural production?	Trend and demographic monitoring of populations historically, presently, and/or potentially threatened by agricultural conversion could provide valuable information for incorporation into management direction.
Silene spaldingii	To what extent have the population sizes and geographic amplitude of this species been documented?	Inventory of potential habitat across the geographic range of this species could provide information on critical population sizes for viability and also determine the true geographic range of the species,
Silene spaldingii	To what extent is this rare species threatened by the invasion of its habitat by exotic species?	Trend and demographic monitoring of populations historically, presently, an&or potentially impacted by exotic species could provide information which could be incorporated into management direction.
Silene spaldingii	To what extent is this species threatened by genetic isolation caused by habitat fragmentation?	Demographic and ecophysiological monitoring of populations could provide valuable information on the effects of habitat fragmentation on genetic isolation and the resulting vulnerability of the species.
Silene spaldingii	To what extent is this species threatened by the conversion of its natural habitat to agricultural production?	Trend monitoring of the known populations historically, presently, or potentially threatened by conversion of habitat to agricultural production could provide valuable information for incorporation into management guidelines.
Silene spaldingii	What are the effects of exotic species on this rare species and its existing and potential habitat?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the invasion or seeding of exotic species could provide valuable information for incorporation into management direction.
Silene spaldingii	What are the effects of herbicidal drift on this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the direct and/or indirect application of herbicides could provide valuable information for incorporation into management direction.
Silene spaldingii	What are the effects of recreational activities on this rare species, particularly hiking and mountain biking?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by recreational activities could provide valuable information for incorporation into management direction.
Silene spaldingii	SWhat are the environmental requirements of this rare species?	Trend, demographic, and ecophysiological monitoring could provide valuable information on the environmental requirements and limiting factors of this species. This information could be incorporated into mangement direction.
Silene spaldingii	What am the impacts of grazing on this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grating activities could provide valuable information for incorporation into management direction.
Silene spaldingii	What is the level of intraspecific genetic variation within this species? What variation occurs among populations over the known range of the species?	Understanding the genetic variability of this species provides information that is useful in predicting its viability and ability to adapt to changing environmental factors.
Silene spaldingii	What is the reproductive biology of this rare species, its pollinators, its dispersal agents, its reproductive success?	Trend, demographic, and ecophysiological monitoring of this rare species could provide valuable baseline information on its environmental requirements and limiting factors.

Species name	Research Need	Potential Application
Silene spaldingii	What are the species responses to fire? Has tire suppression historically had an adverse effect?	Determination of optimal tire regime
Silene spaldingii	How does this species respond to encroachment of habitat by exotic species? How does urban development affect the invasion of exotic species?	Determination of the effects of exotic species on the species of concern.
Silene spaldingii	How is genetic variation apportioned among populations within the montana populations and within the populations of the main part of the range of the species? Is species susceptible to inbreeding depression?	Identification of key areas for conservation focus; determination of critical population sizes for viability of species;better understanding of genetic variability across the range of the species
Sisyrinchium sarmentosum	To what extent is this species threatened by activities which result in an alteration of the hydrologic regime supporting its habitat?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by activities which cause an alteration in the hydrologic regime of habitat could provide valuable information for management.
Sisyrinchium sarmentosum	To what extent is this species threatened by grazing activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management direction.
Sisyrinchium sarmentosum	To what extent is this species threatened by mining activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by mining activities could provide valuable information for management.
Sisyrinchium sarmentosum	To what extent is this species threatened by the invasion of exotic species or the deliberate seeding of exotics?	Trend and demographic monitoring of populations historically, presently, and or potentially threatened by the invasion of exotic species or the deliberate seeding of them could provide valuable information for incorporation into management direction.
Stanleya confertiflora	What are the demographic and geographic parameters of this species?	Inventory for this rare species could provide valuable information on its population sizes, locations, and geographic distribution. This information could be used in the development of monitoring and management strategy.
Stephanomeria malheurensis	What are the environmental requirements for this rare species? What is its natural seed bank and is the laboratory seed bank adequate to perpetuate the species?	Ecophysiological monitoring of this species could provide valuable information on its environmental requirements, particularly key elements in increasing its natural and artificial seed banks.
Sullivantia hapemanii var. hapemanii	What are the population trends of this rare species?	Trend monitoring of populations of this rare species could provide valuable information for incorporation into management direction.
Tauschia hooveri	What are the impacts of grazing on this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide valuable information for incorporation into management guidelines.
Tauschia hooveri	What are the impacts of logging operations (esp. Selection of landing sites) on this rare species?'	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by timber harvest activities could provide information for incorporation into management guidelines.
Tauschia hooveri	What are the impacts of military operations (particularly tank traffic) on this species? It is known to occur within the yakima firing range and its habitat is impacted by tank mancuvcrs.	Trend and demographic monitoring could provide valuable information on the responses of this rare species to military operations. This information could be useful in the formulation of management directions consistent with the conservation of the species.

Spccics name	Research Need	Potential Application
Tauschia hoovcri	What are the impacts root harvest by native americans to this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by native harvest (for food purposes) activities could provide valuable information for incorporation into management guidelines.
Tauschia hooveri	What is the reproductive biology of this species? What are its pollinators? is it dioecious or does it exhibit exaggerated protandry?	Understanding the reproductive biology of this rare species could lead to increased seed production.
Tauschia hooveri	What are the impacts of road construction on this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by road construction/maintenance could provide valuable information for incorporation into management guidelines.
Texosporium sancti-jacobi	Can this rare lichen be transplanted successfully?	Ecophysiological monitoring of this rare species of lichen could provide valuable information documenting the success rates and potential for transplanting this species. This information could be used in management strategies.
Texosporium sancti-jacobi	Has this rare lichen been inventoried adequately?	Inventory for this rare species could provide baseline information on population sizes and geographic amplitude. Collection of this information should preclude the development of monitoring and management strategies.
Thelypodium eucosmum	How is this rare species affected by tire and/or tire suppression?	Trend monitoring documenting the encroachment ofjuniper into the habitat of this species could provide valuable information which could be incorporated into management direction.
Thelypodium eucosmum	How is this rare species affected by grazing activities?	This species is an “ice cream” plant. Trend monitoring in population threatened by grazing activities could provide valuable information for incorporation into management guidelines.
Thclypodium cucosmum	To what extent is this rare species threatened by fire and/or fire suppression activities?	Trend monitoring in populations impacted by natural or prescribed tire could provide valuable information for incorporation into management direction.
Thelypodium eucosmum	To what extent is this rare species threatened by grazing activities?	Trend and demographic monitoring of this “ice cream” plant could provide valuable information about the impact of grazing to this species. This information could be incorporated into management guidelines.
Thelypodium eucosmum	To what extent is this rare species threatened by the invasion of exotic species?	Trend monitoring documenting the encroachment on habitat and effects of exotic species on this rare species could provide valuable information for incorporation into management direction.
Thelypodium eucosmum	What are the environmental requirements for this rare species? Its pollinators? Its natural seed bank? Its seed viability? Its reproductive biology?	Ecophysiological monitoring of this rare species could provide valuable information on its basic environmental requirements. This information could be incorporated into management direction.
Thelypodium eucosmum	What are the specific environmental requirements of this rare species?	Ecophysiological monitoring of this species could provide valuable information about its environmental requirements (e.g., soils, pollinators, seed longevity, response to tire). This information could be incorporated into management direction.
Thelypodium howellii ssp. spectabilis	Has this species been extirpated from the basin and range province?	Inventory of the historic site of this species in the basin and range province indicates that the species is no longer present. Does it occur in other sites having suitable habitat?

Species name	Research Need	Potential Application
'I'hclypodium howellii ssp. spectabilis	Is this rare subspecies adversely impacted by grazing activities?	'Trend and demographic monitoring of this "ice cream" plant in populations historically, presently. or potentially threatened with grazing could provide valuable information which could be incorporated into management guidelines.
fhelypodium howellii ssp. ;pectabilis	Is this rare subspecies threatened by agricultural conversion of habitat?	Trend monitoring in populations impacted historically, presently, and potentially by agricultural conversion could provide valuable information which could be incorporated into management guidelines.
Thelypodium howellii ssp. ;pectabilis	Is this rare subspecies threatened by the invasion of its habitat by exotic species?	Trend monitoring could provide valuable information for incorporation into management guidelines relative to the impacts and invasion rates of exotic species.
fhelypodium repandum	To what extent is this rare species threatened by road construction and/or maintenance activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by road construction/maintenance could provide information for incorporation into management direction.
Thelypodium repandum	What *are* the environmental requirements of this *rare* species?	Ecophysiological monitoring of this rare species could provide valuable information for incorporation into management direction.
Tofieldia glutinosa ssp. absona	How does this rare subspecies respond to alteration of the hydrologic regime supporting *its* habitat?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by activities that alter the hydrologic regime of *its* habitat could provide valuable information for incorporation into management direction.
Tofieldia glutinosa ssp.absona	What is the taxonomic "status" of this subspecies and the voucher specimens supporting its documented occurrence?	Resolution of the taxonomic "status" of this rare species should preclude the development of monitoring protocol and management direction.
'frifolium douglasii	Is this rare species adversely impacted by recreational activities, particularly pasturage and grazing of horses?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by recreational activities could provide information which could be incorporated into management direction.
'Trifolium douglasii	Is this species being impacted by the invasion of exotic species?	Trend and demographic monitoring studies of populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information for incorporation into management direction.
Trifolium douglasii	To what extent does the conversion of this species' habitat to agricultural production threaten its viability?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by conversion of habitat to agricultural production could provide valuable information which could be incorporated into management direction.
Trifolium douglasii	To what extent is the single documented population of this species threatened by exotic species including non-native perennial grasses included in seeding prescriptions?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the invasion of exotic species could provide valuable information which could be incorporated into management direction.
Trifolium douglasii	To what extent is this species impacted by conversion of its natural habitat *to* agricultural production?	Trend and demographic monitoring in populations (only one documented) threatened by agricultural conversion could provide valuable information which could be incorporated into management guidelines.
Trifolium douglasii	To what extent is this species threatened by grazing activities?	Trend and demographic monitoring of the only documented population of this species could provide valuable information for incorporation into management guidelines.
Trifolium douglasii	To what extent is this species threatened by recreational activities?	Trend and demographic monitoring of the only documented population of this species could provide valuable information for incorporation into management guidelines.

Species name	Research Need	Potential Application
frifolium douglasii	To what extent is this species threatened by the invasion of its habitat by exotic species?	Trend and demographic monitoring of the only documented population of this species could provide valuable information for incorporation into management guidelines. Knapweed threatens the only population that has been documented.
Trifolium douglasii	What are the impacts and/or potential impacts of grazing activities to this rare species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by grazing activities could provide information which could be incorporated into management direction,
frifolium owyheense	Are inventories for this rare species adequate?	Inventory for this species could provide valuable information on population sizes, locations. and geographic range of the species. This information could be useful to management.
Trifolium owyheense	Has this species been inventoried adequately?	Inventory for this rare species could document the sizes of its population and delineate its geographic amplitude. This baseline information should preclude the development of management and monitoring strategies for this species.
Trifolium owyheense	To what extent does this rare species require disturbance, particularly periodic fire?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by disturbance could provide valuable information for incorporation into management direction.
Trifolium owyheense	To what extent is this species impacted by mining activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by mining activities could provide valuable information for incorporation into management direction.
Trifolium owyheense	To what extent is this species impacted by road construction and/or maintenance activities?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by road construction/maintenance could provide information for incorporation into management direction.
Trifolium owyheense	To what extent is this species impacted by the grazing activities of cattle and big horn sheep?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by the grazing of cattle and/or big horn sheep could provide valuable information for incorporation into management direction.
I'rifolium owyheense	What are the environmental requirements and limiting factors of this rare species?	Ecophysiological monitoring could provide valuable information on the environmental requirements of this rare species. This information could be incorporated into management direction.
Trifolium owyheense	What are the environmental requirements for this species?	Ecophysiological monitoring of this rare species could provide valuable information for incorporation into management direction.
Trifolium thompsonii	To what extent is this rare species threatened by fire, tire suppression, and/or changes in the tire regime?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by fire could provide valuable information for management, particularly in documenting its favorable response to this factor.
'Trifolium thompsonii	To what extent is this rare species threatened by road construction and the resultant diminution of habitat?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by road construction could provide valuable information for management direction.
Trifolium thompsonii	To what extent is this rare species threatened by the invasion of exotic species and/or the deliberate seeding of exotic species?	Trend and demographic monitoring of populations historically, presently, and/or potentially impacted by exotic species and/or deliberate seeding of exotics could provide valuable information for management.
Trifolium thompsonii	What are the effects of fire and/or tire suppression on this rare species?	Trend and demographic monitoring studies of this species should provide information on responses to fire that could be incorporated into management direction.

Spccics name	Research Need	Potential Application
Trifolium thompsonii	What are the impacts of grazing on this rare species?	Trend and demographic monitoring studies of populations historically, presently, and/or potentially impacted by grazing activities could provide information for incorporation into management direction.

APPENDIX 7

Checklist of the Vascular Plant Flora of the interior Columbia River Basin

CRBFLORA

Abies amabilis
Abies **concolor**
Abies **grandis**
Abies lasiocarpa
Abies **magnifica**
Abies procera
Abronia ammophila
Abronia elliptica
Abronia fragrans
Abronia latifolia
Abronia mellifera
Abronia micrantha
Abronia **nana**
Abronia turbinata
Abronia umbellata
Abutilon theophrasti
Acaena novae-zelandica
Acalypha rhomboidea
Acalypha **virginica**
Acer circinatum
Acer ginnala
Acer glabrum
Acergrandidentatum
Acer macrophyllum
Acer negundo
Acer palmatum
Acer platanoides
Acer pseudo-platanus
Acer rubrum
Acer saccharum
Achillea millefolium
Achillea nobilis
Achillea ptarmica
Achillea sibirica
Achlys triphylla
Achyrachaena mollis
Acomastylis **depressa**
Aconitum X bicolor
Aconitum **bakeri**
Aconitum **carmichaelii**
Aconitum columbianum
Aconitum delphiniifolium
Aconitum gracilentum
Aconitum helleri
Aconitum lutescens
Aconitum napellus
Aconitum septentrionale
Aconitum uncinatum
Aconitum variegatum
Acorus calamus
Actaea pachypoda
Actaea Nbra
Adenocaulon bicolor
Adiantum capillus-veneris
Adiantum jordanii
Adiantum pedatum
Adonis aestivalis
Adonis annua
Adoxa moschatellina
Aegilops **cylindrica**
Aeginetia spp.
Aegopodium podagraria
Aesculus glabra
Aesculus hippocastanum
Aesculus octandra
Agalinis **aspera**
Agalinis tenuifolia
Agastache cusickii
Agastache foeniculum
Agastache occidentalis
Agastache scrophulariaefolia
Agastache urticifolia
Ageratina adenophora
Agoseris **alpestris**
Agoseris apargioides
Agoseris arizonica
Agoseris aurantiaca
Agoseris elata
Agoseris glauca
Agoseris gracilens
Agoseris grandiflora
Agoseris hendersonii
Agoseris heterophylla
Agoseris laciniata
Agoseris lackschewitzii
Agoseris margaritacea
Agoseris **retrorsa**
Agoseris taraxacifolia
Agoseris tenuifolia
Agrimonia gryposepala
Agrimonia striata
Agropyron amurense
Agropyron caninum
Agropyron cristatum
Agropyron dasytachyum
Agropyron desertorum
Agropyron elongatum
Agropyron inerme
Agropyron intermedium
Agropyron **repens**
Agropyron saxicola
Agropyron **scribneri**
Agropyron sibiricum
Agropyron smithii
Agropyron spicatum
Agropyron triticeum
Agrostemma githago
Agrostis **aequivalvis**
Agrostis **aspera**
Agrostis borealis
Agrostis diegoensis
Agrostis exarata
Agrostis hallii
Agrostis hiemalis
Agrostis howellii
Agrostis humilis
Agrostis hyemalis
Agrostis idahoensis
Agrostis interrupta
Agrostis longiligula
Agrostis microphylla
Agrostis oregonensis
Agrostis **pallens**
Agrostis **palustris**
Agrostis perennans
Agrostis racemosa
Agrostis rossiae
Agrostis scabra
Agrostis semiverticillata
Agrostis **spica-venti**
Agrostis stolonifera
Agrostis tenuis
Agrostis **thurberiana**
Agrostis variabilis
Ailanthus altissima
Aira caryophyllea
Aira elegans
Aira obtusata
Aira praecox
Ajuga **reptans**
Alchemilla occidentalis
Alchemilla **vulgaris**
Alectra ferocissimum
Aletes humilis
Alhagi **camelorum**
Alhagi pseudalhagi
Alisma gramineum
Alisma plantago-aquatica
Allenrolfea occidentalis
Allium aaseae
Allium acuminatum
Allium amplectens
Allium anceps
Allium **atrorubens**
Allium **bisceptrum**
Allium bolanderi
Allium brandegei

Allium brevistylum
Allium campanulatum
Allium canadense
Allium cemuum
Allium constrictum
Allium crenulatum
Allium cusickii
Allium **dictuon**
Allium douglasii
Allium drummondii
Allium falcifolium
Allium fibrillum
Allium geyeri
Allium giganteum
Allium lemmonii
Allium macrum
Allium madidum
Allium nevadense
Allium nevii
Allium nigrum
Allium **palmeri**
Allium parvum
Allium peninsulare
Allium perdulce
Allium platycaule
Allium **punctum**
Allium robinsonii
Allium sanbomii
Allium schoenoprasum
Allium scilloides
Allium **serratum**
Allium simillimum
Allium siskiyouense
Allium stellatum
Allium textile
Allium tolmiei
Allium tricoccum
Allium triquetrum
Allium unifolium
Allium validum
Allium viniale
Allotropa virgata
Alnus incana
Alnus rhombifolia
Alnus rubra
Alnus sinuata
Alopeurus aequalis
Alopecurus alpinus
Alopecurus arundinaceus
Alopecurus borealis
Alopecurus carohnianus
Alopecurus geniculatus
Alopecurus howellii
Alopecurus myosuroides
Alopecurus pratensis
Alopecurus saccatus
Alsine sincoei
Altemanthera pungens
Altemanthera **repens**
Altemanthera sessilis
Althaea officinalis
Althaea **rosea**
Alyssum alyssoides
Alyssum desertorum
Alyssum maritimum
Alyssum obovatum
Alyssum parviflorum
Amaranthus **albus**
Amaranthus arenicola
Amaranthus califomicus
Amaranthus caudatus
Amaranthus graecizans
Amaranthus **hybridus**
Amaranthus **palmeri**
Amaranthus powellii
Amaranthus **retroflexus**
Amaranthus **rudis**
Amaranthus tuberculatus
Ambrosia acanthicarpa
Ambrosia artemisifolia
Ambrosia chamissonis
Ambrosia **grayi**
Ambrosia psilostachya
Ambrosia tomentosa
Ambrosia **trifida**
Amelanchier **alnifolia**
Amelanchier cusickii
Amelanchier **florida**
Amelanchier humilis
Amelanchier **pallida**
Amelanchier utahensis
Ammannia auriculata
Ammannia coccinea
Ammophila arenaria
Amorpha canescens
Amorpha **fruticosa**
Amorpha **nana**
Amphicarpaea bracteata
Amsinckia carinata
Amsinckia intermedia
Amsinckia lycopsoides
Amsinckia menziesii
Amsinckia **retrorsa**
Amsinckia spectabilis
Amsinckia tessellata
Anagallis arvensis
Anaphalis margaritacea
Anchusa arvensis
Anchusa **azurea**
Anchusa barrelieri
Anchusa officinalis
Andromeda polifolia
Andropogon gerardii
Andropogon hallii
Andropogon scoparius
Androsace elongata
Androsace **filiformis**
Androsace lehmanniana
Androsace occidentalis
Androsace septentrionalis
Anelsonia eurycarpa
Anemone canadensis
Anemone caroliniana
Anemone **cylindrica**
Anemone deltoidea
Anemone drummondii
Anemone globosa
Anemone ludoviciana
Anemone lyallii
Anemone **multifida**
Anemone **nemorosa**
Anemone occidentalis
Anemone oregana
Anemone parviflora
Anemone **patens**
Anemone **piperi**
Anemone quinquefolia
Anemone virginiana
Anemopsis califomica
Anethum graveolens
Angelica arguta
Angelica canbyi
Angelica dawsonii
Angelica genuflexa
Angelica hendersoni
Angelica kingii
Angelica lucida
Angelica lyallii
Angelica pinnata
Angelica roseana
Angelica tomentosa
Anoda cristata
Antennaria alpina
Antennaria anaphaloides
Antennaria arcuata
Antennaria argentea
Antennaria **arida**
Antennaria aromatica
Antennaria corymbosa
Antennaria densifolia
Antennaria **dimorpha**
Antennaria **flagellaris**

Antennaria geyeri
Antennaria howellii
Antennaria lanata
Antennaria luzuloides
Antennaria microcephala
Antennaria microphylla
Antennaria monocephala
Antennaria **neglecta**
Antennaria parlinii
Antennaria parvifolia
Antennaria pulcherrima
Antennaria racemosa
Antennaria speciosa
Antennaria stenophylla
Antennariasuffrutescens
Antennaria umbrinella
Anthemis arvensis
Anthemis cotula
Anthemis tinctoria
Anthoxantum atistatum
Anthoxanthum odoratum
Anthriscus caucalis
Anthriscus cerefolium
Anthriscus sylvestris
Anthyllis vulneraria
Antirrhinum **breweri**
Antirrhinum orontium
Apargidium **boreale**
Apera spica-venti
Aphanes arvensis
Apios americana
Apium graveolens
Aplopappus **nanus**
Apocynum X floribundum
Apocynum X medium
Apocynum androsaemifolium
Apocynum cannabinum
Apocynum pumilum
Apocynum sibiricum
Apocynum tomentellum
Aquilegia brevistyla
Aquilegia canadensis
Aquilegia coerulea
Aquilegia flavescens
Aquilegia **formosa**
Aquilegia jonesii
Aquiiegia laramiensis
Arabidopsis salsuginea
Arabidopsis thaliana
Arabis aculeolata
Arabis alpina
Arabis brewer-i
Arabis canadensis
Arabis cobrensis
Arabis crandallii
Arabis crucisetosa
Arabis cusickii
Arabis davidsonii
Arabis demissa
Arabis dispar
Arabis divaricarpa
Arabis drummondii
Arabis falcifructa
Arabis fecunda
Arabis fendleri
Arabis femaldiana
Arabis fruiticosa
Arabis furcata
Arabis glabra
Arabis hirsuta
Arabis holboellii
Arabis koehleri
Arabis lemmonii
Arabis lignifera
Arabis lyallii
Arabis lyrata
Arabis macdonaldiana
Arabis microphylla
Arabis modesta
Arabis nuttallii
Arabis oregana
Arabis pendulocarpa
Arabis perelegans
Arabis platyspenna
Arabis puberula
Arabis pusilla
Arabis pycnocarpa
Arabis rectissima
Arabis selbyi
Arabis serpentinicola
Arabis shortii
Arabis sparsiflora
Arabis suffiutescens
Arabis williamsii
Aragallus besseyi
Aralia califomica
Aralia chinensis
Aralia elata
Aralia nudicaulis
Aralia racemosa
Aralia spinosa
Arbutus menziesii
Arbutus unedo
Arceuthobium americanum
Arceuthobium campylopodum
Arceuthobium douglasii
Arceuthobium tsugense
Arctium **lappa**
Arctium minus
Arctium tomentosum
Arctostaphylos X cinerea
Arctostaphylos canescens
Arctostaphylos cinerea
Arctostaphylos columbiana
Arctostaphylos glandulosa
Arctostaphylos hispidula
Arctostaphylos manzanita
Arctostaphylos nevadensis
Arctostaphylos parvifolia
Arctostaphylos patula
Arctostaphylos pungens
Arctostaphylos stanfordina
Arctostaphylos uva-ursi
Arctostaphylos **viscida**
Arenaria aculeata
Arenaria **burkei**
Arenaria califomica
Arenaria **capillaris**
Arenaria **congesta**
Arenaria douglasii
Arenaria **formosa**
Arenaria franklinii
Arenaria hookeri
Arenaria howellii
Arenaria kingii
Arenaria lateriflora
Arenaria macrophylla
Arenaria nuttallii
Arenaria obtusiloba
Arenaria paludicola
Arenaria pumicola
Arenaria pusilla
Arenaria rossii
Arenaria rubella
Arenaria sajanensis
Arenaria serpyllifolia
Arenaria **stricta**
Arenaria uintahensis
Argemone munita
Argemone polyanthemos
Arisaema triphyllum
Aristida glauca
Aristida ongiseta
Aristida oligantha
Aristida rightii
Armoracia rusticana
Arnica X gracilis
Arnica alpina
Arnica amplexicaulis
Arnica aurantiaca
Arnica betonicaefolia
Arnica cemua

Arnica chamissonis
Arnica cordifolia
Arnica discoidea
Arnica diversifolia
Arnica foliosa
Arnica fulgens
Arnica gracilis
Arnica latifoha
Arnica lonchophylla
Arnica longifolia
Arnica macounii
Arnica mollis
Arnica nevadensis
Arnica paniculata
Arnica parryi
Arnica parviflora
Arnica rydbergii
Arnica sororia
Arnica spathulata
Arnica tomentella
Arnica viscosa
Arrhenatherum elatius
Artemisia abrotanum
Artemisia absinthium
Artemisia annua
Artemisia arbuscula
Artemisia biennis
Artemisia campestris
Artemisia cana
Artemisia douglasiana
Artemisia dracunculus
Artemisia filifolia
Artemisia frigida
Artemisia gnaphalodes
Artemisia lindleyana
Artemisia longifolia
Artemisia longiloba
Artemisia ludoviciana
Artemisia michauxiana
Artemisia norvegica
Artemisia packardiae
Artemisia papposa
Artemisia pedatifida
Artemisia porteri
Artemisia pygmaea
Artemisia rigida
Artemisia rothrockii
Artemisia scopulorum
Artemisia spinescens
Artemisia suksdorfii
Artemisia tilesii
Artemisia tridentata
Artemisia trifurcata
Artemisia tripartita
Artemisia vulgar-is
Arum ithcum
Aruncus dioicus
Aruncus vulgar-is
Asarum canadense
Asarum caudatum
Asarum hartwegi
Asarum lemmonii
Asarum marmoratum
Asarum wagneri
Asclepias asperula
Asclepias cordifolia
Asclepias cryptoceras
Asclepias fascicularis
Asclepias incarnata
Asclepias labriformis
Asclepias lanuginosa
Asclepias ovalifolia
Asclepias pumila
Asclepias solanoana
Asclepias speciosa
Asclepias stenophylla
Asclepias subverticillata
Asclepias sullivantii
Asclepias syriaca
Asclepias tuberosa
Asclepias verticillata
Asclepias viridiflora
Asparagus officinalis
Asperugo procumbens
Asperula odorata
Aspidotis densa
Asplenium septentrionale
Asplenium trichomanes
Asplenium trichomanes-ramosum
Aster X amethystinus
Aster X bracteolatus
Aster X sagittifolius
Aster adscendens
Aster alpigenus
Aster alpinus
Aster amethystinus
Aster brachyactis
Aster brickellioides
Aster campestris
Aster chilensis
Aster ciliolatus
Aster conspicuus
Aster curtus
Aster eatonii
Aster elatus
Aster engelmannii
Aster ericoides
Aster falcatus
Aster fohaceus
Aster fremonti
Aster frondosus
Aster glaucescens
Aster glaucodes
Aster gormanii
Aster hesperius
Aster inegrifohus
Aster jessicae
Aster junciformis
Aster laeviculmis
Aster laevis
Aster lateriflorus
Aster ledophyllus
Aster lucidulus
Aster modestus
Aster mollis
Aster novae-angliae
Aster oblongifolius
Aster occidentalis
Aster ontarionis
Aster oolentangiensis
Aster oregonensis
Aster paludicola
Aster pansus
Aster paucicapitatus
Aster pauciflorus
Aster perelegans
Aster pilosus
Aster pubentior
Aster puniceus
Aster radulinus
Aster sagittifohus
Aster scopulorum
Aster sericeus
Aster shastensis
Aster sibircus
Aster sibiricus
Aster simplex
Aster siskiyouensis
Aster stenomeres
Aster subspicatus
Aster tephrodes
Aster vialis
Astilbe simplicifolia
Astragalus aboriginum
Astragalus accidens
Astragalus adanus
Astragalus adsurgens
Astragalus agnicidis
Astragalus agrestis
Astragalus alpinus
Astragalus alvordensis

Astragalus amblytropis
Astragalus americanus
Astragalus **amnis-amissi**
Astragalus anserinus
Astragalus applegatei
Astragalus aquilonius
Astragalus aretioides
Astragalus argophyllus
Astragalus arrectus
Astragalus **arthuri**
Astragalus **atratus**
Astragalus atropubescens
Astragalus australis
Astragalus barrii
Astragalus beckwithii
Astragalus bisulcatus
Astragalus bourgovii
Astragalus califomicus
Astragalus calycosus
Astragalus camptopus
Astragalus canadensis
Astragalus **caricinus**
Astragalus ceramicus
Astragalus chamaeleuce
Astragalus chinensis
Astragalus cibarius
Astragalus **cicer**
Astragalus **collinus**
Astragalus columbianus
Astragalus conjunctus
Astragalus cottonii
Astragalus crassicarpus
Astragalus curvicarpus
Astragalus cusickii
Astragalus dasyglottis
Astragalus diaphanus
Astragalus diumus
Astragalus diversifolius
Astragalus drabelliformis
Astragalus drummondii
Astragalus eremiticus
Astragalus eucosmus
Astragalus falcatus
Astragalus **filipes**
Astragalus flexuosus
Astragalus gambelianus
Astragalus geyeri
Astragalus **gilviflorus**
Astragalus glareosus
Astragalus gracilis
Astragalus **grayi**
Astragalus hoodianus
Astragalus **howellii**
Astragalus hyalinus
Astragalus impensus
Astragalus inflexus
Astragalus **inversus**
Astragalus iodanthus
Astragalus jejunus
Astragalus kentrophyta
Astragalus leibergii
Astragalus lemmonii
Astragalus lentiginosus
Astragalus **leptaleus**
Astragalus **lotiflorus**
Astragalus lyallii
Astragalus macounii
Astragalus malacus
Astragalus microcystis
Astragalus misellus
Astragalus miser
Astragalus missouriensis
Astragalus molybdenus
Astragalus **mortoni**
Astragalus mulfordiae
Astragalus neglectus
Astragalus newberryi
Astragalus nudisiliquus
Astragalus **obscurus**
Astragalus oniciformis
Astragalus oophorus
Astragalus oreganus
Astragalus palousensis
Astragalus paysonii
Astragalus peckii
Astragalus pectinatus
Astragalus plattensis
Astragalus platytropis
Astragalus promianthus
Astragalus pubentissimus
Astragalus pulsiferae
Astragalus purshii
Astragalus racemosus
Astragalus **reventiformis**
Astragalus reventus
Astragalus **riparius**
Astragalus robbinsii
Astragalus salinus
Astragalus **salmonis**
Astragalus scaphoides
Astragalus sclerocarpus
Astragalus sheldonii
Astragalus shultizorium
Astragalus sinuatus
Astragalus sonneanus
Astragaius spaldingii
Astragalus spatulatus
Astragalus speirocarpus
Astragalus stenophyllus
Astragalus succumbens
Astragalus tegetarioides
Astragalus tenellus
Astragalus terminalis
Astragalus tetrapterus
Astragalus **toanus**
Astragalus **tweedyi**
Astragalus tyghensis
Astragalus umbraticus
Astragalus utahensis
Astragalus vallaris
Astragalus **vexilliflexus**
Astragalus watsonianus
Astragalus **whitneyi**
Athyrium cyclosorum
Athyrium distentifolium
Athyrium filix-femina
Athysanus pusillus
Atriplex argentea
Atriplex califomica
Atriplex canescens
Atriplex confertifolia
Atriplex dioica
Atriplex halimus
Atriplex heterosperma
Atriplex hortensis
Atriplex hymenelytra
Atriplex lentiformis
Atriplex nummularia
Atriplex nuttallii
Atriplex oblongifolia
Atriplex patula
Atriplex phyllostegia
Atriplex powellii
Atriplex pusilla
Atriplex rosea
Atriplex truncata
Atropa belladonna
Aucuba japonica
Avena barbata
Avena dubia
Avena fatua
Avena sativa
Axyris amaranthoides
Azolla caroliniana
Azolla **filiculoides**
Azolla **mexicana**
Azolla pinnata
Baccharis douglasii
Baccharis **pilularis**
Bacopa rotundifolia
Baeria maritima
Baeria minor

Balsamorhiza X tomentosa
Balsamorhiza careyana
Balsamorhiza deltoidea
Balsamorhiza hirsuta
Balsamorhiza hookeri
Balsamorhiza incana
Balsamorhiza **macrophylla**
Balsamorhiza **rosea**
Balsamorhiza sagittata
Balsamorhiza sericea
Balsamorhiza serrata
Balsamorhiza terebinthacea
Barbarea americana
Barbarea orthoceras
Barbarea vema
Barbarea vulgaris
Bassia hirsuta
Bassia **hyssopifolia**
Beckmannia syzigachne
Belamcanda chinensis
Bellis perennis
Bensoniella oregona
Berberis aquifolium
Berberis piperiana
Berberis pumila
Berberis **repens**
Berberis thunbergii
Berberis **vulgaris**
Bergia **texana**
Berteroa incana
Berula erecta
Besseya rubra
Besseya wyomingensis
Beta **vulgaris**
Betula X **piperi**
Betula X sandbergii
Betula X sargentii
Betula X utahensis
Betula glandulosa
Betula **hallii**
Betula **lenta**
Betula occidentalis
Betula papyrifera
Betula pendula
Betula pumila
Bidens beckii
Bidenscemua
Bidens frondosa
Bidens p i l o s a
Bidens tenuisecta
Bidens tripartita
Bidens vulgata
Blechnum spicant
Blepharidachne kingii
Blepharipappus **scaber**
Blyxa aubertii
Boisduvalia densitlora
Boisduvalia glabella
Boisduvalia macrantha
Boisduvalia sparsiflora
Boisduvalia **stricta**
Bolandra oregana
Boltonia asteroides
Borago **officinalis**
Borreria alata
Boschniakia hookeri
Boschniakia strobilacea
Botrychium ascendens
Botrychium **boreale**
Botrychium campestre
Botrychium **crenulatum**
Botrychium hesperium
Botrychium **lanceolatum**
Botrychium **lunaria**
Botrychium matricariifolium
Botrychium minganense
Botrychium montanum
Botrychium multifidum
Botrychium paradoxum
Botrychium **pedunculosum**
Botrychium **pumicola**
Botrychium **silaifolium**
Botrychium simplex
Bouteloua **barbata**
Bouteloua **curtipendula**
Bouteloua gracilis
Bouteloua hirsuta
Boykinia elata
Boykinia intermedia
Boykinia major
Brachypodium distachyon
Brasenia schreberi
Brassica alba
Brassica **campestris**
Brassica hirta
Brassica juncea
Brassica kaber
Brassica **napus**
Brassica nigra
Brassica oleraceae
Braya humilis
Brickellia califomica
Brickellia grandiflora
Brickellia **greenei**
Brickellia microphylla
Brickellia **oblongifolia**
Briza maxima
Briza minor
Brodiaea **californica**
Brodiaea capitata
Brodiaea **congesta**
Brodiaea coronaria
Brodiaea crocea
Brodiaea dissimulata
Brodiaea douglasii
Brodiaea elegans
Brodiaea gracilis
Brodiaea hendersonii
Brodiaea **howellii**
Brodiaea hyacinthina
Brodiaea **ida-maia**
Brodiaea Iaxa
Brodiaea **multiflora**
Brodiaea pulchella
Brodiaea terrestris
Bromus anomalus
Bromus arenarius
Bromus arvensis
Bromus breviaristatus
Bromus brizaeformis
Bromus carinatus
Bromus catharticus
Bromus ciliatus
Bromus **commutatus**
Bromus diandrus
Bromus **erectus**
Bromus inermis
Bromus japonicus
Bromus **kalmii**
Bromus laevipes
Bromus **latiglumis**
Bromus macrostachys
Bromus madritensis
Bromus maritimus
Bromus **mollis**
Bromus orcuttianus
Bromus **pacificus**
Bromus **porteri**
Bromus **pubescens**
Bromus **racemosus**
Bromus **rigidus**
Bromus **rubens**
Bromus secalinus
Bromus sitchensis
Bromus squarrosus
Bromus sterilis
Bromus **suksdorfii**
Bromus tectorum
Bromus tomentellus
Bromus trinii
Bromus **vulgaris**
Bryonia alba

Bryonia dioica
Buchloe dactyloides
Buddleia davidii
Bulbostylis annua
Bulbostylis **capillaris**
Bupleurum americanum
. Butomus umbellatus
Cacalia plantaginea
Cacaliopsis nardosmia
Cakile edentula
Cakile maritima
Calamagrostis brewer-i
Calamagrostis califomica
Calamagrostis canadensis
Calamagrostis crassiglumis
Calamagrostis howellii
Calamagrostis koelerioides
Calamagrostis montanensis
Calamagrostis purpurascens
Calamagrostis rubescens
Calamagrostis scopulorum
Calamagrostis sesquiflora
Calamagrostis **stricta**
Calamagrostis **tweedyi**
Calamovilfa longifolia
Calandrinia caulescens
Calandrinia **ciliata**
Calla palustris
Callirhoe involucrata
Callitriche anceps
Callitriche fassettii
Callitriche hermaphroditica
Callitriche heterophylla
Callitriche marginata
Callitriche stagnalis
Callitriche trochlearis
Callitriche vema
Calocedrus decurrens
Calochortus amabilis
Calochortus apiculatus
Calochortus bruneaunis
Calochortus elegans
Calochortus eurycarpus
Calochortus greenei
Calochortus gunnisonii
Calochortus howellii
Calochortus **indecorus**
Calochortus longebarbatus
Calochortus lyallii
Calochortus macrocarpus
Calochortus maweanus
Calochortus nitidus
Calochortus nuttallii
Calochortus subalpinus
Calochortus tolmiei
Calochortus umpquaensis
Calochortus uniflorus
Calochortus vestae
Caltha asarifolia
Caltha biflora
Caltha howellii
Caltha leptosepala
Caltha palustris
Calycadenia ciliosa
Calycadenia **truncata**
Calycanthus **floridus**
Calylophus lavandulifolius
Calylophus serrulatus
Calypso bulbosa
Calyptridium roseum
Calystegia macounii
Calystegia sepium
Camassia cusickii
Camassia howellii
Camassia leichtlinii
Camassia ovata
Camassia **quamash**
Camassia suksdorfii
Camelina microcarpa
Camelina sativa
Camissonia claviformis
Camissonia graciliflora
Camissonia palmer-i
Camissonia parvula
Camissonia pterosperma
Camissonia pygmaea
Campanula aparinoides
Campanula elatines
Campanula glomerata
Campanula lasiocarpa
Campanula medium
Campanula **parryi**
Campanula persicifolia
Campanula **piperi**
Campanula prenanthoides
Campanula rapunculoides
Campanula rotundifolia
Campanula scabrella
Campanula **scouleri**
Campanula uniflora
Campsis radicans
Canbya **aurea**
Cannabis sativa
Capsella bursa-pastoris
Capsicum **frutescens**
Caragana arborescens
Caragana pygmaea
Cardamine bellidifolia
Cardamine **breweri**
Cardamine bulbosa
Cardamine califomica
Cardamine **concatenata**
Cardamine constancei
Cardamine cordifolia
Cardamine gemmata
Cardamine hirsuta
Cardamine lyallii
Cardamine oligosperma
Cardamine pattersonii
Cardamine pensylvanica
Cardamine pulcherrima
Cardamine rupicola
Cardaria chalapensis
Cardaria draba
Cardaria pubescens
Cardaria spp.
Cardionema ramosissima
Carduus acanthoides
Carduus **crispus**
Carduus nutans
Carduus pycnocephalus
Carduus tenuifloras
Carduus tenuiflorus
Carex ablata
Carex aboriginum
Carex abrupta
Carex adusta
Carex aenea
Carex aggregata
Carex albonigra
Carex alopecoidea
Carex amplifolia
Carex **angustata**
Carex anthoxanthea
Carex **aperta**
Carex aquatilis
Carex arapahoensis
Carex arcta
Carex assiniboinensis
Carex atherodes
Carex athrostachya
Carex atrata
Carex **aurea**
Carex backii
Carex barbarae
Carex bebbii
Carex **bella**
Carex bicknellii
Carex bigelowii
Carex bipartita
Carex **blanda**
Carex brainerdii

Carex brevicaulis
Carex brevior
Carex **breweri**
Carex brunnescens
Carex buxbaumii
Carex califomica
Carex campylocarpa
Carex canescens
Carex **capillaris**
Carex capitata
Carex chordorrhiza
Carex circinata
Carex comosa
Carex concinna
Carex-concinnoides
Carex convoluta
Carex crawei
Carex crawfordii
Carex cristatella
Carex cusickii
Carex **densa**
Carex deweyana
Carex diandra
Carex dioica
Carex disperma
Carex douglasii
Carex drummondiana
Carex ebenea
Carex ebumea
Carex echinata
Carex elynoides
Carex **emoryi**
Carex epapillosa
Carex eurycarpa
Carex festucacea
Carex feta
Carex filifolia
Carex flava
Carex foenea
Carex foetida
Carex **formosa**
Carex fracta
Carex geyeri
Carex **gigas**
Carex gracillima
Carex granularis
Carex gravida
Carex gymnoclada
Carex gynodynama
Carex halliana
Carex hassei
Carex haydeniana
Carex haydenii
Carex hendersonii
Carex hoodii
Carex hookerana
Carex hystricina
Carex **illota**
Carex integra
Carex interior
Carex interrupta
Carex intumescens
Carex jonesii
Carex lacustris
Carex laeviconica
Carex laeviculmis
Carex lanuginosa
Carex lasiocarpa
Carex lenticularis
Carex Ieporina
Carex leporinella
Carex leptalea
Carex limnophila
Carex **limosa**
Carex **livida**
Carex luzulina
Carex lyngbyei
Carex macrocephala
Carex macrochaeta
Carex maritima
Carex meadii
Carex mendocinensis
Carex mertensii
Carex microglochin
Carex microptera
Carex misandra
Carex **molesta**
Carex multicaulis
Carex multicostata
Carex nardina
Carex nebraskensis
Carex nervina
Carex neurophora
Carex nigricans
Carex **normalis**
Carex norvegica
Carex nova
Carex nubicola
Carex nudata
Carex obnupta
Carex obovoidea
Carex obtusata
Carex occidentalis
Carex oederi
Carex oregonensis
Carex **ormantha**
Carex pachycarpa
Carex pachystachya
Carex **pansa**
Carex parryana
Carex paucicostata
Carex pauciflora
Carex paupercula
Carex paysonis
Carex peckii
Carex pedunculata
Carex pensylvanica
Carex petasata
Carex petricosa
Carex phaeocephala
Carex phyllomanica
Carex pluriflora
Carex podocarpa
Carex praeceptorum
Carex praegracilis
Carex prairea
Carex praticola
Carex prionophylla
Carex **proposita**
Carex **pseudo-cyperus**
Carex pyrenaica
Carex raynoldsii
Carex **retrorsa**
Carex richardsonii
Carex **rosea**
Carex rossii
Carex rupestris
Carex sarhvellii
Carex saxatilis
Carex saximontana
Carex scabriuscula
Carex scirpoidea
Carex scoparia
Carex scopulorum
Carex **senta**
Carex serratodens
Carex sheldonii
Carex simulata
Carex sitchensis
Carex spectabilis
Carex sprengelii
Carex stenophylla
Carex stenoptila
Carex sterilis
Carex stipata
Carex straminiformis
Carex **stricta**
Carex stylosa
Carex subfusca
Carex subnigricans
Carex substricta
Carex sychnocephala

Carex **tenera**
Carex **teneraeformis**
Carex tenuiflora
Carex tetanica
Carex tincta
Carex tolmiei
Carex torreyi
Carex **tracyi**
Carex tribuloides
Carex tumulicola
Carex umbellata
Carex unilateralis
Carex utriculata
Carex vaginata
Carex vallicola
Carex vesicaria
Carex viridior
Carex vulpinoidea
Carex xerantica
Carpinus **betulus**
Carthamus baeticus
Carthamus lanatus
Carthamus leucocaulos
Carthamus oxycantha
Carthamus tinctorius
Carum carvi
Carya laciniosa
Carya **ovata**
Cassiope lycopodioides
Cassiope mertensiana
Cassiope stelleriana
Cassiope tetragona
Castanea dentata
Castanopsis chrysophylla
Castanopsis sempervirens
Castilleja affinis
Castilleja angustifolia
Castilleja applegatei
Castilleja arachnoidea
Castilleja breviolobata
Castilleja cervina
Castilleja chlorotica
Castilleja **christii**
Castilleja chromosa
Castilleja chrysantha
Castilleja covilleana
Castilleja crispula
Castilleja **crista-galli**
Castilleja cry-ptantha
Castilleja cusickii
Castilleja elata
Castilleja **elmeri**
Castilleja exilis
Castilleja flava
Castilleja **fraterna**
Castilleja glandulifera
Castilleja gracillima
Castilleja hispida
Castilleja **inverta**
Castilleja lapidicola
Castilleja lauta
Castilleja lemmonii
Castilleja levisecta
Castilleja linariaefolia
Castilleja longispica
Castilleja **lutea**
Castilleja lutescens
Castilleja miniata
Castilleja nivea
Castilleja occidentalis
Castilleja oreopola
Castilleja oresbia
Castilleja ownbeyana
Castilleja pallescens
Castilleja parviflora
Castilleja **peckiana**
Castilleja pilosa
Castilleja pinetorum
Castilleja pruinosa
Castilleja psittacina
Castilleja pulchella
Castilleja rhexifolia
Castilleja **rubida**
Castilleja rupicola
Castilleja **rustica**
Castilleja schizotricha
Castilleja sessiliflora
Castilleja suksdorfii
Castilleja sulphurea
Castilleja thompsonii
Castilleja viscidula
Castilleja wightii
Castilleja xanthotricha
Catabrosa **aquatica**
Catalpa **speciosa**
Caucalis **microcarpa**
Caulanthus crassicaulis
Caulanthus pilosus
Caulophyllum thalictroides
Ceanothus cordulatus
Ceanothus cuneatus
Ceanothus fendleri
Ceanothus herbaceus
Ceanothus integerrimus
Ceanothus prostratus
Ceanothus pumilus
Ceanothus sanguineus
Ceanothus thyrsiflorus
Ceanothus velutinus
Celastrus orbiculata
Celastrus **scandens**
Celtis douglasii
Celtis occidentalis
Celtis reticulata
Cenchrus carolinianus
Cenchrus longispinus
Centaurea calcitrapa
Centaurea **cyanus**
Centaurea dealbata
Centaurea **diffusa**
Centaurea dubia
Centaurea **iberica**
Centaurea jacea
Centaurea juncea
Centaurea juncea x nigra
Centaurea macrocephala
Centaurea maculosa
Centaurea melitensis
Centaurea **montana**
Centaurea nigra
Centaurea nigrescens
Centaurea pratensis
Centaurea **repens**
Centaurea scabiosa
Centaurea solstitialis
Centaurea trichocephala
Centaurea **virgata**
Centaurium **exaltatum**
Centaurium muhlenbergii
Centaurium **namophilum**
Centaurium **umbellatum**
Centranthus **ruber**
Centunculus **minimus**
Cephalanthera austinae
Cerastium arvense
Cerastium berringianum
Cerastium dubium
Cerastium nutans
Cerastium semidecandrum
Cerastium siculum
Cerastium strictum
Cerastium tomentosum
Cerastium viscosum
Cerastium vulgatum
Ceratoides lanata
Ceratophyllum **demersum**
Cercis canadensis
Cercocarpus betuloides
Cercocarpus ledifolius
Cercocarpus montanus
Chaenactis alpina
Chaenactis cusickii

Chaenactis douglasii
Chaenactis evermannii
Chaenactis macrantha
Chaenactis nevii
Chaenactis ramosa
Chaenactis stevioides
Chaenactis thompsonii
Chaenomeles japonica
Chaenorrhinum minus
Chaetadelpha **wheeleri**
Chamaebatiaria **millifolium**
Chamaechaenactis scaposa
Chamaecyparis lawsoniana
Chamaecyparis nootkatensis
Chamaecyparis pisifera
Chamaerhodos **erecta**
Chamaesaracha **nana**
Chamaesyce **ocellata**
Cheilanthes **densa**
Cheilanthes **feei**
Cheilanthes gracillima
Cheilanthes intertexta
Cheilanthes lanosa
Chelidonium majus
Chenopodium album
Chenopodium ambrosioides
Chenopodium **botrys**
Chenopodium bushianum
Chenopodium capitatum
Chenopodium chenopodioides
Chenopodium **foliosum**
Chenopodium fremontii
Chenopodium gigantospermum
Chenopodium glaucum
Chenopodium leptophyllum
Chenopodium murale
Chenopodium **overi**
Chenopodium pratericola
Chenopodium pumilio
Chenopodium **rubrum**
Chenopodium standleyanum
Chenopodium **strictum**
Chenopodium watsonii
Chimaphila menziesii
Chimaphila umbellata
Chionophila **tweedyi**
Chloris verticillata
Chloris virgata
Chlorocrambe hastata
Chlorogalum angustifolium
Chlorogalum pomeridianum
Chondrilla juncea
Chorispora **tenella**
Chorizanthe brevicomu
Chorizanthe watsonii
Chrysanthemum balsamita
Chrysanthemum leucanthemum
Chrysanthemum maximum
Chrysanthemum parthenium
Chrysanthemum segetum
Chrysolepis **chrysophylla**
Chrysolepis sempervirens
Chrysolepsis chrysophylla
Chrysopogon aciculatus
Chrysopsis **horrida**
Chrysopsis **oregona**
Chrysopsis stenophylla
Chrysopsis villosa
Chrysosplenium glechomaefolium
Chrysosplenium tetrandrum
Chrysothamnus albidus
Chrysothamnus **greenei**
Chrysothamnus humilis
Chrysothamnus **linifolius**
Chrysothamnus nauseosus
Chrysothamnus **parryi**
Chrysothamnus viscidiflorus
Cicer arietinum
Cichorium **endiva**
Cichorium intybus
Cicuta bulbifera
Cicuta douglasii
Cicuta maculata
Cicuta vagans
Cimicifuga elata
Cimicifuga laciniata
Cinna **arundinacea**
Cinna latifolia
Circaea alpina
Circaea lutetiana
Circaea **pacifica**
Cirsium acanthodoton
Cirsium acaulescens
Cirsium altissimum
Cirsium americanum
Cirsium andersonii
Cirsium arvense
Cirsium brevifolium
Cirsium brevistylum
Cirsium **breweri**
Cirsium callilepis
Cirsium canescens
Cirsium canovirens
Cirsium centaureae
Cirsium ciliolatum
Cirsium coulteri
Cirsium davisii
Cirsium drummondii
Cirsium edule
Cirsium flodmanii
Cirsium **foliosum**
Cirsium **hallii**
Cirsium hookerianum
Cirsium lanceolatum
Cirsium **longistylum**
Cirsium magnificum
Cirsium muticum
Cirsium neomexicanum
Cirsium ochrocentrum
Cirsium pastor-is
Cirsium **polyphyllum**
Cirsium pulcherrimum
Cirsium remotifolium
Cirsium scariosum
Cirsium subniveum
Cirsium **tweedyi**
Cirsium undulatum
Cirsium utahense
Cirsium vulgare
Cistus X hybidus
Cistus salvifolius
Cladothamnus pyrolaeflorus
Cladothamnus pyroliflorus
Clarkia amoena
Clarkia gracilis
Clarkia pulchella
Clarkia purpurea
Clarkia **quadrivulnera**
Clarkia rhomboidea
Clarkia viminea
Claytonia asarifolia
Claytonia bellidifolia
Claytonia chamissoi
Claytonia chrysantha
Claytonia **dichotoma**
Claytonia lanceolata
Claytonia megarhiza
Claytonia megarrhiza
Claytonia nivalis
Claytonia parvifolia
Clematis hirsutissima
Clematis ligusticifolia
Clematis occidentalis
Clematis orientalis
Clematis virginiana
Clematis vitalba
Cleome **lutea**
Cleome **multicaulis**
Cleome **platycarpa**
C l e o m e **serrulata**
Cleomella macbrideana

Cleomella oocarpa
Cleomella parviflora
Cleomella plocasperma
Clerodendrum thompsoniae
Clerodendrum trichotomum
Clintonia andrewsiana
Clintonia uniflora
Cnicus benedictus
Cocconia **grandis**
Cochleria officinalis
Coldenia nuttallii
Coleanthus subtilis
Collinsia floribunda
Collinsia grandiflora
Collinsia **greenei**
Collinsia **linearis**
Collinsia parviflora
Collinsia pusilla
Collinsia rattanii
Collinsia **sparsiflora**
Collinsia **tenella**
Collinsia torreyi
Collomia aristella
Collomia debilis
Collomia grandiflora
Collomia heterophylla
Collomia linear-is
Collomia macrocalyx
Collomia mazama
Collomia **tenella**
Collomia tinctoria
Comandra califomica
'Comandra umbellata
Commelina **communis**
Conimitella williamsii
Conioselinum Chinese
Conioselinum pacificum
Conioselinum scopulorum
Conium maculatum
Conringia orientalis
Convallaria majalis
Convolvulus arvensis
Convolvulus califomicus
Convolvulus calystegia
Convolvulus japonicus
Convolvulus nyctagineus
Convolvulus **polymorphus**
Convolvulus subacaulis
Conyza bonariensis
Conyza canadensis
Conyza ramosissima
Coptis asplenifolia
Coptis laciniata
Coptis occidentalis
Corallorhiza **maculata**
Corallorhiza mertensiana
Corallorhiza odontorhiza
Corallorhiza striata
Corallorhiza **trifida**
Corallorhiza wisteriana
Cordyalis aquae-gelidae
Cordylanthus capitatus
Cordylanthus parviflorus
Cordylanthus ramosus
Cordylanthus tenuis
Cordylanthus **viscidus**
Coreopsis tinctoria
Coriandrum sativum
Corispermum hyssopifolium
Corispermum nitidum
Corispermum orientale
Corispermum sibericum
Comus alba
Comus canadensis
Comus drummondii
Comus foemina
Comus glabrata
Comus mas
Comus nuttallii
Comus occidentalis
Comus stolonifera
Coronilla varia
Coronopus didymus
Corydalis aquae-gelidae
Corydalis **aurea**
Corydalis caseana
Corydalis cusickii
Corydalis **lutea**
Corydalis scouleri
Corydalis sempervirens
Corylus americana
Corylus avellana
Corylus **colurna**
Corylus **cornuta**
Coryphantha missouriensis
Coryphantha vivipam
Cotinus coggygria
Cotoneaster acutifolius
Cotoneaster bullatus
Cotoneaster foveolata
Cotoneaster franchetti
Cotoneaster lactea
Cotoneaster **lucidus**
Cotoneaster tenuipes
Cotoneaster tomentosus
Cotula coronopifolia
Cowania **mexicana**
Crassula **aquatica**
Crassula **connata**
Crassula viridis
Crataegus columbiana
Crataegus douglasii
Crataegus mollis
Crataegus monogyna
Crataegus oxycantha
Crataegus succulenta
Crataegus suksdorfii
Crateegus carrierei
Crepis **acuminata**
Crepis atribarba
Crepis baker-i
Crepis barbigera
Crepis **capillaris**
Crepis elegans
Crepis intermedia
Crepis modocensis
Crepis monticola
Crepis **nana**
Crepis nicaeensis
Crepis occidentalis
Crepis pleurocarpa
Crepis runcinata
Crepis setosa
Crepis tectorum
Crocidium muhicaule
Crocosmia X crocosmiiflora
Crocosmia masoniorum
Crocosmia **pottsi**
Croton capitatus
Croton texensis
Crucianella angustifolia
Crupina **vulgaris**
Crypsis alopecuroides
Crypsis vaginiflora
Cryptantha affinis
Cryptantha ambigua
Cryptantha **breviflora**
Cryptantha **caespitosa**
Cryptantha **cana**
Cryptantha celosioides
Cryptantha circumscissa
Cryptantha echinella
Cryptantha fendleri
Cryptantha **flaccida**
Cryptantha flava
Cryptantha flavoculata
Cryptantha **fulvocanescens**
Cryptantha gracilis
Cryptantha humilis
Cryptantha inter-media
Cryptantha interrupta
Cryptantha jamesii

Cryptantha kelseyana
Cryptantha leiocarpa
Cryptantha leucophaea
Cryptantha **milobakeri**
Cryptantha minima
Cryptantha muriculata
Cryptantha nevadensis
Cryptantha nubigena
Cryptantha propria
Cryptantha pterocarya
Cryptantha recurvata
Cryptantha rostellata
Cryptantha rugulosa
Cryptantha salmonensis
Cryptantha scoparia
Cryptantha sericea
Cryptantha simulans
Cryptantha **stricta**
Cryptantha subcapitata
Cryptantha thompsonii
Cryptantha thyrsiflora
Cryptantha torreyana
Cryptantha watsonii
Cryptogramma cascadensis
Cryptogramma **crispa**
Cryptogramma densa
Cryptogramma **stelleri**
Cryptomeria japonica
Cryptotaenia canadensis
Cucumis anguria
Cucumis **melo**
Cunninghamia lanceolata
Cuphea hyssopifolia
Cupressus **bakeri**
Cupressus macrocarpa
Cupressus **sempervirens**
Cuscuta approximata
Cuscuta californica
Cuscuta cephalanthi
Cuscuta coryli
Cuscuta cuspidata
Cuscuta **denticulata**
Cuscuta dodder
Cuscuta epithymum
Cuscuta **glomerata**
Cuscuta gronovii
Cuscuta indecora
Cuscuta occidentalis
Cuscuta pentagona
Cuscuta planiflora
Cuscuta polygonorum
Cuscuta **salina**
Cuscuta spp.
Cuscuta subinclusa
Cuscuta **suksdorfii**
Cycloloma atriplicifolium
Cydonia **oblonga**
Cydonia sinensis
Cymbalaria **muralis**
Cymopterus acaulis
Cymopterus bipinnatus
Cymopterus corrugatus
Cymopterus davisii
Cymopterus douglassii
Cymopterus evertii
Cymopterus **glaucus**
Cymopterus hendersonii
Cymopterus ibapensis
Cymopterus longipes
Cymopterus montanus
Cymopterus nivalis
Cymopterus petraeus
Cymopterus purpurascens
Cymopterus terebinthinus
Cymopterus **watsoni**
Cymopterus williamsii
Cynara cardunculus
Cynara scolymus
Cynodon **dactylon**
Cynoglossum **boreale**
Cynoglossum echinatus
Cynoglossum grande
Cynoglossum occidentale
Cynoglossum officinale
Cynosurus cristatus
Cynosurus echinatus
Cyperus **acuminatus**
Cyperus aristatus
Cyperus bipartitus
Cyperus diandrus
Cyperus engelmannii
Cyperus eragrostis
Cyperus **erythrorhizos**
Cyperus esculentus
Cyperus lupulinus
Cyperus odoratus
Cyperus rivularis
Cyperus rotundus
Cyperus schweinitzii
Cyperus stligosus
Cypripedium X andrewsii
Cypripedium calceolus
Cypripedium californicum
Cypripedium candidum
Cypripedium **fasciculatum**
Cypripedium montanum
Cypripedium passerinum
Cypripedium reginae
Cystopteris bulbifera
Cystopteris fragilis
Cystopteris montana
Cytisus monspessulanus
Cytisus **multiflorus**
Cytisus praecox
Cytisus scoparius
Dactylis glomerata
Dalea aurea
Dalea candida
Dalea cylindriceps
Dalea enneandra
Dalea leporina
Dalea purpurea
Dalea searlsiae
Dalea villosa
Damasonium californicum
Danthonia californica
Danthonia intermedia
Danthonia **parryi**
Danthonia spicata
Danthonia **unispicata**
Daphne X burkwoodii
Daphne cneorum
Daphne laureola
Daphne mezereum
Dasynotus daubenmirei
Datum inoxia
Datura stramonium
Daucus carota
Daucus pusillus
Delphinium X xylorrhizum
Delphinium ajacis
Delphinium andersonii
Delphinium barbeyi
Delphinium bicolor
Delphinium **burkei**
Delphinium columbianum
Delphinium cyanoreios
Delphinium decorum
Delphinium depauperatum
Delphinium distichum
Delphinium geyeri
Delphinium **glareosum**
Delphinium glaucum
Delphinium gracilentum
Delphinium leucophaeum
Delphinium **lineapetalum**
Delphinium menziesii
Delphinium **multiflorum**
Delphinium multiplex
Delphinium nelsonii
Delphinium nudicaule
Delphinium **nuttallianum**

Delphinium **nuttallii**
Delphinium occidentale
Delphinium oreganum
Delphinium pavonaceum
Delphinium simplex
Delphinium sonnei
Delphinium stachydeum
Delphinium trolliifolium
Delphinium **viridescens**
Delphinium xantholeucum
Dentaria cardiophylla
Dentaria gemmata
Dentaria grandiflora
Dentaria tenella
Deschampsia atropurpurea
Deschampsia danthonioides
Deschampsia elongata
Descurainia califomica
Descurainia incana
Descurainia **incisa**
Descurainia longipedicellata
Descurainia pinnata
Descurainia richardsonii
Descurainia sophia
Descurainia torulosa
Desmanthus illinoensis
Desmodium canadense
Desmodium glutinosum
Deutzia **scabra**
Dianthus armeria
Dianthus barbatus
Dianthus deltoides
Dicentra cucullaria
Dicentra formosa
Dicentra pauciflora
Dicentra uniflora
Dichelostemma **ida-maia**
Dichelostemma venustum
Diervilla lonicera
Digitalis purpurea
Digitaria abyssinica
Digitaria ischaemum
Digitaria sanguinalis
Digitaria **scalarum**
Digitaria velutina
Dimeresia howellii
Dioscorea batatas
Diplotaxis **muralis**
Dipsacus **fullonum**
Dirca palustris
Disporum hooker-i
Disporum smithii
Disporum trachycarpum
Distichlis spicata
Dodecatheon alpinum
Dodecatheon austrofiigidum
Dodecatheon conjugens
Dodecatheon dentatum
Dodecatheon hendersonii
Dodecatheon **jeffreyi**
Dodecatheon poeticum
Dodecatheon pulchellum
Dodecatheon tetrandrum
Doronicum plantagineum
Douglasia idahoensis
Douglasia laevigata
Douglasia montana
Douglasia nivalis
Downingia bacigalupii
Downingia bicomuta
Downingia elegans
Downingia laeta
Downingia pulchella
Downingia willamettensis
Downingia **yina**
Draba albertina
Draba apiculata
Draba argyraea
Draba aurea
Draba aureola
Draba borealis
Draba brachycarpa
Draba camosula
Draba crassa
Draba crassifolia
Draba cuneifolia
Draba densifolia
Draba douglasii
Draba fladnizensis
Draba glabella
Draba glacialis
Draba hitchcockii
Draba howellii
Draba incerta
Draba lanceolata
Draba lemmonii
Draba lonchocarpa
Draba longipes
Draba luteola
Draba macounii
Draba nemorosa
Draba nitida
Draba nivalis
Draba oligosperma
Draba oreibata
Draba paysonii
Draba pectinata
Draba porsildii
Draba praealta
Draba reptans
Draba ruaxes
Draba sphaerioides
Draba sphaerocarpa
Draba stenoloba
Draba trichocarpa
Draba ventosa
Draba vema
Dracocephalum **nuttallii**
Dracocephalum parviflorum
Dracocephalum thymiflomm
Dracopis amplexicaulis
Dracunculus **vulgaris**
Drosera **anglica**
Drosera **linearis**
Drosera longifolia
Drosera rotundifolia
Dryas drummondii
Dryas integrifolia
Dryas octopetala
Drymaria arenarioides
Dryopteris X uliginosa
Dryopteris arguta
Dryopteris cristata
Dryopteris disjuncta
Dryopteris filix-mas
Dryopteris **spinulosa**
Dudleya farinosa
Dulichium arundinaceum
Dyssodia papposa
Eatonella **nivea**
Eatonia intermedia
Eburophyton austiniae
Echinacea angustifolia
Echinocereus engelmannii
Echinochloa **colona**
Echinochloa **crusgalli**
Echinochloa muricata
Echinocystis lobata
Echinops **exaltatus**
Echinops **ritro**
Echinops ruthenicus
Echinops sphaerocephalus
Echium **vulgare**
Edwardii **tedi**
Egeria **densa**
Eichhomia **azurea**
Eiogonum proliferum
Elaeagnus angustifolia
Elaeagnus **commutata**
Elaeagnus multiflora
Elaeagnus umbellata
Elatine **brachysperma**

Elatine californica
Elatine triandra
Eleocharis acicularis
Eleocharis atropurpurea
Eleocharis **bella**
Eleocharis bolanderi
Eleocharis compressa
Eleocharis flavescens
Eleocharis montevidensis
Eleocharis obtusa
Eleocharis **palustris**
Eleocharis parvula
Eleocharis pauciflora
Eleocharis rostellata
Eleocharis smallii
Eleocharis tenuis
Eleocharis wolfii
Eleusine **indica**
Ellisia nyctelea
Elmera racemosa
Elodea bifoliata
Elodea canadensis
Elodea longivaginata
Elodea **nuttallii**
Elodea schweinitzii
Elsholtzia **ciliata**
Elyhordeum X macounii
Elyhordeum X montanense
Elyleymus X aristatus
Elymus X hansenii
Elymus X pseudorepens
Elymus X saundersii
Elymus X saxicolus
Elymus ambiguus
Elymus arenicola
Elymus aristatus
Elymus brevifolius
Elymus canadensis
Elymus **caput-medusae**
Elymus cinereus
Elymus **condensatus**
Elymus diversiglumis
Elymus flavescens
Elymus **glaucus**
Elymus **hirsutus**
Elymus innovatus
Elymus junceus
Elymus macounii
Elymus **mollis**
Elymus pungens
Elymus racemosa
Elymus triticoides
Elymus villosus
Elymus virginicus
Emex **australis**
Emex spinosa
Empetrum **nigrum**
Enceliopsis nudicaulis
Ephedra nevadensis
Ephedra viridis
Epilobium alpinum
Epilobium angustifolium
Epilobium brachycarpum
Epilobium **brevistylum**
Epilobium canum
Epilobium ciliatum
Epilobium **coloratum**
Epilobium **exaltatum**
Epilobium **fastigiatum**
Epilobium **glaberrimum**
Epilobium halleanum
Epilobium hirsutum
Epilobium juncundum
Epilobium latifolium
Epilobium leptophyllum
Epilobium luteum
Epilobium minutum
Epilobium nivium
Epilobium obcordatum
Epilobium occidentale
Epilobium **palustre**
Epilobium paniculatum
Epilobium pringleanum
Epilobium rigidum
Epilobium siskiyouense
Epilobium **suffruticosum**
Epilobium ursinum
Epipactis gigantea
Epipactis helleborine
Equisetum X ferrissii
Equisetum X mackaii
Equisetum X nelsonii
Equisetum **arvense**
Equisetum fluviatile
Equisetum hyemale
Equisetum laevigatum
Equisetum **litorale** ,
Equisetum **palustre**
Equisetum pratense
Equisetum prealtum
Equisetum scirpoides
Equisetum sylvaticum
Equisetum telmateia
Equisetum variegatum
Eragrostis cilianensis
Eragrostis curvula
Eragrostis hypnoides
Eragrostis lutescens
Eragrostis **mexicana**
Eragrostis minor
Eragrostis multicaulis
Eragrostis orcuttiana
Eragrostis pectinacea
Eragrostis pilosa
Eragrostis **reptans**
Eragrostis spectabilis
Erechtites arguta
Erechtites hieracifolia
Erechtites minima
Erechtites prenanthoides
Erectites minima
Eremocarpus setigerus
Eremurus X **warei**
Eriastmm **sparsiflorum**
Ericameria discoidea
Erigeron acris
Erigeron aliceae
Erigeron allocotus
Erigeron **annus**
Erigeron annuus
Erigeron aphanactis
Erigeron argentatus
Erigeron asperugineus
Erigeron **aureus**
Erigeron basalticus
Erigeron **bellidiastrum**
Erigeron **bloomeri**
Erigeron caespitosus
Erigeron **canus**
Erigeron cascadensis
Erigeron cervinus
Erigeron chrysopsidis
Erigeron compositus
Erigeron concinnus
Erigeron corymbosus
Erigeron coulteri
Erigeron cronquistii
Erigeron decumbens
Erigeron **delicatus**
Erigeron **disparipilus**
Erigeron divergens
Erigeron eatonii
Erigeron elatior
Erigeron elegantulus
Erigeron engelmannii
Etigeron evermannii
Erigeron filifolius
Erigeron flabellifolius
Erigeron flagellaris
Erigeron **flettii**
Erigeron **foliosus**
Erigeron formosissimus

Erigeron glabellus
Erigeron **glaucus**
Erigeron gracilis
Erigeron grandiflorus
Erigeron **howellii**
Erigeron humilis
Erigeron inomatus
Erigeron lackschewitzii
Erigeron lanatus
Erigeron leibergii
Erigeron leiomerus
Erigeron **linearis**
Erigeron lonchophyllus
Erigeron macranthus
Erigeron **nanus**
Erigeron nevadincola
Erigeron ochroleucus
Erigeron oreganus
Erigeron **pallens**
Erigeron peregrinus
Erigeron petrophilus
Erigeron peucephyllus
Erigeron philadelphicus
Erigeron piperianus
Erigeron poliospermus
Erigeron pulcherrimus
Erigeron pumilus
Erigeron radicatus
Erigeron **rydbergii**
Erigeron salishii
Erigeron salmonensis
Erigeron salsuginosus
Erigeron simplex
Erigeron **speciosus**
Erigeron strigosus
Erigeron subtrinervis
Erigeron tener
Erigeron **tweedyi**
Erigeron ursinus
Erigeron vagus
Eriogonum X **lagopus**
Eriogonum acaule
Eriogonum alatum
Eriogonum androsaceum
Eriogonum angulosum
Eriogonum annuum
Eriogonum **baileyi**
Eriogonum caespitosum
Eriogonum capistratum
Eriogonum cemuum
Eriogonum chrysocephalu**m**
Eriogonum chrysops
Eriogonum compositum
Eriogonum congdonii
Eriogonum cusickii
Eriogonum deflexum
Eriogonum desertorum
Eriogonum dichotomum
Eriogonum diclinum
Eriogonum douglasii
Eriogonum effusum
Eriogonum elatum
Eriogonum flavum
Eriogonum heermanii
Eriogonum heracleoides
Eriogonum hirtellum
Eriogonum hookeri
Eriogonum incanum
Eriogonum inerme
Eriogonum kingii
Eriogonum latifolium
Eriogonum lewisii
Eriogonum lobbii
Eriogonum maculatum
Eriogonum mancum
Eriogonum marifolium
Eriogonum meledonum
Eriogonum microthecum
Eriogonum nidularium
Eriogonum niveum
Eriogonum novundum
Eriogonum nudum
Eriogonum **ochrocephalum**
Eriogonum ovalifolium
Eriogonum palmerianum
Eriogonum **pauciflorum**
Eriogonum pendulum
Eriogonum **piperi**
Eriogonum prociduum
Etiogonum proliferum
Eriogonum pusillum
Eriogonum pyrolifolium
Eriogonum salicomioides
Eriogonum salsuginosum
Eriogonum scopulorum
Eriogonum shockleyi
Eriogonum siskiyouense
Eriogonum sp. nov. war eagle mtn.
Eriogonum speciosum
Eriogonum spergulinum
Eriogonum sphaerocephalum
Eriogonum stellatum
Eriogonum strictum
Eriogonum subalpinum
Eriogonum tematum
Eriogonum thymoides
Eriogonum tolmieanum
Eriogonum umbellatum
Eriogonum vimineum
Eriogonum visheri
Eriogonum watsonii
Erioneuron pilosum
Eriophorum **brachyantherum**
Eriophorum **callitrix**
Eriophorum chamissonis
Eriophomm **gracile**
Eriophomm polystachion
Eriophomm scheuchzeri
Eriophorum virginicum
Eriophorum viridicarinatum
Eriophyllum lanatum
Eriophyllum lanceolatum
Eriophyllum staechadifolium
Eriophyllum **watsoni**
Eritrichium elongatum
Eritrichium howardii
Eritrichium nanum
Erodium botrys
Erodium cicutarium
Erodium moschatum
Erodium obtusiplicatum
Eruca sativa
Erucastrum gallicum
Eryngium alismifolium
Eryngium articulatum
Eryngium petiolatum
Erysimum arenicola
Erysimum **asperum**
Erysimum cheiranthoides
Erysimum concinnum
Erysimum elatum
Erysimum franciscanurn
Erysimum inconspicuum
Erysimum occidentale
Erysimum repandum
Erysimum **torulosum**
Erythronium citrinum
Erythronium grandiflorum
Erythronium hendersonii
Erythronium howellii
Erythronium klamathense
Erythronium montanum
Erythronium nudopetalum
Erythronium oregonum
Erythronium revolutum
Escallonia X langleyensis
Escallonia **rubra**
Eschscholzia caespitosa
Eschscholzia califomica
Eschscholzia leptandra
Escobaria missouriensis

Escobaria vivipara
Euclidium syriacum
Euonymus alata
Euonymus atropurpureus
Euonymus europaea
Euonymus **fortunei**
Euonymus **nana**
Euonymus occidentalis
Eupatorium **adenophorum**
Eupatorium maculatum
Eupatorium occidentale
Eupatorium perfoliatum
Eupatorium Ngosum
Euphorbia X pseudovirgata
Euphorbia **agraria**
Euphorbia crenulata
Euphorbia cyparissias
Euphorbia dentata
Euphorbia epichymoides
Euphorbia esula
Euphorbia **fendleri**
Euphorbia geyeri
Euphorbia glyptosperma
Euphorbia helioscopia
Euphorbia **hexagona**
Euphorbia **lathyrus**
Euphorbia **maculata**
Euphorbia maculosa
Euphorbia marginata
Euphorbia missurica
Euphorbia myrsinites
Euphorbia nutans
Euphorbia peplus
Euphorbia **prunifolia**
Euphorbia pulcherima
Euphorbia **robusta**
Euphorbia serpens
Euphorbia serpyllifolia
Euphorbia spathulata
Euphorbia stictospora
Euphrasia **arctica**
Euphrasia offrcinalis
Evolvulus nuttallianus
Fagopyrum esculentum
Fagopyrum **tartaricum**
Fagus sylvatica
Fatsia japonica
Festuca X viviparoidea
Festuca **arida**
Festuca arizonica
Festuca arundinacea
Festuca baffinensis
Festuca bromoides
Festuca califomica
Festuca **dertonensis**
Festuca **elmeri**
Festuca **grayi**
Festuca hallii
Festuca idahoensis
Festuca megalura
Festuca microstachys
Festuca myuros
Festuca obtusa
Festuca occidentalis
Festuca octoflora
Festuca ovina
Festuca **pacifica**
Festuca pratensis
Festuca **reflexa**
Festuca rubra
Festuca **scabrella**
Festuca subulata
Festuca subuliflora
Festuca viridula
Festuca vivipara
Filago arvensis
Filago califomica
Filipendula occidentalis
Filipendula rubra
Filipendula **vulgaris**
Floerkea proserpinacoides
Foeniculum vulgare
Forsellesia spinescens
Forsynthia suspensa
Fragaria bracteata
Fragaria califomica
Fragaria chiloensis
Fragaria crinata
Fragaria cuneifolia
Fragaria glauca
Fragaria platypetala
Fragaria vesca
Fragaria virginiana
Franseria bipinnatifida
Franseria chamissonis
Frasera albicaulis
Frasera califomica
Fraser-a **fastigiata**
Fraser-a montana
Frasera nitida
Frasera speciosa
Fraser-a umpquaensis
Fraxinus latifolia
Fraxinus nigra
Fraxinus **pennsylvanica**
Fritillaria atropurpurea
Fritillaria camschatcensis
Fritillaria camschatensis
Fritillaria falcata
Fritillaria gentneri
Fritillaria glauca
Fritillaria imperialis
Fritillaria lanceolata
Fritillaria **pluriflora**
Fritillaria pudica
Fritillaria purdyi
Fritillaria recurva
Fumatia **officinalis**
Fumaria parviflora
Gaillardia aristata
Gaillardia pulchella
Galega offrcinalis
Galeopsis tetrahit
Galinsoga parviflora
Galinsoga quadriradiata
Galium ambiguum
Galium andrewsii
Galium aparine
Galium asperrimum
Galium bifolium
Galium bolanderi
Galium **boreale**
Galium cymosum
Galium grayanum
Galium **humifusum**
Galium hypotrichium
Galium kamtschaticum
Galium **labradoricum**
Galium matthewsii
Galium mollugo
Galium **multiflorum**
Galium muricatum
Galium nuttallii
Galium obtusum
Galium oreganum
Galium palustre
Galium pedemontanum
Galium sparsiflora
Galium trifidum
Galium **triflorum**
Galium vaillantii
Galium **verum**
Garrya buxifolia
Ganya elliptica
Garrya flavescens
Garrya fremontii
Gastridium ventricosum
Gaultheria hispidula
Gaultheria **humifusa**
Gaultheria ovatifolia
Gaultheria **shallon**
Gaura coccinea

Gaura neomexicana
Gaura parviflora
Gayophytum caesium
Gayophytum decipiens
Gayophytum diffusum
Gayophytum humile
Gayophytum intermedium
Gayophytum lasiospermum
Gayophytum nuttallii
Gayophytum pumilum
Gayophytum racemosum
Gayophytum ramosissimum
Gentiana affinis
Gentiana algida
Gentiana andrewsii
Gentiana aquatica
Gentiana bisetaea
Gentiana calycosa
Gentiana douglasiana
Gentiana glauca
Gentiana newberryi
Gentiana oregana
Gentiana pleurisetosa
Gentiana prostrata
Gentiana puberulenta
Gentiana saxicola
Gentiana sceptrum
Gentiana setigera
Gentianella amarella
Gentianella barbellata
Gentianella detonsa
Gentianella propinqua
Gentianella **tenella**
Gentianopsis macounii
Gentianopsis procera
Gentianopsis simplex
Geocaulon lividum
Geranium bicknellii
Geranium caespitosum
Geranium californicum
Geranium carolinianum
Geranium **columbinum**
Geranium dissecturn
Geranium incisum
Geranium maculatum
Geranium molle
Geranium oreganum
Geranium pusillum
Geranium richardsonii
Geranium robertianum
Geranium sanguineum
Geranium viscosissimum
Geum aleppicum
Geum campanulatum
Geum canadense
Geum ciliatum
Geum macrophyllum
Geum oregonense
Geum rivale
Geum rossii
Geum triflorum
Geum urbanum
Gilia brecciarum
Gilia **breweri**
Gilia **capillaris**
Gilia capitata
Gilia **ciliata**
Gilia filifolia
Gilia inconspicua
Gilia leptomeria
Gilia nuttallii
Gilia opthalmoides
Gilia polycladon
Gilia pulchella
Gilia tenenima
Ginkgo biloba
Githopsis calycina
Githopsis specularioides
Glaucium comiculatum
Glaux maritima
Glecoma hederacea
Gleditsia triacanthos
Glehnia **leiocarpa**
Glehnia littoralis
Glossopetalon nevadense
Glossopetalon spinescens
Glyceria borealis
Glyceria elata
Glyceria fluitans
Glyceria grandis
Glyceria occidentalis
Glyceria pauciflora
Glyceria striata
Glycyrrhiza lepidota
Glyptopleura marginata
Gnaphalium californicum
Gnaphalium chilense
Gnaphalium collinum
Gnaphalium japonicum
Gnaphalium microcephalum
Gnaphalium palustre
Gnaphalium purpureum
Gnaphalium uliginosum
Gnaphalium viscosum
Godetia caurina
Godetia gracilis
Godetia **pacifica**
Godetia quadrivulnera
Godetia **tenella**
Gomphocarpus cordifolius
Goodyera decipiens
Goodyera oblongifolia
Goodyera repens
Gratiola **aurea**
Gratiola ebracteata
Gratiola **neglecta**
Grayia spinosa
Greeneocharis circumscissa
Grindelia columbiana
Grindelia howellii
Grindelia integrifolia
Grindelia **nana**
Grindelia squarrosa
Gutierrezia sarothrae
Gymnocarpium dryopteris
Gymnocarpium robertianum
Gymnocladus dioica
Gymnosteris nudicaulis
Gymnosteris **parvula**
Gypsophila acutifolia
Gypsophila **muralis**
Gypsophila paniculata
Habenaria chorisiana
Habenaria clavellata
Habenaria dilatata
Habenaria elegans
Habenaria **greenei**
Habenaria hyperborea
Habenaria leucophaea
Habenaria leucostachys
Habenaria maritima
Habenaria obtusata
Habenaria orbiculata
Habenaria saccata
Habenaria **sparsiflora**
Habenaria **stricta**
Habenaria unalascensis
Habenaria viridis
Hackelia **arida**
Hackelia californica
Hackelia **ciliata**
Hackelia cinerea
Hackelia cronquistii
Hackelia cusickii
Hackelia davisii
Hackelia deflexa
Hackelia **diffusa**
Hackelia floribunda
Hackelia hispida
Hackelia **jessicae**
Hackelia micrantha
Hackelia **nelsonii**

Hackelia ophiobia
Hackelia **patens**
Hackelia setosa
Hackelia venusta
Hackelia virginiana
Halenia deflexa
Halimolobos **perplexa**
Halimolobos virgata
Halimolobos whitedii
Halogeton glomeratus
Halophila ballonis
Halophila **englemannii**
Halophila hawaiiana
Halophila johnsonii
Hamosa paysonii
Haplopappus aberrans
Haplopappus acaulis
Haplopappus arborescens
Haplopappus armerioides
Haplopappus **bloomeri**
Haplopappus brandegei
Haplopappus carthamoides
Haplopappus contractus
Haplopappus **greenei**
Haplopappus **hallii**
Haplopappus **hirtus**
Haplopappus insecticnnis
Haplopappus integrifolius
Haplopappus lanceolatus
Haplopappus lanuginosus
Haplopappus **liatriformis**
Haplopappus **linearis**
Haplopappus **lyallii**
Haplopappus macronema
Haplopappus multicaulis
Haplopappus **nanus**
Haplopappus **pygmaeus**
Haplopappus racemosus
Haplopappus **radiatus**
Haplopappus resinosus
HapIopappus **spinulosus**
Haplopappus stenophyllus
Haplopappus suffruticosus
Haplopappus uniflorus
Hastingsia bracteosa
Hedeoma drummondii
Hedeoma hispida
Hedera helix
Hedyotis longifolia
Hedysarum **alpinum**
Hedysarum **boreale**
Hedysarum occidentale
Hedysarum **sulphurescens**
Helenium autumnale
Helenium bigelovii
Helenium bolanderi
Helenium hoopesii
Helenium **puberulum**
Helianthella douglasii
Helianthella quinquenervis
Helianthella **uniflora**
Helianthemum bicknellii
Helianthus annuus
Helianthus bolanderi
Helianthus ciliaris
Helianthus cusickii
Helianthus **grosseserratus**
Helianthus maximilianii
Helianthus nuttallii
Helianthus petiolaris
Helianthus **rigidus**
Helianthus tuberosus
Helictotrichon hookeri
Heliopsis helianthoides
Hehotropium curassavicum
Helleborus niger
Hemerocallis **fulva**
Hemicarpha drummondii
Hemicarpha micrantha
Hemicarpha occidentalis
Hemitomes congestum
Hemizonella minima
Hemizonia clevelandii
Hemizonia fitchii
Hemizonia pungens
Hepatica **sp.**
Heracleum lanatum
Heracleum mantegazzianum
Hemiaria cineria
Hesperis matronalis
Hesperochiron **californicus**
Hesperochiron lasianthus
Hesperochiron pumilus
Heterocodon rariflorum
Heterotheca oregana
Heterotheca **subaxillaris**
Heuchera chlorantha
Heuchera **cylindrica**
Heuchera glabella
Heuchera glabra
Heuchera grossulariifolia
Heuchera micrantha
Heuchera ovalifolia
Heuchem **parviflora**
Heuchera parvifolia
Heuchera richardsonii
Heuchera rubescens
Heuchera utahensis
Hibiscus **grandiflorus**
Hibiscus rosa-sinensis
Hibiscus syriacus
Hibiscus trionum
Hieacium pratense
Hieracium albertinum
Hieracium **albiflorum**
Hieracium aurantiacum
Hieracium **bolanderi**
Hieracium canadense
Hieracium chapacanum
Hieracium cynoglossoides
Hieracium **floribundum**
Hieracium **gracile**
Hieracium **greenei**
Hieracium horridum
Hieracium longiberbe
Hieracium **parryi**
Hieracium pilosella
Hieracium piloselloides
Hieracium pratense
Hieracium rydbergii
Hieracium scouleri
Hieracium umbellatum
Hieracium vulgatum
Hierochloe alpina
Hierochloe occidentalis
Hierochloe odorata
Hilaria jamesii
Hippophae rhamnoides
Hippuris montana
Hippuris **vulgaris**
Hoffmanseggia **densiflora**
Holcus lanatus
Holcus mollis
Holodiscus discolor
Holodiscus dumosus
Holodiscus **glabrescens**
Holosteum umbellatum
Hordeum brachyantherum
Hordeum bulbosum
Hordeum califomicum
Hordeum depressum
Hordeum distichon
Hordeum geniculatum
Hordeum glaucum
Hordeum gussonianum
Hordeum jubatum
Hordeum leporinum
Hordeum murinum
Hordeum nodosum
Hordeum pusillum
Hordeum **vulgare**
Horkelia capitata

Horkelia caruifolia
Horkelia **congesta**
Horkelia daucifolia
Horkeiia fusca
Horkelia hendersonii
Horkelia howellii
Horkelia sericata
Horkelia **tenella**
Horkelia tridentata
Hosackia denticulata
Howellia aquatilis
Hudsonia tomentosa
Hulsea algida
Hulsea **nana**
Humulus lupulus
Hutchinsia **procumbens**
Hydrangea arborescens
Hydrangea quercifolia
Hydrilla verticillata
Hydrilla verticulata
Hydrocharis morsus-ranae
Hydrocotyle ranunculoides
Hydrocotyle umbellata
Hydrocotyle verticillata
Hydrophyllum **capitatum**
Hydrophyllum fendleri
Hydrophyllum occidentale
Hydrophyllum tenuipes
Hydrophyllum **virginianum**
Hygrophila polysperma
Hymenopappus filifolius
Hymenopappus tenuifolius
Hymenoxys acaulis
Hymenoxys cooper-i
Hymenoxys grandiflora
Hymenoxys jamesii
Hymenoxys richardsonii
Hymenoxys torreyana
Hyoscyamus niger
Hypericum anagalloides
Hypericum androsaemum
Hypericum concinnum
Hypericum formosum
Hypericum majus
Hypericum mutilum
Hypericum perforatum
Hypochaeris radicata
Hypopitys latisquama
Hypopitys monotropa
Hypopitys multiflora
Hypoxis **hirsuta**
Hyssopus officinalis
Hystrix patula
Iberis amara
Iberis umbellata
ldahoa scapigera
Ilex aquifolium
Iliamna latibracteata
Iliamna longisepala
lliamna **rivularis**
Impatiens **aurella**
Impatiens balfouri
Impatiens capensis
Impatiens ecalcarata
Impatiens glandulifera
Impatiens noli-tangere
Impatiens **pallida**
Imperata brasiliensis
Imperata **cylindrica**
Inula heleniwn
Ipomoea **aquatica**
Ipomoea coccinea
Ipomoea **hirsutula**
Ipomoea leptophylla
Ipomoea purpurea
Ipomoea **triloba**
Ipomopis polycladon
Ipomopsis aggregata
Ipomopsis **congesta**
Ipomopsis crebrifolia
Ipomopsis minutiflora
Ipomopsis orchidacea
Ipomopsis pumila
Ipomopsis spicata
Ipomopsis tenuituba
Iris bracteata
Iris chrysophylla
Iris douglasiana
Iris hartwegii
Iris innominata
Iris macrosiphon
Iris missouriensis
Iris pseudacorus
Iris **tenax**
Iris tenuis
Iris thompsoni
Isatis tinctoria
Ischaemum rugosum
Isoetes **bolanderi**
Isoetes echinospora
Isoetes **lacustris**
Isoetes melanopoda
Isoetes nuttallii
Isoetes occidentalis
Isoetes setacea
Isopyrum bitematum
Isopyrum **hallii**
Isopyrum stipitatum
Iva annua
Iva axillaris
Iva xanthifolia
Ivesia **baileyi**
Ivesia gordonii
lvesia kingii
Ivesia rhypara
Ivesia **shelleyi**
Ivesia **tweedyi**
Jamesia americana
Jasione montana
Jaumea camosa
Juglans ailanthifolia
Juglans cinerea
Juglans nigra
Juncus **abjectus**
Juncus **acuminatus**
Juncus **alpinoarticulatus**
Juncus alpinus
Juncus **arcticus**
Juncus **articulatus**
Juncus hadius
Juncus **balticus**
Juncus biglumis
Juncus bolanderi
Juncus brachycephalus
Juncus brachyphyllus
Juncus brevicaudatus
Juncus bufonius
Juncus **capillaris**
Juncus **castaneus**
Juncus columbianus
Juncus compressus
Juncus **confusus**
Juncus covillei
Juncus drummondii
Juncus dubius
Juncus **effusus**
Juncus ensifolius
Juncus falcatus
Juncus **filiformis**
Juncus fucensis
Juncus gerardii
Juncus hallii
Juncus hemiendytus
Juncus howellii
Juncus interior
Juncus kelloggii
Juncus lesueurii
Juncus longistylis
Juncus macranthus
Juncus **marginatus**
Juncus mertensianus
Juncus nevadensis

Juncusnodosus
Juncus oreganus
Juncus orthophyllus
Juncus oxymeris
Juncus parryi
Juncus patens
Juncus phaeocephalus
Juncus planifolius
Juncus regelii
Juncus supiniformis
Juncus supinus
Juncus tenuis
Juncus tiehmii
Juncus torreyi
Juncus tracyi
Juncus triglumis
Juncus tweedyi
Juncus uncialis
Juncus vaseyi
Juncus xiphioides
Juniperus communis
Juniperus horizontalis
Juniperus occidentalis
Juniperus osteosperma
Juniperus scopulorum
Juniperus virginiana
Jussiaea repens
Jussiaea uruguayensis
Kalmia microphylla
Kalmia occidentalis
Kalmia polifolia
Kalmiopsis leachiana
Kelloggia galioides
Kelseya uniflora
Kerria japonica
Kickxia elatine
Kickxia spuria
Knautia arvensis
Kobresia macrocarpa
Kobresia myosuroides
Kobresia simpliciuscula
Kochia americana
Kochia scoparia
Koeleria cristata
Koelreuteria paniculata
Koenigia islandica
Kolkwitzia amabalis
Kuhnia eupatorioides
Labumum X watereri
Labumum anagyroides
Lactuca biennis
Lactuca canadensis
Lactuca ludoviciana
Lactuca muralis
Lactuca oblongifolia
Lactuca saligna
Lactuca sativa
Lactuca serriola
Lactuca spicata
Lagarosiphon major
Lagophylla ramosissima
Lagurus ovatus
Lallemantia peltata
Lamium amplexicaule
Lamium hybridum
Lamium maculatum
Lamium purpureum
Langloisia setosissima
Laportea canadensis
Lappula cenchrusoides
Lappula echinata
Lappula occidentalis
Lappula redowskii
Lappula texana
Lapsana communis
Larix lyallii
Larix occidentaiis
Lasthenia chrysostoma
Lasthenia glaberrima
Lasthenia macrantha
Lasthenia minor
Lathyrus americanus
Lathyrus aphaca
Lathyrus bijugatus
Lathyrus cusickii
Lathyrus delnorticus
Lathyrus eucosmus
Lathyrus grimesii
Lathyrus hirsutus
Lathyrus holochlorus
Lathyrus japonicus
Lathyrus lanceolatus
Lathyrus lanszwertii
Lathyrus latifolius
Lathyrus littoralis
Lathyrus nevadensis
Lathyrus nuttallii
Lathyrus obovatus
Lathyrus ochroleucus
Lathyrus odoratus
Lathyrus oregonensis
Lathyrus palustris
Lathyrus pauciflorus
Lathyrus polymorphus
Lathyrus polyphyllus
Lathyrus pratensis
Lathyrus rigidus
Lathyrus schaffneri
Lathyrus sphaericus
Lathyrus sulphureus
Lathyrus sylvestris
Lathyrus torreyi
Lathyrus tuberosus
Lathyrus venosus
Lathyrus vestitus
Lavatera arborea
Layia glandulosa
Lechea intermedia
Lechea stricta
Ledum glandulosum
Ledum groenlandicum
Leersia oryzoides
Leersia virginica
Lemna gibba
Lemna minor
Lemna perpusilla
Lemna trisulca
Lemna turionifera
Lemna valdiviana
Leontodon autumnalis
Leontodon nudicaulis
Leonurus cardiaca
Lepidium campestre
Lepidium davissi
Lepidium densiflorum
Lepidium dictyotum
Lepidium draba
Lepidiurn lasiocarpum
Lepidium latifolium
Lepidium medium
Lepidium montanum
Lepidium nanum
Lepidium nitidum
Lepidium oxycarpum
Lepidium papilliferum
Lepidium perfoliatum
Lepidium ramosissimum
Lepidium repens
Lepidium ruderale
Lepidium sativum
Lepidium strictum
Lepidium virginicum
Leptarrhena amplexifolia
Leptarrhena pyrolifolia
Leptaxis menziesii
Leptochloa chinensis
Leptochloa fascicularis
Leptochloa uninervia
Leptodactylon caespitosum
Leptodactylon glabrum
Leptodactylon hazelae
Leptodactylon pungens

Leptodactylon watsonii
Leptotaenia **dissecta**
Leptotaenia **multifida**
Leptotaenia purpurea
Lepyrodiclis holosteoides
Lesquerella alpina
Lesquerella argentea
Lesquerella carinata
Lesquerella douglasii
Lesquerella fremontii
Lesquerella humilis
Lesquerella kingii
Lesquerella klausii
Lesquerella ludoviciana
Lesquerella macrocarpa
Lesquerella montana
Lesquerella multiceps
Lesquerella occidentalis
Lesquerella paysonii
Leucocrinum montanum
Leucopoa kingii
Leucothoe davisiae
Lewisia columbiana
Lewisia cotyledon
Lewisia **kellogii**
Lewisia **leana**
Lewisia oppositifolia
Lewisia pygmaea
Lewisia rediviva
Lewisia triphylla
Lewisia **tweedyi**
Leymus salinus
Liatris **aspera**
Liatris **ligulistylis**
Liatris punctata
Liatris pycnostachya
Libocedrus decurrens
Ligusticum apiifolium
Ligusticum californicum
Ligusticum canbyi
Ligusticum cusickii
Ligusticum **filicinum**
Ligusticum **grayi**
Ligusticum **porteri**
Ligusticum purpureum
Ligusticum tenuifolium
Ligusticum verticillatum
Ligustrum amurense
Ligustrum indicum
Ligustrum japonicum
Ligustrum sinense
Ligustrum vulgare
Lilaea scilloides
Lilaeopsis occidentalis
Lilium bolanderi
Lilium canadense
Lilium columbianum
Lilium kelleyanum
Lilium kelloggii
Lilium occidentale
Lilium pardalinum
Lilium parvum
Lilium philadelphicum
Lilium pudica
Lilium rubescens
Lilium vollmeri
Lilium washingtonianurn
Lilium wigginsii
Limnanthes alba
Limnanthes douglasii
Limnanthes gracilis
Limnanthes **rosea**
Limnobium laevigatum
Limnobium spongia
Limnophila sessiliflora
Limnosella acaulis
Limosella **aquatica**
Linanthus androsaceus
Linanthus baker-i
Linanthus bicolor
Linanthus bolanderi
Linanthus ciliatus
Linanthus grandiflorus
Linanthus harknessii
Linanthus liniflorus
Linanthus nuttallii
Linanthus phamaceoides
Linanthus septentrionalis
Linaria canadensis
Linaria dalmatica
Linaria **vulgaris**
Lindemia dubia
Linnaea borealis
Linum **australe**
Linum bienne
Linum digynum
Linum kingii
Linum micranthum
Linum perenne
Linum rigidum
Linum **sulcatum**
Linum usitatissimum
Liparis loeselii
Lippia cuneifolia
Liquidamber styraciflua
Liriodendron tulipfera
Listera borealis
Listera caurina
Listera convallarioides
Listera cordata
Lithocarpus **densiflorus**
Lithophragma **affinis**
Lithophragma campanulata
Lithophragma glabra
Lithophragma heterophylla
Lithophragma parviflora
Lithophragma tenellum
Lithospermum arvense
Lithospermum californicum
Lithospermum canescens
Lithospermum incisum
Lithospermum **ruderale**
Lloydia serotina
Lobelia dortmanna
Lobelia kalmii
Lobelia siphilitica
Lobelia spicata
Lobularia maritima
Loiseleuria **procumbens**
Lolium multiflomm
Lolium perenne
Lolium persicum
Lolium remotum
Lolium **temulentum**
Lomatium ambiguum
Lomatium angustatum
Lomatium attenuatum
Lomatium bicolor
Lomatium **bradshawii**
Lomatium brandegei
Lomatium californicum
Lomatium canbyi
Lomatium circumdatum
Lomatium **columbianum**
Lomatium **cookii**
Lomatium **cous**
Lomatium cusickii
Lomatium cuspidatum
Lomatium **dissectum**
Lomatium **donnellii**
Lomatium engelmannii
Lomatium erythrocarpum
Lomatium farinosum
Lomatium **foeniculaceum**
Lomatium geyeri
Lomatium gormanii
Lomatium **graveolens**
Lomatium **grayi**
Lomatium greenmanii
Lomatium hallii
Lomatium hambleniae
Lomatium hendersonii

Lomatium howellii
Lomatium idahoense
Lomatium juniperium
Lomatium laevigatum
Lomatium leptocarpum
Lomatium macrocarpum
Lomatium martindalei
Lomatium minus
Lomatium nelsonianum
Lomatium nevadense
Lomatium nudicaule
Lomatium nuttallii
Lomatium oreganum
Lomatium orientale
Lomatium pastoralis
Lomatium peckianum
Lomatium ravenii
Lomatium rollinsii
Lomatium salmoniflorum
Lomatium sandbergii
Lomatium **scabrum**
Lomatium serpentinum
Lomatium **suksdorfii**
Lomatium thompsonii
Lomatium **tracyi**
Lomatium tritematum
Lomatium tuberosum
Lomatium utriculatum
Lomatium vaginatum
Lomatium watsonii
Lomatogonium **rotatum**
Lonicera X **bella**
Lonicera caerulea
Lonicera cauriana
Lonicera ciliosa
Lonicera conjugialis
Lonicera dioica
Lonicera etrusca
Lonicera hispidula
Lonicera interrupta
Lonicera involucrata
Lonicera **nitida**
Lonicera periclymenum
Lonicera **tartarica**
Lonicera **tatarica**
Lonicera utahensis
Lonicera **villosa**
Lophotocarpus califomicus
Lotus aboriginum
Lotus americanus
Lotus bicolor
Lotus comiculatus
Lotus crassifolius
Lotus denticulatus
Lotus douglasii
Lotus formosissimus
Lotus micranthus
Lotus nevadensis
Lotus oblongifolius
Lotus pedunculatus
Lotus pinnatus
Lotus purshiana
Lotus **stipularis**
Lotus subpinnatus
Lotus tetragonolobus
Ludwigia palustris
Ludwigia polycarpa
Luetkea pectinata
Luina hypoleuca
Luina nardosmia
Luina serpentina
Luina **stricta**
Lunaria annua
Lupinus X alpestris
Lupinus adsurgens
Lupinus affinis
Lupinus albicaulis
Lupinus albifrons
Lupinus alpestris
Lupinus andersoni
Lupinus **arboreus**
Lupinus argenteus
Lupinus bicolor
Lupinus biddlei
Lupinus brevicaulis
Lupinus brewerii
Lupinus caudatus
Lupinus corymbosus
Lupinus cusickii
Lupinus formosus
Lupinus holosericeus
Lupinus lapidicola
Lupinus latifolius
Lupinus **laxiflorus**
Lupinus lepidus
Lupinus leucophyllus
Lupinus littoralis
Lupinus luteolus
Lupinus micranthus
Lupinus microcarpus
Lupinus **mucronulatus**
Lupinus **nanus**
Lupinus onustus
Lupinus omatus
Lupinus plattensis
Lupinus polyphyllus
Lupinus **pseudoparviflorus**
Lupinus pusillus
Lupinus **rivularis**
Lupinus sabinii
Lupinus saxosus
Lupinus scheuberae
Lupinus sericeus
Lupinus subalpinus
Lupinus subvexus
Lupinus suksdorfii
Lupinus sulphureus
Lupinus super-bus
Lupinus **tracyi**
Lupinus **uncialis**
Lupinus wyethii
Luzula arcuata
Luzula campestris
Luzula comosa
Luzula divaricata
Luzula hitchcockii
Luzula parviflora
Luzula **piperi**
Luzula spicata
Luzula subsessilis
Lychnis X arkwrightii
Lychnis alba
Lychnis apetala
Lychnis chalcedonica
Lychnis coronaria
Lychnis dioica
Lychnis drummondii
Lychnis **flos-cuculi**
Lycium ferocissimum
Lycium halimifolium
Lycopersicon lycopersicum
Lycopodium alpinum
Lycopodium annotinum
Lycopodium clavatum
Lycopodium complanatum
Lycopodium inundatum
Lycopodium **obscurum**
Lycopodium selago
Lycopodiuni sitchense
Lycopus americanus
Lycopus **asper**
Lycopus uniflorus
Lygodesmia **grandiflora**
Lygodesmia juncea
Lygodesmia spinosa
Lysichitum americanum
Lysimachia **ciliata**
Lysimachia clethroides
Lysimachia **hybrida**
Lysimachia lanceolata
Lysimachia nummularia
Lysimachia punctata

Lysimachia quadriflora
Lysimachia terrestris
Lysimachia **thyrsiflora**
Lysimachia verticillata
Lysimachia **vulgaris**
Lythrum alatum
Lythrum hyssopifolia
Lythrum salicaria
Lythrum virgatum
Machaeranthera bigelovii
Machaeranthera canescens
Machaeranthera commixta
Machaeranthera grindelioides
Machaeranthera laetevirens
Machaeranthera **linearis**
Machaeranthera shastensis
Machaeranthera tanacetifolia
Machaerocarpus californicus
Maclura pomifera
Madia bolanderi
Madia citriodora
Madia dissitiflora
Madia elegans
Madia exigua
Madia glomerata
Madia gracilis
Madia madioides
Madia minima
Madia sativa
Mahonia nervosa
Mahonia pumila
Maianthemum canadense
Maianthemum dilatatum
Maianthemum racemosum
Maianthemum stellatum
Malacothrix californica
Malacothrix glabrata
Malacothrix torreyi
Malcolmia **africana**
Malus diversifolia
Malus floribunda
Malus fusca
Malva moschata
M a l v a **neglecta**
Malva parviflora
Malva rotundifolia
Malva sylvestris
Malva verticillata
Marah oreganus
Mariana lactea
Marrubium **vulgare**
Marsilea vestita
Martynia louisiana
Matricaria chamomilla
Matricaria discoidea
Matricaria maritima
Matricaria matricarioides
Matteuccia struthiopteris
Mazus japonicus
Meconella californica
Meconella oregana
Medicago arabica
Medicago falcata
Medicago hispida
Medicago lupulina
Medicago sativa
Medicargo **arabica**
Megarrhiza oregana
Melampyrum **lineare**
Melica aristata
Melica bulbosa
Melica californica
Melica **fugax**
Melica geyeri
Melica harfordii
Melica imperfecta
Melica smithii
Melica spectabilis
Melica **striata**
Melica **stricta**
Melica subulata
Melilotus alba
Melilotus indica
Melilotus officinalis
Melissa offtcinalis
Menispennum canadense
Mentha X **piperita**
Mentha alopecuroides
Mentha arvensis
Mentha **citrata**
Mentha pulegium
Mentba spicata
Mentha suaveolens
Mentzelia **acuminata**
Mentzelia albicaulis
Mentzelia **congesta**
Mentzelia decapetala
Mentzelia dispersa
Mentzelia laevicaulis
Mentzelia mollis
Mentzelia montana
Mentzelia nuda
Mentzelia oligospenna
Mentzelia packardiae
Mentzelia pumila
Mentzelia torreyi
Mentzelia veatchiana
Menyanthes trifoliata
Menziesia ferruginea
Merimea **texana**
Mertensia alpina
Mertensia arizonica
Mertensia **bella**
Mertensia brevistyla
Mertensia campanulata
Mertensia **ciliata**
Mertensia cusickii
Mertensia **franciscana**
Mertensia **fusiformis**
Mertensia **lanceolata**
Mertensia longiflora
Mertensia oblongifolia
Mertensia paniculata
Mertensia **perplexa**
Mertensia platyphylla
Mertensia umbratilis
Mesembryanthemum aequilaterale
Mesembryanthemum chilense
Microcala quadrangularis
Micromeria chamissonis
Micromeria douglasii
Micropus californicus
Microseris **acuminata**
Microseris **alpestris**
Microseris bigelovii
Microseris borealis
Microseris cuspidata
Microseris detlingii
Microseris douglasii
Microseris howellii
Microseris laciniata
Microseris lindleyi
Microseris linearifolia
Microseris nigrescens
Microseris nutans
Microseris troximoides
Microsteris gracilis
Microsteris humilis
Microsteris micrantha
Mikania cordata
Mikania micrantha
Milium vemale
Mimetanthe pilosa
Mimosa **invisa**
Mimosa **pigra**
Mimulus alsinoides
Mimulus aurantiacus
Mimulus breviflorus
Mimulus **breweri**
Mimulus cardinalis
Mimulus clivicola

Mimulus cusickii
Mimulus dentatus
Mimulus douglasii
Mimulus floribundus
Mimulus glabratus
Mimulus **guttatus**
Mimulus hymenophyllus
Mimulus **implexus**
Mimulus jepsonii
Mimulus jungermannioides
Mimulus kelloggii
Mimulus lewisii
Mimulus microphyllus
Mimulus moschatus
Mimulus **nanus**
Mimulus nasutus
Mimulus patulus
Mimulus primuloides
Mimulus pulsiferae
Mimulus pygmaeus
Mimulus **ringens**
Mimulus **scouleri**
Mimulus **suksdorfii**
Mimulus tilingii
Mimulus tricolor
Mimulus washingtonensis
Minuartia cismontana
Minuattia howellii
Minuartia macrantha
Minulus kelloggii
Mirabilis albida
Mirabilis bigelovii
Mirabilis **greenei**
Mirabilis hirsuta
Mirabilis jalapa
Mirabilis **linearis**
Mirabilis macfarlanei
Mirabilis nyctaginea
Mitella **breweri**
Mitella caulescens
Mitella diversifolia
Mitella nuda
Mitella **ovalis**
Mitella pentandra
Mitella stauropetala
Mitella stenopetala
Mitella **trifida**
Mollugo verticillata
Moluccella **laevis**
Monarda didyma
Monarda **fistulosa**
Monardella discolor
Monardella nervosa
Monardella odoratissima
Monardella purpurea
Monardella **sheltoni**
Monardella villosa
Monochoria hastata
Monochoria vaginalis
Monolepis nuttalliana
Monolepis pusilla
Monolepis spathulata
Monotropa hypopitys
Monotropa uniflora
Montia arenicola
Montia chamissoi
Montia cordifolia
Montia **dichotoma**
Montia diffusa
Montia fontana
Montia howellii
Montia **linearis**
Montia parvifolia
Montia **perfoliata**
Montia **rubra**
Montia saxosa
Montia sibirica
Montia spathulata
Morus alba
Morus rubra
Muhlenbergia andina
Muhlenbergia asperifolia
Muhlenbergia cuspidata
Muhlenbergia **filiformis**
Muhlenbergia **frondosa**
Muhlenbergia glomerata
Muhlenbergia jonesii
Muhlenbergia **mexicana**
Muhlenbergia **microsperma**
Muhlenbergia minutissima
Muhlenbergia racemosa
Muhlenbergia richardsonis
Muhlenbergia squarrosa
Munroa squarrosa
Muscari comosum
Musineon **divaricatum**
Musineon **lineare**
Musineon tenuifolium
Musineon vaginatum
Myosotis arvensis
Myosotis discolor
Myosotis **laxa**
Myosotis micrantha
Myosotis scorpioides
Myosotis sylvatica
Myosotis vema
Myosotis versicolor
Myosurus **apetalus**
Myosurus aristatus
Myosurus **minimus**
Myosurus sessilis
Myrica califomica
Myrica gale
Myriophyllum brasiliense
Myriophyllum elatinoides
Myriophyllum heterophyllum
Myriophyllum hippuroides
Myriophyllum pinnatum
Myriophyllum sibiricum
Myriophyllum spicatum
Myrrhis odorata
Najas flexilis
Najas guadalupensis
Najas marina
Nama aretioides
Nama **densum**
Nama lobbii
Nardus **stricta**
Narthecium califomicum
Nassella **trichotoma**
Nasturtium **officinale**
Navarretia **breweri**
Navarretia divaricata
Navarretia heterandra
Navarretia intertexta
Navarretia klickitatensis
Navarretia leucocephala
Navarretia minima
Navarretia squarrosa
Navarretia tagetina
Nemacladus **capillaris**
Nemacladus **rigidus**
Nemophila breviflora
Nemophila **densa**
Nemophila heterophylla
Nemophila inconspicua
Nemophila kirtleyi
Nemophila menziesii
Nemophila **parviflora**
Nemophila **pedunculata**
Nemophila sepulta
Nepeta X faassenii
Nepeta **cataria**
Nephrophyllidium **crista-galli**
Neslia paniculata
Nicandra physalodes
Nicotiana **acuminata**
Nicotiana attenuata
Nicotiana bigelovii
Nicotiana glauca
Nigella damascena
Nitrophila occidentalis

Nitrophylla occidentalis
Nothocalais alpestris
Nothochelone **nemorosa**
Nuphar luteum
Nuphar polysepala
Nymphaea odorata
Nymphaea polysepala
Nymphaea tetragona
Odontites vema
Oemleria cerasiformis
Oenanthe califomica
Oenanthe sarmentosa
Oenothera albicaulis
Oenothera alyssoides
Oenothera andina
Oenothera biennis
Oenothera boothii
Oenothera brachycarpa
Oenothera breviflora
Oenothera caespitosa
Oenothera cheiranthifolia
Oenothera claviformis
Oenothera **contorta**
Oenothera coronopifolia
Oenothera deltoides
Oenothera elata
Oenothera erythrosepala
Oenothera flava
Oenothera heterantha
Oenothera hilgardii
Oenothera laciniata
Oenothera lindleyi
Oenothera macrocarpa
Oenothera minor
Oenothera nuttallii
Oenothera **pallida**
Oenothera **palmeri**
Oenothera perennis
Oenothera pilosella
Oenothera psammophila
Oenothera **pubens**
Oenothera pygmaea
Oenothera rhombipetala
Oenothera rydbergii .
Oenothera scapoidea
Oenothera subacaulis
Oenothera tanacetifoiia
Oenothera villosa
Oenothera **wolfii**
Onobrychis viciaefolia
Onoclea sensibilis
Ononis **repens**
Onopordum acanthium
Onosmodium **molle**
Ophioglossum vulgatum
Oplopanax horridum
Opuntia aurantiaca
Opuntia erinacea
Opuntia **fragilis**
Opuntia humifusa
Opuntia hystricina
Opuntia macrorhiza
Opuntia polyacantha
Opuntia rhodantha
Orchis rotundifolia
Orcuttia tenuis
Origanum majoana
Origanum **vulgare**
Omithogalum caudatum
Omithogalum umbellatum
Orobanche califomica
Orobanche corymbosa
Orobanche fasciculata
Orobanche grayana
Orobanche ludoviciana
Orobanche minor
Orobanche multiflora
Orobanche pinorum
Orobanche uniflora
Orogenia **fusiformis**
Orogenia **linearifolia**
Orthocarpus attenuatus
Orthocarpus barbatus
Orthocarpus bracteosus
Orthocarpus castillejoides
Orthocarpus copelandii
Orthocarpus cryptanthus
Orthocarpus cuspidatus
Orthocarpus erianthus
Orthocarpus faucibarbatus
Orthocarpus hispidus
Orthocarpus imbricatus
Orthocarpus **lacerus**
Orthocarpus lithospetmoides
Orthocarpus luteus
Orthocarpus pusillus
Orthocarpus tenuifolius
Orthocarpus tolmiei
Oryza longistaminata
Oryza punctata
Oryza **rufipogon**
Oryzopsis asperifolia
Oryzopsis contracta
Oryzopsis exigua
Oryzopsis hendersonii
Oryzopsis hymenoides
Oryzopsis pungens
Oryzopsis racemosa
Oryzopsis swallenii
Oryzopsis webberi
Osmaronia **cerasiformis**
Osmorhiza brevipes
Osmorhiza chilensis
Osmorhiza claytonii
Osmorhiza depauperata
Osmorhiza divaricata
Osmorhiza longistylis
Osmorhiza nuda
Osmorhiza occidentalis
Osmorhiza purpurea
Ostrya virginiana
Ottelia alismoides
Oxalis comiculata
Oxalis dillenii
Oxalis oregana
Oxalis rubra
Oxalis stricta
Oxalis **suksdorfii**
Oxalistrilliifolia
Oxalis violacea
Oxypolis occidentalis
Oxyria digyna
Oxytheca dendroidea
Oxytheca dendroides
Oxytropis besseyi
Oxytropis borealis
Oxytropis campestris
Oxytropis deflexa
Oxytropis **lagopus**
Oxytropis lambertii
Oxytropis luteola
Oxytropis oreophila
Oxytropis **parryi**
Oxytropis podocarpa
Oxytropis **riparia**
Oxytropis sericea
Oxytropis splendens
Oxytropis **viscida**
Pachistima myrsinites
Paeonia brownii
Panax quinquefolium
Panicum **capillare**
Panicum dichotomiflomm
Panicum flexile
Panicum leibergii
Panicum linearifolium
Panicum miliaceum
Panicum occidentale
Panicum **pacificum**
Panicum praecocius
Panicum scribnerianum
Panicum **thermale**

Panicum virgatum
Panicum wilcoxianum
Papaver argemone
Papaver kluanense
Papaver pygmaeum
Papaver rhoeas
Papaver somniferum
Parapholis incurva
Parentucellia viscosa
Parietaria pensylvanica
Pamassia califomica
Pamassia fimbriata
Pamassia glauca
Pamassia kotzebuei
Pamassia palustris
Pamassia parviflora
Paronychia depressa
Paronychia pulvinata
Paronychia sessiliflora
Parrya nudicaulis
Parthenium alpinum
Parthenium ligulatum
Parthenocissus quinquefolia
Parthenocissus vitacea
Paspalum dilatatum
Paspalum distichum
Paspalum scrobiculatum
Pastinaca sativa
Paulownia tomentosa
Pectocarya linearis
Pectocarya pusilla
Pectocarya setosa
Pedicularis atrosanguinea
Pedicularis attollens
Pedicularis bracteosa
Pedicularis canadensis
Pedicularis capitata
Pedicularis centranthera
Pedicularis contorta
Pedicularis crenulata
Pedicularis cystopteridifolia
Pedicularis densiflora
Pedicularis flavida
Pedicularis groenlandica
Pedicularis howellii
Pedicularis lanceolata
Pedicularis langsdorfii
Pedicularis oederi
Pedicularis omithorhyncha
Pedicularis parryi
Pedicularis procera
Pedicularis pulchella
Pedicularis racemosa
Pedicularis rainierensis
Pediocactus simpsonii
Peganum harmala
Pellaea andromedaefolia
Pellaea atroputpurea
Pellaea brachyptera
Pellaea breweri
Pellaea bridgesii
Pellaea glabella
Peltiphyllum peltatum
Pennisetum clandestinum
Pennisetum glaucum
Pennisetum macrourum
Pennisetum pedicellatum
Pennisetum polystachion
Pennisetum setaceum
Penstemon X parishii
Penstemon acaulis
Penstemon acuminatus
Penstemon albertinus
Penstemon albidus
Penstemon anguineus
Penstemon angustifolius
Penstemon arenicola
Penstemon aridus
Penstemon attenuatus
Penstemon azureus
Penstemon barrettiae
Penstemon brevifolius
Penstemon cacuminis
Penstemon caespitosus
Penstemon cardwellii
Penstemon caryi
Penstemon chionophilus
Penstemon cinicola
Penstemon confertus
Penstemon cusickii
Penstemon cyananthus
Penstemon cyaneus
Penstemon davidsonii
Penstemon deustus
Penstemon diphyllus
Penstemon dolius
Penstemon elegantulus
Penstemon ellipticus
Penstemon eriantherus
Penstemon euglaucus
Penstemon flavescens
Penstemon fruticosus
Penstemon gairdneri
Penstemon gibbensii
Penstemon glaber
Penstemon glandulosus
Penstemon glaucinus
Penstemon globosus
Penstemon gracilentus
Penstemon gracilis
Penstemon grandiflorus
Penstemon heterophyllus
Penstemon humilis
Penstemon idahoensis
Penstemon janishiae
Penstemon kingii
Penstemon laetus
Penstemon laricifolius
Penstemon laxus
Penstemon lemhiensis
Penstemon lemmonii
Penstemon leonardii
Penstemon lineolatus
Penstemon lyallii
Penstemon menziesii
Penstemon micranthus
Penstemon miser
Penstemon montanus
Penstemon nemorosus
Penstemon newberryi
Penstemon nitidus
Penstemon oreganus
Penstemon oreocharis
Penstemon ovatus
Penstemon palmeri
Penstemon parvulus
Penstemon payettensis
Penstemon paysoniorum
Penstemon peckii
Penstemon pennellianus
Penstemon perpulcher
Penstemon pratensis
Penstemon procerus
Penstemon pruinosus
Penstemon pseudoprocerus
Penstemon pumilus
Penstemon purpusii
Penstemon radicosus
Penstemon rattani
Penstemon richardsonii
Penstemon roezlii
Penstemon rupicola
Penstemon rydbergii
Penstemon scouleri
Penstemon seorsus
Penstemon serrulatus
Penstemon spathulatus
Penstemon spatulatus
Penstemon speciosus
Penstemon strictus
Penstemon subglaber
Penstemon subserratus

Penstemon tolmiei
Penstemon triphyllus
Penstemon variabilis
Penstemon venustus
Penstemon virens
Penstemon washingtonensis
Penstemon watsonii
Penstemon whippleanus
Penstemon wilcoxii
Penthorum sedoides
Peraphyllum ramosissimum
Perideridia bolanderi
Perideridia **erythrorhiza**
Perideridia gairdneri
Perideridia howellii
Perideridia kelloggii
Perideridia lemmonnii
Perideridia leptocarpa
Perideridia oregana
Perideridia parishii
Perityle stansburii
Pemettya mucronata
Petalostemon omatum
Petasites fiigidus
Petasites japonicus
Petasites nivalis
Petasites palmatus
Petasites sagittatus
Petasites speciosa
Peteria thompsoniae
Petradoria pumila
Petrohagia prolifera
Petrohagia saxifiaga
Petrophytum caespitosum
Petrophytum cinerascens
Petrophytum hendersonii
Petroselinum crispum
Phaca salsula
Phacelia affinis
Phacelia alpina
Phacelia aramosissima
Phacelia argentea
Phacelia bicolor
Phacelia bolanderi
Phacelia capitata
Phacelia corymbosa
Phacelia crenulata
Phacelia **franklinii**
Phacelia fremontii
Phacelia **frigida**
Phacelia glandulosa
Phacelia hastata
Phacelia heterophylla
Phacelia humilis
Phacelia idahoensis
Phacelia incana
Phacelia inconspicua
Phacelia inundata
Phacelia ivesiana
Phacelia **lenta**
Phacelia **leonis**
Phacelia **linearis**
Phacelia **lutea**
Phacelia lyallii
Phacelia malvaefolia
Phacelia minutissima
Phacelia mutabilis
Phacelia nemoralis
Phacelia peckii
Phacelia procera
Phacelia ramosissima
Phacelia rattanii
Phacelia scopulina
Phacelia sericea
Phacelia tanacetifolia
Phacelia tetramera
Phacelia thermalis
Phacelia vema
Phacelia virgata
Phalaris **aquatica**
Phalaris arundinacea
Phalaris califomica
Phalaris canariensis
Phalaris caroliniana
Phalaris minor
Phalaris **paradoxa**
Phaseolus coccineus
Phaseolus **vulgaris**
Philadelphus gordonianus
Philadelphus lewisii
Philadelphus oreganus
Philadelphus **pubescens**
Philadelphus trichothecus
Philostemon **radicans**
Phippsia algida
Phleum alpinum
Phleum boehmeri
Phleum phleoides
Phleum pratense
Phlomis **tuberosa**
Phlox aculeata
Phlox adsurgens
Phlox albomarginata
Phlox alyssifolia
Phlox andicola
Phlox austromontana
Phlox bryoides
Phlox caespitosa
Phlox caroliniensis
Phlox colubria
Phlox colubrina
Phlox diffusa
Phlox exuata
Phlox gracilis
Phlox hendersonii
Phlox hirsuta
Phlox hoodii
Phlox idahonis
Phlox kelseyi
Phlox linearifolia
Phlox longifolia
Phlox multiflora
Phlox musciodes
Phlox paniculata
Phlox peckii
Phlox pilosa
Phlox pungens
Phlox speciosa
Phlox variabilis
Phlox **viscida**
Phoenicaulis cheiranthoides
Phoradendron bolleanum
Phoradendron juniperinum
Phragmites australis
Phryma leptostachya
Phyllanthus caroliniensis
Phyllodoce X intermedia
Phyllodoce empetriformis
Phyllodoce **glanduliflora**
Phyllospadix scouleri
Physalis hederaefolia
Physalis heterophylla
Physalis ixocarpa
Physalis longifolia
Physalis peruviana
Physalis **philadelphica**
Physalis pruinosa
Physalis **pubescens**
Physalis pumila
Physalis wrightii
Physaria acutifolia
Physaria alpestris
Physaria brassicoides
Physaria chambersii
Physaria **condensata**
Physaria didymocarpa
Physaria domii
Physaria **eburniflora**
Physaria geyeri
Physaria integrifolia
Physaria **oregona**
Physaria saximontana

Physocarpus altemans
Physocarpus capitatus
Physocarpus malvaceus
Physocarpus monogynus
Physocarpus opulifolius
Physostegia ledinghamii
Physostegia parviflora
Physostegia virginiana
Phytolacca americana
Picea abies
Picea breweriana
Picea engelmannii
Picea glauca
Picea pungens
Picea sitchensis
Picradeniopsis oppositifolia
Picradeniopsis woodhousei
Picris echioides
Picris hieracoides
Pieris japonica
Pilea fontana
Pilea pumila
Pilularia americana
Pimpinella anisum
Pimpinella saxifmga
Pinguicula **vulgaris**
Pinus albicaulis
Pinus attenuata
Pinus banksiana
Pinus contorta
Pinus flexilis
Pinus jefferyi
Pinus lambertiana
Pinus monophylla
Pinus monticola
Pinus nigra
Pinus ponderosa
Pinus radiata
Pinus sabiniana
Pinus sylvestris
Pinus thunbergiana
Pinus wallichiana
Pisum satvium
Pityopus califomica
Pityrogramma triangularis
Plagiobothrys **figuratus**
Plagiobothrys **greenei**
Plagiobothrys harknessii
Plagiobothrys hirtus
Plagiobothrys hispidus
Plagiobothrys lamprocarpus
Plagiobothtys leptocladus
Plagiobothrys mollis
Plagiobothrys nothofulvus
Plagiobothrys **reticulatus**
Plagiobothrys scouleri
Plagiobothrys shastensis
Plagiobothrys tenellus
Plagiobothrys tener
Plantago aristata
Plantago asiatica
Plantago canescens
Plantago elongata
Plantago eriopoda
Plantago galeattiana
Plantago hirtella
Plantago lanceolata
Plantago macrocarpa
Plantago major
Plantago maritima
Plantago patagonica
Plantago r u g e l i i
Plantago tweedyi
Platanthera chorisiana
Platanthera praeclara
Platanthera sparsiflora
Platanus occidentalis
Platyschkuhria integrifolia
Platyspermum scapigerum
Plectritis ciliosa
Plectritis **congesta**
Plectritis macrocera
Pleuricospora **fimbriolata**
Pleuropogon **davyi**
Pleuropogon **oregonus**
Pleuropogon refractus
Poa abbreviata
Poa alpina
Poa annua
Poa arachnifera
Poa **arctica**
Poa **arida**
Poa bolanderi
Poa bulbosa
Poa compressa
Poa **confinis**
Poa **curta**
Poa curtifolia
Poa epilis
Poa fendleriana
Poa glauca
Poa glaucifolia
Poa howellii
Poa **laxiflora**
Poa leibergii
Poa leptocoma
Poa lettennanii
Poa longifolia
Poa longiligula
Poa macrantha
Poa macroclada
Poa **marcida**
Poa nervosa
Poa pachypholis
Poa palustris
Poa pattersonii
Poa paucispicula
Poa **piperi**
Poa pratensis
Poa pringlei
Poa **reflexa**
Poa rhizomata
Poa rupicola
Poa secunda
Poa stenantha
Poa suksdorfii
Poa sylvestris
Poa trivialis
Poa unilateralis
Poa vaseyochloa
Pogogyne zizyphoroides
Pogonia ophioglossoides
Polanisia jamesii
Polanisia **trachysperma**
Polemonium brandegei
Polemonium californicum
Polemonium cameum
Polemonium chartaceum
Polemonium elegans
Polemonium foliosissimum
Polemonium micranthum
Polemonium occidentale
Polemonium pectinatum
Polemonium **pulcherrimum**
Polemonium **reptans**
Polemonium viscosum
Polyctenium **fremontii**
Polygala alba
Polygala califomica
Polygala **sanguinea**
Polygala senega
Polygala verticillata
Polygonatum biflorum
Polygonum achoreum
Polygonum amphibium
Polygonum argryocoleon
Polygonum aubertii
Polygonum austiniae
Polygonum aviculare
Polygonum bistortoides
Polygonum cahfomicum
Polygonum cascadense

Polygonum coccineum
Polygonum confertiflorum
Polygonum convolvulus
Polygonum cuspidatum
Polygonum davisiae
Polygonum douglasii
Polygonum erectum
Polygonum fowleri
Polygonum heterosepalum
Polygonum hydropiper
Polygonum hydropiperoides
Polygonum kelloggii
Polygonum lapathifolium
Polygonum majus
Polygonum minimum
Polygonum montanum
Polygonum newberryi
Polygonum nudum
Polygonum nuttallii
Polygonum orientale
Polygonum paronychia
Polygonum **parryi**
Polygonum pensylvanicum
Polygonum persicaria
Polygonum phytolaccaefolium
Polygonum polycnemoides
Polygonum polygaloides
Polygonum polystachyum
Polygonum punctatum
Polygonum ramosissimum
Polygonum sachalinense
Polygonum sagittatum
Polygonum sawatchense
Polygonum **scandens**
Polygonum spergulariaeforme
Polygonum tenue
Polygonum viviparum
Polygonum watsonii
Polypodium glycyrrhiza
Polypodium hesperium
Polypodium scouleri
Polypodium virginianum
Polypogon distans
Polypogon glomeratus
Polypogon interruptus
Polypogon monspeliensis
Polystichum andersonii
Polystichum braunii
Polystichum californicum
Polystichum kruckebergii
Polystichum lemmonii
Polystichum lonchitis
Polystichum mohrioides
Polystichum munitum
Polystichum scopulinum
Poncirus trifoliata
Ponista oregonensis
Populus X **acuminata**
Populus X brayshawii
Populus X canadensis
Populus alba
Populus angustifolia
Populus balsamifera
Populus deltoides
Populus fremontii
Populus tremuloides
Porterella camosula
Portulaca oleracea
Potamogeton alpinus
Potamogeton amplifolius
Potamogeton berchtoldii
Potamogeton **crispus**
Potamogeton diversifolius
Potamogeton epihydrus
Potamogeton **filiformis**
Potamogeton **foliosus**
Potamogeton **friesii**
Potamogeton gramineus
Potamogeton illinoensis
Potamogeton natans
Potamogeton nodosus
Potamogeton obtusifolius
Potamogeton pauciflorus
Potamogeton pectinatus
Potamogeton praelongus
Potamogeton pusillus
Potamogeton richardsonii
Potamogeton robbinsii
Potamogeton strictifolius
Potamogeton vaginatus
Potamogeton zosteriformis
Potentilla anserina
Potentilla argentea
Potentilla arguta
Potentilla **bakeri**
Potentilla biennis
Potentilla blaschkeana
Potentilla brevifolia
Potentilla **breweri**
Potentilla cascadensis
Potentilla concinna
Potentilla corymbosa
Potentilla cottamii
Potentilla diversifolia
Potentilla drummondii
Potentilla etomentosa
Potentilla fastigiata
Potentilla **fissa**
Potentilla flabellifolia
Potentilla fruticosa
Potentilla glabrata
Potentilla glandulosa
Potentilla glaucophylla
Potentilla gracilis
Potentilla hippiana
Potentilla hookeriana
Potentilla nepalensis
Potentilla newberryi
Potentilla nivea
Potentilla norvegica
Potentilla ovina
Potentilla **pacifica**
Potentilla **palustris**
Potentilla **paradoxa**
Potentilla pensylvanica
Potentilla permollis
Potentilla plattensis
Potentilla pumila
Potentilla quinquefolia
Potentilla recta
Potentilla rhomboidea
Potentilla **rivalis**
Potentilla rubricaulis
Potentilla tridentata
Potentilla uniflora
Potentilla **valida**
Potentilla villosa
Prenanthes alata
Prenanthes alba
Prenanthes **aspera**
Prenanthes racemosa
Prenanthes sagittata
Primula alcalina
Primula cusickiana
Primula incana
Primula **parryi**
Primula wilcoxiana
Prinspeia uniflora
Proboscidea louisianica
Prosartes hookeri
Prunella vulgaris
Prunus americana
Prunus armeniaca
Prunus avium
Prunus cerasifera
Prunus cerasus
Prunus domestica
Prunus emarginata
Prunus **fruticosa**
Prunus glandulosa
Prunus laurocerasus
Prunus lusitanica

Prunus mahaleb
Prunus **padus**
Prunus pensylvanica
Prunus **persica**
Prunus prunifolia
Prunus pumila
Prunus spinosa
Prunus subcordata
Prunus tomentosa
Prunus virginiana
Pseudelymus X saxicola
Pseudotsuga menziesii
Pseudotsuga taxifolia
Psilocarphus brevissimus
Psilocarphus elatior
Psilocarphus **oregonus**
Psilocarphus tenellus
Psilostrophe **bakeri**
Psoralea **argophylla**
Psoralea cuspidata
Psoralea esculenta
Psoralea hypogaea
Psoralea lanceolata
Psoralea linearifolia
Psoralea physodes
Psoralea tenuiflora
Pteretis spicant
Pteridium aquilinum
Pterospora andromedea
Pteryxia petraea
Puccinellia airoides
Puccinellia cusickii
Puccinellia distans
Puccinellia lemmonii
Puccinellia **maritima**
Puccinellia nutkaensis
Puccinellia nuttalliana
Puccinellia pauciflora
Puccinellia pumila
Purshia **mexicana**
Purshia tridentata
Pycanthemum californicum
Pycnanthemum virginianum
Pyrola aphylla
Pyrola asarifolia
Pyrola chlorantha
Pyrola **dentata**
Pyrola elliptica
Pyrola minor
Pyrola **pallida**
Pyrola **picta**
Pyrola rotundifolia
Pyrola secunda
Pyrola uniflora
Pyrrocoma lanceolata
Pyrus calleryana
Pyrus communis
Pyrus ioensis
Pyrus malus
Pyrus sylvestris
Quamasia **azurea**
Quercus bicolor
Quercus chrysolepis
Quercus garryana
Quercus kelloggii
Quercus macrocarpa
Quercus morehus
Quercus robur
Quercus sadleriana
Quercus vaccinifolia
Raillardella argentea
Raillardella scaposa
Rainiera stricta
Ranunculus abortivus
Ranunculus acriformis
Ranunculus **acris**
Ranunculus alismaefolius
Ranunculus andersonii
Ranunculus aquatilis
Ranunculus arvensis
Ranunculus bongardii
Ranunculus bulbosus
Ranunculus californicus
Ranunculus cardiophyllus
Ranunculus cooleyae
Ranunculus cymbalaria
Ranunculus douglasii
Ranunculus eschscholtzii
Ranunculus ficaria
Ranunculus flabellaris
Ranunculus flammula
Ranunculus gelidus
Ranunculus glaberrimus
Ranunculus gmelinii
Ranunculus gonnanii
Ranunculus hebecarpus
Ranunculus hispidus
Ranunculus hyperboreus
Ranunculus inamoenus
Ranunculus intertextus
Ranunculus jovis
Ranunculus lobbii
Ranunculus macounii
Ranunculus muricatus
Ranunculus natans
Ranunculus occidentalis
Ranunculus oresterus
Ranunculus orthorhynchus
Ranunculus **parviflorus**
Ranunculus pedatifidus
Ranunculus pensylvanicus
Ranunculus populago
Ranunculus purshii
Ranunculus pygmaeus
Ranunculus reconditus
Ranunculus recurvatus
Ranunculus **repens**
Ranunculus **reptans**
Ranunculus rhomboideus
Ranunculus sceleratus
Ranunculus **subrigidus**
Ranunculus testiculatus
Ranunculus unalaschensis
Ranunculus uncinatus
Ranunculus verecundus
Raphanus raphanistrum
Raphanus **sativus**
Ratibida columnifera
Ratibida pinnata
Redfieldia flexuosa
Reseda **lutea**
Rhamnus alnifolia
Rhamnus californica
Rhamnus cathartica
Rhamnus davurica'
Rhamnus frangula
Rhamnus purshiana
Rheum rhabarbarum
Rhinanthus **crista-galli**
Rhododendron albiflorum
Rhododendron macrophyllum
Rhododendron occidentale
Rhus copallina
Rhus diversiloba
Rhus glabra
Rhus quercifolia
Rhus **trilobata**
Rhus typhina
Rhynchospora alba
Rhynchospora capillacea
Rhysopterus **plurijugus**
Ribes acerifolium
Ribes alpinum
Ribes americanum
Ribes aureum
Ribes binominatum
Ribes bracteosum
Ribes cereum
Ribes cognatum
Ribes cruentum
Ribes cynosbati
Ribes divaricatum

Ribes erythrocarpum
Ribes gooddingii
Ribes hendersonii
Ribes hirtellum
Ribes howellii
Ribes hudsonianum
Ribes indecorum
Ribes inerme
Ribes irriguum
Ribes klamathense
Ribes lacustre
Ribes laxiflorum
Ribes lobbii
Ribes marshallii
Ribes menziesii
Ribes missouriense
Ribes mogollonicum
Ribes montigenum
Ribes nevadense
Ribes nigrum
Ribes niveum
Ribes oxyacanthoides
Ribes petiolare
Ribes reniforme
Ribes sanguineum
Ribes sativum
Ribes setosum
Ribes triste
Ribes velutinum
Ribes viscosissimum
Ribes watsonianum
Ribes **wolfii**
Ricinus **communis**
Rigiopappus leptocladus
Robinia hispida
Robinia pseudo-acacia
Robinia **viscosa**
Romanzoffia californica
Romanzoffia sitchensis
Romanzoffia suksdorfii
Romanzoffia thompsonii
Romanzoffia **tracyi**
Rorippa austriaca
Rorippa calycina
Rorippa curvipes
Rorippa lyrata
Rorippa palustris
Rorippa sinuata
Rorippa sylvestris
Rorippa tenenima
Rorippa **truncata**
Rosa acicularis
Rosa arkansana
Rosa **blanda**
Rosa californica
Rosa **canina**
Rosa eglanteria
Rosa **gymnocarpa**
Rosa multiflora
Rosa nutkana
Rosa pisocarpa
Rosa pyrifera
Rosa spaldingii
Rosa spithamea
Rosa ultramontana
Rosa virginiana
Rosa woodsii
Rotala ramosior
Rottboellia cochinchinensis
Rottboellia exaltata
Rubus acaulis
Rubus bartonianus
Rubus chamaemorus
Rubus discolor
Rubus fruiticosus
Rubus hesperius
Rubus idaeus
Rubus laciniatus
Rubus lasiococcus
Rubus leucodermis
Rubus macropetalus
Rubus macrophyllus
Rubus moluccanus
Rubus nigerrimus
Rubus nivalis
Rubus occidentalis
Rubus parviflorus
Rubus pedatus
Rubus procerus
Rubus pubescens
Rubus spectabilis
Rubus strigosus
Rubus thrysanthus
Rubus ursinus
Rubus vestitus
Rudbeckia alpicola
Rudbeckia californica
Rudbeckia hirta
Rudbeckia laciniata
Rudbeckia **nitida**
Rudbeckia occidentalis
Rumex acetosa
Rumex acetosella
Rumex altissimus
Rumex aquaticus
Rumex **conglomeratus**
Rumex **crispus**
Rumex cuneifolius
Rumex densiflorus
Rumex domesticus
Rumex maritimus
Rumex obtusifolius
Rumex occidentalis
Rumex orbiculatus
Rumex patientia
Rumex paucifolius
Rumex persicarioides
Rumex **pulcher**
Rumex salicifolius
Rumex sanguineus
Rumex **stenophyllus**
Rumex venosus
Ruppia maritima
Ruppia occidentalis
Ruscus hypoglossum
Saccharum **spontaneum**
Sagina apetala
Sagina crassicaulis
Sagina nivalis
Sagina occident&s
Sagina **procumbens**
Sagina saginoides
Sagittaria arifolia
Sagittaria brevirostra
Sagittaria calycina
Sagittaria cuneata
Sagittaria graminea
Sagittaria latifolia
Sagittaria montevidensis
Sagittaria sagittifolia
Sairocarpus kingii
Salicomia europaea
Salicomia **rubra**
Salicomia **virginica**
Salix X **clarkei**
Salix alba
Salix amygdaloides
Salix **arctica**
Salix argophylla
Salix babylonica
Salix **barclayi**
Salix barmttiana
Salix bebbiana
Salix boothii
Salix brachycarpa
Salix **candida**
Salix cascadensis
Salix caudata
Salix **commutata**
Salix coulteri
Salix delnortensis
Salix discolor

Salix drummondiana
Salix eastwoodiae
Salix eriocephala
Salix exigua
Salix farriae
Salix fluviatilis
Salix **fragilis**
Salix geyeriana
Salix glauca
Salix hindsiana
Salix hookeriana
Salix humilis
Salix jepsonii
Salix laevigata
Salix lasiandra
Salix lasiolepis
Salix lemmoni
Salix lemmonii
Salix **lucida**
Salix **lutea**
Salix maccalliana
Salix mackenzieana
Salix **monochroma**
Salix nivalis
Salix parksiana
Salix pedicellaris
Salix pentandra
Salix **petiolaris**
Salix petrophila
Salix **piperi**
Salix planifolia
Salix pseudocordata
Salix pseudomonticola
Salix **rigida**
Salix rotundifolia
Salix scouleriana
Salix serissima
Salix sessilifolia
Salix sitchensis
Salix **tracyi**
Salix **tweedyi**
Salix vestita
Salix wolfii
Salsola **collina**
Salsola **iberica**
Salsola vermiculata
Salvia X sylvestris
Salvia aethiopis
Salvia camosa
Salvia dorrii
Salvia microphylla
Salvia nemorosa
Salvia offtcinalis
Salvia pratensis
Salvia reflexa
Salvia sclarea
Salvinia auriculata
Salvinia biloba
Salvinia **herzogii**
Salvinia **molesta**
Sambucus arborescens
Sambucus callicarpa
Sambucus canadensis
Sambucus **cerulea**
Sambucus glauca
Sambucus melanocarpa
Sambucus racemosa
Samolus parviflorus
Sanguinaria canadensis
Sanguisorba annua
Sanguisorba menziesii
Sanguisorba microcephala
Sanguisorba minor
Sanguisorba **officinalis**
Sanguisorba sitchensis
Sanicula arctopoides
Sanicula bipinnatifida
Sanicula canadensis
Sanicula crassicaulis
Sanicula graveolens
Sanicula **gregaria**
Sanicula laciniata
Sanicula marilandica
Sanicula peckiana
Sanicula septentrionalis
Sanicula **tracyi**
Sanicula **tuberosa**
Saponaria ocymoides
Saponaria officinalis
Sarcobatus vermiculatus
Sarcococca hookerana
Sarcococca hookeriana
Sarcodes sanguinea
Satureja acinos
Satureja douglasii
Satureja **vulgaris**
Saussurea americana
Saussurea **densa**
Saussurea weberi
Saxifraga adscendens
Saxifraga aequidentata
Saxifraga aestivalis
Saxifraga aizoides
Saxifraga apetala
Saxifraga arguta
Saxifraga austromontana
Saxifraga bongardii
Saxifiaga bronchialis
Saxifraga **bryophora**
Saxifraga caespitosa
Saxifraga califomica
Saxifraga cemua
Saxifraga cherlerioides
Saxifraga chrysantha
Saxifiaga columbiana
Saxifraga debilis
Saxifraga ferruginea
Saxifraga flagellaris
Saxifraga foliolosa
Saxifraga **fragarioides**
Saxifi-aga **fragosa**
Saxifraga hieracifolia
Saxifraga howellii
Saxifraga incompta
Saxifiaga integrifolia
Saxifraga jamesii
Saxifraga lyallii
Saxifiaga marshallii
Saxifraga mertensiana
Saxifraga **nuttallii**
Saxifiaga occidentalis
Saxifraga oppositifolia
Saxifraga oregana
Saxifraga parvifolia
Saxifraga peltata
Saxifraga **punctata**
Saxifraga ranunculifolia
Saxifraga **reflexa**
Saxifiaga rhomboidea
Saxifraga rivularis
Saxifraga **rufidula**
Saxifraga subapetala
Saxifraga tempestiva
Saxifraga tischii
Saxifraga tolmiei
Saxifiaga **tricuspidata**
Saxifragopsis fragarioides
Scabiosa **atropurpurea**
Scandix pecten-veneris
Schedonnardus paniculatus
Scheuchzeria **palustris**
Schizachne purpurascens
Schoenocrambe linifolia
Schoenolirion album
Schoenolirion bracteosum
Schrankia nuttallii
Scilla **siberica**
Scirpus acutus
Scirpus atrovirens
Scirpus cemuus
Scirpus cespitosus
Scirpus congdonii

Scirpus criniger
Scirpus cyperinus
Scirpus fluviatilis
Scirpus hallii
Scirpus heterochaetus
Scirpus hudsonianus
Scirpus maritimus
Scirpus microcarpus
Scirpus nevadensis
Scirpus **pallidus**
Scirpus pauciflorus
Scirpus pendulus
Scirpus pumilus
Scirpus pungens
Scirpus **setaceus**
Scirpus subterminalis
Scirpus **validus**
Scleranthus annuus
Sclerochloa dura
Scleropoa **rigida**
Scoliopus hallii
Scolochloa festucacea
Scotzonera hispanica
Scotzonera laciniata
Scribneria bolanderi
Scrophularia califomica
Scrophularia **lanceolata**
Scutellaria angustifolia
Scutellaria antirrhinoides
Scutellaria epilobiifolia
Scutellaria **galericulata**
Scutellaria lateriflora
Scutellaria **nana**
Scutellaria parvula
Scutellaria **tuberosa**
Secale cereale
Sedum acre
Sedum debile
Sedum divergens
Sedum glanduliferum
Sedum lanceolatum
Sedum laxum
Sedum leibergii
Sedum **lineare**
Sedum moranii
Sedum oblanceolatum
Sedum oreganum
Sedum oregonense
Sedum purdyi
Sedum purdyitilis
Sedum radiatum
Sedum rhodanthum
Sedum **rosea**
Sedum spathulifolium
Sedum spectabile
Sedum stenopetalum
Sedum telephium
Sedum **watsoni**
Selaginella **densa**
Selaginella douglasii
Selaginella oregana
Selaginella rupestris
Selaginella selaginoides
Selaginella **wallacei**
Selaginella watsonii
Senecio amplectens
Senecio aronicoides
Senecio atratus
Senecio aureus
Senecio bolanderi
Senecio **canus**
Senecio clarkianus
Senecio columbianus
Senecio **condensatus**
Senecio congestus
Senecio crassulus
Senecio cymbalarioides
Senecio debilis
Senecio dimorphophyllus
Senecio **elmeri**
Senecio eremophilus
Senecio etterae
Senecio eurycephalus
Senecio fendleri
Senecio **flavulus**
Senecio flettii
Senecio foetidus
Senecio fremontii
Senecio fuscatus
Senecio hesperius
Senecio howellii
Senecio hydrophiloides
Senecio **hydrophilus**
Senecio hyperborealis
Senecio **indecorus**
Senecio integerrimus
Senecio integrifolius
Senecio jacobaea
Senecio laetiflorus
Senecio liguliflorus
Senecio ligulifolius
Senecio **lugens**
Senecio macounii
Senecio megacephalus
Senecio mikanoides
Senecio multilobatus
Senecio neowebsteri
Senecio pauciflorus
Senecio pauperculus
Senecio plattensis
Senecio **porteri**
Senecio pseudaureus
Senecio purshianus
Senecio rapifolius
Senecio resedifolius
Senecio riddellii
Senecio **serra**
Senecio sonnei
Senecio spartioides
Senecio sphaerocephalus
Senecio streptanthifolius
Senecio subnudus
Senecio sylvaticus
Senecio triangularis
Senecio tridenticulatus
Senecio **tweedyi**
Senecio uintahensis
Senecio **viscosus**
Senecio **vulgaris**
Senecio **websteri**
Senecio wemeriaefolius
Sequoia sempervirens
Serapias austinae
Sesuvium verrucosum
Setaria glauca
Setaria italica
Setaria pallide-fusca
Setaria verticillata
Setaria viridis
Setcreasea **pallida**
Shepherdia argentea
Shepherdia canadensis
Sherardia arvensis
Shinnersoseris **rostrata**
Shoshonea pulvinata
Sibbaldia **procumbens**
Sicyos angulatus
Sida hederacea
Sidalcea campestris
Sidalcea **crenulata**
Sidalcea cusickii
Sidalcea eximia
Sidalcea glaucescens
Sidalcea hendersonii
Sidalcea hitipes
Sidalcea malachroides
Sidalcea malviflora
Sidalcea nelsoniana
Sidalcea neomexicana
Sidalcea oregana
Sidalcea ranunculacea
Sidalcea setosa

Sidalcea spicata
Sidalcea virgata
Sideritis montana
Sildacea **candida**
Silene acaulis
Silene antirrhina
Silene armeria
Silene califomica
Silene campanulata
Silene columbiana
Silene conoidea
Silene cserei
Silene **dichotoma**
Silene douglasii
Silene gallica
Silene **grayi**
Silene hitchguirei
Silene hookeri
Silene **ingrami**
Silene latifolia
Silene lemmonii
Silene lyallii
Silene macounii
Silene menziesii
Silene montana
Silene multicaulis
Silene noctiflora
Silene oregana
Silene parryii
Silene **repens**
Silene scaposa
Silene scouleri
Silene seelyi
Silene spaldingii
Silene suksdotfii
Silene **vulgaris**
Silphium laciniatum
Silphium perfoliatum
Silybum marianum
Sisymbrium altissimum
Sisymbrium **irio**
Sisymbrium loeselii
Sisymbrium offtcinale
Sisyrinchium bellum
Sisyrinchium califomicum
Sisyrinchium campestre
Sisyrinchium douglasii
Sisyrinchium halophilum
Sisyrinchium hendersonii
Sisyrinchium hitchcockii
Sisyrinchium idahoense
Sisyrinchium inflatum
Sisyrinchium montanum
Sisyrinchium mucronatum
Sisyrinchium pallidum
Sisytinchium sarmentosum
Sisyrinchium septentrionale
Sitanion hanseni
Sitanion hordeoides
Sitanion hystrix
Sitanion jubatum
Sitanion longifolium
Sium suave
Skimmia japonica
Smelowskia calycina
Smelowskia fremontii
Smelowskia **ovalis**
Smilacina racemosa
Smilacina sessilifolia
Smilacina stellata
Smilax califomica
Smilax ecirrhata
Smilax herbacea
Smilax jamesii
Sobaria sorbifolia
Solanum aviculare
Solanum carolinense
Solanum dulcamara
Solanum elaeagnifolium
Solanum furcatum
Solanum interius
Solanum melanocercasum
Solanum melongena
Solanum muricatum
Solanum muticum
Solanum nigrum
Solanum parishii
Solanum physalifolium
Solanum pseudo-capsicum
Solanum rostratum
Solanum sarrachoides
Solanum sisymbriifolium
Solanum torvum
Solanum **triflorum**
Solanum tuberosum
Solanum umbelliferum
Solanum xantii
Solidago califomica
Solidago canadensis
Solidago ciliosa
Solidago decumbens
Solidago flexicaulis
Solidago gigantea
Solidago glutinosa
Solidago graminifolia
Solidago gymnospermoides
Solidago missouriensis
Solidago mollis
Solidago multiradiata
Solidago nana
Solidago nemoralis
Solidago occidentalis
Solidago parryi
Solidago ptarmicoides
Solidago riddellii
Solidago rigida
Solidago scopulorum
Solidago simplex
Solidago sparsiflora
Solidago spathulata
Solidago speciosa
Solidago spectabilis
Soliva pterospenna
Sonchus arvensis
Sonchus **asper**
Sonchus **oleraceus**
Sophia parviflora
Sophora arizonica
Sophora japonica
Sophora leachiana
Sophora **secundiflora**
Sorbus aria
Sorbus aucuparia
Sorbus cascadensis
Sot-bus dumosa
Sorbus hybrida
Sorbus intermedia
Sot-bus occidentalis
Sorbus sambucifolia
Sorbus scopulina
Sorbus sitchensis
Sorghastrum nutans
Sorghum alum
Sorghum bicolor
Sorghum halepense
Sorghum sudanense
Sparganium androcladum
Sparganium angustifolium
Sparganium **chlorocarpum**
Sparganium emersum
Sparganium **erectum**
Sparganium eurycarpum
Sparganium fluctuans
Sparganium minimum
Sparganium simplex
Spartina altemiflora
Spartina **anglica**
Spartina gracilis
Spartina **patens**
Spartina pectinata
Spartium junceum
Spartium scoparium

Spergula arvensis
Spergularia canadensis
Spergularia diandra
Spergularia macrotheca
Spergularia marina
Spergularia media
Spergularia rubra
Sphaeralcea angustifolia
Sphaeralcea coccinea
Sphaeralcea **emoryi**
Sphaeralcea grossulariifolia
Sphaeralcea longisepala
Sphaeralcea munroana
Sphaeralcea parvifolia
Sphaeralcea rivularis
Sphaeromeria argentea
Sphaeromeria capitata
Sphaeromeria potentilloides
Sphaerophysa salsula
Sphenopholis obtusata
Sphenosciadium capitellatum
Spinacea oleracea
Spiraea X arguta
Spiraea X bumalda
Spiraea X pyramidata
Spiraea X vanhoutei
Spiraea alba
Spiraea arbuscula
Spiraea betulifolia
Spiraea densiflora
Spiraea douglasii
Spiraea japonica
Spiraea **lucida**
Spiraea menziesii
Spiraea pikowensis
Spiraea pyramidata
Spiraea roseata
Spiranthes cemua
Spiranthes magnicamporum
Spiranthes porrifolia
Spiranthes romanzoffiana
Spirodela polyrhiza
Sporobolus airoides
Sporobolus **asper**
Sporobolus cryptandrus
Sporobolus heterolepis
Sporobolus neglectus
Sporobolus vaginiflorus
Spraguea nuda
Spmguea umbellata
Stachys albens
Stachys byzantica
Stachys **ciliata**
Stachys cooleyae
Stachys **mexicana**
Stachys palustris
Stachys **rigida**
Stachys scopulorum
Stachys tenuifolia
Stanleya confertiflora
Stanleya confertifolia
Stanleya pinnata
Stanleya tomentosa
Stanleya viridiflora
Steironema ciliatum
Steironema lanceolatum
Stellaria americana
Stellaria borealis
Stellaria calycantha
Stellaria crassifolia
Stellaria **crispa**
Stellaria graminea
Stellaria humifusa
Stellaria jamesiana
Stellaria laeta
Stellaria longifolia
Stellaria longipes
Stellaria media
Stellaria **nitens**
Stellaria obtusa
Stellaria simcoei
Stellaria umbellata
Stenanthium occidentale
Stenogonum salsuginosum
Stenosiphon linifolius
Stephanie macho
Stephanomeria exigua
Stephanomeria lactucina
Stephanomeria malheurensis
Stephanomeria paniculata
Stephanomeria runcinata
Stephanomeria tenuifolia
Stephanomeria **virgata**
Stipa **columbiana**
Stipa comata
Stipa **curtiseta**
Stipa **elmeri**
Stipa lemmonii
Stipa lettermanii
Stipa nevadensis
Stipa occidentalis
Stipa pinetorum
Stipa richardsonii
Stipa robustia
Stipa **scribneri**
Stipa **spartea**
Stipa speciosa
Stipa thurberiana
Stipa viridula
Stipa webberi
Stipa williamsii
Stipoxyzopsis X **bloomeri**
Stratiotes aloides
Streptanthella longirostris
Streptanthus cordatus
Streptanthus glandulosus
Streptanthus howellii
Streptopus amplexifolius
Streptopus curvipes
Streptopus **roseus**
Streptopus streptopoides
Striga spp.
Strophostyles leiosperma
Stylocline **filaginea**
Stylocline psilocarphoides
Suaeda **depressa**
Suaeda diffusa
Suaeda maritima
Suaeda moquinii
Suaeda nigra
Suaeda occidentalis
Subularia **aquatica**
Suckleya suckleyana
Suksdotfia ranunculifolia
Suksdotfia violacea
Sullivantia hapemanii
Sullivantia oregana
Sullivantia purpusii
Swertia albicaulis
Swertia modocensis
Swertia perennis
Symphoricarpos **acutus**
Symphoricarpos **albus**
Symphoricarpos longiflorus
Symphoricarpos mollis
Symphoricarpos occidentalis
Symphoricatpos **orbiculatus**
Symphoricarpos oreophilus
Symphoricarpos rotundifolius
Symphoricarpos vaccinioides
Symphytum asperum
Symphytum **officinale**
Synthyris canbyi
Synthyris missutica
Synthyris pinnatifida
Synthyris **platycarpa**
Synthyris reniformis
Synthyris rubra
Synthyris schizantha
Synthyris stellata
Syringa villosa
Syringa **vulgaris**

Taeniatherum asperum
Tagetes tenuifolia
Talinum okanoganense
Talinum parviflorum
Talinum **sediforme**
Talinum spinescens
Tamarix chinensis
Tamarix gallica
Tamarix parviflora
Tamarix ramosissima
Tamarix spp.
Tanacetum camphoratum
Tanacetum douglasii
Tanacetum potentilloides
Tanacetum simplex
Tanacetum vulgare
Taraxacum ceratophorum
Taraxacum eriophorum
Taraxacum laevigatum
Taraxacum **lyratum**
Taraxacum **officinale**
Tauschia glauca
Tauschia **hooveri**
Tauschia howellii
Tauschia **kelloggii**
Tauschia stricklandii
Tauschia tenuissima
Taxus brevifolia
Teesdalia nudicaulis
Telesonix jamesii
Tellima grandiflora
Tetradymia canescens
Tetradymia glabrata
Tetradymia nuttallii
Tetradymia spinosa
Teucrium canadense
Teucrium glandulosum
Teucrium lucidum
Thalassia testudina
Thalesia fasciculata
Thalesia uniflora
Thalictrum alpinum
Thalictnun aquilegifolium
Thalictrum dasycarpum
Thalictrum dioicum
Thalictrum **fendleri**
Thalictrum occidentale
Thalictrum polycarpum
Thalictrum sparsiflorum
Thalictrum venulosum
Thelesperma marginatum
Thelesperma **pubescens**
Thelypodium brachycarpum
Thelypodium eucosmum
Thelypodium flexuosum
Thelypodium howellii
Thelypodium integrifolium
Thelypodium laciniatum
Thelypodium lasiophyllum
Thelypodium paniculatum
Thelypodium repandum
Thelypodium sagittatum
Thelypteris limbospenna
Thelypteris nevadensis
Thelypteris oregana
Thelypteris palustris
Thelypteris **phegopteris**
Thermopsis gracilis
Thermopsis macrophylla
Thermopsis montana
Thermopsis ovata
Thermopsis rhombifolia
Thesium linophyllon
Thlaspi aileeniae
Thlaspi **alpestre**
Thlaspi arvense
Thlaspi fendleri
Thlaspi glaucum
Thlaspi parviflorum
Thlaspi perfoliatum
Thuja plicata
Thymus pseudolanuginosus
Thymus **serpyllum**
Thysanocarpus curvipes
Thysanocatpus elegans
Thysanocarpus radians
Tiarella laciniata
Tiarella **trifoliata**
Tilia americana
Tilia cordata
Tilia **platyphyllos**
Tillaea **aquatica**
Tithymalus crenulatus
Tium **sheldoni**
Tofieldia glutinosa
Tofieldia occidentalis
Tofieldia pusilla
Tolmiea menziesii
Tonella floribunda
Tonella tenella
Torilis arvensis
Torilis nodosa
Torreyochloa **pallida**
Townsendia alpigena
Townsendia **condensata**
Townsendia exscapa
Townsendia florifer
Townsendia grandiflora
Townsendia **hookeri**
Townsendia incana
Townsendia leptotes
Townsendia mensana
Townsendia nuttallii
Townsendia **parryi**
Townsendia scapigera
Townsendia spathulata
Toxicodendron altissimum
Toxicodendron diversilobum
Toxicodendron quercifolium
Toxicodendron **radicans**
Toxicodendron rydbergii
Trachelium caeruleum
Tradescantia X andersoniana
Tradescantia bracteata
Tradescantia occidentalis
Tragopogon dubius
Tragopogon **mirus**
Tragopogon miscellus
Tragopogon porrifolius
Tragopogon pratensis
Trautvetteria caroliniensis
Tribulus terrestris
Trichostema lanceolatum
Trichostema laxum
Trichostema oblongum
Tridax **procumbens**
Trientalis **arctica**
Trientalis latifolia
Trifolium agrarium
Trifolium albopurpureum
Trifolium amplectens
Trifolium andersonii
Trifolium arcuatum
Trifolium arvense
Trifolium **barnebyi**
Trifolium beckwithii
Trifolium **breweri**
Trifolium **ciliolatum**
Trifolium cyathiferum
Trifolium dasyphyllum
Trifolium depauperatum
Trifolium douglasii
Trifolium dubium
Trifolium eriocephalum
Trifolium fimbriatum
Trifolium fi-agiferum
Trifolium **fucatum**
Trifolium gymnocarpon
Trifolium hallii
Trifolium **hanseni**
Trifolium hameyense
Trifolium haydenii

Trifolium howellii
Trifolium hybridum
Trifolium incamatum
Trifolium kingii
Trifolium latifolium
Trifolium leibergii
Trifolium longipes
Trifolium macrocephalum
Trifolium microcephalum
Trifolium **microdon**
Trifolium multipedunculatum
Trifolium nanum
Trifolium oliganthum
Trifolium oreganum
Trifolium owyheense
Trifolium **parryi**
Trifolium plumosum
Trifolium pratense
Trifolium **procumbens**
Trifolium productum
Trifolium **repens**
Trifolium resupinatum
Trifolium subterraneum
Trifolium thompsonii
Trifolium tridentatum
Trifolium variegatum
Trifolium wormskjoldii
Triglochin concinnum
Triglochin maritimum
Triglochin palustre
Trillium albidum
Trillium cemuum
Trillium chloropetalum
Trillium gleasonii
Trillium kurabayashii
Trillium ovatum
Trillium parviflorum
Trillium parvifolium
Trillium petiolatum
Trillium **rivale**
Trimorpha **elata**
Triodanis leptocarpa
Triodanis perfoliata
Triphysaria versicolor
Triplasis purpurea
Trisetum canescens
Trisetum cemuum
Trisetum flavescens
Trisetum montanum
Trisetum orthochaetum
Trisetum spicatum
Trisetum **wolfii**
Triteleia crocea
Triteleia hendersonii
Triteleia ixioides
Tritellia crocea
Triticum aestivum
Trollius albiflorus
Trollius **laxus**
Tsuga heterophylla
Tsuga mertensiana
Turritis glabra
Tussilago **farfara**
Typha X glauca
Typha angustifolia
Typha domingensis
Typha latifolia
Ulex europaeus
Ulmus americana
Ulmus carpinifolia
Ulmus davidiana
Ulmus glabra
Ulmus parviflora
Ulmus pumila
Ulmus **rubra**
Ulmus **thomasi**
Umbellularia californica
Urochloa panicoides
Urtica breweri
Utica dioica
Urtica gracilis
Urtica holosericea
Urtica lyallii
Urtica urens
Utricularia intermedia
Utricularia minor
Utricularia **vulgaris**
Uvularia grandiflora
Uvularia sessilifolia
Vaccaria pyramidata
Vaccinium X nubigenum
Vaccinium alaskaense
Vaccinium arbuscula
Vaccinium cespitosum
Vaccinium coccineum
Vaccinium creophilium
Vaccinium deliciosum
Vaccinium globulare
Vaccinium macrocarpon
Vaccinium membranaceum
Vaccinium **myrtilloides**
Vaccinium myrtillus
Vaccinium occidentale
Vaccinium ovalifolium
Vaccinium ovatum
Vaccinium oxycoccos
Vaccinium parvifolium
Vaccinium scoparium
Vaccinium uliginosum
Valeriana acutiloba
Valeriana columbiana
Valeriana dioica
Valeriana edulis
Valeriana micrantha
Valeriana occidentalis
Valeriana officinalis
Valeriana scouleri
Valeriana sitchensis
Valerianella aphanoptera
Valerianella carinata
Valerianella **congesta**
Valerianella **locusta**
Vallisneria americana
Vancouveria chrysantha
Vancouveria hexandra
Vancouveria planipetala
Ventenata dubia
Veratrum californicum
Veratrum eschscholtzii
Veratrum insolitum
Veratrum viride
Verbascum blattaria
Verbascum thapsus
Verbascum virgatum
Verbena bipinnatifida
Verbena bracteata
Verbena hastata
Verbena lasiostachys
Verbena prostrata
Verbena **stricta**
Verbena urticifolia
Verbesina encelioides
Vemonia fasciculata
Veronica americana
Veronica anagallis-aquatic-a
Veronica arvensis
Veronica biloba
Veronica **catenata**
Veronica chamaedrys
Veronica copelandii
Veronica cusickii
Veronica **filiformis**
Veronica gentianoides
Veronica hederaefolia
Veronica longifolia
Veronica officinalis
Veronica peregrina
Veronica **persica**
Veronica scutellata
Veronica serpyllifolia
Veronica tiphyllos
Veronica vema

Veronica wormskjoldii
Veronicastrum virginicum
Viburnum X burkwoodii
Viburnum **acerifolium**
Viburnum carlesii
Viburnum dilatatum
Viburnum edule
Viburnum ellipticum
Viburnum lanata
Viburnum **lentago**
Viburnum opulus
Viburnum **pauciflorum**
Viburnum rafinesquianum
Viburnum rhytidophyllum
Viburnum **tinus**
Vicia americana
Vicia califomica
Vicia cracca
Vicia exigua
Vicia faba
Vicia gigantea
Vicia hirsuta
Vicia oregana
Vicia pannonica
Vicia sativa
Vicia tetrasperma
Vicia **trifida**
Vicia tnmcata
Vicia villosa
Viguiera multiflora
Vinca major
Viola adunca
Viola arvensis
Viola baker-i
Viola beckwithii
Viola canadensis
Viola cascadensis
Viola conspersa
Viola cuneata
Viola **douglasii**
Viola flavovirens
Viola flettii
Viola glabella
Viola hallii
Viola howellii
Viola lanceolata
Viola **langsdorfii**
Viola lobata
Viola macloskeyi
Viola montanensis
Viola nephrophylla
Viola nuttallii
Viola occidentalis
Viola ocellata
Viola odorata
Viola orbiculata
Viola palustris
Viola **pedatifida**
Viola pratincola
Viola **pubescens**
Viola purpurea
Viola **quercetorum**
Viola **rafinesquii**
Viola **renifolia**
Viola retroscabra
Viola selkirkii
Viola sempervirens
Viola septentrionalis
Viola sheltonii
Viola sororia
Viola trinervata
Viola uncinulata
Viola utahensis
Vitis califomica
Vitis **riparia**
Vitis vinifera
Vitis vulpina
Waldsteinia idahoensis
Whipplea modesta
Wolffia columbiana
Wolffia punctata
Wolffiella floridana
Woodsia **oregana**
Woodsia scopulia
Woodsia scopulina
Woodwardia **fimbriata**
Wyethia X cusickii
Wyethia amplexicaulis
Wyethia angustifolia
Wyethia **helenioides**
Wyethia helianthoides
Wyethia mollis
Wyethia scabra
X Agrohordeum macounii
X Elyhordeum X **macounii**
X **Elyhordeum** X montanense
X Elyhordeum dakotense
X Elyleymus X **aristatus**
Xanthium affine
Xanthium saccharatum
Xanthium spinosum
Xanthium strumarium
Xerophyllum **tenax**
Xylorhiza glabriuscula
Yermo xanthocephalus
Yucca **filamentosa**
Yucca glauca
Zannichellia palustris
Zanthoxylum americanum
Zauschneria califomica
Zauschneria latifolia
Zigadenus elegans
Zigadenus fremontii
Zigadenus micranthus
Zigadenus paniculatus
Zigadenus venenosus
Zizania **aquatica**
Zizia **aptera**
Zizia **aurea**
Zostera marina
Zostera **nana**
Zosterella dubia
Zoysia tenuifolia
Zygophyllum fabago